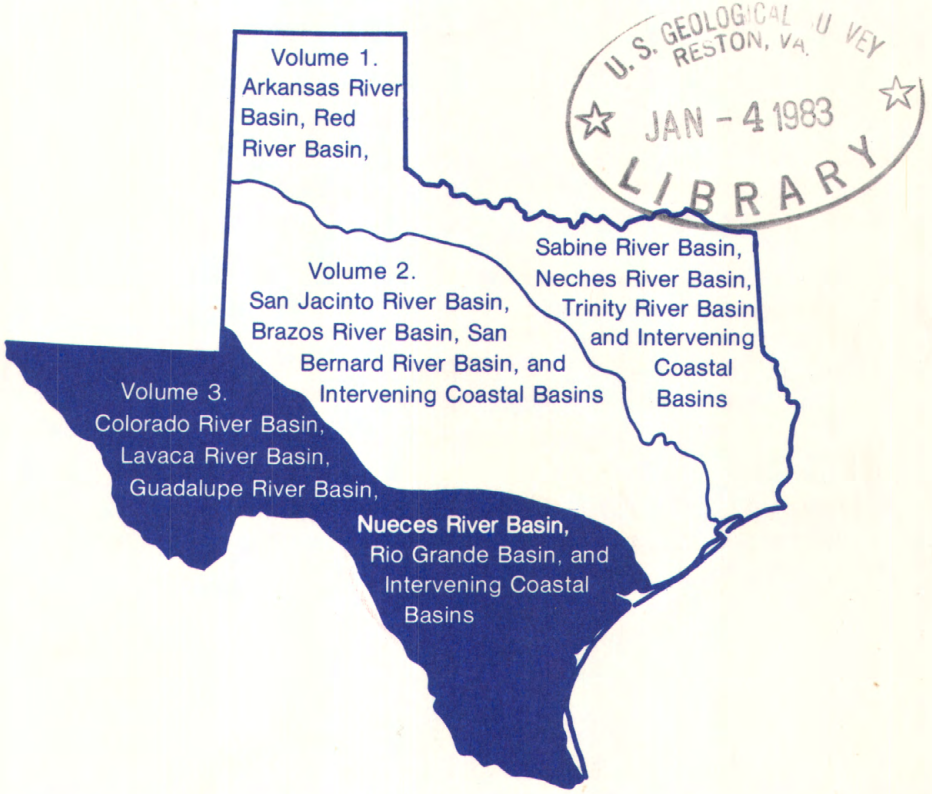
Water Resources Data Texas Water Year 1981

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-81-3
Prepared in cooperation with the State of Texas
and with other agencies

CALENDAR FOR WATER YEAR 1981

1980

OCTOBER

S	M	T	W	T	F	S
			1	2	3	4
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DECEMBER

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1981

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JUNE

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AUGUST

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SEPTEMBER

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20	21	22	23	24	25	26
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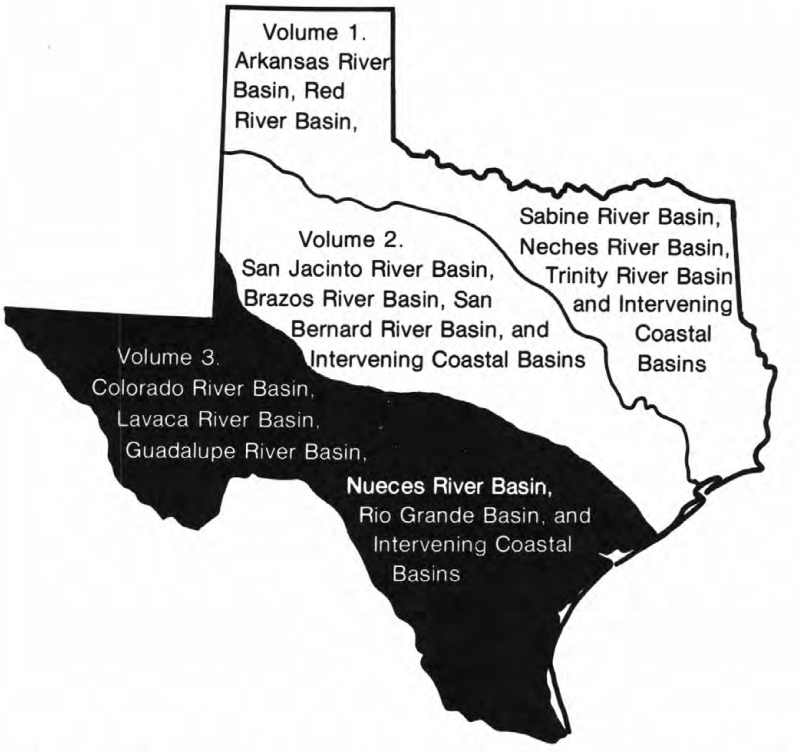
Water Resources Data
Texas
Water Year 1981

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-81-3
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

Compiled by

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

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Austin, Texas 78701

1982

Preface

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

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

Data for Texas are in three volumes as follows:

Volume 1. Arkansas River basin, Red River basin, Sabine River basin, Neches River basin, Trinity River basin, and intervening and adjacent Coastal basins

Volume 2. San Jacinto River basin, Brazos River basin, San Bernard River basin, and intervening Coastal basins

Volume 3. Colorado River basin, Lavaca River basin, Guadalupe River basin, Nueces River basin, Rio Grande basin, and intervening Coastal basins

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16. Abstract (Limit: 200 words)

Surface-water data for the 1981 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

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b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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Department of Commerce

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WATER RESOURCES DATA, TEXAS, WATER YEAR 1981

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

INTRODUCTION

Surface-water data for Texas for the 1981 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-81-3." 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 1981 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 Gological 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, 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 Industrial Water Authority; Colorado River Municipal Water District; Dallas County; Dallas Public Works Department; Dallas Utilities Water Department; Edwards Underground Water District; Franklin County Water District; Galveston County; Greenbelt Municipal and Industrial Water Authority; Guadalupe-Blanco River Authority; Harris County Flood Control District; 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; Nueces River Authority; Orange County; Palo Pinto County Municipal Water District; 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; Tom Green County Water Control and Improvement District No. 1; Trinity River Authority; Upper Guadalupe River Authority; Upper Neches River Municipal Water Authority; Upper Trinity Basin Water Quality Compact; West Central Texas Municipal Water District; Wichita County Water Improvement District No. 2; and Wood County.

HYDROLOGIC CONDITIONS

Large variations in rainfall and runoff characterize the usual hydrologic conditions in Texas. In the 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 1981 water year, runoff for the index station North Concho River near Carlsbad, located in west Texas, was in the normal range for the year. Runoff for the index station Guadalupe River at Spring Branch, located in south-central Texas, was in the excessive range, with a mean discharge of 272 percent of the long-term median. The runoff was deficient for the index stations in central Texas and in east Texas. A comparison of monthly and annual mean discharges for the index stations is shown in figure on 1 on page 28. Conservation storage in a selected group of 70 reservois throughout the State, with a combined conservation capapcity of 31,612,620 acre-feet, increased from 73 percent at the end of September 1980 to 82 percent at the end of September 1981. Records from the 70 reservoirs show that contents increased in 57, decreased in 11, and remained the same in 2.

At the beginning of the 1981 water year, streamflow was in the deficient range in the panhandle and the upper Brazos River basin, excessive (within the highest 25 percent of record) in parts of the Guadalupe River basin in south-central Texas, and about normal in the remainder of the State. At the end of December, accumulated rainfall was less than normal over most of the State, with deficient runoff conditions existing in the entire northeastern one-half of the State. While drought conditions continued through May in northeast Texas, heavy localized rainfall caused severe flooding in parts of south-central Texas during late May. A Memorial Day storm (May 30) produced as much as 10 inches of rainfall in the northwestern part of Austin. The disastrous flood that followed was the worse to occur in that part of the city in at least 60 years.

By the end of June, heavy rain storms covered much of the State, producing excessive runoff in the eastern one-half, with drought conditions existing only in the panhandle of north Texas. For the remainder of the water year, rainfall throughout the State generally was minimal. At the end of September, most of the State had normal runoff conditions, with excessive runoff occurring only in the the coastal areas of the Guadalupe, San Antonio, and Nueces River. Deficient runoff conditions existed only in the upper Brazos and Red River basins of north Texas.

DEFINITION OF TERMS

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

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

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

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

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

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

> Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C ± 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 ± 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°C ± 1.0°C on M-enterrococcus 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°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in g/m^3 (grams per cubic meter), and periphyton and benthic organisms in g/m^2 (grams per square meter).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°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 mg/m² (milligrams per square meter) to the mass of chlorophyll a, in mg/m².

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 foor per second (FT³/S, ft³/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 μm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

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 ($CaCO_3$).

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 (µg/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, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

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

Clasification	Size (mm)	Method of analysis
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 (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

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

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

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

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/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 baceria, 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 usuage, 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 (ft^3/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 emersed 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 μm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures 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 μm membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total." Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

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 (ft^3/s), times the mg/L of the constituent, times the factor 0.0027, times the number of days.

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

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

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

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

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

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

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

DOWNSTREAM ORDER AND STATION NUMBER

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

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

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

SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

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

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening mesurements, 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 condenced history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITIONS OF TERMS" on page 9.

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

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

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

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

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

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

Accuracy of field data and computed results

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

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

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft^3/s; to tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and

1,000 ft^3/s; and to 3 significant figures above 1,000 ft^3/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 partialrecord stations.

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

Other data available

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

Records of discharge collected by agencies other than the Geological Survey

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

EXPLANATION OF SURFACE-WATER QUALITY RECORDS

Collection and examination of data

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

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

Water analysis

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

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

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

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

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

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

Water temperature

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

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

Sediment

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

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

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

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

PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

1-D1. *Water temperature-influential factors, field measurements, and data presentation,* by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 p.

3-A1. *General field and office procedures for indirect measurements,* by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 p.

3-A2. *Measurement of peak discharge by the slope-area methods,* by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 p.

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

3-A4. *Measurement of peak discharge at width contractions by indirect methods,* by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 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-A11. *Measurement of discharge by moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 p.

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

3-C2. *Field methods for measurement of fluvial sediment,* by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 p.

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

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

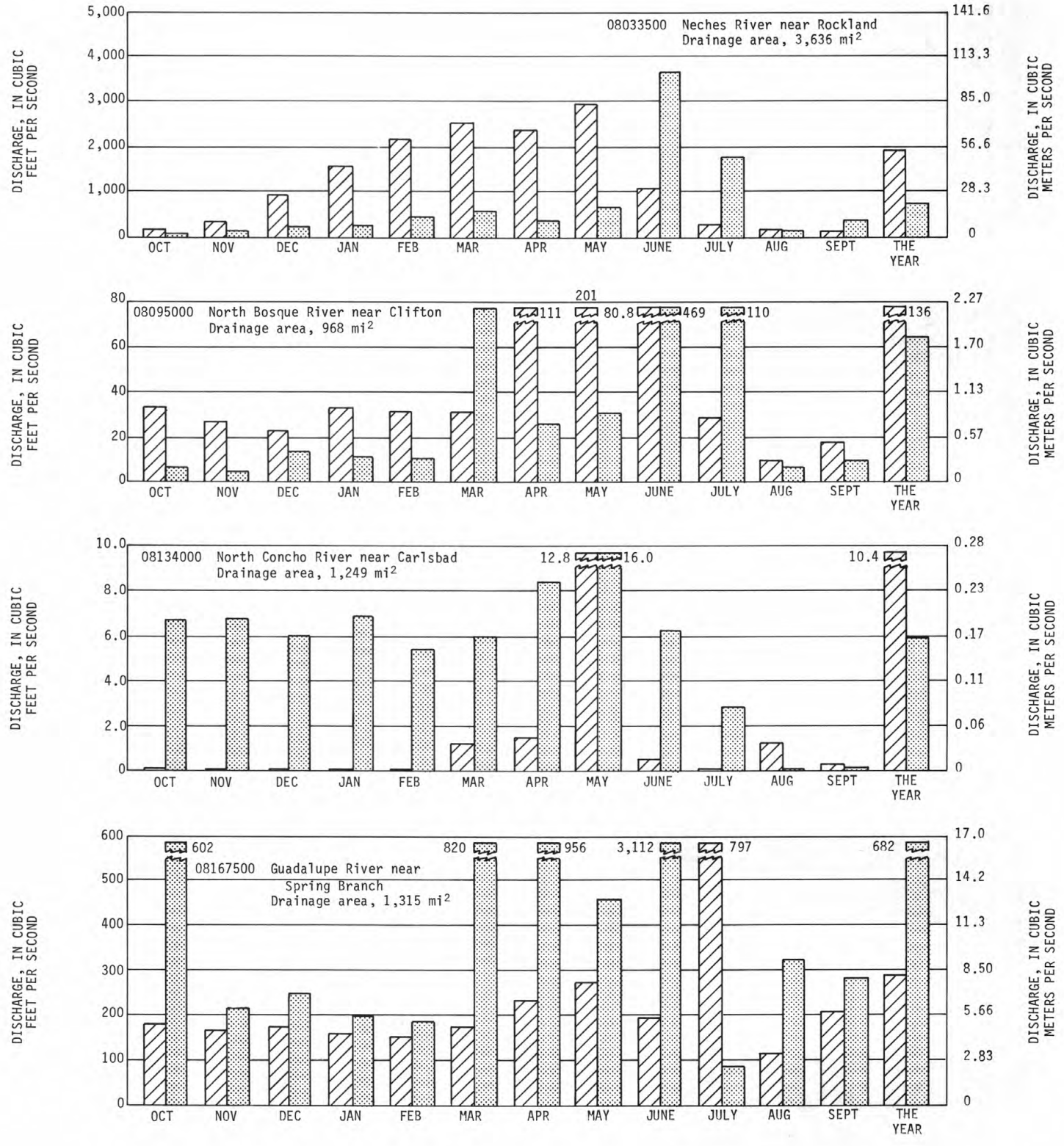

FIGURE 1.--COMPARISON OF DISCHARGE AT FOUR LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 1981 WATER YEAR WITH MEDIAN DISCHARGE FOR THE PERIOD 1951-80

08118000 LAKE J. B. THOMAS NEAR VINCENT, TX

LOCATION.--Lat 32°35'09", long 101°12'18", Borden County, Hydrologic Unit 12080002, at Big Spring pump station on south side of lake, 4.0 mi (6.4 km) upstream from dam on Colorado River, 7.3 mi (11.7 km) north of Vincent, 12.5 mi (20.1 km) west of Ira, and at mile 841.0 (1,353.2 km).

DRAINAGE AREA (revised).--3,389 mi² (8,778 km²), of which 2,371 mi² (6,141 km²) probably is noncontributing. Drainage area includes 455 mi² (1,178 km²) above Bull Creek diversion dam, of which 38 mi² (98 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder and nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929. Nov. 4, 1953, to Feb. 7, 1955, Colorado River Municipal Water District nonrecording gage located 4.0 mi (6.4 km) downstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam, 14,500 ft (4,420 m) long. Storage began in July 1952 and the dam was completed in September 1952. There was no appreciable storage prior to July 1953. The capacity curve is based on surveys made in 1948 and 1950. There are two uncontrolled emergency spillways, both cut through natural ground and located as follows: The first is a 500-foot (150 m) wide cut located at the left end of dam, and the second cut is 1,600 ft (488 m) wide located at the right end of dam. These spillways are designed to discharge 161,000 ft³/s (4,560 m³/s) at an elevation of 2,275.0 ft (693.42 m). An uncontrolled rectangular concrete drop inlet, 38.0 by 53.0 ft (11.6 by 16.2 m) at the crest, discharges into two 10.0-foot (3.0 m) concrete conduits. In addition, there is an outlet that can release water through a 24-inch (610 mm) gate into a 30-inch (762 mm) concrete pipe. The dam was built by the Colorado River Municipal Water District to impound water for municipal and industrial supply for the cities of Big Spring, Odessa, and Snyder. A diversion dam on Bull Creek diverts water through a 13,000-foot-long (3,960 m) gravity canal into Lake J. B. Thomas. These diversions began in November 1953. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	2,280.0	-
Crest of right spillway (south)	2,267.0	283,600
Crest of left spillway (north)	2,264.0	255,000
Crest of drop inlet (top of conservation pool)	2,258.0	203,600
Lowest gated outlet (invert)	2,200.0	1,300

COOPERATION.--Area and capacity curves and record of diversions were furnished by the Colorado River Municipal Water District. Daily elevation record was furnished by the Colorado River Municipal Water District and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 218,600 acre-ft (270 hm³) Sept. 8, 1962, elevation, 2,259.85 ft (688.802 m); minimum since first appreciable storage, 4,960 acre-ft (6.12 hm³) May 28, 1971, elevation, 2,206.43 ft (672.520 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 66,870 acre-ft (82.5 hm³) Apr. 24-26 at 2400 hours, elevation, 2,233.65 ft (680.817 m); minimum, 53,650 acre-ft (66.2 hm³) Sept. 30, elevation, 2,229.83 ft (679.652 21 m).

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

2,229.0	50,990	2,232.0	60,930
2,230.0	54,190	2,234.0	68,150

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65950	63380	61600	61710	60000	58870	56800	66610	64050	62780	58770	56240
2	65950	63310	61530	61640	59900	58910	56770	66500	63950	62670	58630	56210
3	65950	63240	61500	61570	59870	58870	56540	66460	64270	62530	58490	56140
4	65950	63130	61460	61500	59830	58730	56370	66390	64990	62530	58320	56180
5	65910	63060	61430	61460	59730	58730	56310	66280	65840	62420	58190	56040
6	65840	62950	61430	61360	59730	58700	56210	66200	65950	62310	58080	55940
7	65760	62920	61680	61390	59700	58630	56110	66170	65950	62170	57950	55910
8	65690	62810	62310	61390	59630	58560	56040	66020	65870	62030	57840	55810
9	65650	62740	63020	61360	59590	58530	56010	66020	65760	61850	57740	55750
10	65580	62670	63020	61320	59560	58530	55940	66020	65690	61750	57740	55680
11	65470	62560	63020	61250	59490	58490	55880	65950	65580	61640	57740	55580
12	65400	62490	62990	61140	59420	58460	55810	65840	65430	61500	57710	55510
13	65290	62460	62920	61070	59350	58430	55710	65760	65290	61390	57670	55410
14	65210	62310	62880	61000	59320	58360	56640	65620	65100	61250	57570	55320
15	65140	62240	62850	60970	59280	58320	57300	65510	64960	61070	57470	55180
16	65030	62420	62780	60900	59220	58220	57500	65360	64770	60930	57640	55050
17	64920	62350	62740	60790	59220	58150	57910	65250	64660	60760	57600	54890
18	64880	62240	62710	60760	59180	58050	58050	65100	64550	60590	57600	54790
19	64770	62240	62530	60720	59110	57980	58120	65030	64440	60480	57530	54650
20	64700	62170	62390	60690	59040	57810	58080	64920	64300	60350	57470	54590
21	64660	62140	62350	60620	58940	57670	59560	64770	64160	60210	57370	54490
22	64590	62070	62280	60550	58870	57640	66170	64630	64050	60040	57200	54390
23	64370	62000	62240	60520	58840	57570	66760	64520	63910	59900	57070	54290
24	64200	62000	62170	60480	58800	57500	66870	64370	63810	59700	57000	54190
25	64130	61960	62140	60420	58730	57370	66870	64300	63700	59560	56900	54090
26	64020	61850	62070	60380	58700	57330	66870	64200	63560	59420	56840	53970
27	63950	61820	62030	60350	58770	57330	66830	64050	63380	59280	56710	53930
28	63700	61780	62000	60280	58870	57100	66790	64020	63200	59180	56640	53810
29	63590	61750	61890	60240	---	57040	66760	64020	63100	59080	56540	53740
30	63520	61680	61820	60180	---	56940	66680	64090	62950	59040	56440	53650
31	63420	---	61750	60070	---	56870	---	64130	---	58910	56370	---
MAX	65950	63380	63020	61710	60000	58910	66870	66610	65950	62780	58770	56240
MIN	63420	61680	61430	60070	58700	56870	55710	64020	62950	58910	56370	53650
(†)	2232.70	2232.21	2232.23	2231.75	2231.40	2230.81	2233.60	2232.90	2232.57	2231.41	2230.66	2229.83
(‡)	-1240	-1740	+70	-1680	-1200	-2000	+9810	-2550	-1180	-4040	-2540	-2720
(††)	1200	1360	1320	1380	997	1290	1560	1470	1610	1650	1160	1220

CAL YR 1980 MAX 65950 MIN 11710 ‡ +44690 †† 10440
WTR YR 1981 MAX 66870 MIN 53650 ‡ -11010 †† 16220

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal, industrial, and mining use.

08118000 LAKE J. B. THOMAS NEAR VINCENT, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 19...	0740	390	6.0	100	0	30	6.2	42

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 19...	1.8	4.9	120	40	24	.4	7.7	227

08119500 COLORADO RIVER NEAR IRA, TX

LOCATION.--Lat 32°32'18", long 101°03'12", Scurry County, Hydrologic Unit 12080002, on right bank 530 ft (162 m) downstream from bridge on State Highway 350, 3.8 mi (6.1 km) downstream from Bluff Creek, 4 mi (6 km) upstream from Willow Creek, 4.5 mi (7.2 km) southwest of Ira, and at mile 826.3 (1,329.5 km).

DRAINAGE AREA (revised).--3,483 mi² (9,021 km²), of which 1,112 mi² (2,880 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1947 to September 1952 (monthly records only 1950-52), October 1958 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,134.15 ft (650.489 m) National Geodetic Vertical Datum of 1929. Oct. 1-30, 1947, nonrecording gage at site 75 ft (23 m) upstream at same datum.

REMARKS.--Water-discharge records good. Since July 1952, flow has largely been regulated by Lake J. B. Thomas (station 08118000) 11 mi (17.7 km) upstream.

AVERAGE DISCHARGE.--5 years (water years 1948-52) prior to completion of Colorado River Dam, 50.5 ft³/s (1.430 m³/s), 36,590 acre-ft/yr (45.1 hm³/yr); 23 years (water years 1959-81) partially regulated, 10.2 ft³/s (0.289 m³/s), 7,390 acre-ft/yr (9.11 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,500 ft³/s (581 m³/s) July 6, 1948, gage height, 21.35 ft (6.507 m), from rating curve extended above 9,600 ft³/s (272 m³/s) by slope-conveyance method; maximum gage height, 22.84 ft (6.962 m) May 15, 1980 (from shift in rating); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 16, 1913, gage height, 32 ft (9.8 m), was the greatest since at least that date, from information by local resident. Flood in May 1947 reached a stage of 25.1 ft (7.65 m), from floodmark at site of former bridge 269 ft (82 m) upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 329 ft³/s (9.32 m³/s) Apr. 22 at 0300 hours, gage height, 6.28 ft (1.914 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	.68	.53	.42	.47	1.4	.20	.85	2.0	.00	.00	.00
2	13	.68	.54	.41	.43	.86	.20	.75	.85	.00	.00	.00
3	7.8	.69	.38	.42	.43	.94	.20	.71	1.5	.00	.00	.00
4	3.8	.65	.40	.42	.47	.75	.16	.69	97	.05	.00	1.4
5	2.7	.57	.47	.44	.50	.55	.16	.80	35	.06	.00	.31
6	2.0	.59	.49	.46	.54	.47	.15	.61	5.5	.04	.00	.46
7	1.8	.58	2.0	.42	.55	.53	.17	.94	2.0	.04	.00	3.7
8	1.7	.53	13	.60	.52	.47	.18	1.1	1.4	.04	.00	1.0
9	1.5	.51	8.6	.74	.61	.48	.19	.66	.85	.04	.00	.21
10	1.4	.52	3.6	.67	.56	.54	.18	.40	.48	.04	.00	.18
11	1.3	.52	1.8	.58	.49	.65	.18	.31	.36	.04	.00	.11
12	1.2	.56	1.4	.50	.44	.61	.15	.24	.18	.04	.00	.07
13	1.2	.61	1.2	.50	.44	.50	.15	.21	.18	.03	.00	.07
14	1.2	.62	.89	.48	.47	.46	2.1	.13	.12	.03	.00	.06
15	1.1	.57	.78	.48	.48	.45	5.0	.19	.06	.03	.00	.06
16	.97	1.4	.68	.45	.50	.40	1.9	.13	.03	.03	.00	.05
17	1.0	1.9	.63	.38	.43	.35	50	.12	.02	.03	.05	.04
18	1.1	1.6	.62	.55	.46	.28	38	.08	.02	.02	.04	.04
19	.91	1.3	.51	.60	.44	.27	4.0	.04	.02	.02	.04	.03
20	.84	1.0	.41	.58	.39	.28	3.7	.03	.01	.00	.03	.03
21	.85	.60	.42	.52	.39	.25	120	.03	.01	.00	.03	.03
22	.83	.61	.49	.47	.33	.25	159	.05	.01	.00	.03	.03
23	.80	.55	.54	.48	.35	.26	38	.03	.00	.00	.03	.03
24	.70	.48	.50	.46	.32	.26	7.5	.03	.00	.00	.02	.03
25	.69	1.1	.49	.54	.35	.28	3.7	.06	.00	.00	.02	.03
26	.67	1.4	.54	.53	.38	.28	2.0	.11	.00	.00	.02	.03
27	.65	.92	.53	.53	.46	.34	1.6	.07	.00	.00	.00	.02
28	.59	.53	.54	.53	1.6	.26	1.3	.03	.00	.00	.00	.02
29	.60	.44	.51	.50	---	.24	1.1	.46	.00	.00	.00	.02
30	.64	.55	.41	.47	---	.21	.91	54	.00	.00	.00	.02
31	.67	---	.43	.47	---	.22	---	9.0	---	.00	.00	---
TOTAL	70.21	23.26	44.33	15.60	13.80	14.09	442.08	72.86	147.60	.58	.31	8.08
MEAN	2.26	.78	1.43	.50	.49	.45	14.7	2.35	4.92	.019	.010	.27
MAX	16	1.9	13	.74	1.6	1.4	159	54	97	.06	.05	3.7
MIN	.59	.44	.38	.38	.32	.21	.15	.03	.00	.00	.00	.00
AC-FT	139	46	88	31	27	28	877	145	293	1.2	.6	16

CAL YR 1980	TOTAL	7420.51	MEAN	20.3	MAX	2900	MIN	.00	AC-FT 14720
WTR YR 1981	TOTAL	852.80	MEAN	2.34	MAX	159	MIN	.00	AC-FT 1690

08119500 COLORADO RIVER NEAR IRA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--Chemical analyses: November 1958 to September 1970, November 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1958 to September 1970, November 1974 to current year.
WATER TEMPERATURES: November 1958 to September 1970, November 1974 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 87,800 micromhos May 8, 1960; minimum daily, 211 micromhos Sept. 28, 1980.
WINTER TEMPERATURES: Maximum daily, 36.0°C July 23, 24, 1969, June 12, 1978; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 29,400 micromhos Sept. 6; minimum daily, 1,250 micromhos Apr. 17.
WATER TEMPERATURES: Minimum daily, 0.0°C Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 01...	1005	15	6190	20.0	610	470	150	58	1100
FEB 11...	1246	.65	17300	.0	2000	1800	450	220	3300
APR 23...	0924	40	2390	17.0	390	290	100	35	320
MAY 19...	1235	.05	19800	19.0	1800	1700	400	190	4200
SEP 09...	1540	.25	15600	22.0	1200	1100	290	110	3100

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 01...	19	13	130	350	1900	.3	8.6	3660
FEB 11...	32	17	210	1500	5400	.5	1.3	11000
APR 23...	7.0	7.4	100	98	620	.4	8.1	1250
MAY 19...	43	18	130	1500	6600	.5	1.7	13000
SEP 09...	39	12	90	1000	5400	.7	9.1	9980

08119500 COLORADO RIVER NEAR IRA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	70.21	12800	8110	1540	4100	782	880	167	*
NOV.	1980	23.26	19300	12300	774	6300	396	1300	82	*
DEC.	1980	44.33	9670	6060	725	3100	366	680	81	800
JAN.	1981	15.60	16400	10400	438	5300	223	1100	47	*
FEB.	1981	13.80	17400	11100	413	5600	210	1200	44	*
MAR.	1981	14.09	16000	10100	386	5200	196	1100	42	*
APR.	1981	442.08	2690	1660	1980	830	990	190	231	230
MAY	1981	72.86	3740	2320	456	1200	229	270	52	310
JUNE	1981	147.60	2100	1290	513	640	256	150	60	180
JULY	1981	0.58	18800	12000	19	6100	9.6	1300	2.0	*
AUG.	1981	0.31	22100	14200	12	7300	6.1	1500	1.2	*
SEPT	1981	8.08	19500	12500	272	6400	139	1300	29	*
TOTAL		852.80	**	**	7520	**	3800	**	839	**
WTD. AVG.		2.3	5210	3270	**	1700	**	360	**	430

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5970	23400	17300	16000	18100	13600	20100	9510	2810	---	---	---
2	8180	23000	18100	16100	17500	13800	20700	10300	4500	---	---	---
3	10000	22800	18300	16200	17800	15600	20500	10800	4000	---	---	---
4	11900	22900	18200	16500	17200	16200	22500	11500	1700	18400	---	25000
5	13000	22700	18400	16400	17500	16300	21600	11400	2150	17800	---	14100
6	14400	22400	18400	16800	17400	16900	21000	11600	3400	16500	---	29400
7	15600	22800	16500	16600	17200	15400	21200	12000	4030	16700	---	17500
8	16900	23200	7740	16800	16900	15300	21300	10700	4920	16800	---	14200
9	17800	23500	7500	16700	16600	15100	22300	10900	6230	17100	---	14800
10	18900	23300	7170	15800	16500	14900	22200	11300	7430	17800	---	16600
11	19300	23400	7860	15100	17300	14900	22000	12000	8870	18200	---	22400
12	19400	23500	7830	15600	18400	14800	21900	12900	10200	18900	---	23800
13	20300	23600	7740	15900	16400	14500	21700	13700	11500	19600	---	27500
14	20900	23600	8130	16400	16800	14300	13800	15300	13400	20000	---	24500
15	21000	23000	8990	16800	16700	14900	10200	15200	13900	20900	---	21800
16	21600	21500	9590	16500	17400	15500	12800	15300	12700	21300	---	23300
17	21500	18300	9970	16700	17300	16400	1250	16800	14800	22000	14000	24200
18	22100	16600	10600	16500	17200	17200	1600	18600	15800	22900	19600	18700
19	21100	16200	11600	17300	17400	16600	3550	19700	16900	23500	22700	18200
20	21000	16300	12400	16600	17100	17600	3970	20000	17700	---	22900	20100
21	21500	17700	12800	16300	17500	18600	2800	19400	18600	---	23100	23100
22	22000	18300	13600	16800	18100	19100	2300	20700	18500	---	24000	22000
23	22400	19100	13500	15600	19000	18600	2360	20900	---	---	24700	22700
24	23100	18800	13300	16000	19400	18800	3360	21800	---	---	26000	26000
25	22500	13800	13900	16300	19100	20100	4590	21500	---	---	26900	23500
26	22600	12300	13500	16600	18800	19300	6040	22200	---	---	27500	25100
27	23100	16300	13800	16700	18400	19000	6690	22000	---	---	---	25200
28	24200	16400	14100	16400	16800	18800	7420	22600	---	---	---	27900
29	23600	17100	14400	16200	---	19800	8730	16300	---	---	---	27500
30	23400	17000	14800	16700	---	19400	8970	2500	---	---	---	25400
31	23900	---	15100	17200	---	20100	---	1900	---	---	---	---
MEAN	19100	20100	12700	16400	17600	16800	12600	14900	9730	19300	23100	22400

08119500 COLORADO RIVER NEAR IRA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	9.0	8.0	5.0	3.0	11.5	21.0	20.0	22.0	---	---	---
2	17.0	9.0	4.0	5.5	7.0	11.0	13.0	20.5	22.5	---	---	---
3	16.0	11.0	4.5	5.5	1.5	14.0	19.5	20.0	22.0	---	---	---
4	19.0	11.5	15.0	4.5	5.5	9.5	8.0	19.0	20.0	29.0	---	28.0
5	18.0	12.5	10.5	7.5	3.5	18.0	21.5	20.0	22.5	23.0	---	23.0
6	19.5	11.0	14.0	5.5	5.0	10.0	11.5	18.5	32.0	30.0	---	22.5
7	19.0	12.5	16.0	3.5	3.0	18.0	11.0	19.0	24.0	---	---	22.0
8	18.0	11.0	11.0	7.0	6.0	7.0	19.5	20.0	24.5	---	---	21.0
9	17.0	10.0	7.0	7.5	8.5	7.5	15.0	16.0	24.0	---	---	18.0
10	27.5	15.5	6.0	8.0	8.0	7.5	25.0	12.5	24.0	---	---	19.0
11	23.5	19.0	4.5	7.5	.0	11.0	29.0	15.0	24.0	---	---	33.0
12	14.0	12.5	7.0	7.0	.5	10.0	19.0	16.0	24.0	---	---	23.0
13	16.0	15.0	7.0	6.0	10.5	19.0	22.5	19.0	23.0	---	---	21.5
14	17.0	10.0	7.5	2.5	5.0	10.0	16.5	14.0	34.0	---	---	22.0
15	20.0	8.0	6.0	3.0	6.5	---	12.0	16.5	24.0	---	---	---
16	19.0	3.0	6.0	3.5	6.0	10.5	13.0	17.0	16.0	---	---	18.0
17	16.0	1.5	6.5	1.5	7.5	8.5	16.5	16.5	14.0	---	24.0	21.0
18	17.5	1.5	6.5	1.0	11.5	6.5	18.0	14.0	20.0	---	22.0	15.0
19	14.0	2.5	4.0	3.0	8.0	5.0	18.5	12.5	23.0	---	---	20.0
20	17.5	4.0	3.0	1.0	15.5	9.0	17.5	15.5	---	---	---	---
21	13.5	5.0	2.0	2.0	---	9.0	20.0	19.0	23.0	---	---	28.0
22	22.5	9.5	2.0	2.0	5.0	7.0	17.0	20.5	31.0	---	---	18.0
23	16.0	8.0	11.0	2.0	15.0	6.5	17.0	20.0	---	---	---	21.5
24	10.0	7.0	8.0	3.0	17.0	8.0	19.0	17.0	---	---	---	30.0
25	7.5	4.0	1.0	5.0	9.0	15.5	16.0	16.0	---	---	---	21.0
26	13.5	1.5	2.0	7.0	14.5	8.0	30.0	19.5	---	---	---	26.0
27	17.0	4.0	2.5	4.0	17.0	14.0	23.0	20.5	---	---	---	19.0
28	7.5	12.0	5.0	4.0	12.5	16.5	20.5	23.0	---	---	---	27.0
29	6.0	13.0	7.0	6.0	---	21.0	31.0	21.0	---	---	---	29.0
30	6.0	6.0	3.0	3.0	---	14.0	21.5	19.0	---	---	---	20.5
31	8.0	---	4.0	5.5	---	12.0	---	19.5	---	---	---	---
MEAN	16.0	8.5	6.5	4.5	8.0	11.0	19.0	18.0	23.5	27.5	23.0	22.5

08120500 DEEP CREEK NEAR DUNN, TX

LOCATION.--Lat 32°34'25", long 100°54'27", Scurry County, Hydrologic Unit 12080002, at center of downstream side of bridge on Farm Road 1606, 1.5 mi (2.4 km) northwest of Dunn, 2.7 mi (4.3 km) upstream from Sulphur Draw, and 9.6 mi (15.4 km), revised, upstream from mouth.

DRAINAGE AREA.--198 mi^2 (513 km^2), of which 10 mi^2 (25.9 km^2) probably is noncontributing.

PERIOD OF RECORD.--April 1953 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,172.17 ft (662.077 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 21, 1955, nonrecording gage at same site and datum.

REMARKS.--Records good except those for Oct. 7 to Nov. 18 and Nov. 20 to Jan. 5, which are fair.

AVERAGE DISCHARGE.--28 years (water years 1954-81), 12.2 ft^3/s (0.346 m^3/s), 0.88 in/yr (22 mm/yr), 8,840 acre-ft/yr (10.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,700 ft^3/s (586 m^3/s) Aug. 14, 1972, gage height, 31.28 ft (9.534 m), from floodmarks, from rating curve extended above 12,000 ft^3/s (340 m^3/s) by velociy-area study; no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1881, 36,400 ft^3/s (1,030 m^3/s) June 19, 1939, by slope-area measurement at site 8.0 mi (12.9 km) upstream from gage. Flood in 1892 reached about same stage as that of June 19, 1939, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 850 ft^3/s (24.1 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 15	2030	1,470	41.6	13.82	4.212
May 9	1645	1,060	30.0	a11.12	3.389
June 3	1600	*2,810	79.6	19.89	6.062

a From floodmark.

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	2.0	2.0	1.5	1.3	3.1	.25	2.4	3.0	.40	.02	.05
2	10	2.0	2.0	1.2	.97	1.1	.25	2.0	2.6	.40	.02	.15
3	8.1	2.0	1.5	1.2	.92	.95	.08	1.7	3.5	.40	.01	.58
4	6.8	2.0	1.5	1.2	1.1	1.7	.25	10	1360	.33	.00	.80
5	5.6	2.0	1.0	1.2	1.2	.80	.05	5.0	159	21	.00	.15
6	5.0	2.0	1.0	1.2	1.0	.40	.02	1.3	37	4.4	.00	.03
7	4.0	2.0	1.5	.91	1.0	.40	.01	.95	14	1.8	.00	.01
8	4.0	2.0	30	1.1	1.4	.15	.04	460	8.4	.96	.01	.80
9	3.0	2.0	8.0	1.2	1.4	.25	.04	192	6.3	.95	.01	1.2
10	3.0	2.0	5.0	1.3	1.9	.40	.02	28	5.0	.52	.01	.82
11	2.5	1.5	3.0	1.1	.80	1.1	.03	10	4.6	.40	.01	.40
12	2.5	1.5	2.0	.88	.76	1.1	.05	6.3	4.0	.40	.03	.03
13	2.0	1.5	2.0	1.1	.72	.95	.06	4.6	4.0	.55	.05	.01
14	2.0	1.5	2.0	1.1	.59	.95	36	3.6	4.0	.53	.25	.00
15	2.0	1.5	2.0	.97	.82	.95	19	3.3	3.8	.40	.08	.00
16	2.0	1.5	2.0	.91	1.1	1.1	6.6	4.3	4.0	.40	.08	.01
17	2.0	6.3	2.0	.96	.93	.95	94	3.6	3.8	.40	.66	.08
18	2.0	8.6	2.0	1.1	1.0	.58	71	3.1	3.2	.25	.40	.25
19	2.0	4.5	2.0	1.3	.84	.11	57	2.7	3.0	.40	.15	.25
20	2.0	4.0	2.0	1.4	.88	.06	.92	2.3	2.4	.58	.25	.25
21	2.0	3.0	1.5	1.3	.85	.11	401	2.5	2.0	.58	.08	.03
22	2.0	2.0	1.5	1.1	.46	.25	270	2.6	2.0	.40	.02	.01
23	2.0	2.0	1.5	1.1	.50	.13	20	2.6	1.6	.15	.03	.00
24	2.0	2.0	1.5	1.2	.22	.58	5.5	2.8	1.1	.05	.08	.00
25	2.0	2.0	1.5	1.4	.15	.95	4.7	3.0	.40	.03	.05	.01
26	2.0	2.0	1.5	1.4	.15	.06	4.2	3.0	.40	.01	.03	.05
27	2.0	2.0	1.5	1.6	.42	.10	3.8	2.8	.40	.01	.00	.01
28	3.0	2.0	1.5	1.5	4.4	.15	5.0	2.4	.40	.25	.00	.00
29	2.0	2.0	1.5	1.2	---	.14	3.2	2.8	.40	.40	.00	.00
30	2.0	2.0	1.5	1.2	---	.25	2.8	9.5	.40	.15	.01	.00
31	2.0	---	1.5	1.2	---	.25	---	4.0	---	.03	.01	---
TOTAL	118.5	73.4	91.0	37.03	27.78	20.07	1005.87	785.15	1644.70	37.53	2.35	5.98
MEAN	3.82	2.45	2.94	1.19	.99	.65	33.5	25.3	54.8	1.21	.076	.20
MAX	25	8.6	30	1.6	4.4	3.1	401	460	1360	21	.66	1.2
MIN	2.0	1.5	1.0	.88	.15	.06	.01	.95	.40	.01	.00	.00
CFSM	.02	.01	.02	.006	.005	.003	.18	.14	.29	.006	.000	.001
IN.	.02	.01	.02	.01	.01	.00	.20	.16	.33	.01	.00	.00
AC-FT	235	146	180	73	55	40	2000	1560	3260	74	4.7	12

CAL YR 1980 TOTAL 12930.36 MEAN 35.3 MAX 5320 MIN .00 CFSM .19 IN 2.56 AC-FT 25650
WTR YR 1981 TOTAL 3849.36 MEAN 10.5 MAX 1360 MIN .00 CFSM .06 IN .76 AC-FT 7640

08120700 COLORADO RIVER NEAR CUTHBERT, TX

LOCATION (revised).--Lat 32°28'38", long 100°56'58", Mitchell County, Hydrologic Unit 12080002, on left bank at downstream side of bridge on Farm Road 1808, 4.0 mi (6.4 km) downstream from Deep Creek, 4.8 mi (7.7 km) east of Cuthbert, 8.0 mi (12.9 km) northwest of Colorado City, and at mile 810.0 (1,303.3 km).

DRAINAGE AREA (revised).--3,912 mi^2 (10,132 km^2), of which 2,381 mi^2 (6,167 km^2) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 2,073.49 ft (632.000 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is partly regulated by Lake J. B. Thomas (station 08118000).

AVERAGE DISCHARGE.--16 years (water years 1966-81), 36.5 ft^3/s (1.034 m^3/s), 26,440 acre-ft/yr (32.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft^3/s (326 m^3/s) Aug. 14, 1972, gage height, 25.99 ft (7.922 m); maximum gage height, 27.18 ft (8.284 m) Sept. 29, 1980; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1941 and 1946 reached a stage of 36.1 ft (11.00 m), from State Department of Highways and Public Transportation bridge plans.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,130 ft^3/s (145 m^3/s) Apr. 22 at 0030 hours, gage height, 19.58 ft (5.968 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	447	12	13	14	9.8	26	7.7	20	39	6.9	.08	.00
2	156	12	11	14	9.8	20	7.5	16	18	6.8	.05	.00
3	102	12	11	14	9.8	18	7.5	14	12	6.5	.02	.00
4	78	12	10	14	9.8	22	7.2	18	954	6.7	.00	.36
5	62	11	10	14	10	18	6.9	49	911	23	.00	.20
6	52	11	10	14	10	14	6.7	35	107	14	.00	.72
7	44	11	23	14	10	13	6.3	25	63	5.0	.00	.67
8	39	10	124	14	10	12	6.3	189	44	2.3	.00	.97
9	35	9.8	96	16	11	11	6.3	509	37	1.4	.00	.35
10	32	9.6	55	16	12	11	6.3	79	31	1.0	.00	.36
11	28	9.0	36	15	12	12	6.1	45	27	.82	.00	1.2
12	26	9.0	30	13	11	13	5.7	32	24	.59	.00	1.2
13	24	9.0	27	13	11	13	5.7	20	22	.47	.00	.73
14	23	8.7	25	13	11	13	65	13	20	.47	.00	.34
15	21	8.2	24	13	11	12	55	11	19	.47	.00	.17
16	21	11	22	12	11	12	77	11	18	.47	.35	.07
17	22	18	22	12	11	11	94	12	17	.37	12	.03
18	18	23	21	12	11	11	507	11	17	.29	1.6	.01
19	17	19	19	12	11	10	192	8.7	16	.25	1.8	.00
20	17	17	18	13	11	9.2	66	8.2	15	.22	.82	.00
21	16	15	17	13	11	8.9	1120	7.9	13	.25	.47	.00
22	15	13	17	13	10	8.8	2730	8.2	13	.33	.33	.00
23	15	13	17	12	11	8.6	703	8.0	12	.29	.22	.00
24	14	12	17	12	11	8.4	164	7.2	11	.22	.12	.00
25	13	12	16	12	11	8.7	74	7.2	10	.16	.06	.00
26	13	14	16	12	11	8.9	51	7.6	9.5	.12	.05	.00
27	12	17	16	12	11	8.4	40	7.9	8.7	.10	.04	.00
28	15	16	16	12	19	8.4	34	7.8	7.9	.08	.03	.00
29	13	13	16	11	---	8.4	38	7.8	7.4	.05	.02	.00
30	12	13	16	10	---	8.2	23	122	7.1	.03	.02	.00
31	12	---	15	9.8	---	8.2	---	111	---	.02	.01	---
TOTAL	1414	380.3	786	400.8	308.2	375.1	6119.2	1428.5	2510.6	79.67	18.09	7.38
MEAN	45.6	12.7	25.4	12.9	11.0	12.1	204	46.1	83.7	2.57	.58	.25
MAX	447	23	124	16	19	26	2730	509	954	23	12	1.2
MIN	12	8.2	10	9.8	9.8	8.2	5.7	7.2	7.1	.02	.00	.00
AC-FT	2800	754	1560	795	611	744	12140	2830	4980	158	36	15

CAL YR 1980 TOTAL 40408.96 MEAN 110 MAX 8770 MIN .00 AC-FT 80150
WTR YR 1981 TOTAL 13827.84 MEAN 37.9 MAX 2730 MIN .00 AC-FT 27430

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1965 to current year.
WATER TEMPERATURES: March 1965 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, 70,000 micromhos Nov. 17, 1968; minimum daily, 102 micromhos Sept. 28, 1980.
WATER TEMPERATURES: Minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,460 micromhos Oct. 9; minimum daily, 363 micromhos Apr. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
DEC 02...	1455	11	5800	9.0	1200	840	230	140	900

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
DEC 02...	12	7.6	310	850	1400	.9	7.9	3720

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	1414	5080	3100	11800	1200	4630	670	2550	820
NOV.	1980	380.3	6250	3820	3920	1500	1550	820	839	1000
DEC.	1980	786	4990	3040	6460	1100	2430	680	1430	840
JAN.	1981	400.8	5740	3500	3790	1400	1460	760	825	940
FEB.	1981	308.2	5200	3170	2640	1200	1000	700	583	870
MAR.	1981	375.1	5930	3620	3670	1400	1430	780	792	960
APR.	1981	6119.2	926	564	9320	190	3140	140	2240	180
MAY	1981	1428.5	2130	1300	5000	450	1750	300	1170	390
JUNE	1981	2510.6	1540	941	6380	310	2120	230	1540	300
JULY	1981	79.67	3120	1900	409	670	144	440	95	570
AUG.	1981	18.09	2580	1580	77	540	27	370	18	480
SEPT	1981	7.38	6360	3880	77	1500	31	830	17	1000
TOTAL		13827.84	**	**	53600	**	19700	**	12100	**
WTD. AVG.		38	2350	1440	**	530	**	320	**	410

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1960	7150	5780	5560	5720	4460	6280	4630	3280	3770	4030	---
2	4240	7120	5800	5570	5420	5280	6050	4760	3300	3780	4090	---
3	5630	7070	6000	5590	5870	5170	5860	4690	3040	3740	4220	---
4	6430	7090	5710	5610	5860	6730	5950	4500	1060	3620	---	6010
5	6830	7110	5240	5620	5640	6510	6010	3440	1440	3210	---	6490
6	7040	7070	5500	5670	5640	6490	6070	3960	1690	2100	---	6210
7	7190	7050	5130	5680	5530	6040	5870	4170	1810	2740	---	6300
8	7420	7080	4110	5630	5350	5710	5850	1710	1870	2830	---	6120
9	7460	7020	4460	5530	5200	5460	6080	580	2010	2720	---	6540
10	7390	7040	4820	5720	5510	5410	5870	1550	2070	2720	---	6520
11	7400	7050	5310	5650	5570	5760	5520	2350	2130	2790	---	6280
12	7280	7000	4860	6240	5270	5830	5650	3040	2220	2850	---	6300
13	7310	6970	4640	6130	5430	5850	6060	3540	2340	2910	---	6640
14	7330	6930	4770	6090	5260	6100	3270	3960	2420	3020	---	6810
15	7380	6920	5120	6000	4920	6300	3550	4110	2480	3050	---	6950
16	7400	6030	5200	5890	4710	6270	2840	4330	2570	3020	4550	6980
17	7210	5570	5200	5910	5020	6130	2250	4480	2650	3030	2240	7020
18	7230	5440	5340	5900	4400	6160	702	4340	2740	3120	2530	7050
19	7240	5600	5380	5940	4430	6120	1160	4450	2850	3170	2930	---
20	7220	5650	5430	5880	4340	6050	1570	4430	2940	3190	3270	---
21	7250	5720	5570	5580	4740	6310	604	4490	3000	3220	3590	---
22	7260	5850	5600	5910	4830	6300	363	4570	3090	3130	3910	---
23	7250	5830	5520	6080	4970	6180	998	4700	3180	3150	4240	---
24	7240	5900	5420	6010	5050	5930	1820	4610	3330	3130	4570	---
25	7270	5820	5500	5790	5190	6180	3050	4420	3340	3190	4920	---
26	7250	5700	5610	5580	5470	6190	3790	4210	3390	3250	5040	---
27	7290	5660	5550	5500	5450	5910	4160	4210	3460	3310	5260	---
28	7220	5710	5430	5410	5080	6150	4330	4220	3520	3440	5490	---
29	7180	5800	5390	5430	---	6610	3890	4100	3620	3700	5700	---
30	7200	5770	5480	5450	---	6400	3740	3050	3710	3900	5850	---
31	7210	---	5530	5400	---	6370	---	2690	---	4110	6070	---
MEAN	6910	6390	5300	5740	5210	6010	3970	3820	2690	3190	4340	6550

08121000 COLORADO RIVER AT COLORADO CITY, TX

LOCATION.--Lat 32°23'33", long 100°52'42", Mitchell County, Hydrologic Unit 12080002, on right bank at Colorado City, 3,517 ft (1,072 m) upstream from bridge on State Highway 377, 4,100 ft (1,250 m) upstream from the Texas and Pacific Railroad Co. bridge, 1.3 mi (2.1 km) downstream from bridge on Interstate Highway 20 and U.S. Highway 80, 1.6 mi (2.6 km) upstream from Lone Wolf Creek, and at mile 796.3 (1,281.2 km).

DRAINAGE AREA (revised).--3,966 mi² (10,272 km²), of which 2,381 mi² (6,167 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1118: Drainage area. WSP 1512: 1946(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,030.16 ft (618.793 m) National Geodetic Vertical Datum of 1929. Nov. 28, 1923, to Aug. 31, 1925, nonrecording gage at site 1.4 mi (2.3 km) downstream at different datum. May 9 to Aug. 5, 1946, nonrecording gage at site 185 ft (56 m) upstream at present datum.

REMARKS.--Water-discharge records good. Some regulation since 1952 by Lake J. B. Thomas (station 08118000). Numerous diversions from Lake J. B. Thomas for municipal use and oilfield operation. Record of diversion from river, 3 mi (5 km) upstream from gage, furnished by Colorado River Municipal Water District.

AVERAGE DISCHARGE.--6 years (water years 1947-52) prior to completion of Lake J. B. Thomas, 85.4 ft³/s (2.419 m³/s), 61,870 acre-ft/yr (76.3 hm³/yr); 29 years (water years 1953-81) regulated, 38.4 ft³/s (1.087 m³/s), 27,820 acre-ft/yr (34.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft³/s (705 m³/s) July 6, 1948, gage height, 22.37 ft (6.818 m), from floodmark; maximum gage height, 27.81 ft (8.476 m) Sept. 29, 1980, backwater from Salt Cedar; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 35.9 ft (10.94 m) June 20, 1939, present site and datum, based on floodmarks 1,000 ft (305 m) upstream and 3,740 ft (1,140 m) downstream from gage; discharge, 66,000 ft³/s (1,870 m³/s), by slope-area measurement of peak flow at site 2.5 mi (4.0 km) upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,310 ft³/s (122 m³/s) Apr. 22 at 0730 hours, gage height, 19.81 ft (6.038 m); minimum daily, 0.15 ft³/s (0.004 m³/s) July 11-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	26	28	21	21	2.5	1.5	32	105	.45	.30	.24
2	220	26	26	21	21	1.8	1.7	26	40	.24	.34	.36
3	31	27	25	21	22	23	2.3	26	22	.24	.35	.41
4	53	26	24	21	22	38	1.6	26	349	1.7	.32	.41
5	114	19	25	21	22	38	1.2	218	1440	1.5	.36	.41
6	101	16	26	15	23	31	1.4	89	291	.54	.39	.41
7	90	17	47	1.5	24	27	1.5	36	154	.30	.41	.43
8	79	16	229	2.5	23	24	1.5	22	108	.24	.41	.91
9	72	15	162	2.3	25	23	1.5	589	67	.24	.41	.52
10	72	17	95	1.5	27	24	1.5	180	47	.20	.41	.41
11	68	2.2	64	1.4	24	27	1.6	95	26	.15	.46	.36
12	56	1.7	46	1.2	24	28	1.6	47	14	.15	.53	.27
13	50	1.6	39	1.3	22	28	1.6	34	11	.15	.64	.25
14	46	1.6	33	1.2	21	28	29	19	10	.15	.77	.36
15	44	1.5	31	1.2	22	28	133	19	9.2	.15	.73	.80
16	41	3.2	30	1.4	22	26	133	16	8.3	.15	.78	.49
17	46	2.8	29	1.2	22	26	95	16	7.5	.15	3.1	.38
18	40	1.9	28	1.7	22	20	503	16	6.7	.15	1.4	.25
19	38	1.8	26	1.7	22	14	373	14	6.7	.15	.41	.41
20	37	1.8	23	1.6	16	2.1	127	10	6.0	.15	.35	.41
21	36	1.6	22	1.5	2.2	1.9	1100	2.1	5.3	.15	.24	.41
22	35	1.8	23	1.3	1.6	1.7	3750	9.2	4.7	.15	.25	.41
23	34	1.7	24	1.5	1.5	1.4	1270	12	4.7	.17	.41	.41
24	32	1.5	24	1.5	1.5	1.6	340	12	3.6	.17	.24	.41
25	32	2.1	23	1.5	1.5	1.9	163	12	2.8	.18	.24	.41
26	30	1.7	23	1.5	1.5	1.6	120	12	2.1	.20	.24	.41
27	29	1.6	24	1.5	1.7	1.8	92	12	1.8	.22	.24	.41
28	27	1.5	24	14	4.4	1.2	103	12	1.5	.33	.24	.41
29	30	13	23	22	---	1.5	166	17	1.2	.25	.24	.41
30	26	28	22	19	---	1.5	50	152	.92	.32	.24	.41
31	26	---	22	21	---	1.6	---	210	---	.31	.24	---
TOTAL	2735	279.6	1290	228.0	462.9	477.1	8567.5	1992.3	2757.02	9.60	15.69	12.59
MEAN	88.2	9.32	41.6	7.35	16.5	15.4	286	64.3	91.9	.31	.51	.42
MAX	1100	28	229	22	27	38	3750	589	1440	1.7	3.1	.91
MIN	26	1.5	22	1.2	1.5	1.2	1.2	2.1	.92	.15	.24	.24
AC-FT	5420	555	2560	452	918	946	16990	3950	5470	19	31	25
(†)	263	373	0	627	172	314	423	56	188	196	289	62

CAL YR 1980 TOTAL 40191.07 MEAN 110 MAX 8860 MIN .01 AC-FT 79720 † 4070
WTR YR 1981 TOTAL 18827.30 MEAN 51.6 MAX 3750 MIN .15 AC-FT 37340 † 2960

† Diversions, in acre-feet, for brine disposal by Colorado River Municipal Water District.

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1946 to September 1954, November 1956 to current year.
WATER TEMPERATURES: November 1952 to September 1954, November 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, 67,400 micromhos May 14, 17, 1961; minimum daily, 240 micromhos Sept. 29, 1980.
WATER TEMPERATURES (1956-80): Maximum daily, 37.0°C July 29, 1960, July 9, 1965, July 1, 1973, and June 29, 1979; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 20,300 micromhos Sept. 13; minimum daily, 537 micromhos Apr. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
JAN									
07...	1026	1.4	7150	6.0	1200	940	270	130	1200
FEB									
11...	1106	23	7850	1.0	1300	1000	280	140	1400
APR									
24...	0920	360	1500	16.0	290	180	80	22	190
MAY									
19...	1020	17	6020	18.0	850	640	200	85	1100
JUL									
01...	1000	.38	6080	27.5	770	490	160	90	1100
29...	0845	.32	6630	25.0	770	430	150	95	1300
SEP									
10...	1029	.46	19100	19.0	1800	1600	410	180	4200

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
JAN								
07...	15	7.0	270	1200	1800	.7	3.2	4770
FEB								
11...	17	6.7	250	1200	2000	.4	6.7	5180
APR								
24...	4.9	5.6	110	170	320	.3	8.3	862
MAY								
19...	16	8.2	210	750	1700	.5	7.9	3980
JUL								
01...	17	9.6	280	910	1400	.6	7.3	3850
29...	20	8.9	340	870	1700	.5	14	4340
SEP								
10...	44	14	160	1900	6300	.8	5.6	13100

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	2735	4080	2580	19100	1100	8030	520	3820	510
NOV.	1980	279.6	8300	5270	3980	2300	1700	1000	770	1000
DEC.	1980	1290	5010	3170	11100	1300	4620	640	2240	630
JAN.	1981	228.0	7780	4930	3040	2100	1290	960	593	940
FEB.	1981	462.9	7890	5010	6260	2100	2660	980	1220	960
MAR.	1981	477.1	7420	4710	6060	2000	2570	930	1190	910
APR.	1981	8567.5	1490	938	21700	380	8770	200	4680	200
MAY	1981	1992.3	3460	2180	11700	890	4810	460	2470	450
JUNE	1981	2757.02	1750	1100	8190	440	3310	240	1770	230
JULY	1981	9.60	6230	3950	102	1700	43	790	21	780
AUG.	1981	15.69	7690	4880	207	2100	88	950	40	930
SEPT	1981	12.59	17300	11100	377	5100	174	1800	60	*
TOTAL		18827.30	**	**	91800	**	38100	**	18900	**
WTD. AVG.		52	2860	1810	**	750	**	370	**	360

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1180	8800	7790	7250	8040	5810	7270	4220	3880	6080	7120	13800
2	2140	8750	7830	7210	7990	5910	7250	4680	4270	6340	7060	14700
3	4380	8700	7850	7300	8000	6500	7160	5140	4650	6550	7030	15100
4	3760	8780	7970	7370	8020	7040	7310	5590	3420	6010	7060	15800
5	2580	8490	8090	7410	8040	7570	7650	3140	1040	6090	6950	16500
6	2690	8510	7960	7430	8030	7590	7600	4020	1250	6060	6840	17100
7	3560	8630	4220	7150	8020	7600	7720	4880	1430	6010	6960	17700
8	4440	8720	2090	6940	7990	7580	8060	5310	1660	5900	7100	16400
9	5310	8830	2770	6830	7960	7610	8400	2330	1820	5820	7220	18000
10	6190	8800	3450	6640	7870	7620	8750	3290	2010	5730	7370	19100
11	7060	8220	4140	6300	7850	7440	9070	3590	2200	5540	7340	19400
12	7930	8000	4820	6190	7840	7400	9420	3870	2450	5380	7280	19600
13	8810	7690	5500	6280	7810	7430	9760	4200	2600	5830	7220	20300
14	8890	7410	5870	6530	7790	7450	4460	4480	2890	5900	7140	18700
15	8950	7060	6230	6380	7850	7490	3660	4810	2980	6060	7360	15300
16	9010	7190	6420	6350	7890	7620	3430	5120	3240	6130	7300	15500
17	8780	7010	6600	6470	7880	7550	4010	5440	3510	6280	6990	16200
18	8970	6820	6580	6390	7890	7730	2360	5710	3760	6350	7250	17800
19	8910	6640	6550	6420	7880	7650	2550	6020	3890	6490	7680	17000
20	8930	6720	6780	6500	7860	7380	3690	6250	4300	6580	8010	17300
21	9030	6780	7000	6570	7850	7130	1930	6740	4560	6500	8340	17700
22	9080	6860	7240	6660	7460	7160	537	6610	4890	6590	8300	17500
23	8960	6930	6830	6620	7150	7040	1020	6430	5370	6650	8220	17600
24	9100	6870	7050	6700	7030	6920	1500	6390	5580	6680	8570	18000
25	8890	6690	7180	6740	7120	6900	3260	6410	5800	6700	9220	18400
26	8950	6800	7260	6870	7210	6890	3990	6440	5880	6780	9880	18200
27	9010	6920	7120	7000	6980	6840	4750	6400	5960	6710	10500	18300
28	9000	7010	7080	9790	5930	6870	3840	6490	5900	6780	11200	18500
29	8970	6890	7170	9660	---	7040	3310	5950	5980	6630	11900	18800
30	8800	7450	7260	8550	---	7090	3770	3340	6000	6870	12600	18100
31	8780	---	7280	8100	---	7120	---	3140	---	6980	13100	---

WTR YR 1981 MEAN 7410 MAX 20300 MIN 537

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	11.5	9.0	11.0	6.5	19.0				---	28.0	
2	---	11.0	6.5	7.5	6.0	15.0				---	27.0	
3	---	13.0	7.0	11.5	7.0	12.0				---	25.0	
4	---	13.5	8.5	7.0	6.5	15.0				---	28.0	
5	---	17.0	15.0	9.0	8.0	---				---	26.0	
6	---	14.0	16.5	6.5	6.0	---				---	25.0	
7	---	17.0	14.0	6.0	6.0	---				---	31.0	
8	---	15.5	---	5.0	10.0	---				---	25.0	
9	---	18.0	---	7.5	7.5	---				---	33.0	
10	---	15.0	---	5.0	7.5	---				---	---	
11	---	16.0	---	7.5	4.5	---				---	---	
12	---	14.0	11.5	5.0	8.0	---				35.0	---	
13	---	17.0	8.0	8.0	5.0	---				31.0	---	
14	---	14.5	10.0	6.5	9.0	---				35.0	---	
15	---	9.0	8.0	9.0	6.5	17.5				27.0	---	
16	---	8.0	12.0	6.0	7.5	14.0				36.0	---	
17	---	---	9.0	---	6.0	13.0				35.0	---	
18	---	---	10.0	---	10.5	12.5				26.0	---	
19	---	---	7.0	---	9.0	12.0				34.0	---	
20	---	---	4.0	9.0	15.5	11.5				26.0	---	
21	---	---	2.5	7.0	13.0	11.0				26.0	---	
22	---	---	7.5	6.0	8.0	10.0				36.0	---	
23	---	7.0	7.0	6.0	11.5	17.0				36.0	---	
24	14.0	9.0	5.5	5.5	12.0	15.5				31.0	---	
25	13.0	---	3.0	5.0	10.5	12.5				29.0	---	
26	13.0	---	4.5	13.0	16.0	12.0				30.0	---	
27	17.0	---	5.0	8.0	12.5	15.5				23.0	---	
28	13.0	9.0	7.0	9.5	16.0	14.0				33.0	---	
29	12.5	7.0	7.5	8.0	---	13.5				27.0	---	
30	15.5	11.0	7.0	7.0	---	13.0				25.0	---	
31	14.0	---	6.5	6.0	---	15.5				29.0	---	

WTR YR 1981 MEAN 13.5 MAX 36.0 MIN 2.5

08123000 LAKE COLORADO CITY NEAR COLORADO CITY, TX

LOCATION.--Lat 32°20'41", long 100°55'10", Mitchell County, Hydrologic Unit 12080002, on left bank at municipal water-intake structure, 1.7 mi (2.7 km) upstream from Colorado City Dam on Morgan Creek, 2.2 mi (3.5 km) downstream from the Texas and Pacific Railway Co. bridge, 2.5 mi (4.0 km) upstream from mouth, and 4.0 mi (6.4 km) southwest of Colorado City.

DRAINAGE AREA (revised).--344.7 mi² (892.8 km²), of which 42.7 mi² (110.6 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1950, nonrecording gages at or near powerplant about 0.7 mi (1.1 km) downstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 4,800 ft (1,460 m) long. Storage began in April 1949, and the dam was completed in September 1949. The dam and lake are owned by the Texas Electric Service Co. to operate their thermal electric powerplant. The uncontrolled emergency spillway is an excavated cut channel through natural ground 1,200 ft (366 m) wide located 600 ft (180 m) upstream and to the left of left end of dam. The spillway is designed to discharge 150,000 ft³/s (4,250 m³/s) at the maximum design flood elevation. The service spillway is an uncontrolled rectangular drop inlet located 100 ft (30 m) upstream from dam with two uncontrolled openings of 10.0 by 12.0 ft (3.0 by 3.7 m). The spillway is designed for a maximum discharge of 5,000 ft³/s (142 m³/s). A service outlet is provided for small releases downstream through a 30-inch (762 mm) valve-controlled concrete pipe. Records furnished by the Texas Electric Service Co. show no pumpage from Champion Creek Reservoir (station 08123600) into Lake Colorado City 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	2,090.0	-
Design flood	2,086.7	70,700
Crest of spillway	2,073.7	37,850
Crest of service spillway (top of conservation pool)	2,070.2	31,810
Lowest gated outlet (invert)	2,024.3	316

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 40,280 acre-ft (49.7 hm³) Sept. 7, 1962, elevation, 2,075.10 ft (632.490 m); minimum since first appreciable storage, 5,800 acre-ft (7.15 hm³) Apr. 11-13, 1950, elevation, 2,045.72 ft (623.536 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 36,950 acre-ft (45.6 hm³) Apr. 22 at 1900 hours, elevation, 2,073.21 ft (631.914 m); minimum, 26,810 acre-ft (33.1 hm³) Sept. 30, elevation, 2,066.92 ft (629.997 m).

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

2,066.0	25,510	2,072.0	34,810
2,068.0	28,400	2,074.0	38,410
2,070.0	31,480		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34810	31310	30850	30910	30610	30430	29740	32260	31580	30710	28950	27710
2	33820	31290	30820	30900	30600	30410	29730	32210	31530	30660	28880	27670
3	33250	31280	30800	30870	30580	30490	29710	32160	31690	30610	28800	27630
4	32900	31260	30790	30870	30570	30460	29650	32130	31900	30650	28740	27730
5	32650	31230	30790	30850	30580	30430	29610	32210	31900	30600	28680	27680
6	32490	31210	30760	30830	30570	30410	29560	32130	31900	30550	28640	27630
7	32360	31200	31040	30800	30550	30400	29560	32050	31870	30510	28580	27640
8	32260	31170	31180	30900	30550	30360	29530	32020	31820	30430	28680	27600
9	32180	31140	31250	30900	30570	30360	29500	31970	31790	30380	28500	27570
10	32130	31120	31260	30900	30510	30350	29480	31970	31740	30330	28470	27520
11	32060	31090	31290	30880	30460	30350	29470	31920	31710	30290	28490	27490
12	32020	31060	31280	30870	30440	30350	29450	31850	31630	30220	28400	27470
13	31970	31040	31260	30870	30440	30350	29440	31810	31580	30180	28370	27440
14	31950	31010	31260	30850	30440	30330	29640	31770	31530	30100	28320	27390
15	31920	30960	31250	30830	30430	30300	29900	31720	31500	30040	28350	27350
16	31890	31090	31230	30820	30410	30290	29940	31640	31420	29980	28410	27320
17	31870	31060	31210	30790	30410	30290	30120	31610	31390	29900	28380	27280
18	31840	31020	31200	30800	30430	30160	30270	31550	31340	29840	28340	27250
19	31810	31020	31140	30800	30410	30150	30290	31500	31290	29780	28310	27200
20	31770	30990	31100	30790	30380	30120	30290	31450	31230	29730	28260	27170
21	31740	30980	31070	30770	30360	30100	34590	31420	31180	29680	28220	27130
22	31710	30960	31060	30770	30330	30010	36770	31400	31120	29610	28160	27100
23	31680	30950	31040	30760	30320	29990	36040	31370	31090	29530	28110	27060
24	31610	30910	31020	30760	30300	29960	34650	31340	31020	29450	28070	27030
25	31580	30850	31010	30740	30290	29960	33730	31330	30990	29380	28040	26990
26	31560	30930	30990	30740	30290	29910	33180	31290	30950	29320	28000	26940
27	31520	30900	30990	30720	30320	29900	32850	31260	30900	29270	27940	26910
28	31420	30900	30980	30710	30410	29880	32790	31250	30830	29210	27890	26870
29	31390	30880	30960	30680	---	29840	32540	31390	30790	29150	27850	26840
30	31360	30870	30950	30650	---	29790	32290	31610	30740	29100	27790	26810
31	31340	---	30930	30660	---	29780	---	31610	---	29030	27760	---
MAX	34810	31310	31290	30910	30610	30490	36770	32260	31900	30710	28950	27730
MIN	31340	30850	30760	30650	30290	29780	29440	31250	30740	29030	27760	26810
(†)	2069.91	2069.61	2069.65	2069.48	2069.32	2068.91	2070.50	2070.08	2069.53	2068.42	2067.57	2066.92
(‡)	- 5410	-470	+60	-270	-250	-630	+2510	-680	-870	-1710	-1270	-950
(††)	116	100	101	101	97	109	121	147	177	244	194	146

CAL YR 1980 MAX 38640 MIN 14500 ‡ + 14820 †† 1840
WTR YR 1981 MAX 36770 MIN 26810 ‡ - 9940 †† 1650

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use.

08123000 LAKE COLORADO CITY NEAR COLORADO CITY, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 19...	0920	900	13.0	230	130	51	24	96

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 19...	2.8	4.6	92	190	110	.3	8.4	540

08123600 CHAMPION CREEK RESERVOIR NEAR COLORADO CITY, TX

LOCATION.--Lat 32°16'53", long 100°51'30", Mitchell County, Hydrologic Unit 12080002, in service outlet structure at Champion Creek Dam on Champion Creek, 0.9 mi (1.6 km) upstream from mouth, 4.8 mi (7.7 km) downstream from State Highway 208, and 7.2 mi (11.6 km) south of Colorado City.

DRAINAGE AREA (revised).--206.8 mi² (535.6 km²), of which 20.8 km² (53.9 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area.

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

REMARKS.--The reservoir is formed by a rolled earthfill dam about 6,800 ft (2,070 m) long. The dam was completed on Apr. 30, 1959. Closure and storage began in February 1959. The capacity curve is based on Geological Survey topographic map surveyed in 1950; excavation for borrow, estimated not to exceed 1,200 acre-ft (1.23 hm³), is not included. The dam and reservoir are owned and operated by the Texas Electric Service Company. Water may be pumped from the reservoir through a 24-inch (610 mm) pipeline to Lake Colorado City (station 08123000) for municipal use and for cooling operations of a steam generating powerplant. There are two spillways. The uncontrolled emergency spillway is 450 ft (137 m) wide by 1,800 ft (549 m) long, and is located at the right end of dam. The controlled service spillway, a cut channel 50 ft (15 m) wide, about 1,800 ft (549 m) long, and 8 ft (2 m) deep, is cut into the emergency spillway at the extreme right end. There is a controlled drop-inlet structure, 4.0 by 5.0 ft (1.2 by 1.5 m), with a side opening of 1.5 by 3.0 ft (0.5 by 0.9 m). Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	2,109.0	-
Design flood	2,104.1	90,020
Crest of spillway	2,091.0	56,800
Crest of spillway (top of conservation pool)	2,083.0	42,500
Lowest gated outlet (invert)	2,020.0	800

COOPERATION.--Record of diversions into Lake Colorado City was furnished by the Texas Electric Service Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 27,910 acre-ft (34.4 hm³) June 19, 1966, elevation, 2,071.98 ft (631.540 m); minimum, 1,600 acre-ft (1.97 hm³) Oct. 1, 1959, elevation, 2,025.90 ft (617.494 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 26,850 acre-ft (33.1 hm³) June 6-8 at 2400 hours, elevation, 2,071.02 ft (631.247 m); minimum, 21,040 acre-ft (25.9 hm³) Nov. 15, elevation, 2,065.21 ft (629.476 m).

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

2,065.0	20,840	2,069.0	24,720
2,067.0	22,720	2,072.0	27,930

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21260	21080	21150	21470	21650	21770	21690	25240	25450	26430	25710	25280
2	21260	21080	21110	21470	21640	21780	21680	25240	25440	26410	25680	25270
3	21280	21080	21110	21470	21640	21830	21670	25240	25430	26390	25640	25250
4	21290	21080	21120	21470	21640	21830	21650	25240	26740	26400	25600	25260
5	21290	21080	21140	21470	21640	21810	21640	25280	26840	26460	25570	25240
6	21290	21080	21150	21480	21640	21800	21620	25290	26850	26460	25560	25210
7	21290	21080	21250	21480	21650	21800	21620	25280	26850	26430	25530	25210
8	21290	21080	21390	21550	21650	21800	21610	25270	26850	26400	25510	25200
9	21290	21080	21440	21560	21670	21800	21610	25240	26840	26380	25490	25190
10	21290	21080	21440	21570	21660	21800	21610	25200	26830	26350	25470	25170
11	21270	21080	21450	21580	21650	21810	21610	25180	26810	26340	25460	25150
12	21260	21070	21460	21580	21640	21810	21600	25180	26800	26310	25440	25140
13	21250	21070	21460	21590	21640	21810	21610	25180	26770	26280	25420	25120
14	21250	21060	21470	21590	21650	21820	22070	25140	26740	26250	25400	25100
15	21240	21040	21470	21590	21660	21820	22170	25140	26770	26210	25400	25080
16	21240	21090	21470	21600	21670	21820	22170	25120	26720	26190	25390	25060
17	21230	21090	21480	21600	21680	21820	22240	25100	26720	26160	25520	25020
18	21230	21090	21520	21600	21690	21790	22320	25080	26700	26120	25530	25000
19	21220	21090	21470	21610	21690	21780	22330	25050	26690	26090	25520	24970
20	21220	21100	21440	21620	21680	21770	22350	25040	26670	26080	25510	24950
21	21210	21100	21430	21620	21690	21760	22670	25030	26650	26040	25490	24930
22	21210	21110	21430	21630	21680	21730	24380	25010	26630	26020	25470	24910
23	21200	21110	21450	21630	21680	21730	25100	25000	26610	25970	25440	24890
24	21170	21120	21450	21640	21680	21720	25190	25010	26580	25930	25420	24870
25	21150	21120	21440	21640	21680	21720	25210	25000	26570	25910	25410	24840
26	21150	21120	21450	21650	21680	21720	25220	24990	26560	25880	25390	24830
27	21150	21120	21460	21650	21700	21720	25220	24980	26530	25850	25360	24820
28	21090	21120	21470	21660	21750	21710	25230	24980	26510	25810	25350	24800
29	21080	21110	21460	21670	---	21700	25240	25120	26480	25800	25340	24780
30	21080	21120	21460	21650	---	21700	25240	25450	26460	25770	25310	24750
31	21080	---	21460	21650	---	21690	---	25450	---	25740	25290	---
MAX	21290	21120	21520	21670	21750	21830	25240	25450	26850	26460	25710	25280
MIN	21080	21040	21110	21470	21640	21690	21600	24980	25430	25740	25290	24750
(†)	2065.25	2065.30	2065.66	2065.86	2065.97	2065.90	2069.50	2069.70	2070.65	2069.98	2069.55	2069.03
(‡)	-150	+40	+340	+190	+100	-60	+3550	+210	+1,010	-720	-450	-540
(††)	0	0	0	0	0	0	0	0	0	0	0	0

CAL YR 1980 MAX 21520 MIN 4500 ‡ +13710 †† 4840
WTR YR 1981 MAX 26850 MIN 21040 ‡ + 3520 †† 0

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, into Lake Colorado City.

08123600 CHAMPION CREEK RESERVOIR NEAR COLORADO CITY, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 19...	1040	492	11.5	180	84	47	15	27

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 19...	.9	5.7	95	110	34	.3	.3	296

08123800 BEALS CREEK NEAR WESTBROOK, TX

LOCATION.--Lat 32°11'57", long 101°00'49", Mitchell County, Hydrologic Unit 12080007, on left bank at downstream side of bridge on State Highway 163, 2.1 mi (3.4 km) downstream from Hackberry Creek, 10.8 mi (17.4 km) south of Westbrook, 15.7 mi (25.3 km) southwest of Colorado City, and 19.1 mi (30.7 km), revised, upstream from mouth.

DRAINAGE AREA (revised).--9,802 mi² (25,387 km²), of which 7,814 mi² (20,238 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-72-1: 1971.

GAGE.--Water-stage recorder. Datum of gage is 2,048.74 ft (624.456 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Low flow is affected by diversion upstream from station.

AVERAGE DISCHARGE.--23 years, 24.8 ft³/s (0.702 m³/s), 0.35 in/yr (9 mm/yr), 17,970 acre-ft/yr (22.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,780 ft³/s (249 m³/s) May 19, 1961, gage height, 21.65 ft (6.599 m); maximum gage height, 21.94 ft (6.687 m) Sept. 29, 1980; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1908, about 24.5 ft (7.47 m) in 1922, from information by local resident.

EXTREMES FOR CURRRENT YEAR.--Maximum discharge, 1,060 ft³/s (30.0 m³/s) Apr. 23 at 1400 hours, gage height, 9.86 ft (3.005 m), no other peak above base of 900 ft³/s (25.5 m³/s); minimum, 0.25 ft³/s (0.007 m³/s) Aug. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	692	11	13	10	9.1	18	7.7	17	17	2.7	1.6	3.2
2	575	11	12	10	8.8	40	8.7	14	11	2.7	2.3	3.1
3	488	11	12	11	8.3	24	7.5	15	8.7	3.0	1.1	3.0
4	363	11	11	10	8.3	21	6.3	15	332	3.0	.42	3.9
5	269	10	11	10	8.5	14	5.5	14	164	64	.70	11
6	186	10	11	11	8.4	11	7.1	18	83	13	.78	41
7	125	10	16	11	9.2	11	7.5	15	52	6.7	.75	13
8	89	10	186	15	8.7	9.7	8.2	14	18	5.2	1.2	14
9	71	9.9	280	18	8.6	13	10	12	9.2	4.1	1.2	23
10	57	10	88	31	8.7	10	8.1	10	7.6	3.0	1.4	12
11	47	9.9	25	18	8.5	10	7.4	9.8	7.1	2.9	1.2	6.9
12	40	9.6	18	14	8.9	11	7.7	9.2	6.4	3.2	6.5	5.7
13	34	9.2	16	13	7.7	11	8.9	8.4	6.0	2.9	12	5.2
14	30	9.3	15	12	8.2	11	18	7.8	5.7	2.6	8.5	4.8
15	27	9.4	14	12	8.3	10	49	8.2	5.5	2.3	5.8	4.5
16	25	11	14	12	7.2	9.6	45	7.9	5.3	2.0	8.0	4.0
17	21	12	14	12	6.0	8.9	37	8.1	4.6	1.9	81	3.7
18	20	21	13	11	5.9	8.4	17	8.3	5.3	1.8	144	3.7
19	19	23	13	11	5.8	8.4	14	7.3	5.1	1.5	17	3.6
20	18	17	12	14	5.8	7.9	16	7.1	4.8	1.3	7.2	3.3
21	17	15	12	14	5.6	7.6	35	7.0	4.4	1.6	5.6	3.6
22	16	14	12	12	5.7	7.9	247	6.9	4.1	1.2	4.8	3.4
23	15	13	13	12	7.5	7.7	927	6.8	3.8	1.5	4.3	3.4
24	15	12	13	9.4	6.4	7.2	297	6.7	3.5	1.3	3.9	3.0
25	14	13	12	8.6	6.8	7.9	63	6.2	3.4	1.2	3.5	2.9
26	13	14	12	8.3	7.6	7.6	37	6.1	3.4	1.1	3.1	2.7
27	13	27	11	8.1	7.6	7.9	26	5.9	3.4	1.1	2.9	1.7
28	12	22	11	14	9.8	7.7	22	5.9	3.3	1.3	2.9	2.7
29	12	16	12	18	---	7.9	20	9.5	3.3	1.4	2.9	2.5
30	11	14	11	11	---	7.5	24	72	3.1	1.2	2.9	2.3
31	11	---	11	10	---	7.0	---	52	---	.59	3.2	---
TOTAL	3345	395.3	924	391.4	215.9	351.8	1994.6	411.1	794.0	143.29	342.65	200.8
MEAN	108	13.2	29.8	12.6	7.71	11.3	66.5	13.3	26.5	4.62	11.1	6.69
MAX	692	27	280	31	9.8	40	927	72	332	64	144	41
MIN	11	9.2	11	8.1	5.6	7.0	5.5	5.9	3.1	.59	.42	1.7
CFSM	.11	.01	.03	.01	.008	.01	.07	.01	.03	.005	.01	.007
IN.	.13	.02	.04	.01	.01	.01	.08	.02	.03	.01	.01	.01
AC-FT	6630	784	1830	776	428	698	3960	815	1570	284	680	398

CAL YR 1980 TOTAL 29395.41 MEAN 80.3 MAX 5890 MIN .05 CFSM .08 IN 1.12 AC-FT 58310
WTR YR 1981 TOTAL 9509.84 MEAN 26.1 MAX 927 MIN .42 CFSM .03 IN .36 AC-FT 18860

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1958 to current year.

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

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

REMARKS.--Specific conductance and water temperature from October 1980 through Mar. 4, 1981, are measured once daily. 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, 22,800 micromhos June 2, 1969; minimum daily, 219 micromhos Sept. 13, 1964.
WATER TEMPERATURES: Maximum daily, 37.0°C June 28, 1960, and July 3, 1976; minimum daily, 0.0°C Jan. 7, 1971, and Jan. 9, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 20,000 micromhos Feb. 2; minimum daily, 740 micromhos June 5.
WATER TEMPERATURES: Minimum daily, 4.0°C Jan. 18, Feb. 11, 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
JAN									
09...	1350	15	12700	--	10.0	3100	2900	420	500
FEB									
25...	1245	7.4	14000	--	16.0	3100	2900	410	510
JUN									
04...	1230	232	2870	--	20.5	640	510	110	88
AUG									
11...	1030	.90	12800	7.2	25.0	2800	2700	410	430
SEP									
01...	1040	2.6	8240	--	27.0	1900	1700	280	280
03...	1145	3.2	9840	--	27.0	2300	2100	330	350

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
JAN									
09...	1900	15	36	250	2100	3500	.6	.5	8610
FEB									
25...	2100	16	37	230	2200	3900	.4	4.7	9300
JUN									
04...	360	6.2	12	130	440	660	.3	7.1	1760
AUG									
11...	2000	16	41	140	2100	3800	.7	2.1	8870
SEP									
01...	1400	14	30	110	1600	2200	.6	2.3	5860
03...	1500	14	34	140	1700	2700	.7	2.0	6700

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1980	3345	4290	2700	24400	1100	9500	640	5760	920
NOV.	1980	395.3	13000	8780	9370	3600	3830	2100	2290	*
DEC.	1980	924	7130	4690	11700	1900	4710	1100	2830	1600
JAN.	1981	391.4	13300	9010	9520	3700	3890	2200	2330	*
FEB.	1981	215.9	14300	9710	5660	4000	2330	2400	1390	*
MAR.	1981	351.8	13700	9270	8810	3800	3610	2300	2160	*
APR.	1981	1994.6	4250	2730	14700	1100	5800	650	3500	920
MAY	1981	411.1	12900	8750	9710	3600	3990	2100	2380	*
JUNE	1981	794.0	3920	2470	5300	960	2070	580	1250	840
JULY	1981	143.29	6630	4280	1660	1700	657	1000	396	1400
AUG.	1981	342.65	3640	2310	2140	910	839	550	508	790
SEPT	1981	200.8	6750	4320	2340	1700	921	1000	557	1500
TOTAL		9509.84	**	**	105000	**	42100	**	25400	**
WTD. AVG.		26	6270	4100	**	1600	**	990	**	1400

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1			2740			12100			12000			13900
2			3010			12200			10800			14000
3			3390			12400			11900			13800
4			3480			12700			12800			14200
5			4040			12800			12200			13900
6			4430			13000			13800			13800
7			5050			12800			14700			14100
8			5560			12900			7020			13500
9			6020			13000			1670			11800
10			6490			13200			4000			13200
11			6940			13300			4870			12700
12			7530			13300			5170			12000
13			7630			13300			6530			14300
14			8110			13400			8280			13600
15			8320			13400			10200			11300
16			8820			13100			13000			9250
17			9160			12900			13200			10400
18			9580			12700			13700			12200
19			9780			12500			14200			13200
20			9930			12800			14600			14900
21			10200			13600			14800			14200
22			10500			12500			15000			14400
23			10700			12300			14400			14100
24			10900			12200			14500			14100
25			11000			11500			14400			13900
26			11200			12700			14300			13700
27			11300			13500			14400			13500
28			11500			14400			14300			13800
29			11600			14900			14200			13900
30			11700			14500			14300			14300
31			11800						14400			15600
MONTH			8140			13000			11700			13400

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1			19200	---	---	17400	15000	14500	14700	15000	12700	14300
2			20000	---	---	14300	14600	14300	14500	15000	14400	14700
3			14400	---	---	12400	15300	14500	14900	15200	14800	15100
4			11800	---	---	13200	15300	15000	15200	15500	14000	15100
5			11900	8920	8040	8630	15000	14300	14700	14000	13600	13800
6			12100	9560	8000	8840	14200	13900	14100	19000	14000	15900
7			13900	11400	9640	10700	13900	13700	13800	19300	17200	18100
8			14300	11500	10200	10700	14400	13700	14000	17100	16300	16800
9			14500	13800	10200	12000	14400	14000	14200	16700	16000	16300
10			14100	15000	14000	14800	14100	13900	14000	16800	16200	16500
11			14400	14800	14300	14500	14700	14100	14500	16300	15200	16100
12			14000	14800	14500	14700	14900	14400	14600	15000	11700	13000
13			13900	14900	14700	14800	14800	14300	14600	12000	11400	11700
14			13600	15000	13900	14500	14800	11600	14100	13700	12100	13000
15			11500	14000	12900	13500	12700	6940	10800	14700	13200	14100
16			14200	12800	11800	12100	10000	4700	5980	14700	14300	14600
17			14300	13800	12100	13100	10400	5600	7780	14900	13900	14400
18			14100	14300	13700	14000	10600	6920	9650	15600	14900	15200
19			14200	14500	14300	14400	9440	8520	8800	15700	15000	15400
20			14200	14200	13700	13900	11200	9120	10500	15800	15600	15700
21			14000	14700	13800	14300	10600	3900	9340	16300	15500	15900
22			14300	14800	14500	14700	9500	1100	4880	16400	15800	16200
23			14400	14600	14500	14600	2180	1140	1670	16200	15700	16000
24			14300	15200	14600	14800	3120	2060	2580	15700	14500	15100
25			14100	15200	15000	15100	5120	2940	3820	14600	13900	14200
26			14000	15200	14900	15100	6900	5260	6350	14500	13700	14200
27			14200	15400	14900	15200	8560	6920	7630	15200	14500	14800
28			14500	15400	15100	15300	9900	8560	9240	15200	14800	15100
29				15400	15100	15200	12000	9580	10600	14800	13400	14300
30				16100	15300	15700	12700	11800	12300	14000	4700	10500
31				15900	15000	15500	---	---	---	9840	1400	3830
MONTH			14200	16100	8000	13800	15300	1100	10800	19300	1400	14500

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9140	5660	7150	13000	12500	12800			10100	9060	8380	8310
2	9740	8140	9050	12900	12400	12600			10700	9860	9100	8400
3	8320	7980	8150	12700	12400	12500			11000	10600	7540	8400
4	6240	980	2920	12600	11700	12300			11700	10900	10500	8300
5	5120	740	2430	12400	1740	8760			12100	---	---	7000
6	5680	880	4170	2100	1720	1930			12400	---	---	5000
7	1720	1180	1550	2200	2080	2150			12700	---	---	6000
8	3200	1540	2510	2440	2200	2320			13200	---	---	6500
9	5140	2800	3870	2720	2420	2580			13300	---	---	5500
10	5620	5200	5480	2900	2700	2790			13200	---	---	6000
11	5940	5300	5530	3220	2860	3020			12900	---	---	6500
12	7980	6000	7120	3660	3180	3380			12200	---	---	7000
13	9060	8020	8540	4120	3620	3850			9000	---	---	7500
14	9600	9060	9320	4540	3420	4140			8180	---	---	7700
15	9700	9320	9550	---	---	4500			8520	---	---	7800
16	9320	8120	8680	---	---	4600			8000	---	---	8000
17	8100	7700	7810	---	---	4560			4000	---	---	8200
18	7960	7460	7710	---	---	4690			1000	---	---	8200
19	9060	7880	8460	---	2160	4850			2000	---	---	8300
20	10600	9020	9810	---	---	5020			4000	---	---	8400
21	11900	10600	11300	---	---	5020			5220	---	---	8400
22	12400	11800	12100	---	---	5000			4810	---	---	8500
23	---	12300	12400	---	---	4980			4080	---	---	8600
24	---	---	12000	---	---	4890			3960	---	---	8700
25	---	11600	12500	---	---	5190			4000	---	---	8800
26	13300	12900	13200	---	---	5500			4220	---	---	9000
27	13100	12900	13000	---	---	6150			4560	---	---	10000
28	13200	12700	12900	---	---	6950			5060	---	---	9000
29	13100	12800	12900	---	---	8010			5610	---	---	9200
30	13200	12800	12900	---	---	9140			6090	---	---	9300
31	---	---	---	---	---	9820			6900	---	---	---
MONTH	13300	740	8500	13000	1720	5940			7890	10900	7540	7880

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1			20.0			12.0			15.0			8.0
2			21.0			13.0			9.0			---
3			20.0			15.0			8.0			---
4			20.0			15.0			11.0			10.0
5			20.0			18.0			14.0			9.0
6			21.0			16.0			17.0			10.0
7			22.0			16.0			19.0			9.0
8			22.0			17.0			13.0			9.0
9			20.0			19.0			9.0			9.0
10			21.0			17.0			10.0			10.0
11			20.0			19.0			7.0			10.0
12			23.0			17.0			9.0			8.0
13			20.0			18.0			11.0			10.0
14			21.0			14.0			9.0			8.0
15			21.0			11.0			10.0			9.0
16			21.0			---			11.0			8.0
17			20.0			7.0			12.0			6.0
18			20.0			5.0			12.0			4.0
19			18.0			5.0			9.0			5.0
20			17.0			8.0			5.0			10.0
21			16.0			11.0			5.0			9.0
22			19.0			11.0			5.0			6.0
23			20.0			---			6.0			13.0
24			17.0			9.0			7.0			8.0
25			14.0			6.0			---			---
26			19.0			5.0			6.0			10.0
27			17.0			6.0			7.0			10.0
28			12.0			6.0			14.0			10.0
29			11.0			9.0			10.0			11.0
30			11.0			13.0			9.0			8.0
31			13.0						9.0			9.0
MONTH			18.5			12.0			10.0			9.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1			12.0	---	---	19.0	22.0	15.5	19.0	26.5	23.0	25.0
2			7.0	---	---	16.0	22.5	17.0	19.5	24.5	21.5	22.5
3			7.0	---	---	15.0	20.5	17.0	19.5	25.5	20.5	23.0
4			9.0	---	---	15.0	18.0	14.0	16.0	27.5	21.5	24.5
5			---	14.5	11.0	13.5	20.5	12.5	16.5	25.0	22.5	23.5
6			8.0	15.0	12.0	13.5	17.0	14.0	15.5	24.0	20.5	22.5
7			9.0	16.5	12.0	14.0	20.0	14.0	16.5	24.0	20.5	22.5
8			13.0	14.0	11.0	12.0	22.5	16.5	19.0	27.0	21.0	24.0
9			11.0	11.0	10.0	10.0	25.0	18.5	21.5	24.0	20.5	22.5
10			12.0	11.5	9.0	10.5	24.0	21.0	22.5	23.0	17.0	20.0
11			4.0	11.0	10.5	11.0	25.5	20.5	23.0	23.5	17.5	20.5
12			4.0	11.5	10.0	10.5	28.0	21.5	24.5	25.5	18.5	22.0
13			7.0	14.5	9.0	12.0	27.5	22.5	24.5	27.5	21.0	24.0
14			8.0	16.5	12.0	14.0	24.0	16.5	19.5	23.5	20.0	21.5
15			8.0	17.0	12.5	15.0	16.5	14.0	14.5	21.0	18.5	20.0
16			15.0	15.5	13.0	14.5	16.0	13.0	14.5	25.0	18.0	21.0
17			12.0	18.0	12.0	14.5	18.5	15.0	17.0	26.0	20.5	23.0
18			14.0	16.0	12.0	13.5	21.0	17.0	19.0	26.5	20.0	23.5
19			15.0	16.5	10.5	13.5	25.0	18.5	21.5	25.0	19.0	22.0
20			19.0	14.0	12.5	13.0	26.0	20.0	23.0	24.0	19.5	21.5
21			15.0	15.0	11.5	13.0	23.5	19.5	21.5	24.0	19.5	21.5
22			17.0	15.0	10.0	12.5	21.0	17.5	19.5	27.5	21.5	24.0
23			15.0	17.0	11.0	14.0	19.5	18.0	18.5	28.5	22.0	25.0
24			13.0	18.0	12.0	15.0	19.5	17.0	18.0	25.0	21.5	23.0
25			20.0	17.0	14.0	15.5	22.5	16.5	19.5	27.5	19.5	23.5
26			19.0	19.0	12.5	15.5	24.5	18.5	21.5	29.5	22.0	25.5
27			18.0	21.5	16.0	18.0	25.5	20.0	23.0	29.5	20.0	24.5
28			16.0	21.0	17.0	18.5	27.0	22.0	24.5	29.5	25.0	27.0
29				19.5	14.0	16.5	28.0	22.5	25.5	27.5	23.0	25.5
30				20.5	14.5	17.5	27.0	24.0	25.5	25.0	21.5	23.0
31				21.5	15.5	18.5	---	---	---	25.5	20.5	22.5
MONTH			12.0	21.5	9.0	14.5	28.0	12.5	20.0	29.5	17.0	23.0

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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

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

LOCATION (revised).--Lat 32°03'13", long 100°45'42", Coke County, Hydrologic Unit 12080008, on right bank 25 ft (7.6 m) downstream from a Pan American Oil Co. bridge, 4.7 mi (7.6 km) west of Silver, and at mile 756.0 (1,216.4 km).

DRAINAGE AREA (revised).--14,910 mi² (38,617 km²), of which 10,260 mi² (26,573 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,907.66 ft (581.455 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 4, 1972, water-stage recorder at site 0.5 mi (0.8 km) downstream at same datum.

REMARKS.--Water-discharge records good. Low flow is affected by upstream diversions, see stations 08121000 and 08123650. Some regulation by Lake J. B. Thomas, Lake Colorado City, and Champion Creek Reservoir (see stations 08118000, 08123000, and 08123600).

AVERAGE DISCHARGE.--14 years, 76.1 ft³/s (2.155 m³/s), 55,130 acre-ft/yr (68.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,900 ft³/s (535 m³/s) Sept. 9, 1980, gage height, 22.73 ft (6.928 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,200 ft³/s (402 m³/s) Oct. 1, gage height, 20.55 ft (6.264 m), occured on recession following peak of Sept. 30, 1980; maximum independent peak discharge, 7,400 ft³/s (210 m³/s) Apr. 23 at 0530 hours, gage height, 15.70 ft (4.785 m); minimum, 0.88 ft³/s (0.025 m³/s) Aug. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9280	55	32	43	33	23	14	191	187	11	3.1	3.7
2	3220	53	41	41	30	33	15	139	112	9.2	2.6	23
3	1550	53	45	40	32	62	15	108	74	12	2.9	6.9
4	960	51	46	40	32	48	15	88	561	15	4.2	12
5	679	50	43	40	32	47	14	102	823	56	4.0	20
6	561	49	43	40	32	54	14	177	1090	63	3.2	12
7	435	46	48	39	32	50	14	126	745	43	2.8	34
8	332	41	161	40	33	44	13	86	193	30	1.7	32
9	264	40	515	39	35	40	13	64	108	23	1.7	22
10	218	39	326	44	34	39	14	299	72	19	1.7	28
11	184	38	165	51	32	40	16	267	55	16	1.9	30
12	168	38	106	40	34	39	13	83	44	14	2.0	18
13	145	35	83	33	34	41	11	56	39	11	1.6	14
14	134	28	73	31	34	42	41	42	35	9.3	1.6	12
15	124	26	66	28	32	41	116	55	33	8.5	13	9.4
16	110	30	61	26	32	40	149	56	33	7.5	20	8.3
17	99	36	59	25	32	38	151	51	33	7.0	37	7.4
18	95	36	57	25	31	34	171	46	29	6.4	179	7.1
19	93	38	52	25	30	32	290	43	28	6.1	153	7.4
20	87	43	50	24	29	33	417	42	27	6.0	41	7.2
21	83	39	49	22	28	31	201	40	23	5.2	24	6.6
22	80	36	46	25	26	25	1170	37	18	5.6	16	6.4
23	77	33	46	24	19	22	6940	32	15	5.4	12	5.7
24	72	30	45	21	15	21	4180	28	13	4.8	9.5	5.0
25	68	30	45	20	14	20	1710	35	12	4.0	8.2	4.4
26	65	31	45	17	14	18	858	36	12	4.0	6.9	3.8
27	62	30	45	16	13	19	514	34	11	3.7	6.3	3.5
28	57	41	44	15	16	18	337	36	11	3.7	5.2	3.4
29	58	39	44	15	---	18	251	91	11	3.6	4.1	3.1
30	57	36	44	27	---	17	300	106	11	2.9	4.9	3.4
31	56	---	44	34	---	15	---	237	---	2.8	5.3	---
TOTAL	19473	1170	2569	950	790	1044	17977	2833	4458	418.7	580.4	359.7
MEAN	628	39.0	82.9	30.6	28.2	33.7	599	91.4	149	13.5	18.7	12.0
MAX	9280	55	515	51	35	62	6940	299	1090	63	179	34
MIN	56	26	32	15	13	15	11	28	11	2.8	1.6	3.1
AC-FT	38620	2320	5100	1880	1570	2070	35660	5620	8840	830	1150	713

CAL YR 1980 TOTAL 94428.83 MEAN 258 MAX 15900 MIN .00 AC-FT 187300
WTR YR 1981 TOTAL 52622.80 MEAN 144 MAX 9280 MIN 1.6 AC-FT 104400

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1967 to current year. Pesticide analyses: October 1970 to Septembeer 1981 (discontinued).

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

INSTRUMENTATION.--Beginning June 22, 1981, specific conductance and temperature are recorded continuously at this station.

REMARKS.--Specific conductance and temperature from October 1980 through June 21, 1981, 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, 14,500 micromhos Dec. 30, 1978; minimum daily, 235 micromhos Aug. 10, 1974.
WATER TEMPERATURES: Maximum daily, 34.5°C July 4, 1981; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 11,700 micromhos Mar. 6; minimum daily, 664 micromhos Apr. 22.
WATER TEMPERATURES: Maximum daily, 34.5°C July 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 15...	1030	131	6800	8.1	21.5	.50	12.7	159	4.9	92	100
NOV 18...	1100	36	8260	8.1	5.0	9.0	13.9	119	3.8	64	32
DEC 16...	1030	86	5410	8.1	10.0	1.0	11.3	108	3.8	160	140
JAN 20...	1130	25	9200	8.4	7.5	1.7	17.3	160	6.8	K12	K13
FEB 17...	1300	33	8750	8.3	11.5	10	14.3	144	8.0	52	25
MAR 17...	1220	38	7470	8.2	14.5	17	11.3	121	12	21	K14
APR 21...	1000	252	1870	7.6	21.0	82	7.8	94	5.0	2000	780
MAY 19...	1330	43	5630	8.1	21.0	17	13.1	158	6.7	270	150
JUN 16...	1800	50	3680	8.3	26.0	19	11.8	155	6.2	56	40
JUL 14...	1145	15	9050	7.9	29.5	50	9.1	132	11	150	310
AUG 19...	1150	138	3360	7.8	24.0	150	7.3	94	5.2	K100	3100
SEP 15...	1100	15	5700	7.9	26.0	38	8.0	105	4.3	110	400

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 15...	1200	1000	250	140	1000	13	18	180	950	1600	.5
NOV 18...	1900	1700	380	230	1300	13	17	210	1500	2200	.5
DEC 16...	1100	910	250	120	890	12	11	210	1300	990	.5
JAN 20...	2100	1900	390	270	1500	14	16	220	1700	2400	.6
FEB 17...	1800	1600	320	240	1400	14	15	180	1500	2300	.6
MAR 17...	1500	1400	280	190	1200	14	13	130	1200	2000	.7
APR 21...	340	250	82	33	240	5.7	6.6	92	260	370	.5
MAY 19...	1200	1100	220	160	820	10	11	140	1100	1300	.3
JUN 16...	760	640	180	75	510	8.1	9.0	120	570	840	.4
JUL 14...	2100	2000	370	280	1300	12	29	100	1600	2400	.5
AUG 19...	790	690	150	100	460	7.1	14	97	620	760	.5
SEP 15...	1300	1200	230	170	860	10	20	100	980	1500	.6

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT											
15...	4.9	4250	4070	--	--	--	.47	.46	.020	.050	1.4
NOV											
18...	5.8	5870	5760	--	--	--	1.5	1.6	.140	.100	1.2
DEC											
16...	6.2	3520	3690	--	--	--	1.0	.94	.040	.060	.95
JAN											
20...	.3	6390	6410	1.2	.060	--	1.3	1.3	.080	.080	1.5
FEB											
17...	.5	6130	5890	--	--	--	.00	.00	.050	.090	2.1
MAR											
17...	.0	5090	4960	--	--	--	.00	.00	.000	.040	1.8
APR											
21...	6.3	1110	1060	--	--	.090	.63	.56	.350	.220	2.6
MAY											
19...	1.9	3880	3700	.02	.000	--	.02	.08	.030	.080	1.4
JUN											
16...	5.6	2400	2260	.14	.010	--	.15	.04	.040	.120	1.5
JUL											
14...	7.0	6400	6050	--	--	--	.00	.07	.090	.090	2.4
AUG											
19...	6.0	2240	2170	--	--	--	.82	.82	.220	.250	1.8
SEP											
15...	4.4	3950	3820	--	--	--	<.10	.00	.110	.060	1.5

DATE	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
15...	.86	1.40	.91	.060	.010	--	6.3	2.7	50	18	88
NOV											
18...	.76	1.30	.86	.070	.030	16	--	--	18	1.7	98
DEC											
16...	1.3	.99	1.4	.170	.100	15	--	--	110	26	100
JAN											
20...	1.1	1.60	1.2	.390	.270	15	--	--	67	4.4	57
FEB											
17...	.78	2.10	.87	.310	.090	--	11	--	24	2.1	99
MAR											
17...	.80	1.80	.84	.200	.030	14	--	--	55	5.6	97
APR											
21...	.98	2.90	1.2	.460	.130	13	--	--	497	338	100
MAY											
19...	1.1	1.40	1.2	.180	.010	12	--	--	47	5.4	98
JUN											
16...	.67	1.50	.79	.100	.010	--	5.8	3.8	65	8.8	96
JUL											
14...	1.0	2.50	1.1	.160	.020	12	--	--	64	2.6	83
AUG											
19...	1.2	2.00	1.4	.320	.150	--	8.7	.2	236	88	100
SEP											
15...	1.2	1.60	1.3	.130	<.010	10	--	--	85	3.5	98

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT											
15...	1030	3	1	2	300	0	300	0	0	0	0
FEB											
17...	1300	3	2	1	200	0	200	0	0	0	10
JUN											
16...	1800	5	1	4	300	100	200	0	0	0	10
AUG											
19...	1150	8	1	7	200	0	200	0	0	0	20

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
OCT 15...	0	10	1	1	0	7	5	2	170	140	30
FEB 17...	0	10	0	0	0	4	0	4	270	150	120
JUN 16...	0	10	1	1	0	3	1	2	570	540	30
AUG 19...	10	10	3	0	5	10	9	1	4900	4900	50

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
OCT 15...	0	0	0	150	100	50	.1	.0	.1	6	6
FEB 17...	4	4	0	470	60	410	.2	.1	.1	5	1
JUN 16...	17	14	3	280	270	10	.2	.1	.1	4	2
AUG 19...	11	10	1	270	250	20	.2	.2	.0	10	3

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT 15...	0	1	0	1	0	0	0	20	0	20
FEB 17...	4	2	0	2	0	0	0	10	0	20
JUN 16...	2	1	0	1	0	0	0	0	0	10
AUG 19...	7	1	0	1	0	0	0	120	10	110

DATE	TIME	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
OCT 15...	1030	.00	.00	.00	.00	.00	.00	.00	.02
FEB 17...	1300	.00	.00	.00	.00	.00	.00	.00	.06
JUN 16...	1800	.00	.00	.00	.00	.00	.00	.00	.00
AUG 19...	1150	.00	.00	.00	.00	.00	.00	.00	.08

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
OCT 15...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB 17...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN 16...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 19...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT 15...	.00	.00	.00	.00	0	.00	.00	.00	.00
FEB 17...	.00	.00	.00	.00	0	.00	.00	.00	.00
JUN 16...	.00	.00	.00	.00	0	.00	.02	.02	.00
AUG 19...	.00	.00	.00	.00	0	.00	.03	.02	.00

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 18,80		MAR 17,81		MAY 19,81		JUN 16,81		JUL 14,81		SEP 15,81	
TIME	1100		1220		1330		1800		1145		1100	
TOTAL CELLS/ML	69000		220000		16000		110000		180000		220000	
DIVERSITY: DIVISION	0.7		1.5		0.5		1.2		0.7		0.4	
.CLASS	0.7		1.5		0.5		1.2		0.7		0.4	
..ORDER	0.9		1.8		0.7		2.4		1.3		1.5	
...FAMILY	1.0		2.1		0.8		2.5		1.5		1.6	
....GENUS	1.1		2.1		0.8		2.8		1.5		2.1	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)												
.BACILLARIOPHYCEAE												
..ACHNANTHALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	1600	1	130	1	--	-	--	-	*	0
..BACILLARIALES												
...NITZSCHIACEAE												
....NITZSCHIA	1800	3	--	-	130	1	5800	5	*	0	*	0
..EUPODISCALES												
...COSCINODISCACEAE												
....CYCLOTELLA	58000#	84	54000#	25	14000#	87	17000	15	*	0	--	-
....MELOSIRA	590	1	--	-	--	-	--	-	*	0	--	-
..NAVICULALES												
...ENTOMONEIDACEAE												
....ENTOMONEIS	--	-	--	-	--	-	*	0	--	-	--	-
...GOMPHONEMACEAE												
....GOMPHONEMA	*	0	1600	1	--	-	--	-	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHLOROCOCCACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-	*	0
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-	*	0
...DICTYOSPHAERIACEAE												
....DICTYOSPHAERIUM	*	0	12000	5	--	-	1400	1	2300	1	2400	1
...MICRACTINIACEAE												
....MICRACTINIUM	--	-	--	-	--	-	690	1	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	590	1	*	0	1200	7	2700	2	11000	6	1400	1
....CHODATELLA	--	-	--	-	--	-	*	0	--	-	--	-
....FRANCEIA	--	-	*	0	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	*	0	--	-	--	-
....OOCYSTIS	*	0	--	-	--	-	*	0	2600	1	--	-
....SELENASTRUM	*	0	--	-	--	-	--	-	--	-	--	-
...PALMELLACEAE												
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	--	-	*	0
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	*	0	--	-	--	-
....COELASTRUM	--	-	--	-	--	-	1400	1	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-	3300	2
....GLOEOACTINIUM	--	-	--	-	--	-	--	-	--	-	*	0
....SCENEDESMUS	590	1	98000#	45	--	-	1400	1	4700	3	1400	1
....TETRASTRUM	--	-	--	-	520	3	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	--	-	2400	1	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	7900	4	130	1	690	1	*	0	1900	1
....CHLOROGONIUM	--	-	--	-	--	-	--	-	--	-	*	0
CHRYSOPHYTA												
.CHRYSOPHYCEAE												
..OCHROMONADALES												
...SYNURACEAE												
....MALLOMONAS	--	-	*	0	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	*	0	--	-	--	-

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

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 18,80		MAR 17,81		MAY 19,81		JUN 16,81		JUL 14,81		SEP 15,81	
TIME	1100		1220		1330		1800		1145		1100	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	15000	13	--	-	49000#	22
....ANACYSTIS	4700	7	--	-	--	-	5800	5	1200	1	47000#	21
..NOSTOCALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	13000	11	--	-	3800	2
....ANABAENOPSIS	--	-	--	-	--	-	--	-	25000	14	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-	--	-	2400	1
....NODULARIA	--	-	37000#	17	--	-	--	-	--	-	--	-
..OSCILLATORIALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	100000#	47
....OSCILLATORIA	--	-	--	-	--	-	47000#	41	130000#	71	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	590	1	*	0	--	-	*	0	*	0	*	0
....PHACUS	--	-	--	-	--	-	--	-	*	0	*	0
....TRACHELOMONAS	--	-	--	-	--	-	690	1	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..DINOKONTAE												
...GLENODINIACEAE												
....GLENODINIUM	890	1	--	-	--	-	--	-	--	-	*	0
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	*	0	--	-

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	38946	2350	1480	156000	530	55400	400	42400	510
NOV.	1980	2340	8840	5840	36900	2200	13700	1600	10200	2000
DEC.	1980	5138	5720	3690	51100	1300	18600	1000	14000	1300
JAN.	1981	1900	8840	5830	29900	2200	11100	1600	8270	2000
FEB.	1981	1580	9010	5960	25400	2200	9440	1600	7020	2000
MAR.	1981	2088	8660	5720	32200	2100	12000	1600	8900	1900
APR.	1981	35954	1500	939	91100	330	32200	250	24700	330
MAY	1981	5666	4240	2700	41300	970	14800	740	11300	930
JUNE	1981	8802	2170	1360	32200	480	11400	370	8740	470
JULY	1981	418.7	7430	4850	5480	1800	2010	1300	1510	1700
AUG.	1981	580.4	4160	2660	4170	960	1500	730	1140	920
SEPT	1981	359.7	4630	2960	2880	1100	1040	810	786	1000
TOTAL		103772.8	**	**	508000	**	183000	**	139000	**
WTD. AVG.		165	2840	1810	**	650	**	500	**	630

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1			848			8330			9150			8510
2			1900			8310			9320			8490
3			2950			8270			9750			8500
4			3270			8380			9090			8480
5			3600			8460			8500			8470
6			3920			8540			8730			8460
7			4240			8580			8660			8380
8			4550			8610			4280			8320
9			4710			8650			4080			8290
10			4970			8670			4160			8570
11			5260			8560			4370			9140
12			5540			8650			4590			9620
13			5880			8740			4760			9210
14			6130			8790			4990			9330
15			6450			8840			5200			9370
16			6760			8710			5410			9400
17			6910			8590			5620			9530
18			7050			8700			5570			9410
19			7230			8820			5950			9470
20			7370			9000			6320			9200
21			7520			9220			6760			9000
22			7730			9410			7140			9020
23			7810			9650			7530			9160
24			7890			9780			7780			8990
25			7960			9500			7960			8210
26			8050			9620			8170			7960
27			8120			9810			8250			8030
28			8190			9320			8310			8420
29			8250			9260			8390			8900
30			8310			9210			8450			9070
31			8360						8530			9350
MONTH			6060			8900			6960			8850

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1			9230			9430			8740			3060
2			9150			9500			8950			3100
3			9310			10900			9120			3420
4			8580			10200			9370			3840
5			8320			10500			9570			4300
6			7840			11700			9780			4430
7			8330			10500			10000			5280
8			9950			8040			10300			4760
9			9580			6880			10400			4010
10			9850			6290			10500			1350
11			10200			7310			10700			2110
12			9600			8000			10800			2960
13			8810			7450			11000			3560
14			8500			7190			9450			4020
15			8470			7100			7940			4420
16			8580			7230			7760			4680
17			8750			7490			7680			5180
18			8810			8400			7350			5400
19			8840			9000			2220			5650
20			8890			8660			1850			6100
21			8960			8560			1870			6200
22			9020			8600			664			6360
23			9060			8520			888			6200
24			9130			8580			1110			6050
25			9180			8520			1320			6140
26			9240			8360			1550			6570
27			9290			8170			1900			6980
28			9350			8000			2320			7340
29						8120			2620			6830
30						8330			3080			6710
31						8520						6290
MONTH			9030			8520			6360			4950

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	4980	6360	5940	6130	7480	7300	7390	2540	2460	2500
2	---	---	5370	6500	6120	6290	7420	7280	7370	2540	680	1710
3	---	---	5500	6640	5860	6330	7440	7300	7370	2480	1700	2080
4	---	---	1810	6100	4900	5590	7440	7320	7380	2620	2320	2520
5	---	---	2050	6360	5340	5880	7420	7300	7360	2700	1940	2450
6	---	---	1340	6860	5300	6310	7420	7260	7330	3040	2660	2820
7	---	---	1460	8160	6920	7650	7400	7300	7350	3800	2600	3170
8	---	---	1730	8460	7820	8160	7380	7280	7330	3980	3640	3780
9	---	---	2030	8720	8360	8520	7460	7300	7370	3980	3720	3870
10	---	---	2330	9600	8700	9160	7460	7340	7400	6400	3900	4640
11	---	---	2600	10000	9360	9670	7540	7460	7410	8700	6700	8090
12	---	---	2830	9840	9520	9690	7560	7400	7470	8120	7280	7730
13	---	---	3060	9480	8940	9150	7580	7420	7500	7220	5920	6590
14	---	---	3270	8900	8540	8690	7520	7380	7460	5860	5440	5660
15	---	---	3480	8600	8320	8430	7400	6980	7290	5560	5340	5430
16	---	---	3680	8380	8120	8250	7260	6600	7010	5720	5500	5570
17	---	---	3900	8220	7940	8090	6260	3940	5260	5900	5740	5810
18	---	---	4370	8160	7760	7980	8700	4120	6410	6100	5940	6000
19	---	---	4570	8080	7880	7980	3400	1140	2260	6020	5820	5930
20	---	---	4660	7960	7720	7840	1260	1140	1200	5820	5600	5700
21	---	---	4700	7820	7580	7710	1500	1260	1360	5580	5380	5450
22	5020	3830	4990	7780	7500	7690	1680	1480	1590	5340	5180	5240
23	5120	4920	5010	7680	7440	7600	1820	1680	1750	5160	5080	5130
24	5140	4920	5020	7600	7460	7540	1860	1800	1840	5140	5040	5090
25	5300	4920	5120	7620	7440	7530	1920	1800	1850	5160	5020	5090
26	5440	5160	5290	7640	7440	7530	2000	1880	1940	5160	5040	5110
27	5580	5260	5410	7520	7440	7470	2100	1960	2020	5240	5080	5160
28	5740	5400	5560	7480	7380	7430	2220	2080	2150	5300	5100	5200
29	5940	5580	5760	7540	7340	7450	2360	2200	2270	5360	5160	5260
30	6120	5780	5920	7500	7340	7440	2420	2280	2360	5480	5300	5390
31	---	---	---	7500	7340	7420	2520	2320	2410	---	---	---
MONTH	6120	3830	3930	10000	4900	7700	8700	1140	4980	8700	680	4810

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1			28.0			---			---			---
2			26.0			---			8.0			8.0
3			27.0			19.0			---			---
4			---			18.0			10.0			---
5			---			19.0			13.0			10.0
6			20.0			18.0			---			11.0
7			20.0			19.0			---			12.0
8			21.0			---			8.0			9.0
9			24.0			---			10.0			9.0
10			23.0			20.0			14.0			---
11			---			17.0			13.0			---
12			---			17.0			---			11.0
13			22.0			18.0			---			10.0
14			21.0			---			---			12.0
15			20.0			---			12.0			9.0
16			22.0			---			12.0			8.0
17			---			8.0			14.0			---
18			---			8.0			15.0			---
19			---			11.0			7.0			---
20			16.0			10.0			---			---
21			17.0			11.0			---			---
22			20.0			---			7.0			---
23			22.0			---			8.0			---
24			17.0			8.0			7.0			---
25			---			6.0			---			---
26			---			7.0			11.0			---
27			---			8.0			---			---
28			10.0			8.0			---			---
29			10.0			---			9.0			---
30			13.0			---			10.0			---
31			18.0						7.0			---
MONTH			20.0			13.0			10.5			10.0

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
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
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	33.5	25.0	28.5	31.5	25.5	28.5	29.5	26.0	27.5
2	---	---	---	34.0	25.5	29.5	30.0	24.5	27.5	30.5	23.0	27.0
3	---	---	---	34.5	26.5	29.5	30.5	24.5	27.0	31.0	24.0	27.5
4	---	---	---	34.5	26.0	29.0	29.5	24.5	27.0	28.0	25.5	27.0
5	---	---	---	32.5	26.0	28.5	31.5	25.0	28.0	29.0	25.0	26.5
6	---	---	---	32.5	27.0	29.5	33.0	26.0	29.0	29.0	24.0	26.5
7	---	---	---	31.0	26.5	28.5	29.5	25.5	28.0	29.0	25.0	26.5
8	---	---	---	30.0	25.0	27.0	28.0	25.0	26.5	27.0	23.5	25.5
9	---	---	---	31.0	24.5	27.0	30.0	24.5	27.0	28.5	22.0	25.0
10	---	---	---	32.5	25.0	28.5	30.5	25.0	27.0	30.0	22.5	26.0
11	---	---	---	34.0	25.0	29.0	31.0	25.0	26.5	31.0	24.5	27.5
12	---	---	---	33.5	25.5	29.0	29.5	24.0	26.5	32.0	25.0	28.0
13	---	---	---	32.0	25.5	28.5	30.0	25.0	27.5	32.0	25.0	28.0
14	---	---	---	32.0	25.0	28.5	31.5	26.0	28.5	29.0	24.5	27.0
15	---	---	---	32.0	24.5	28.0	31.0	25.5	28.5	28.0	23.5	25.5
16	---	---	---	32.0	24.5	28.0	30.0	26.5	27.5	25.0	21.5	23.0
17	---	---	---	32.0	24.0	28.5	28.5	25.0	26.5	22.0	18.5	20.0
18	---	---	---	32.0	24.5	28.0	27.0	25.0	26.0	24.0	18.0	20.5
19	---	---	---	33.0	24.5	29.0	28.5	24.0	26.0	25.0	17.5	21.5
20	---	---	---	33.5	25.5	29.5	30.0	23.0	26.5	26.5	18.0	22.0
21	---	---	---	34.0	26.0	30.0	31.0	24.0	27.5	27.5	20.0	23.5
22	32.0	27.0	30.0	32.5	25.5	29.0	31.5	24.0	27.5	26.5	21.0	24.0
23	32.0	25.0	28.0	32.0	25.5	28.5	31.5	24.0	27.0	26.5	21.5	24.0
24	32.0	24.5	27.5	31.0	25.5	28.0	31.5	24.0	27.0	26.5	21.0	23.5
25	33.0	25.0	28.5	31.0	24.0	27.5	32.5	24.5	28.0	27.5	22.0	24.5
26	33.5	25.5	29.0	32.0	25.0	28.0	32.0	25.0	28.0	27.0	21.5	24.5
27	32.5	25.5	28.5	28.0	25.5	26.5	29.5	25.0	27.0	29.0	23.0	26.0
28	32.0	24.5	27.5	29.0	25.0	26.5	30.5	24.5	27.5	28.5	23.0	25.5
29	31.5	24.5	27.5	31.0	24.5	27.5	31.5	24.5	28.0	26.5	21.0	24.0
30	31.5	25.0	27.5	29.5	25.0	27.5	31.0	24.5	28.0	27.0	21.5	24.0
31	---	---	---	32.0	25.0	28.0	33.0	24.0	28.0	---	---	---
MONTH	33.5	24.5	28.0	34.5	24.0	28.5	33.0	23.0	27.5	32.0	17.5	25.0

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

LOCATION.--Lat 31°52'46", long 100°31'01", Coke County, Hydrologic Unit 12080008, in outlet works of Robert Lee Dam on the Colorado River, 2.2 mi (3.5 km) west of Robert Lee, and at mile 715 (1,150 km).

DRAINAGE AREA.--15,278 mi² (39,570 km²), approximately, of which 10,260 mi² (26,573 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

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

REMARKS.--The reservoir is formed by a rolled earthfill dam 21,500 ft (6,550 m) long. Closure was made Dec. 30, 1968, and dam was completed in June 1969. The dam is the property of the Colorado River Municipal Water District, which has a permit to divert 50,000 acre-ft (61.6 hm³) annually for municipal, mining, and industrial uses. Inflow to reservoir is partialy regulated by Lake J. B. Thomas, Lake Colorado City, and Champion Creek Reservoir (stations 08118000, 08123000, and 08123600). There are two spillways: The service and emergency spillways. The controlled service spillway is a morning-glory type that is partially controlled by 12 lift gates, 14.48 by 22.0 ft (4.41 by 6.7 m), and discharges through a 28.0-foot-diameter (8.5 m) concrete conduit. The uncontrolled emergency spillway is a 3,200-foot-wide (975 m) cut through natural ground near the right end of dam. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	1,928.0	-
Crest of spillway	1,908.0	653,400
Top of gates	1,900.0	519,300
Top of conservation pool	1,898.0	488,800
Crest of spillway	1,878.0	262,900
Lowest gated outlet (invert)	1,815.85	4,000

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 283,000 acre-ft (349 hm³) June 9, 10, 1981, elevation, 1,880.10 ft (573.054 m); minimum since first appreciable storage in June 1969 (not from recorder), about 330 acre-ft (0.407 hm³) May 29, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 283,000 acre-ft (349 hm³) June 9, 10 at 1900 hours, elevation, 1,880.10 ft (573.054 m); minimum, 201,900 acre-ft (249 hm³) Oct. 1, elevation, 1,870.66 ft (570.177 m).

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

1,870.0	196,900	1,878.0	262,900
1,874.0	227,900	1,881.0	292,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	223700	237400	235900	238800	238400	238500	236200	270900	273300	278600	268900	262800
2	232200	237600	235700	238800	238200	238500	236100	270800	273200	278500	268500	264300
3	235100	237800	235700	238900	238200	240000	236200	271000	273300	277700	268100	264100
4	236700	237700	235700	238700	238200	239700	235600	271300	276000	277800	267700	264000
5	237300	237800	235900	238800	238000	239500	235600	272200	278000	278200	267600	263600
6	238100	237800	235800	238800	238100	239600	235200	272400	280600	277800	267500	263500
7	238700	237900	236600	238600	238000	239700	235000	272500	282600	277300	267000	263100
8	239100	237900	238000	238900	238200	239500	235000	272600	282900	276900	266800	263400
9	239200	237700	238200	239100	237900	239200	235000	272700	282800	276800	266200	263400
10	239300	237500	238600	239000	237900	239200	234900	272000	282800	276700	266100	262900
11	239300	237200	239000	239000	237200	239200	234800	272400	282500	276400	265900	263000
12	239100	237000	239200	238900	237400	239200	234800	272600	282400	276100	265600	262600
13	239400	237000	239400	239000	237500	239400	234700	272500	282000	275800	265600	262400
14	239400	236900	239300	239000	237600	239700	236700	272400	281700	275300	265400	262100
15	239600	236500	239400	239000	237700	239700	237300	272800	282000	275000	265100	261700
16	239400	237200	239500	239000	237800	239500	237400	273300	281800	274600	265400	261100
17	239400	237100	239600	238500	237800	239400	238300	273300	281800	274200	265200	260700
18	239200	237000	239700	238600	238000	239200	238600	272900	281600	273900	265300	260400
19	239300	236900	239500	238900	237900	238700	239200	272300	281500	273600	265600	260100
20	239100	236400	238800	238900	237800	238700	239900	272300	281200	272900	265500	260100
21	239400	236200	238600	238900	238100	238800	240000	271900	281000	272200	265400	260000
22	239600	236300	238800	238800	238200	238000	241100	271800	280900	271500	265200	259800
23	238400	236300	238900	238900	238000	237500	251900	272000	280600	270700	264900	259400
24	238800	235900	238900	238900	237500	237100	262300	271600	280400	270500	264800	259200
25	237400	236000	238600	238900	237500	237300	266100	272100	280100	270300	264500	259100
26	237400	235900	238700	238800	237800	237000	267900	272000	280000	270200	264500	259000
27	237400	235700	238800	238800	237800	237100	268900	272000	279400	270100	264000	258900
28	237300	235700	238900	238900	238200	237300	269700	271400	279200	269800	263900	258500
29	237100	235700	239000	238600	---	236900	270300	271800	278900	269700	263500	258300
30	237000	235700	238900	238500	---	236500	270800	272700	278800	269700	263300	258000
31	237000	---	238800	238900	---	236400	---	273100	---	269200	263400	---
MAX	239600	237900	239700	239100	238400	240000	270800	273300	282900	278600	268900	264300
MIN	223700	235700	235700	238500	237200	236400	234700	270800	273200	269200	263300	258000
(†)	1875.12	1874.98	1875.32	1875.33	1875.26	1875.06	1878.88	1879.11	1879.68	1878.70	1878.16	1877.46
(‡)	+34700	-1300	+3100	+100	-700	-1800	+34,400	+2300	+5700	-9600	-5800	-5400
(††)	2320	1470	1420	1500	1750	2070	1290	2140	2320	2550	2550	2650

CAL YR 1980 MAX 239700 MIN 93740 ‡ +133000 †† 24930
WTR YR 1981 MAX 282900 MIN 223700 ‡ + 55700 †† 23940

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal, industrial, and mining uses.

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year. Biochemical analyses: October 1977 to September 1978.

315235100312201 E.V.SPENCE RESERVOIR SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
29...	1050	1.0	2255	8.3	9.5	10.1	94
29...	1052	10	2255	8.3	9.5	10.1	94
29...	1054	20	2255	8.3	9.5	10.1	94
29...	1056	30	2250	8.3	9.5	10.1	94
29...	1058	40	2260	8.3	9.5	10.0	93
29...	1100	47	2300	8.3	9.0	9.4	87
JUN							
24...	0837	1.0	2490	7.8	25.0	6.6	86
24...	0839	10	2490	7.8	24.5	6.4	82
24...	0841	20	2490	7.8	24.5	6.2	79
24...	0843	30	2490	7.7	24.5	5.3	68
24...	0845	40	2490	7.3	23.5	3.4	42
24...	0847	51	2520	7.0	21.0	.3	4
AUG							
13...	0930	1.0	2550	7.8	26.5	6.0	80
13...	0932	10	2550	7.8	26.5	5.9	79
13...	0934	20	2550	7.8	26.5	5.7	76
13...	0936	30	2550	7.8	26.0	5.1	67
13...	0938	40	2540	7.0	24.0	.1	1
13...	0940	52	2530	7.0	21.5	.4	5

315335100312401 E.V.SPENCE RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)
JAN										
29...	0940	1.0	2250	8.4	10.0	2.07	10.5	100	450	350
29...	0941	3.4	--	--	--	--	--	--	--	--
29...	0942	10	2250	8.4	10.0	--	10.5	100	--	--
29...	0944	20	2250	8.4	10.0	--	10.5	100	--	--
29...	0946	30	2250	8.4	9.5	--	10.4	97	--	--
29...	0948	40	2250	8.5	9.5	--	10.3	96	--	--
29...	0950	50	2260	8.5	9.5	--	9.9	93	--	--
29...	0952	60	4330	7.7	11.0	--	.5	5	--	--
29...	0954	70	4500	7.7	11.0	--	.4	4	--	--
29...	0956	77	4850	7.7	10.5	--	.4	4	930	770
JUN										
24...	0745	1.0	2480	7.9	25.5	1.60	7.5	96	490	380
24...	0746	2.6	--	--	--	--	--	--	--	--
24...	0747	10	2480	7.9	25.0	--	7.2	92	--	--
24...	0749	20	2490	7.8	24.5	--	6.2	79	--	--
24...	0751	30	2480	7.7	24.0	--	5.5	69	--	--
24...	0753	40	2500	7.0	22.0	--	.9	11	--	--
24...	0755	50	2520	7.0	20.5	--	.0	0	--	--
24...	0757	60	2560	7.0	19.5	--	.0	0	--	--
24...	0759	68	2580	7.0	19.5	--	.0	0	500	380
AUG										
13...	0844	1.0	2550	7.9	26.5	1.90	6.2	83	530	410
13...	0845	3.2	--	--	--	--	--	--	--	--
13...	0846	10	2560	7.8	26.5	--	6.0	80	--	--
13...	0848	20	2550	7.8	26.5	--	5.8	77	--	--
13...	0850	30	2550	7.7	26.0	--	4.9	64	--	--
13...	0852	40	2540	7.0	24.0	--	.1	1	--	--
13...	0854	50	2540	6.9	21.0	--	.1	1	--	--
13...	0856	60	2560	6.9	20.5	--	.1	1	--	--
13...	0858	70	2590	6.9	20.0	--	.0	0	--	--
13...	0900	82	2770	6.8	18.5	--	.2	2	540	370

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)
JAN									
29...	98	49	310	6.4	9.3	100	320	500	.3
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	190	110	790	11	11	160	790	1200	--
JUN									
24...	110	53	350	6.9	11	110	360	540	.3
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	110	55	370	7.2	11	120	380	580	.3
AUG									
13...	120	56	340	6.4	11	120	380	560	.4
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	120	59	370	6.9	11	170	400	600	--

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, 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									
29...	5.1	1350	--	.16	.93	1.1	.050	30	10
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	.16	.75	.91	.040	30	20
29...	--	--	--	.00	1.90	1.9	.160	30	1700
29...	--	--	--	--	--	--	--	--	--
29...	5.1	3190	--	.00	1.90	1.9	.180	120	890
JUN									
24...	4.1	1490	--	.02	.88	.90	.020	60	20
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	.01	1.10	1.1	.020	40	20
24...	--	--	--	.11	.89	1.0	.020	40	0
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	5.4	1590	--	.01	1.10	1.1	.040	40	900
AUG									
13...	4.5	1540	--	.00	.79	.79	.020	50	20
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	.010	.00	.80	.80	.020	50	20
13...	--	--	--	.00	.81	.81	.020	70	30
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	25	1690	--	.00	3.50	3.5	.340	80	1600

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

315413100312501 E.V.SPENCE RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUN							
24...	0815	1.0	2480	8.0	25.5	7.7	100
24...	0817	10	2480	8.0	25.5	7.6	99
24...	0819	20	2490	7.8	25.0	6.3	82
24...	0821	30	2490	7.6	24.0	4.7	59
24...	0823	41	2510	7.1	22.0	.7	9
AUG							
13...	0826	1.0	2560	7.8	27.0	6.6	88
13...	0828	10	2560	7.8	27.0	6.4	85
13...	0830	20	2550	7.7	26.5	5.2	69
13...	0832	30	2540	7.4	26.0	3.4	45
13...	0834	38	2540	7.3	26.0	2.8	37

315558100342601 E.V.SPENCE RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)
JAN										
29...	1155	1.0	2260	8.4	9.5	1.16	10.4	97	450	350
29...	1157	10	2255	8.4	9.5	--	10.3	96	--	--
29...	1159	20	2250	8.4	9.5	--	10.3	96	--	--
29...	1201	30	2250	8.4	9.0	--	10.1	94	--	--
29...	1203	40	2260	8.4	9.0	--	9.7	90	--	--
29...	1205	52	5560	8.2	9.0	--	4.2	39	1100	920
JUN										
24...	0910	1.0	2470	8.0	26.0	1.00	6.6	86	490	370
24...	0912	10	2470	7.9	26.0	--	6.5	86	--	--
24...	0914	20	2470	7.9	26.0	--	6.3	83	--	--
24...	0916	30	2480	7.8	25.5	--	6.1	79	--	--
24...	0918	40	2520	7.1	22.0	--	.1	1	--	--
24...	0920	48	2540	7.1	21.5	--	.1	1	500	370
AUG										
13...	0956	1.0	2560	7.9	27.0	1.20	6.2	83	530	410
13...	0958	10	2560	7.9	27.0	--	6.1	81	--	--
13...	1000	20	2570	7.9	27.0	--	5.6	75	--	--
13...	1002	30	2570	7.8	27.0	--	5.4	72	--	--
13...	1004	40	2540	7.1	25.5	--	.1	1	--	--
13...	1006	47	2530	6.8	22.5	--	.3	4	530	380

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
JAN										
29...	100	49	310	6.4	9.4	100	330	500	--	5.1
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	200	140	750	10	13	160	650	990	--	4.5
JUN										
24...	110	52	360	7.1	10	120	370	560	.3	3.6
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	110	54	370	7.2	11	130	370	560	.3	5.3
AUG										
13...	120	56	350	6.6	10	120	380	560	--	4.0
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	120	55	340	6.5	11	150	360	560	--	6.8

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,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									
29...	1360	--	--	.17	1.50	1.7	.050	70	10
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	.16	.91	1.1	.050	80	10
29...	2840	--	--	.21	1.70	1.9	.090	50	440
JUN									
24...	1540	--	--	.01	.88	.89	.040	60	20
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	.01	1.00	1.0	.030	30	30
24...	--	--	--	.05	1.10	1.2	.030	40	510
24...	1560	--	--	.01	1.10	1.1	.040	50	1300
AUG									
13...	1550	--	--	.00	.81	.81	.020	40	10
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	.00	.000	.00	.69	.69	.020	40	10
13...	--	--	--	.00	1.10	1.1	.030	50	1600
13...	1540	--	--	.00	1.90	1.9	.120	100	1700

315619100335601 E.V.SPENCE RESERVOIR SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
29...	1140	1.0	2250	8.5	9.5	10.4	97
29...	1142	10	2250	8.6	9.0	10.4	96
29...	1144	20	2250	8.6	9.0	10.3	95
29...	1146	30	2250	8.6	9.5	10.0	93
JUN							
24...	0935	1.0	2470	8.0	26.0	7.4	97
24...	0937	10	2470	8.0	26.0	7.4	97
24...	0939	20	2480	8.0	26.0	7.2	95
24...	0941	30	2480	7.9	25.5	6.4	83
24...	0943	40	2510	7.2	23.5	1.3	16
AUG							
13...	1024	1.0	2560	7.9	27.0	6.3	84
13...	1026	10	2560	7.9	27.0	6.2	83
13...	1028	20	2560	7.9	27.0	6.1	81
13...	1030	30	2560	7.9	27.0	5.7	76
13...	1032	40	2550	7.2	26.0	1.2	16

315712100352001 E.V.SPENCE RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
29...	1245	1.0	2280	8.5	9.5	10.1	94
29...	1247	10	2280	8.5	9.0	10.0	93
29...	1249	20	2340	8.5	9.0	9.4	88
29...	1251	34	6800	8.4	9.0	7.0	65
JUN							
24...	0955	1.0	2460	8.0	26.5	7.0	93
24...	0957	10	2460	8.0	27.0	6.8	92
24...	0959	20	2450	7.9	26.5	6.2	83
24...	1001	30	2440	7.7	26.5	4.0	53
24...	1003	37	2450	7.7	26.5	3.7	49
AUG							
13...	1042	1.0	2590	7.9	27.5	6.1	82
13...	1044	10	2590	7.9	27.5	5.9	80
13...	1046	20	2590	7.9	27.5	5.7	77
13...	1048	30	2610	7.6	27.5	4.0	54
13...	1050	35	2620	7.5	27.0	2.9	39

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

315810100364901 E.V.SPENCE RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)
JAN									
29...	1320	1.0	2330	8.6	9.5	.79	11.1	103	490
29...	1321	1.3	--	--	--	--	--	--	--
29...	1322	10	2330	8.7	9.5	--	11.0	103	--
29...	1324	22	7800	8.6	9.5	--	9.3	86	1700
JUN									
24...	1033	1.0	2340	7.9	26.5	.80	6.4	84	460
24...	1034	1.3	--	--	--	--	--	--	--
24...	1035	10	2320	7.8	26.5	--	5.5	72	--
24...	1037	20	2210	7.2	26.0	--	1.6	21	--
24...	1039	27	2290	7.2	25.5	--	.6	8	470
AUG									
13...	1110	1.0	2670	7.7	27.5	.60	5.5	74	540
13...	1112	10	2670	7.6	27.0	--	4.9	65	--
13...	1114	20	2680	7.5	27.0	--	4.2	56	--
13...	1116	25	2670	7.5	27.0	--	3.8	51	540

DATE	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
JAN									
29...	380	110	52	310	6.1	9.7	110	350	520
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	1500	330	210	1300	14	16	190	1400	2100
JUN									
24...	340	100	50	330	6.7	10	120	350	490
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	340	110	48	320	6.4	10	130	340	490
AUG									
13...	420	120	58	370	6.9	12	120	400	600
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	420	120	59	370	6.9	12	120	400	580

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN									
29...	--	5.0	1420	.00	.82	.82	.060	30	30
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	2.4	5470	.48	2.80	3.3	.260	30	260
JUN									
24...	.3	2.9	1410	.00	.97	.97	.030	70	60
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	.01	.97	.98	.040	40	10
24...	--	--	--	.02	1.10	1.1	.060	800	200
24...	.3	3.7	1400	.12	1.10	1.2	.000	290	610
AUG									
13...	--	4.3	1640	.00	.95	.95	.030	20	10
13...	--	--	--	.00	1.00	1.0	.030	40	20
13...	--	--	--	--	--	--	--	--	--
13...	--	4.3	1620	.00	1.10	1.1	.050	20	80

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

315335100312401 E.V.SPENCE RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)
JAN							
29...	0940	1.0	1	100	10	0	30
29...	0950	50	--	--	--	--	--
29...	0952	60	--	--	--	--	--
29...	0956	77	2	200	10	10	30
JUN							
24...	0745	1.0	2	200	0	10	0
24...	0751	30	--	--	--	--	--
24...	0753	40	--	--	--	--	--
24...	0759	68	3	200	0	10	0
AUG							
13...	0844	1.0	2	200	0	0	50
13...	0850	30	--	--	--	--	--
13...	0852	40	--	--	--	--	--
13...	0900	82	6	200	0	0	50

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
JAN							
29...	30	0	10	.0	0	1	10
29...	30	--	20	--	--	--	--
29...	30	--	1700	--	--	--	--
29...	120	100	890	.1	1	0	10
JUN							
24...	60	0	20	.4	0	0	20
24...	40	--	20	--	--	--	--
24...	40	--	0	--	--	--	--
24...	40	0	900	.3	0	0	10
AUG							
13...	50	0	20	.0	0	0	10
13...	50	--	20	--	--	--	--
13...	70	--	30	--	--	--	--
13...	80	0	1600	.2	0	0	10

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

315335100312401 E.V.SPENCE RESERVOIR SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	JAN 29,81		JUN 24,81		AUG 13,81	
TIME	0941		0746		0845	
TOTAL CELLS/ML	3600		24000		310000	
DIVERSITY: DIVISION	1.4		1.1		0.2	
.CLASS	1.4		1.1		0.2	
..ORDER	1.9		1.1		0.4	
...FAMILY	2.3		1.7		0.4	
....GENUS	2.8		2.2		1.2	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	350	10	*	0	--	-
....CHODATELLA	--	-	310	1	*	0
....KIRCHNERIELLA	--	-	--	-	*	0
....OOCYSTIS	--	-	1800	7	1900	1
....SELENASTRUM	100	3	--	-	--	-
....TETRAEDRON	--	-	3300	13	*	0
...SCENEDESMACEAE						
....CRUCIGENIA	870#	24	620	3	*	0
....SCENEDESMUS	260	7	9500#	39	2300	1
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	26	1	160	1	*	0
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	26	1	310	1	*	0
..PENNALES						
...CYMBELLACEAE						
....CYMBELLA	*	0	--	-	--	-
...FRAGILARIACEAE						
....SYNEDRA	90	3	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	*	0	*	0	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	51	1	160	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	1000#	29	--	-	1900	1
....ANACYSTIS	130	4	8100#	33	3000	1
....GOMPHOSPHAERIA	--	-	--	-	3500	1
..HORMOGONALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	59000#	19
....OSCILLATORIA	580#	16	--	-	240000#	75
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	39	1	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...PERIDINIACEAE						
....PERIDINIUM	--	-	--	-	*	0

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

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

315810100364901 E.V.SPENCE RESERVOIR SITE DC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	JAN 29,81		JUN 24,81		AUG 13,81	
TIME	1321		1034		1111	
TOTAL CELLS/ML	4900		38000		270000	
DIVERSITY: DIVISION	1.5		1.0		0.4	
.CLASS	1.5		1.0		0.4	
..ORDER	2.0		1.9		0.7	
...FAMILY	2.7		2.0		0.7	
....GENUS	3.1		2.1		1.6	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	570	11	260	1	5000	2
....CHLORELLA	--	-	--	-	*	0
....DICTYOSPHAERIUM	75	2	*	0	--	-
....KIRCHNERIELLA	--	-	--	-	1700	1
....OOCYSTIS	570	11	390	1	1700	1
....TETRAEDRON	--	-	520	1	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	600	12	260	1	--	-
....SCENEDESMUS	75	2	2300	6	*	0
....TETRASTRUM	--	-	260	1	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	830#	17	710	2	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	*	0
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...CHAETOCERACEAE						
....CHAETOCEROS	--	-	--	-	*	0
...COSCINODISCACEAE						
....CYCLOTELLA	75	2	1000	3	*	0
....MELOSIRA	--	-	580	2	--	-
...RHIZOSOLENIACEAE						
....RHIZOSOLENIA	--	-	--	-	*	0
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	38	1	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	*	0
...NITZSCHIACEAE						
....NITZSCHIA	--	-	840	2	3300	1
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...CHROMULINACEAE						
....CHRYSOCOCCUS	--	-	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	900#	18	*	0	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	750#	15	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	2200	1
....ANACYSTIS	340	7	10000#	27	6100	2
..HORMOGONALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	160000#	60
....OSCILLATORIA	--	-	20000#	53	83000#	31
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	38	1	*	0	--	-
....TRACHELOMONAS	--	-	260	1	*	0
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	75	2	--	-	--	-

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

08124000 COLORADO RIVER AT ROBERT LEE, TX

LOCATION.--Lat 31°53'07", long 100°28'49", Coke County, Hydrologic Unit 12080008, on left bank 190 ft (58 m) upstream from bridge on State Highway 208 in Robert Lee, 0.4 mi (0.6 km) upstream from Mountain Creek, 2.7 mi (4.3 km) downstream from Messbox Creek, 3.7 mi (6.0 km) downstream from Robert Lee Dam, and at mile 712.4 (1,146.3 km), revised.

DRAINAGE AREA (revised).--15,307 mi² (39,645 km²), of which 10,260 mi² (26,573 km²) probably is noncontributing.

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

REVISED RECORDS.--WSP 1723: 1925(M).

GAGE.--Water-stage recorder. Datum of gage is 1,771.70 ft (540.014 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 31, 1927, nonrecording gage at site 9 mi (14 km) downstream at different datum. Apr. 18 to Sept. 26, 1939, nonrecording gage, and Sept. 27, 1939, to May 9, 1956, water-stage recorder at site 200 ft (61 m) downstream at same datum.

REMARKS.--Records good. Flow affected since April 1949 by Lake Colorado City and since July 1952 by Lake J. B. Thomas. Since December 1968, flow has been regulated by E. V. Spence Reservoir (station 08123950). Many diversions above station for municipal, cooling, mining, agricultural, and industrial uses. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years (water years 1924-27, 1940-55) prior to completion of Robert Lee Dam, 207 ft³/s (5.862 m³/s), 150,000 acre-ft/yr (185 hm³/yr); 13 years (water years 1969-81) regulated, 3.43 ft³/s (0.0971 m³/s), 2,490 acre-ft/yr (3.07 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft³/s (920 m³/s) Sept. 6, 1926, gage height, 20.20 ft (6.157 m), site and datum then in use, from rating curve extended above 15,000 ft³/s (425 m³/s); maximum gage height, 20.63 ft (6.288 m) Sept. 9, 1980; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 26.7 ft (8.14 m) Oct. 13, 1957, from floodmarks. Flood in April 1922 reached a stage of 25.5 ft (7.77 m), present datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 205 ft³/s (5.81 m³/s) July 21 at 0900 hours, gage height, 4.64 ft (1.414 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	.13	.33	.18	.00	1.1	.24	1.3	.96	.14	.23	.38
2	2.0	.12	.27	.08	.01	1.1	.25	.31	.63	.09	.22	17
3	1.9	.09	.17	.05	.01	5.8	.35	.05	.56	.07	17	4.3
4	2.9	.10	.14	.04	.03	4.6	.34	.02	6.2	11	117	1.6
5	1.7	.08	.08	.03	.10	1.9	.43	9.4	3.3	28	3.4	.87
6	1.2	.08	.09	.13	.09	.76	.56	4.0	1.9	2.2	1.3	.54
7	.97	.14	.13	.21	.05	.59	.61	1.8	1.6	1.0	.71	.41
8	.83	.13	4.2	.45	.03	.62	.51	1.1	.79	.72	.55	.40
9	.63	.07	2.6	.70	.04	.57	.49	.76	.49	.62	.51	.38
10	.47	.06	.63	.38	.11	.33	.55	.64	.35	.60	.56	.49
11	.47	.09	.24	.10	.12	.52	.61	.43	.16	.64	.60	.62
12	.45	.11	.12	.05	.30	1.0	.56	.38	.12	.67	.50	.56
13	.36	.10	.08	.04	.68	.89	.52	.34	.12	.78	.45	.56
14	.37	.08	.09	.03	.62	.64	3.8	.37	.13	.73	.42	.54
15	.42	.09	.05	.01	.59	.63	5.6	1.7	2.3	.65	.39	.57
16	.39	1.0	.04	.00	.58	.71	2.1	6.7	5.0	.55	.66	.54
17	1.6	2.6	.03	.01	.46	.74	1.1	3.2	1.3	.51	.99	.52
18	1.2	1.4	.00	.08	.38	.41	2.7	1.3	.71	.43	.65	.52
19	.54	.63	.03	.14	.26	.34	1.2	.71	.55	.31	.56	.52
20	.32	.46	.10	.11	.22	.22	.30	.36	.29	53	.49	.54
21	.22	.39	.08	.07	.12	.16	.06	.23	.23	163	.43	.53
22	.26	.39	.06	.04	.08	.15	1.8	.21	.25	7.0	.36	.51
23	.26	.43	.06	.02	.28	.22	5.8	.17	.22	1.3	.34	.51
24	.28	.58	.05	.02	.24	.17	2.0	.26	.18	.74	.31	.51
25	.21	.57	.06	.01	.10	.17	.40	5.6	.10	.50	.35	.51
26	.16	.61	.03	.03	.12	.17	.14	1.4	.05	.50	.32	.51
27	.17	.55	.05	.04	.13	.24	.96	.71	.04	.52	.29	.49
28	.17	.38	.16	.05	.47	.27	1.4	.39	.05	.55	.27	.49
29	.19	.14	.17	.02	---	.36	1.7	1.3	.07	.46	.32	.50
30	.20	.06	.25	.00	---	.28	1.7	13	.10	.34	.32	.43
31	.12	---	.25	.00	---	.26	---	2.1	---	.27	.36	---
TOTAL	23.56	11.66	10.64	3.12	6.22	25.92	38.78	60.24	28.75	277.89	150.86	36.85
MEAN	.76	.39	.34	.10	.22	.84	1.29	1.94	.96	8.96	4.87	1.23
MAX	2.9	2.6	4.2	.70	.68	5.8	5.8	13	6.2	163	117	17
MIN	.12	.06	.00	.00	.00	.15	.06	.02	.04	.07	.22	.38
AC-FT	47	23	21	6.2	12	51	77	119	57	551	299	73

CAL YR 1980	TOTAL	6590.46	MEAN	18.0	MAX	5600	MIN	.00	AC-FT 13070
WTR YR 1981	TOTAL	674.49	MEAN	1.85	MAX	163	MIN	.00	AC-FT 1340

08125500 OAK CREEK RESERVOIR NEAR BLACKWELL, TX

LOCATION.--Lat 32°03'25", long 100°17'37", Coke County, Hydrologic Unit 12080008, on left bank at municipal pump station, 1.9 mi (3.1 km) upstream from dam on Oak Creek, 2.5 mi (4.0 km) southeast of Blackwell, 14 mi (23 km) north of Bronte, and 20 mi (32 km) upstream from mouth.

DRAINAGE AREA (revised).--238 mi² (616 m²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1953 to current year.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The reservoir is formed by a rolled earthfill dam 3,800 ft (1,160 m) long. The dam was completed in May 1952, and deliberate impoundment began May 12, 1953. The uncontrolled emergency spillway is an 800-foot-wide (240 m) cut through natural ground, located 1,200 ft (366 m) from right end of dam. The service spillway is an uncontrolled cut channel through natural ground 300 ft (91 m) wide, located 2,000 ft (610 m) from right end of dam. The reservoir and dam are the property of the city of Sweetwater. The dam was built to impound water for municipal and industrial uses by the cities of Sweetwater, Blackwell, and Bronte. Since April 1962, West Texas Utilities Co. has operated a steam generating powerplant located on the reservoir. There is a gated outlet at the service spillway that can release water downstream to Oak Creek through a 24-inch (610 mm) concrete pipe. The capacity curve is based on a 1950 survey. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	2,014.0	-
Crest of spillway	2,005.0	52,490
Crest of spillway (top of conservation pool)	2,000.0	39,360
Lowest gated outlet (invert)	1,951.0	100

COOPERATION.--Capacity curve, record of lake elevation, and diversions were furnished by the city of Sweetwater.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents observed, 49,100 acre-ft (60.5 hm³) Oct. 13, 1957, elevation, 2,003.80 ft (610.758 m); minimum observed, 6,050 acre-ft (7.46 hm³) Sept. 6-8, 1980, elevation, 1,974.5 ft (601.83 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents observed, 26,840 acre-ft (33.1 hm³) June 4-10 at 0800 hours, elevation, 1,993.9 ft (607.74 m); minimum, 19,830 acre-ft (24.5 hm³) Oct. 1, elevation, 1,989.5 ft (606.40 m).

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

1,989.0	19,130
1,992.0	23,600
1,994.0	27,010

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19830	20530	20680	21420	21870	22020	23130	25960	26660	26310	24930	23600
2	19970	20530	20680	21570	21870	22020	23130	26140	26660	26140	24760	23600
3	20110	20530	20680	21570	21870	22020	23130	26140	26660	26140	24760	23600
4	20250	20530	20680	21570	21870	22490	23130	26140	26840	26140	24600	23600
5	20250	20390	20680	21570	21870	22650	23130	26310	26840	26310	24600	23600
6	20390	20390	20680	21570	21870	22650	23130	26310	26840	26310	24600	23600
7	20530	20390	20680	21570	21870	22810	23130	26310	26840	26310	24430	23600
8	20530	20390	20980	21570	21870	22810	23130	26310	26840	26140	24430	23600
9	20530	20390	20980	21720	21870	22810	23130	26310	26840	26140	24430	23600
10	20530	20390	21130	21720	21870	22810	23130	26310	26840	26140	24430	23440
11	20530	20390	21130	21720	21870	22810	23130	26310	26660	26140	24430	23440
12	20530	20390	21130	21720	21870	22970	23130	26310	26660	25960	24260	23440
13	20530	20390	21130	21720	21870	22970	23130	26310	26660	25960	24260	23280
14	20530	20390	21130	21720	21870	23130	23440	26310	26660	25960	24260	23280
15	20530	20390	21280	21720	21870	23130	23600	26310	26660	25960	24260	23280
16	20530	20530	21280	21720	21870	23130	23600	26490	26660	25790	24260	23280
17	20680	20530	21280	21720	21870	23130	23770	26490	26660	25790	24260	23280
18	20680	20530	21280	21720	21870	23130	24260	26490	26660	25790	24260	23280
19	20680	20530	21420	21720	22020	23130	24600	26490	26660	25610	24260	23130
20	20680	20530	21420	21720	22020	23130	24760	26490	26660	25610	24260	23130
21	20680	20530	21420	21720	22020	23130	24760	26490	26660	25610	24260	22970
22	20680	20530	21420	21870	22020	23130	24930	26490	26490	25610	24260	22970
23	20530	20530	21420	21870	21870	23130	25260	26310	26490	25610	24100	22970
24	20530	20530	21420	21870	21870	23130	25440	26310	26490	25440	24100	22970
25	20530	20530	21420	21870	21870	23130	25610	26490	26490	25440	24100	22970
26	20530	20680	21420	21870	21870	23130	25790	26490	26490	25260	23930	22810
27	20530	20680	21420	21870	21870	23130	25960	26490	26310	25260	23930	22810
28	20530	20680	21420	21870	21870	23130	25960	26490	26310	25090	23930	22810
29	20530	20680	21420	21870	---	23130	25960	26490	26310	25090	23770	22810
30	20530	20680	21420	21870	---	23130	25960	26660	26310	24930	23770	22810
31	20530	---	21420	21870	---	23130	---	26660	---	24930	23600	---
MAX	20680	20680	21420	21870	22020	23130	25960	26660	26840	26310	24930	23600
MIN	19830	20390	20680	21420	21870	22020	23130	25960	26310	24930	23600	22810
(†)	1990.0	1990.1	1990.6	1990.9	1990.9	1991.7	1993.4	1993.8	1993.6	1992.8	1992.0	1991.5
(‡)	+980	+150	+740	+450	0	+1260	+2830	+700	-350	-1380	-1330	-790
(††)	234	28	26	25	25	22	10	27	15	386	392	165

CAL YR 1980 MAX 21420 MIN 6050 ‡ +11190 †† 3270
WTR YR 1981 MAX 26840 MIN 19830 ‡ + 3260 †† 1350

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal and industrial uses.

08125500 OAK CREEK RESERVOIR NEAR BLACKWELL, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 17...	1045	776	11.0	290	160	74	26	43

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 17...	1.1	6.4	130	180	65	.2	6.5	479

08126380 COLORADO RIVER NEAR BALLINGER, TX

LOCATION.--Lat 31°42'55", long 100°01'34", Runnels County, Hydrologic Unit 12090101, at left downstream end of bridge on Farm Road 2111, 0.4 mi (0.6 km) upstream from Rocky Creek, 5.0 mi (8.0 km) northwest of Ballinger, and at mile 665.8 (1,071.3 km), revised.

DRAINAGE AREA.--16,358 mi² (42,367 km²), approximately, of which 10,260 mi² (26,573 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder. Datum of gage is 1,606.51 ft (489.664 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 29, 1930, nonrecording gages at several sites and at various datums near site 5.4 mi (8.7 km) downstream. Nov. 29, 1930, to May 1, 1975, water-stage recorder at site 6.2 mi (10.0 km) downstream and May 1, 1975, to Sept. 30, 1979, water-stage recorder at site 5.4 mi (8.7 km) downstream, both at datum 12.77 ft (3.892 m) lower.

REMARKS.--Water-discharge records good. Diversions above station for irrigation, municipal supplies, and oilfield operation. Flow is affected by E. V. Spence and Oak Creek Reservoirs (see stations 08123950 and 08125500) and at times by discharge from the flood-detention pools of 25 floodwater-retarding structures with a combined detention capacity of 26,640 acre-ft (32.8 hm³). These structures control runoff from 133 mi² (344 km²) in the Kickapoo and Valley Creeks drainage basins.

AVERAGE DISCHARGE.--61 years (water years 1908-68) prior to completion of Robert Lee Dam, 336 ft³/s (9.516 m³/s), 243,400 acre-ft/yr (300 hm³/yr); 13 years (water years 1969-81) partially regulated, 44.9 ft³/s (1.272 m³/s), 32,530 acre-ft/yr (40.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,400 ft³/s (2,140 m³/s) Sept. 18, 1936, gage height, 28.6 ft (8.72 m), at former site and datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 36 ft (11.0 m) sometime in 1884, at former site and datum, from information by local residents. Flood of Aug. 6, 1906, reached a stage of about 32.0 ft (9.75 m), at former site and datum, from floodmarks (backwater from Elm Creek).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,520 ft³/s (213 m³/s) May 30 at 0900 hours, gage height, 20.62 ft (6.285 m), from floodmark; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	390	11	15	21	12	54	22	42	163	.76	.07	.43
2	320	11	15	20	12	45	22	37	58	.58	.08	1.9
3	226	10	14	19	12	249	21	35	22	2.3	.01	2.7
4	161	9.6	13	19	11	283	20	33	242	143	.00	15
5	125	9.2	13	19	12	144	18	31	273	105	.03	16
6	93	9.2	14	18	12	121	16	29	99	62	.05	53
7	76	8.3	15	18	12	117	15	28	77	101	.12	68
8	63	8.3	143	19	12	97	14	27	24	95	.12	52
9	53	8.3	138	23	12	82	14	26	15	73	.16	23
10	46	7.5	71	23	15	73	14	22	27	45	.11	12
11	41	6.7	53	22	13	80	14	20	93	23	.12	7.2
12	37	6.7	46	21	11	91	15	17	72	10	.23	4.4
13	33	6.7	43	20	10	78	15	17	55	10	.10	24
14	28	7.5	40	20	11	66	20	15	39	1.1	.32	117
15	27	6.0	39	19	11	59	26	30	31	.28	.45	40
16	26	10	36	18	11	51	48	33	173	.18	1.0	13
17	24	23	33	17	11	46	56	33	207	.36	96	68
18	24	24	32	17	12	42	149	27	177	.47	203	26
19	23	21	32	18	11	36	137	21	133	.22	161	11
20	24	20	27	18	11	33	75	17	101	.23	102	9.2
21	22	16	26	18	11	30	55	14	79	.19	55	7.3
22	22	16	25	17	11	29	46	13	75	.06	26	4.9
23	20	17	24	17	11	27	55	12	64	.00	13	3.9
24	18	17	24	17	11	26	104	11	19	.01	3.0	1.8
25	16	19	24	16	10	26	107	61	4.3	75	1.2	.89
26	16	19	23	15	10	26	84	43	3.0	1.4	1.0	.84
27	16	17	23	15	11	25	71	20	3.8	2.2	2.3	.88
28	14	16	23	14	14	26	60	13	2.0	.49	2.3	.83
29	12	15	23	14	---	25	52	11	1.5	.13	1.9	.88
30	11	15	21	13	---	24	46	3570	.97	.00	1.6	1.4
31	11	---	21	13	---	24	---	596	---	.06	1.4	---
TOTAL	2018	391.0	1089	558	323	2135	1411	4904	2333.57	753.02	673.67	587.45
MEAN	65.1	13.0	35.1	18.0	11.5	68.9	47.0	158	77.8	24.3	21.7	19.6
MAX	390	24	143	23	15	283	149	3570	273	143	203	117
MIN	11	6.0	13	13	10	24	14	11	.97	.00	.00	.43
AC-FT	4000	776	2160	1110	641	4230	2800	9730	4630	1490	1340	1170

CAL YR 1980	TOTAL	25286.90	MEAN 69.1	MAX 6150	MIN .02	AC-FT	50160	
WTR YR 1981	TOTAL	17176.71	MEAN 47.1	MAX 3570	MIN .00	AC-FT	34070	

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1961 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1961 to current year.
WATER TEMPERATURES: October 1961 to current year.
SUSPENDED SEDIMENT DISCHARGE: January 1978 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, 13,500 micromhos May 3, 1963; minimum daily, 244 micromhos Sept. 9, 1980.
WATER TEMPERATURES: Maximum daily, 39.0°C July 3, 1977; minimum daily, 0.0°C Jan. 9-11, 1973.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,740 mg/L Sept. 9 1980; minimum daily mean, 4 mg/L Feb. 2, 1980.
SEDIMENT LOADS: Maximum daily, 94,100 tons Aug. 3, 1978; minimum daily, 0 tons on many days during 1978 and 1980-81.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,930 micromhos Aug. 13; minimum daily, 467 micromhos May 30.
WATER TEMPERATURES: Maximum daily, 34.5°C July 22; minimum daily, 4.5°C Feb. 12.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,040 mg/L May 30; minimum daily mean, 8 mg/L Nov. 19, 28.
SEDIMENT LOADS: Maximum daily, 26,200 tons May 30; minimum daily, 0.0 tons on many days during July and August.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)	SODIUM AD-SORP-TION RATIO
NOV 21...	1340	17	1900	--	8.0	570	410	140	54	180	3.3
JAN 05...	1210	19	1520	--	8.0	460	250	110	46	140	2.8
FEB 18...	0945	12	2130	--	12.5	680	470	160	67	190	3.2
MAR 03...	1410	482	--	--	16.0	--	--	--	--	--	--
MAY 30...	0920	7600	--	--	18.5	--	--	--	--	--	--
JUN 01...	1520	139	667	--	26.0	190	69	46	18	58	2.0
AUG 17...	1230	1.3	3710	7.4	28.0	1700	1600	440	150	270	2.8

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 CONSTI-TUENTS, DIS-SOLVED (MG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 21...	5.5	160	370	290	.3	6.8	1140	--	--	--
JAN 05...	4.6	210	240	220	.4	8.3	896	--	--	--
FEB 18...	4.7	210	430	320	.5	4.9	1300	--	--	--
MAR 03...	--	--	--	--	--	--	--	1400	1820	93
MAY 30...	--	--	--	--	--	--	--	2870	58900	96
JUN 01...	5.0	120	82	92	.2	6.3	380	--	--	--
AUG 17...	7.2	160	1500	460	.5	11	2930	--	--	--

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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
MAR 03...	1410	482	16.0	1400	1820	40	41
MAY 30...	0920	7600	18.5	2870	58900	54	69

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
MAR 03...	47	53	66	93	98	99	100
MAY 30...	79	89	94	96	98	99	100

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	2018	617	333	1820	88	478	83	454	160
NOV.	1980	391.0	1880	1150	1210	280	294	390	407	590
DEC.	1980	1089	1800	1120	3300	270	791	390	1150	590
JAN.	1981	558	1600	951	1430	230	354	300	455	480
FEB.	1981	323	2040	1260	1100	300	265	440	380	660
MAR.	1981	2135	1390	837	4820	210	1180	270	1570	430
APR.	1981	1411	1670	1020	3890	250	942	350	1310	530
MAY	1981	4904	616	338	4470	88	1170	88	1170	160
JUNE	1981	2333.57	922	514	3240	130	834	140	885	250
JULY	1981	753.02	1570	940	1910	230	470	300	614	480
AUG.	1981	673.67	2090	1360	2480	320	577	510	930	730
SEPT	1981	587.45	2350	1500	2390	350	562	550	871	800
TOTAL		17176.71	**	**	32100	**	7910	**	10200	**
WTD. AVG.		47	1160	691	**	170	**	220	**	350

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	531	1490	2010	1460	1900	3110	1200	1100	661	1850	3430	3600
2	500	1520	1830	1490	1940	2800	1180	1120	626	1930	3450	2970
3	475	1560	2020	1520	1960	2950	1250	1130	724	1920	3540	2950
4	495	1550	2040	1530	1940	1160	1150	1150	522	1750	---	2890
5	516	1660	2060	1520	1920	927	1160	1160	906	1370	3600	2580
6	543	1640	2020	1560	2000	979	1210	1210	1060	1450	3680	2350
7	569	1650	2050	1550	2020	1100	1250	1190	740	1300	3660	2370
8	609	1650	3400	1540	1970	1150	1220	1110	765	1410	3730	2510
9	627	1660	2390	1600	1960	1210	1520	1240	778	1250	3880	2660
10	642	1800	1180	1590	2000	1130	1470	1230	832	1350	3870	2830
11	699	1940	1350	1530	1900	1040	1520	1270	875	1450	3880	2930
12	712	1950	1440	1480	2080	1010	1580	1320	938	1620	3920	3000
13	726	2000	1360	1470	2090	1030	1520	1380	983	1810	3930	2800
14	775	2060	1290	1460	2080	1040	1510	1320	1010	1900	3920	2220
15	829	1970	1310	1450	2140	1050	1820	1840	1060	2090	3910	2060
16	833	1960	1330	1470	2090	1080	2320	1360	928	2360	3920	2210
17	859	1980	1320	1430	2100	1100	2260	1250	900	2190	3670	2160
18	879	1990	1300	1560	2040	1080	3250	1200	958	2440	2870	2050
19	893	2000	1250	1640	2030	1090	1860	1180	1080	2860	1480	2110
20	916	1900	1350	1650	2090	1100	1290	1000	1140	2820	928	2160
21	955	1920	1370	1670	2100	1150	1150	1050	1340	2970	951	2140
22	958	1900	1360	1660	2000	1070	1940	1080	1390	3660	1100	2210
23	1060	1910	1350	1700	2110	1080	1090	1070	1450	---	1290	2250
24	1070	1940	1360	1750	2120	1140	1940	1090	1440	3500	1680	2400
25	1120	1860	1370	1810	2130	1160	1350	2170	1310	2540	2020	2660
26	1140	1950	1390	1840	2160	1160	1170	2270	1370	2680	2310	2780
27	1220	2040	1380	1830	2190	1120	1100	1970	1610	2830	2300	2870
28	1170	2050	1390	1800	2120	1140	1150	1690	1600	3050	2280	2980
29	1390	2040	1400	1840	---	1170	1140	1470	1700	3250	2390	3050
30	1420	2000	1500	1800	---	1160	1130	467	1770	---	2710	3060
31	1440	---	1510	1900	---	1170	---	550	---	3320	2970	---
MEAN	857	1850	1600	1620	2040	1280	1490	1280	1080	2240	2910	2590

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.5	13.5	11.5	10.5	7.0	17.0	18.5	25.0	25.0	29.5	30.5	28.0
2	23.5	14.0	11.0	10.5	7.0	15.0	22.0	23.5	25.0	31.5	29.0	28.5
3	22.0	17.0	8.5	11.0	10.0	16.0	22.0	23.5	28.0	---	---	25.0
4	23.0	16.5	10.0	9.0	7.0	16.5	16.0	26.5	22.0	31.0	---	28.0
5	24.0	14.0	12.0	7.5	7.0	15.0	20.5	24.0	29.0	31.5	---	29.0
6	22.0	14.5	14.0	9.0	7.0	14.5	17.5	24.0	27.5	---	29.0	29.5
7	22.0	18.5	15.0	9.0	8.5	16.0	21.0	22.0	29.0	28.0	29.0	31.0
8	23.0	18.0	12.0	7.0	11.0	---	21.5	25.0	30.0	30.5	30.0	26.5
9	22.0	18.0	11.0	8.5	10.0	11.0	22.0	24.0	32.0	30.0	30.0	28.0
10	23.0	18.0	11.0	9.0	10.0	11.5	22.0	23.5	32.0	---	32.0	28.5
11	22.0	18.0	10.5	9.0	6.5	11.0	20.0	24.0	29.5	31.5	29.0	29.0
12	22.5	18.0	10.0	9.5	4.5	12.0	20.0	25.0	27.5	31.5	29.5	30.0
13	22.0	18.0	10.5	7.0	8.5	14.5	21.5	28.0	27.0	---	30.0	31.5
14	25.0	15.0	10.5	7.0	10.0	16.0	20.0	24.5	27.5	32.0	26.5	28.5
15	25.0	11.5	13.5	7.0	12.0	16.5	17.0	17.0	26.0	34.0	27.0	28.0
16	25.0	8.0	12.5	7.5	12.0	14.0	20.0	21.0	25.0	32.0	31.0	25.5
17	23.5	8.0	13.0	6.0	13.0	16.0	20.0	21.5	25.5	32.0	30.0	23.0
18	20.0	8.5	14.0	5.0	17.0	15.0	20.5	26.0	28.0	33.0	28.0	23.5
19	18.5	8.5	10.5	6.5	17.5	15.0	24.0	26.0	28.5	33.0	28.0	24.0
20	19.0	9.0	6.0	7.0	16.0	14.0	24.0	24.5	28.5	34.0	29.5	25.0
21	20.0	10.0	5.0	9.0	17.0	15.5	22.5	21.0	30.0	33.0	29.5	27.5
22	19.0	9.5	5.5	9.0	15.0	15.0	22.0	22.5	29.0	34.5	31.0	27.0
23	21.5	11.0	---	7.5	11.5	16.5	20.0	29.0	28.0	---	30.0	27.0
24	17.0	9.0	---	8.0	11.5	17.0	21.5	23.0	28.5	---	30.0	27.0
25	15.5	8.5	---	9.5	17.0	18.0	---	27.0	30.0	32.0	32.0	28.5
26	15.5	9.0	---	10.0	15.0	18.0	23.5	28.0	28.5	31.0	32.5	29.5
27	19.0	8.0	---	10.0	16.0	18.5	24.0	29.0	28.5	29.0	30.0	26.0
28	14.0	7.0	---	13.0	16.0	20.0	24.5	27.5	29.0	29.5	31.0	27.5
29	14.0	10.0	11.0	13.0	---	20.0	24.5	29.0	29.5	---	30.5	27.0
30	10.0	9.0	10.0	11.0	---	20.5	25.0	18.5	---	---	31.0	28.0
31	14.0	---	10.0	9.0	---	21.0	---	26.0	---	---	32.5	---
MEAN	20.5	12.5	10.5	9.0	11.5	16.0	21.5	24.5	28.0	31.5	30.0	27.5

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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	390	90	95	11	18	.53	15	20	.81
2	320	96	83	11	18	.53	15	24	.97
3	226	99	60	10	21	.57	14	14	.53
4	161	70	30	9.6	22	.57	13	27	.95
5	125	42	14	9.2	24	.60	13	28	.98
6	93	46	12	9.2	16	.40	14	32	1.2
7	76	34	7.0	8.3	25	.56	15	28	1.1
8	63	48	8.2	8.3	20	.45	143	165	73
9	53	41	5.9	8.3	25	.56	138	100	40
10	46	48	6.0	7.5	22	.45	71	44	8.4
11	41	43	4.8	6.7	20	.36	53	34	4.9
12	37	42	4.2	6.7	19	.34	46	36	4.5
13	33	31	2.8	6.7	16	.29	43	40	4.6
14	28	42	3.2	7.5	14	.28	40	38	4.1
15	27	38	2.8	6.0	13	.21	39	38	4.0
16	26	41	2.9	10	29	.78	36	40	3.9
17	24	47	3.0	23	14	.87	33	46	4.1
18	24	40	2.6	24	12	.78	32	42	3.6
19	23	40	2.5	21	8	.45	32	50	4.3
20	24	42	2.7	20	12	.65	27	30	2.2
21	22	48	2.9	16	12	.52	26	23	1.6
22	22	48	2.9	16	12	.52	25	19	1.3
23	20	48	2.6	17	14	.64	24	20	1.3
24	18	32	1.6	17	12	.55	24	25	1.6
25	16	30	1.3	19	12	.62	24	20	1.3
26	16	27	1.2	19	12	.62	23	25	1.6
27	16	36	1.6	17	13	.60	23	20	1.2
28	14	21	.79	16	8	.35	23	25	1.6
29	12	16	.52	15	12	.49	23	45	2.8
30	11	26	.77	15	12	.49	21	30	1.7
31	11	24	.71	---	---	---	21	25	1.4
TOTAL	2018	---	369.49	391.0	---	15.63	1089	---	185.54

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	21	31	1.8	12	63	2.0	54	122	18
2	20	29	1.6	12	30	.97	45	45	5.5
3	19	30	1.5	12	32	1.0	249	805	1060
4	19	25	1.3	11	42	1.2	283	571	598
5	19	16	.82	12	34	1.1	144	98	38
6	18	44	2.1	12	28	.91	121	112	37
7	18	54	2.6	12	28	.91	117	85	27
8	19	30	1.5	12	38	1.2	97	64	17
9	23	60	3.7	12	32	1.0	82	44	9.7
10	23	54	3.4	15	28	1.1	73	44	8.7
11	22	50	3.0	13	30	1.1	80	119	26
12	21	30	1.7	11	23	.68	91	47	12
13	20	33	1.8	10	19	.51	78	41	8.6
14	20	31	1.7	11	30	.89	66	42	7.5
15	19	46	2.4	11	46	1.4	59	52	8.3
16	18	26	1.3	11	50	1.5	51	38	5.2
17	17	16	.73	11	30	.89	46	55	6.8
18	17	41	1.9	12	34	1.1	42	52	5.9
19	18	14	.68	11	31	.92	36	33	3.2
20	18	26	1.3	11	36	1.1	33	28	2.5
21	18	45	2.2	11	49	1.5	30	40	3.2
22	17	58	2.7	11	50	1.5	29	36	2.8
23	17	28	1.3	11	48	1.4	27	36	2.6
24	17	39	1.8	11	48	1.4	26	34	2.4
25	16	57	2.5	10	52	1.4	26	43	3.0
26	15	66	2.7	10	57	1.5	26	44	3.1
27	15	74	3.0	11	126	3.7	25	38	2.6
28	14	68	2.6	14	112	4.2	26	38	2.7
29	14	58	2.2	---	---	---	25	28	1.9
30	13	66	2.3	---	---	---	24	25	1.6
31	13	64	2.2	---	---	---	24	36	2.3
TOTAL	558	---	62.33	323	---	38.08	2135	---	1933.1

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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	22	46	2.7	42	86	9.8	163	101	44
2	22	26	1.5	37	86	8.6	58	268	42
3	21	42	2.4	35	120	11	22	52	3.1
4	20	66	3.6	33	91	8.1	242	630	497
5	18	70	3.4	31	94	7.9	273	625	603
6	16	60	2.6	29	93	7.3	99	50	13
7	15	74	3.0	28	74	5.6	77	49	10
8	14	75	2.8	27	122	8.9	24	55	3.6
9	14	79	3.0	26	99	6.9	15	42	1.7
10	14	83	3.1	22	102	6.1	27	36	2.6
11	14	70	2.6	20	92	5.0	93	39	9.8
12	15	97	3.9	17	95	4.4	72	57	11
13	15	116	4.7	17	58	2.7	55	69	10
14	20	98	5.3	15	55	2.2	39	76	8.0
15	26	80	5.6	30	108	10	31	78	6.5
16	48	82	11	33	115	10	173	137	64
17	56	77	12	33	76	6.8	207	122	68
18	149	93	37	27	82	6.0	177	114	54
19	137	77	28	21	74	4.2	133	54	19
20	75	80	16	17	73	3.4	101	102	28
21	55	93	14	14	73	2.8	79	31	6.6
22	46	86	11	13	78	2.7	75	34	6.9
23	55	95	14	12	64	2.1	64	47	8.1
24	104	80	22	11	72	2.1	19	54	2.8
25	107	85	25	61	92	15	4.3	49	.57
26	84	89	20	43	52	6.0	3.0	67	.54
27	71	92	18	20	46	2.5	3.8	55	.56
28	60	94	15	13	58	2.0	2.0	87	.47
29	52	94	13	11	50	1.5	1.5	84	.34
30	46	94	12	3570	2040	26200	.97	80	.21
31	---	---	---	596	490	1000	---	---	---
TOTAL	1411	---	318.2	4904	---	27371.6	2333.57	---	1525.39

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	.76	80	.16	.07	64	.01	.43	52	.06
2	.58	106	.17	.08	62	.01	1.9	32	.16
3	2.3	75	.47	.01	55	.00	2.7	34	.25
4	143	107	41	.00	---	---	15	35	1.4
5	105	70	20	.03	40	.00	16	47	2.0
6	62	30	5.0	.05	35	.00	53	38	5.4
7	101	38	10	.12	89	.03	68	30	5.5
8	95	28	7.2	.12	34	.01	52	28	3.9
9	73	26	5.1	.16	100	.04	23	32	2.0
10	45	28	3.4	.11	38	.01	12	31	1.0
11	23	30	1.9	.12	41	.01	7.2	38	.74
12	10	28	.76	.23	112	.07	4.4	34	.40
13	10	35	.95	.10	109	.03	24	48	7.4
14	1.1	46	.14	.32	111	.10	117	156	51
15	.28	88	.07	.45	118	.14	40	47	5.1
16	.18	98	.05	1.0	103	.28	13	55	1.9
17	.36	89	.09	96	79	20	68	52	9.5
18	.47	83	.11	203	58	32	26	35	2.5
19	.22	102	.06	161	34	15	11	34	1.0
20	.23	60	.04	102	52	14	9.2	28	.70
21	.19	73	.04	55	44	6.5	7.3	33	.65
22	.06	97	.02	26	32	2.2	4.9	34	.45
23	.00	---	---	13	30	1.1	3.9	52	.55
24	.01	40	.00	3.0	28	.23	1.8	44	.21
25	75	34	6.9	1.2	20	.06	.89	49	.12
26	1.4	39	.15	1.0	18	.05	.84	46	.10
27	2.2	39	.23	2.3	61	.38	.88	44	.10
28	.49	34	.04	2.3	51	.32	.83	37	.08
29	.13	28	.00	1.9	24	.12	.88	36	.09
30	.00	---	---	1.6	46	.20	1.4	66	.25
31	.06	35	.00	1.4	50	.19	---	---	---
TOTAL	753.02	---	104.05	673.67	---	93.09	587.45	---	104.51
YEAR	17176.71		32121.01						

08127000 ELM CREEK AT BALLINGER, TX

LOCATION.--Lat 31°44'57", long 99°56'51", Runnels County, Hydrologic Unit 12090101, on right bank 1,000 ft (305 m) upstream from storage dam at Ballinger and 1.9 mi (3.1 km) upstream from mouth.

DRAINAGE AREA (revised).--450 mi² (1,166 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1442: 1935, 1946, 1954.

GAGE.--Water-stage recorder and masonry dam control. Datum of gage is 1,617.72 ft (493.081 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those below 100 ft³/s (2.83 m³/s), which are fair. Stage-discharge relation during period of low flow affected by wind action and occasional accumulation of drift on dam. During the current year, records furnished by the city of Winters show they diverted 724 acre-ft (893,000 m³) from Lake Winters, capacity, 3,060 acre-ft (3.77 hm³).

AVERAGE DISCHARGE.--49 years (water years 1933-81), 45.7 ft³/s (1.294 m³/s), 1.32 in/yr (34 mm/yr), 33,110 acre-ft/yr (40.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s (1,420 m³/s) Oct. 13, 1957, gage height, 14.20 ft (4.328 m), from floodmark; no flow at times.
Highest stage not affected by backwater from the Colorado River since at least 1904 was that of Oct. 13, 1957, from information by local residents.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1906 reached a stage of 14.5 ft (4.42 m), affected by backwater from Colorado River.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,040 ft³/s (86.1 m³/s) May 30 at 0415 hours, gage height, 5.75 ft (1.753 m), no other peak above base of 2,100 ft³/s (59.5 m³/s); no flow Aug. 3 to Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	1.6	6.3	6.0	4.8	28	12	6.0	11	1.3	.03	.00
2	33	2.2	5.4	5.5	5.1	29	11	4.9	8.7	1.2	.02	.00
3	28	2.3	5.7	5.5	4.5	122	8.4	4.6	7.0	1.1	.00	.00
4	22	2.1	6.6	5.5	5.2	277	5.9	4.4	194	59	.00	.00
5	19	2.0	6.6	5.6	5.4	164	6.8	4.1	54	31	.00	.24
6	15	2.1	6.5	6.1	5.4	91	7.6	3.3	27	17	.00	1.3
7	13	2.2	7.3	5.5	5.3	67	7.9	2.8	19	10	.00	1.7
8	11	2.2	28	7.2	5.5	56	8.0	2.7	15	5.6	.00	8.8
9	11	2.0	40	9.7	6.0	46	7.4	2.5	11	2.7	.00	7.3
10	10	2.0	21	9.7	5.7	36	6.7	1.6	10	1.6	.00	2.6
11	9.5	2.2	13	9.5	5.2	40	7.6	1.7	7.6	1.1	.00	1.4
12	7.5	2.4	11	8.1	8.4	53	7.2	1.7	6.0	.82	.00	1.1
13	4.0	2.7	9.7	7.7	8.4	49	6.9	1.7	5.6	.74	.00	.88
14	3.5	2.3	9.7	7.7	8.0	40	10	1.3	5.1	.80	.00	.76
15	3.6	1.8	8.8	7.3	8.5	32	9.2	11	5.2	.86	.00	.52
16	3.7	8.3	8.1	6.7	9.5	29	9.7	17	15	.88	.00	.38
17	3.7	11	8.0	6.2	9.7	24	12	12	18	.78	.00	.31
18	3.4	16	7.6	6.6	8.8	20	15	8.5	15	.68	.00	.26
19	3.0	11	5.9	7.7	8.0	20	14	5.7	11	.60	.00	.24
20	2.7	8.9	5.7	7.3	7.4	18	11	3.9	8.9	.50	.00	.24
21	3.1	7.3	6.1	7.5	6.2	13	9.1	3.3	6.8	.40	.00	.25
22	3.2	7.0	6.0	7.6	3.6	11	7.8	3.0	4.8	.30	.00	.24
23	3.0	6.2	6.5	7.4	4.5	14	11	2.7	3.3	.22	.00	.24
24	2.2	5.5	5.9	6.9	5.6	14	15	3.1	2.5	.16	.00	.23
25	1.9	6.8	6.2	6.6	6.3	13	14	4.1	2.2	.12	.00	.21
26	2.0	6.3	6.6	6.4	6.3	13	12	2.9	2.0	.09	.00	.20
27	2.1	5.5	6.6	6.6	7.1	13	9.6	2.6	1.8	.07	.00	.19
28	1.7	6.6	6.6	6.3	10	13	8.5	2.3	1.6	.07	.00	.19
29	1.3	6.6	5.8	5.8	---	11	7.4	3.6	1.5	.06	.00	.20
30	1.2	6.5	5.5	4.8	---	12	6.6	658	1.5	.05	.00	.20
31	1.3	---	5.8	5.3	---	13	---	27	---	.05	.00	---
TOTAL	281.6	151.6	288.5	212.3	184.4	1381	285.3	814.0	482.1	139.85	.05	30.18
MEAN	9.08	5.05	9.31	6.85	6.59	44.5	9.51	26.3	16.1	4.51	.002	1.01
MAX	52	16	40	9.7	10	277	15	658	194	59	.03	8.8
MIN	1.2	1.6	5.4	4.8	3.6	11	5.9	1.3	1.5	.05	.00	.00
CFSM	.02	.01	.02	.02	.01	.09	.02	.06	.03	.01	.000	.002
IN.	.02	.01	.02	.02	.01	.11	.02	.06	.04	.01	.00	.00
AC-FT	559	301	572	421	366	2740	566	1610	956	277	.10	60

CAL YR 1980 TOTAL 6145.14 MEAN 16.8 MAX 2430 MIN .00 CFSM .04 IN .49 AC-FT 12190
WTR YR 1981 TOTAL 4250.88 MEAN 11.6 MAX 658 MIN .00 CFSM .03 IN .34 AC-FT 8430

08127000 ELM CREEK AT BALLINGER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1957 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,220 micromhos Sept. 12, 17, 1970; minimum daily, 244 micromhos Aug. 4, 1978.
WATER TEMPERATURES: Maximum daily 34.5°C Aug. 14, 1973; minimum daily, 0.0°C Jan. 8, 1968, Jan. 10, 13, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,530 micromhos Feb. 26; minimum daily, 366 micromhos May 30.
WATER TEMPERATURES: Maximum daily, 32.0°C June 10, 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
JAN 05...	1400	5.3	3030	9.0	880	650	170	110	330
FEB 18...	1125	7.5	3440	11.5	980	760	180	130	350
MAR 25...	1420	7.5	2510	17.0	750	530	150	90	250
JUN 02...	1030	9.2	501	24.0	160	73	39	14	34
JUL 13...	1055	.95	2140	28.0	680	520	130	87	200

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
JAN 05...	4.8	5.9	230	350	700	.6	6.1	1810
FEB 18...	4.9	4.5	220	450	800	.4	1.3	2050
MAR 25...	4.0	5.4	220	300	560	.7	5.2	1490
JUN 02...	1.3	5.7	82	50	79	.2	7.0	278
JUL 13...	3.3	7.3	160	320	420	.5	11	1270

08127000 ELM CREEK AT BALLINGER, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1980	281.6	1100	615	468	190	143	120	91	310
NOV.	1980	151.6	2860	1690	694	610	249	400	162	840
DEC.	1980	288.5	3080	1830	1430	660	517	430	337	910
JAN.	1981	212.3	3340	2010	1150	740	424	480	277	990
FEB.	1981	184.4	3450	2080	1040	770	385	510	252	1000
MAR.	1981	1381	1910	1100	4110	370	1370	240	888	550
APR.	1981	285.3	3110	1850	1430	670	518	440	338	920
MAY	1981	814.0	823	476	1050	160	351	100	227	240
JUNE	1981	482.1	1040	584	760	180	234	110	149	290
JULY	1981	139.85	2440	1420	537	490	185	320	120	710
AUG.	1981	0.05	2380	1390	0.2	480	0.06	310	0.04	690
SEPT	1981	30.18	2680	1580	129	550	45	360	29	780
TOTAL		4250.88	**	**	12800	**	4430	**	2870	**
WTD. AVG.		12	1900	1110	**	390	**	250	**	550

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	883	1720	3480	3120	3430	3170	2780	3270	500	2430	2360	---
2	885	2070	3460	3110	3420	3200	2740	3260	561	2460	2420	---
3	937	1730	3450	3140	3420	2700	2890	3280	565	2410	---	---
4	1050	1890	3440	3190	3430	2130	2930	3270	728	2520	---	---
5	1130	2130	3450	3310	3410	1090	2900	3260	1180	2500	---	2540
6	1140	2120	3430	3250	3410	1650	2930	3250	1050	2510	---	2520
7	1130	2100	3350	3290	3420	1120	3010	3240	1080	2160	---	2510
8	1140	2150	2990	3260	3410	1090	3020	3250	1120	2150	---	2570
9	1130	2200	3020	3280	3420	1190	2950	3250	1170	2160	---	2620
10	1150	2360	3070	3270	3440	1310	3130	3260	1240	2170	---	2700
11	1170	2510	3130	3350	3450	1430	3050	3270	1120	2170	---	2840
12	1200	2400	3190	3330	3440	1830	3180	3280	1240	2160	---	2870
13	1250	2310	3180	3290	3450	1690	3080	3290	1300	2150	---	2930
14	1290	2230	3000	3410	3470	1570	3070	3280	1350	2140	---	2920
15	1340	2300	2960	3420	3460	2030	3110	3290	1410	2170	---	2930
16	1380	2350	2900	3430	3470	2230	3060	3300	1480	2200	---	3000
17	1420	2440	2890	3420	3480	2130	2990	3240	1430	2160	---	2970
18	1460	2780	2870	3410	3440	2270	2590	3180	1360	2150	---	3000
19	1500	2940	2950	3430	3460	2300	3200	3200	1480	2160	---	3020
20	1520	2600	2860	3430	3490	2310	3280	3220	1440	2160	---	3030
21	1450	3090	2970	3420	3480	2370	3320	3290	1660	2140	---	3080
22	1560	3420	2940	3410	3490	2400	3370	3180	1900	2150	---	3120
23	1680	3460	2870	3410	3500	2440	3310	3280	2170	2160	---	3060
24	1510	3400	2900	3400	3510	2460	3300	3180	2300	2170	---	3110
25	1440	3410	2910	3400	3520	2500	3330	3100	2280	2180	---	3050
26	1590	3410	2940	3390	3530	2530	3340	3110	2310	2190	---	2920
27	1720	3410	3010	3380	3510	2560	3350	3120	2330	2220	---	2830
28	1750	3360	3110	3380	3350	2600	3360	3130	2300	2250	---	2740
29	1780	3460	3100	3370	---	2680	3300	3090	2340	2220	---	2750
30	1800	3450	3130	3360	---	2650	3330	366	2390	2240	---	2770
31	1830	---	3110	3400	---	2710	---	422	---	2270	---	---
MEAN	1360	2640	3100	3340	3450	2140	3110	3050	1490	2230	2390	2860

08127000 ELM CREEK AT BALLINGER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				7.0	10.0	15.0	18.0	21.0	27.0	28.0		---
2				6.0	8.0	17.0	18.0	22.0	28.0	27.0		---
3				5.0	12.0	16.0	19.0	21.0	29.0	28.0		---
4				---	10.0	15.0	19.0	22.0	26.0	28.0		---
5				---	12.0	14.0	18.0	21.0	26.0	28.0		---
6				9.0	11.0	13.0	19.0	22.0	25.0	26.0		28.0
7				10.0	12.0	17.0	18.0	22.0	27.0	29.0		29.0
8				---	12.0	14.0	18.0	21.0	26.0	29.0		25.0
9				9.0	11.0	15.0	20.0	21.0	28.0	27.0		29.0
10				9.0	12.0	16.0	20.0	21.0	32.0	28.0		28.0
11				12.5	8.0	15.0	19.0	23.0	31.0	27.0		29.0
12				10.0	8.0	10.0	18.0	24.0	32.0	29.0		28.0
13				11.5	10.0	17.0	17.0	24.0	28.0	28.0		26.0
14				12.5	11.0	16.0	18.0	23.0	32.0	27.0		28.0
15				12.0	10.0	15.0	17.0	24.0	---	29.0		27.0
16				10.0	9.0	16.0	19.0	21.0	25.0	28.0		25.0
17				9.0	12.0	15.0	20.0	21.0	26.0	27.0		23.0
18				7.0	11.0	15.0	19.0	23.0	26.0	28.0		23.0
19				8.0	12.0	16.0	21.0	22.0	25.0	29.0		22.0
20				10.0	14.0	17.0	20.0	23.0	28.0	28.0		26.0
21				8.0	13.0	16.0	21.0	24.0	26.0	29.0		27.0
22				9.0	13.0	17.0	20.0	23.0	28.0	29.0		28.0
23				9.0	12.0	18.0	21.0	24.0	25.0	28.0		26.0
24				10.0	14.0	19.0	---	23.0	26.0	29.0		26.0
25				10.0	15.0	17.0	22.0	27.0	---	28.0		24.0
26				9.0	14.0	17.0	22.0	26.0	---	28.0		23.0
27				12.0	12.0	16.0	---	27.0	26.5	---		26.0
28				13.0	13.0	18.0	21.0	26.0	28.0	28.0		25.0
29				11.0	---	19.0	21.0	---	28.0	29.0		26.0
30				10.0	---	18.0	22.0	23.0	26.0	29.0		25.0
31				11.0	---	---	---	20.0	---	29.0		---
MEAN				9.5	11.5	16.0	19.5	23.0	27.5	28.0		26.0

08127500 SOUTH CONCHO IRRIGATION CO.'S CANAL AT CHRISTOVAL, TX

LOCATION.--Lat 31°11'17", long 100°29'59", Tom Green County, Hydrologic Unit 12090102, on right bank at Christoval, 85 ft (26 m) downstream from point of diversion, and 100 ft (30 m) downstream from bridge on U.S. Highway 277.

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

REVISED RECORDS.--WSP 1312: 1940-46.

GAGE.--Water-stage recorder. Datum of gage is 2,017.02 ft (614.788 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for Oct. 29 to Dec. 3, which are fair. The following table lists only irrigation water diverted from right bank of South Concho River 900 ft (274 m) upstream from station at Christoval (station 08128000). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--41 years (water years 1941-81), 6.75 ft^3/s (0.191 m^3/s), 4,890 acre-ft/yr (6.03 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily diversion for irrigation (excluding floodflow), 21 ft^3/s (0.59 m^3/s) June 27, 28, 1941, Sept. 18, 21, 1942; no flow Apr. 26 to July 9, 1957, Mar. 18 to Apr. 10, 1958, and Oct. 19 to Nov. 2, 1966.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	9.0	4.0	4.4	4.3	4.1	4.1	3.8	6.1	14	13	12
2	5.0	9.0	4.0	5.1	4.2	3.9	3.0	3.9	6.0	14	13	12
3	4.8	9.0	3.0	5.0	4.1	3.9	2.7	6.0	6.1	14	13	12
4	4.7	9.0	2.1	5.1	4.1	3.9	4.4	8.0	6.0	14	13	12
5	4.6	9.0	2.0	5.1	4.1	3.8	5.5	8.0	6.0	14	13	12
6	4.4	9.0	2.0	5.1	4.1	3.7	4.9	7.8	5.9	14	13	12
7	4.6	9.0	1.9	5.1	4.1	3.6	5.2	7.7	5.7	14	13	12
8	6.2	9.0	1.9	5.2	4.0	3.5	4.4	7.2	7.6	14	13	12
9	7.7	9.0	2.1	5.1	4.0	3.5	4.8	7.0	13	14	13	12
10	7.5	9.0	2.0	5.1	3.9	3.5	4.8	7.1	14	14	13	12
11	7.3	9.0	2.0	5.1	3.8	3.7	5.3	7.4	14	14	13	9.0
12	7.1	9.0	2.0	5.1	3.6	3.4	5.3	8.8	14	14	13	9.1
13	6.9	6.0	2.0	5.0	3.5	3.4	4.9	8.7	14	14	13	9.3
14	6.8	6.0	2.2	4.9	4.1	3.4	4.9	8.0	14	14	13	9.6
15	6.5	5.0	2.2	4.8	4.5	3.4	5.0	4.3	14	14	13	9.7
16	5.9	5.0	2.2	4.8	4.5	3.4	5.0	4.2	15	14	13	9.7
17	5.8	5.0	2.2	4.8	4.4	3.3	5.0	4.5	14	14	13	9.5
18	6.1	5.0	2.2	4.7	4.3	3.3	4.3	5.4	15	14	13	9.6
19	7.0	5.0	2.2	4.7	4.2	3.3	3.0	5.1	15	14	13	9.5
20	6.7	5.0	2.2	4.7	4.2	3.3	3.0	5.1	15	14	13	9.6
21	6.6	5.0	2.1	4.7	4.1	3.3	3.1	4.7	15	14	12	9.5
22	6.6	5.0	2.1	4.7	4.0	3.5	3.2	6.7	15	14	12	9.5
23	5.9	5.0	2.1	4.8	4.0	3.5	3.2	7.6	15	14	12	9.5
24	5.4	5.0	3.9	4.8	3.9	3.4	3.2	7.1	15	14	12	9.7
25	5.1	4.0	5.1	4.7	3.8	3.9	3.0	6.9	15	14	12	9.6
26	4.8	4.0	4.9	4.7	3.8	5.8	5.6	6.7	15	14	12	11
27	4.4	4.0	5.0	4.6	3.8	6.9	4.2	6.7	15	14	12	13
28	6.5	4.0	4.5	4.6	3.9	7.0	4.0	6.1	14	13	12	13
29	8.3	4.0	4.2	4.5	---	7.0	4.0	6.1	14	13	12	13
30	8.0	4.0	4.1	4.4	---	6.9	3.9	6.1	14	13	12	13
31	8.0	---	4.0	4.4	---	6.3	---	6.0	---	13	12	---
TOTAL	190.5	194.0	88.4	149.8	113.3	128.8	126.9	198.7	367.4	430	392	325.4
MEAN	6.15	6.47	2.85	4.83	4.05	4.15	4.23	6.41	12.2	13.9	12.6	10.8
MAX	8.3	9.0	5.1	5.2	4.5	7.0	5.6	8.8	15	14	13	13
MIN	4.4	4.0	1.9	4.4	3.5	3.3	2.7	3.8	5.7	13	12	9.0
AC-FT	378	385	175	297	225	255	252	394	729	853	778	645

CAL YR 1980 TOTAL 2026.7 MEAN 5.54 MAX 10 MIN 1.9 AC-FT 4020
WTR YR 1981 TOTAL 2705.2 MEAN 7.41 MAX 15 MIN 1.9 AC-FT 5370

08128000 SOUTH CONCHO RIVER AT CHRISTOVAL, TX

LOCATION (revised).--Lat 31°11'15", long 100°30'06", Tom Green County, Hydrologic Unit 12090102, on left bank 1,000 ft (305 m) downstream from U.S. Highway 277 bridge, 9.5 mi (15.3 km) upstream from Twin Buttes Dam, and 24.7 mi (39.7 km) upstream from mouth.

DRAINAGE AREA (revised).--412.6 mi² (1,068.6 km²), of which 58.6 mi² (151.8 km²) probably is noncontributing.

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

REVISED RECORDS.--WSP 1118: 1943(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,010.22 ft (612.715 m) National Geodetic Vertical Datum of 1929. Prior to July 17, 1930, nonrecording gage at same site and datum. July 17, 1930, to Nov. 15, 1977, water-stage recorder at site 160 ft (49 m) upstream at same datum.

REMARKS.--Records good. Low flow is materially affected by diversion to South Concho Irrigation Co.'s canal (station 08127500) 900 ft (270 m) upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--51 years, 33.4 ft³/s (0.946 m³/s), 24,200 acre-ft/yr (29.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft³/s (2,830 m³/s) July 23, 1938, gage height, 21.95 ft (6.690 m), from floodmark, from rating curve extended above 15,100 ft³/s (428 m³/s) on basis of slope-area measurement of 80,100 ft³/s (2,270 m³/s); no flow Feb. 28, Mar. 1, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1882, about 23 ft (7.0 m) Aug. 6, 1906, discharge 115,000 ft³/s (3,260 m³/s), from rating curve extended as noted above, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 71 ft³/s (2.01 m³/s) Dec. 8 at 0230 hours, gage height, 2.26 ft (0.689 m), no peak above base of 160 ft³/s (4.53 m³/s); minimum daily, 14 ft³/s (0.40 m³/s) Aug. 9, 28-31, Sept. 5-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	39	37	43	39	30	41	41	39	25	18	16
2	44	39	37	43	39	30	41	43	39	25	18	16
3	50	39	38	43	39	31	41	42	38	26	18	15
4	50	39	39	43	35	28	39	41	40	26	18	15
5	50	39	39	43	35	27	37	41	40	24	18	14
6	50	39	36	43	35	28	35	41	37	24	18	14
7	50	39	39	41	35	30	34	40	37	24	18	14
8	50	38	51	42	35	30	35	39	35	24	17	15
9	47	37	53	43	34	30	35	39	29	24	14	16
10	47	37	46	41	31	30	35	39	28	25	15	15
11	47	37	43	39	30	33	35	39	28	25	15	17
12	47	37	43	39	30	33	35	37	27	24	15	17
13	47	41	43	40	30	33	35	37	27	22	15	17
14	47	41	43	40	30	33	40	37	27	20	15	19
15	46	43	43	39	30	31	39	41	29	20	15	19
16	45	47	43	39	30	35	37	46	30	20	15	18
17	45	44	43	39	30	36	39	43	28	20	16	18
18	45	43	43	39	30	38	40	41	28	20	16	18
19	45	43	43	39	30	39	37	41	28	20	16	18
20	45	43	43	39	30	39	37	41	28	20	16	19
21	45	40	43	39	30	40	37	41	28	20	16	20
22	45	39	44	39	30	41	38	39	28	19	16	20
23	45	37	45	39	30	41	43	37	27	18	15	20
24	45	37	43	39	30	41	43	37	27	18	15	18
25	45	38	43	39	30	41	43	37	25	18	15	18
26	45	39	43	39	30	41	39	36	25	17	15	18
27	45	38	43	39	29	39	39	35	25	17	15	15
28	43	37	43	39	28	37	39	35	25	18	14	15
29	41	37	43	39	---	37	39	39	25	18	14	15
30	41	37	43	39	---	37	40	41	25	18	14	15
31	41	---	43	39	---	37	---	41	---	18	14	---
TOTAL	1425	1183	1321	1246	894	1076	1147	1227	902	657	489	504
MEAN	46.0	39.4	42.6	40.2	31.9	34.7	38.2	39.6	30.1	21.2	15.8	16.8
MAX	50	47	53	43	39	41	43	46	40	26	18	20
MIN	41	37	36	39	28	27	34	35	25	17	14	14
AC-FT	2830	2350	2620	2470	1770	2130	2280	2430	1790	1300	970	1000

CAL YR 1980 TOTAL 13108.4 MEAN 35.8 MAX 1930 MIN 5.7 AC-FT 26000
WTR YR 1981 TOTAL 12071.0 MEAN 33.1 MAX 53 MIN 14 AC-FT 23940

08128400 MIDDLE CONCHO RIVER ABOVE TANKERSLEY, TX

LOCATION.--Lat 31°25'38", long 100°42'39", Irion County, Hydrologic Unit 12090103, on left bank 0.3 mi (0.5 km) upstream from East Rocky Creek, 0.5 mi (0.8 km) southwest of Tullos Ranch Headquarters, 6.7 mi (10.8 km) northwest of Tankersley, and 20.9 mi (33.6 km) upstream from mouth.

DRAINAGE AREA (revised).--2,084 mi^2 (5,398 km^2), of which 968 mi^2 (2,507 km^2) probably is noncontributing.

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

GAGE.--Water-stage recorder. Datum of gage is 1,986.47 ft (605.476 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period Feb. 25 to Mar. 30, which are fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 16.0 ft^3/s (0.453 m^3/s), 11,590 acre-ft/yr (14.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft^3/s (439 m^3/s) Sept. 21, 1974, gage height, 24.98 ft (7.614 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 29.5 ft (8.99 m) Sept. 26, 1936. A flood in 1900 reached the same stage from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 416 ft^3/s (11.8 m^3/s) Apr. 14 at 1300 hours, gage height, 8.77 ft (2.673 m), no peak above base of 1,700 ft^3/s (48.1 m^3/s); minimum, 0.07 ft^3/s (0.002 m^3/s) Aug. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	3.3	3.3	3.8	5.3	6.0	7.2	7.0	12	2.4	.50	2.5
2	3.2	3.0	3.4	3.6	5.3	6.0	7.7	6.9	9.5	2.4	.41	4.1
3	2.3	2.8	3.6	3.9	5.4	6.0	8.6	7.4	8.7	2.1	.40	3.7
4	1.9	2.9	4.3	4.3	5.6	6.0	7.5	7.4	25	3.3	.33	3.2
5	1.7	3.0	4.3	4.4	5.3	6.0	6.7	7.4	17	4.4	.23	3.0
6	1.7	3.2	4.6	4.9	5.4	6.0	6.4	7.4	12	3.4	.24	3.0
7	1.6	3.6	5.0	4.9	6.1	6.0	5.6	7.8	9.9	3.0	.11	3.0
8	1.4	3.5	9.2	5.2	6.6	6.5	6.2	7.8	9.2	2.8	.10	3.0
9	1.2	3.8	9.7	6.6	6.8	6.5	6.2	7.3	8.8	2.5	.15	3.0
10	1.2	4.1	8.4	6.3	7.5	6.5	6.1	6.3	8.1	2.2	.27	2.8
11	1.1	4.3	6.0	6.6	7.1	6.5	5.6	6.6	7.6	2.0	.28	2.9
12	1.0	4.3	4.7	6.6	7.0	6.5	5.6	6.3	7.4	1.7	.33	3.0
13	1.0	5.0	3.9	6.6	7.0	6.5	5.6	6.3	6.9	1.6	.42	3.0
14	1.1	5.3	3.8	6.6	7.0	6.5	84	5.9	6.3	1.6	.45	3.0
15	1.2	5.1	3.8	6.3	6.6	6.5	87	6.8	7.1	1.6	.51	3.0
16	1.5	6.4	3.8	6.1	6.4	6.5	33	14	11	1.3	1.7	2.8
17	1.5	6.0	3.6	5.7	6.3	6.5	15	15	8.5	1.3	2.7	2.8
18	1.3	5.6	3.3	5.6	5.9	6.5	16	8.9	6.5	1.2	1.5	2.6
19	1.3	5.3	3.4	5.7	5.9	6.5	17	6.9	5.8	1.1	2.3	2.6
20	1.0	5.4	3.3	6.1	5.9	7.0	11	6.2	5.2	.98	2.4	2.7
21	1.0	5.3	3.0	6.3	6.3	7.0	9.5	5.8	4.6	.81	2.2	2.8
22	1.0	5.3	3.3	6.3	6.3	7.0	9.5	5.6	4.2	.73	2.2	2.7
23	1.1	4.6	3.3	6.0	6.5	7.0	13	5.6	3.9	.73	2.0	3.0
24	1.1	4.3	3.5	5.9	6.3	7.0	13	5.6	3.3	.71	1.9	3.0
25	.93	3.5	3.3	5.9	6.2	7.0	9.9	8.2	3.3	.62	1.8	2.9
26	1.2	3.5	3.3	5.9	6.0	7.0	8.8	11	3.0	.65	1.5	3.2
27	1.7	3.3	3.5	5.9	6.0	7.0	7.9	22	3.0	.59	1.6	3.4
28	2.5	3.1	3.5	5.6	6.0	7.0	7.8	13	2.7	.61	2.3	3.3
29	2.9	2.8	3.5	5.6	---	7.0	7.8	10	2.4	.57	2.9	3.3
30	3.4	3.1	3.5	5.9	---	7.0	7.2	24	2.4	.46	2.8	3.3
31	3.3	---	3.5	5.6	---	7.0	---	16	---	.50	2.6	---
TOTAL	55.03	124.7	132.6	174.7	174.0	204.0	442.4	282.4	225.3	49.86	39.13	90.6
MEAN	1.78	4.16	4.28	5.64	6.21	6.58	14.7	9.11	7.51	1.61	1.26	3.02
MAX	6.7	6.4	9.7	6.6	7.5	7.0	87	24	25	4.4	2.9	4.1
MIN	.93	2.8	3.0	3.6	5.3	6.0	5.6	5.6	2.4	.46	.10	2.5
AC-FT	109	247	263	347	345	405	877	560	447	99	78	180

CAL YR 1980 TOTAL 2692.71 MEAN 7.36 MAX 1040 MIN .00 AC-FT 5340
WTR YR 1981 TOTAL 1994.72 MEAN 5.46 MAX 87 MIN .10 AC-FT 3960

08129300 SPRING CREEK ABOVE TANKERSLEY, TX

LOCATION.--Lat 31°19'48", long 100°38'24", Tom Green County, Hydrologic Unit 12090102, on right bank at downstream side of bridge on Farm Road 2335, 1.4 mi (2.3 km) south of Tankersley, 2.5 mi (4.0 km) upstream from Dove Creek, and 10.4 mi (16.7 km) upstream from mouth.

DRAINAGE AREA (revised).--424.7 mi^2 (1,098.2 km^2), of which 19.7 mi^2 (51.0 km^2) probably is noncontributing.

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,964.72 ft (598.847 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 10, 1960, nonrecording gage at same site and datum.

REMARKS.--Records good. Many small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--21 years, 14.2 ft^3/s (0.402 m^3/s), 10,290 acre-ft/yr (12.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,400 ft^3/s (861 m^3/s) Aug. 12, 1971, gage height, 16.57 ft (5.051 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Outstanding floods since at least 1853 occurred in 1882 and 1884. Flood of Oct. 3, 1959, reached a stage of 18.4 ft (5.61 m), from floodmarks. At former gage near Tankersley 8 mi (13 km) downstream, the flood of Oct. 3, 1959, had a discharge of 82,100 ft^3/s (2,330 m^3/s) and was found to be about 3 ft (0.9 m) lower than the 1882 flood, the greatest at that location since at least 1853.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 170 ft^3/s (4.81 m^3/s) May 16 at 1130 hours, gage height, 4.89 ft (1.490 m), no peak above base of 400 ft^3/s (11.3 m^3/s); minimum, 0.14 ft^3/s (0.004 m^3/s) Aug. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	4.6	11	12	9.8	16	5.1	14	15	1.7	.19	2.0
2	12	6.1	10	12	9.6	12	6.9	12	13	.84	.19	2.5
3	11	6.8	11	12	8.1	15	7.4	13	13	.54	.17	8.7
4	9.9	3.6	11	12	6.0	13	5.7	13	25	.96	.18	8.8
5	9.8	1.6	12	12	6.9	8.6	5.0	12	18	10	.18	8.0
6	8.4	.90	12	12	8.0	10	5.8	14	16	9.1	.18	6.8
7	8.9	.76	13	12	8.9	11	4.1	13	13	8.0	.17	7.5
8	8.9	.77	34	14	9.6	9.5	3.8	13	13	5.4	.18	17
9	8.6	.71	24	16	9.8	9.9	3.8	11	10	1.6	.19	15
10	8.0	1.8	17	13	7.9	10	4.3	9.7	11	.99	.19	11
11	7.8	2.9	15	13	7.6	14	4.9	10	8.5	.73	.17	9.9
12	6.1	3.4	14	12	9.2	16	6.8	11	5.7	.62	.16	12
13	7.3	4.3	14	12	8.0	13	7.2	10	6.5	2.2	.16	20
14	7.5	4.0	14	12	8.3	12	18	9.6	12	2.2	.17	11
15	6.7	5.1	15	12	9.3	11	24	13	12	1.3	.16	11
16	3.5	14	14	12	9.6	10	21	88	14	1.4	.26	10
17	2.7	15	14	12	9.5	11	18	32	14	1.3	.62	9.4
18	2.4	12	13	13	8.8	9.1	21	17	10	1.4	.77	9.2
19	2.4	11	12	13	8.4	9.4	16	15	6.3	1.3	4.4	9.8
20	4.2	10	12	12	8.1	9.8	13	14	7.7	1.5	3.9	9.4
21	3.2	10	12	11	8.7	10	13	14	9.0	1.1	1.8	8.9
22	2.1	12	13	11	7.8	7.2	14	14	8.7	.94	1.0	9.1
23	3.2	12	13	10	7.4	8.7	16	14	5.0	1.1	1.3	8.3
24	3.4	12	13	10	4.7	9.5	15	14	4.1	.85	2.7	5.8
25	3.5	13	12	9.4	3.6	9.1	13	16	3.5	.57	1.5	2.3
26	5.8	13	12	9.6	3.4	8.8	13	13	2.1	.44	1.6	2.4
27	6.6	12	12	9.5	3.9	6.6	13	10	3.4	.31	1.3	4.0
28	3.3	11	12	9.6	8.8	4.9	13	11	4.6	.25	1.6	4.2
29	3.7	11	12	9.6	---	5.6	12	11	4.4	.23	4.0	3.7
30	3.7	11	10	9.1	---	5.9	14	27	2.2	.20	3.3	3.5
31	4.6	---	11	10	---	4.9	---	21	---	.20	4.1	---
TOTAL	192.2	226.34	424	358.8	219.7	311.5	337.8	509.3	290.7	59.27	36.79	251.2
MEAN	6.20	7.54	13.7	11.6	7.85	10.0	11.3	16.4	9.69	1.91	1.19	8.37
MAX	13	15	34	16	9.8	16	24	88	25	10	4.4	20
MIN	2.1	.71	10	9.1	3.4	4.9	3.8	9.6	2.1	.20	.16	2.0
AC-FT	381	449	841	712	436	618	670	1010	577	118	73	498

CAL YR 1980 TOTAL 3584.61 MEAN 9.79 MAX 977 MIN .07 AC-FT 7110
WTR YR 1981 TOTAL 3217.60 MEAN 8.82 MAX 88 MIN .16 AC-FT 6380

08130500 DOVE CREEK AT KNICKERBOCKER, TX

LOCATION.--Lat 31°16'24", long 100°37'45", Tom Green County, Hydrologic Unit 12090102, on right bank at right end of bridge on Farm Road 2335, 0.4 mi (0.6 km) west of Knickerbocker, and 5.7 mi (9.2 km), revised, upstream from mouth.

DRAINAGE AREA (revised).--226.43 mi² (586.45 km²), of which 8.43 mi² (21.83 km²) probably is noncontributing.

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

GAGE.--Water-stage recorder. Datum of gage is 2,001.45 ft (610.042 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 10, 1960, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow is partly regulated by storage and diversion from two small channel dams upstream and by small diversions upstream for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--21 years, 18.0 ft³/s (0.510 m³/s), 13,040 acre-ft/yr (16.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s (496 m³/s) Aug. 12, 1971, gage height, 20.66 ft (6.297 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, 30.4 ft (9.27 m) in 1906 and Oct. 3, 1959; floods in 1882 and 1884 reached about the same stage, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 8	0930	*2,880	81.6	10.73	3.271
May 2	0330	1,930	54.7	9.49	2.893
July 4	2400	199	5.64	4.95	1.509

Minimum daily discharge, 9.1 ft³/s (0.26 m³/s) Oct. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	12	19	17	20	15	17	21	23	15	16
2	11	10	12	19	17	16	14	314	21	21	15	17
3	11	10	12	19	17	21	13	26	19	21	15	18
4	11	10	11	19	17	17	13	21	24	25	15	17
5	11	10	11	19	17	16	13	20	21	44	15	17
6	10	10	11	19	17	16	13	20	21	19	15	17
7	10	10	12	19	15	17	13	20	22	19	15	16
8	10	10	825	20	15	16	14	20	23	18	15	17
9	10	10	108	21	15	16	14	20	22	17	14	15
10	10	10	22	20	15	16	12	20	21	17	14	14
11	9.1	10	20	20	15	19	12	20	22	15	13	13
12	9.1	11	20	20	15	20	12	20	22	16	13	13
13	9.4	11	20	20	15	18	12	19	22	15	14	13
14	9.4	11	20	20	15	18	18	19	23	15	14	13
15	9.6	11	19	19	15	17	23	21	23	15	13	13
16	9.6	16	19	19	15	17	19	27	27	16	15	13
17	9.4	14	19	19	16	17	19	20	24	16	22	13
18	9.4	12	18	19	16	17	20	19	24	16	19	13
19	9.7	12	18	19	15	17	19	20	24	16	19	13
20	9.7	12	18	19	15	18	19	20	24	16	18	13
21	9.7	12	18	19	15	17	19	20	26	16	18	13
22	9.6	12	18	19	15	18	20	20	26	16	19	13
23	9.4	11	18	19	15	20	23	19	25	16	18	13
24	9.4	11	18	18	15	19	21	20	24	15	16	13
25	9.4	12	18	18	15	19	21	20	24	15	16	13
26	9.4	12	17	18	15	20	20	20	25	15	16	13
27	9.4	12	17	18	15	19	20	20	25	15	16	13
28	9.4	12	17	18	17	19	18	19	23	14	17	13
29	9.8	12	17	18	---	19	18	20	22	14	17	13
30	10	12	18	17	---	19	17	25	23	15	16	14
31	10	---	19	17	---	19	---	22	---	15	16	---
TOTAL	304.9	338	1422	587	436	557	504	928	693	546	493	425
MEAN	9.84	11.3	45.9	18.9	15.6	18.0	16.8	29.9	23.1	17.6	15.9	14.2
MAX	11	16	825	21	17	21	23	314	27	44	22	18
MIN	9.1	10	11	17	15	16	12	17	19	14	13	13
AC-FT	605	670	2820	1160	865	1100	1000	1840	1370	1080	978	843

CAL YR 1980	TOTAL	7150.9	MEAN 19.5	MAX 1860	MIN 3.7	AC-FT	14180	
WTR YR 1981	TOTAL	7233.9	MEAN 19.8	MAX 825	MIN 9.1	AC-FT	14350	

08131200 TWIN BUTTES RESERVOIR NEAR SAN ANGELO, TX

LOCATION.--Lat 31°22'55", long 100°32'17", Tom Green County, Hydrologic Unit 12090102, in outlet control tower at Twin Buttes Dam on Middle Concho River, Spring Creek, and South Concho River, 3.8 mi (6.1 km) upstream from Lake Nasworthy Dam, 8.1 mi (13.0 km) southwest of San Angelo, and 75.0 mi (120.7 km) upstream from mouth.

DRAINAGE AREA (revised).--3,868 mi² (10,018 km²), of which 1,055 mi² (2,732 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

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

REMARKS.--The reservoir is formed by a rolled earthfill dam 8.1 mi (13.0 km) long, including a 200-foot-wide (61 m) uncontrolled off-channel concrete gravity spillway with ogee weir section. Outlet works consist of three 15.5-foot (4.7 m) concrete conduits, each is controlled by a 12.0- by 15.0-foot (3.7 by 4.6 m) fixed-wheel gate and a 12.0- by 15.0-foot (3.7 by 4.6 m) radial gate, located in Middle Concho-Spring Creek pool. Low-flow releases are made through 2.0- by 2.0-foot (0.6 by 0.6 m) gates located in the center of three fixed-wheel gates. The South Concho and Middle Concho-Spring Creek pools are connected by a 3.22-mile (5.18 km) equalizing channel. At an elevation of 1,926.5 ft (587.20 m) the two pools join to form one lake. Below elevation of 1,926.5 ft (587.20 m), daily contents are obtained from capacity tables for South Concho and Middle Concho-Spring Creek pools and summed to obtain combined daily contents. Lake level elevations below 1,926.5 ft (587.20 m) represent Middle Concho-Spring Creek pool only. Deliberate impoundment of water began on Dec. 1, 1962; dam was completed Feb. 13, 1963. Capacity curve is based on a survey made in 1958. Reservoir was built for flood control, irrigation, and municipal uses. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	1,991.0	-
Crest of spillway	1,969.1	640,600
Top of conservation storage	1,940.2	186,200
Bottom of equalizing channel (Middle Concho-Spring Creek pool)	1,926.5	86,480
Dead storage in South Concho pool	1,926.5	5,440
Lowest gated outlet (invert at Middle Concho-Spring Creek pool)	1,885.0	3,750

COOPERATION.--Capacity curve furnished by the U.S. Water and Power Resources Services.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 205,200 acre-ft (253 hm³) May 12, 1975, elevation, 1,942.20 ft (591.983 m); minimum since first appreciable storage, 2,120 acre-ft (2.61 hm³) Apr. 15, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum combined daily contents, 100,400 acre-ft (124 hm³) June 7-9; minimum, 72,510 acre-ft (89.4 hm³) Oct. 2.

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72520	73680	76290	82370	86160	88330	91190	95280	99540	95540	86650	79380
2	72510	73740	76330	82490	86180	88480	91320	96000	99590	95230	86140	79410
3	72630	73770	76440	82610	86260	89010	91180	96320	99650	94970	85560	79390
4	72650	73840	76580	82720	86250	89010	91920	96420	100000	95590	85040	79360
5	72740	73870	76640	82880	86380	89090	90860	96470	100200	95800	84580	79240
6	72780	73900	76740	82990	86510	89230	90820	96520	100300	95800	84190	79170
7	72870	73930	77150	83110	86550	89410	90740	96630	100400	95800	83750	79090
8	72940	73970	79010	83470	86630	89440	90690	96730	100400	95690	83360	79510
9	73010	73990	79520	83710	86760	89560	90640	96320	100400	95640	82970	79490
10	73060	74020	79710	83860	86630	89650	90640	96470	100300	95590	82560	79370
11	73090	74100	79860	83970	86750	90140	90640	96470	100200	95540	82230	79280
12	73160	74120	79990	84110	86830	90450	90600	96470	99970	95480	81950	79240
13	73190	74200	80140	84230	86830	90590	90560	96160	99750	95280	81640	79170
14	73260	74190	80330	84350	86920	90860	91330	96210	99540	94860	81310	79170
15	73330	74270	80490	84470	87000	90780	92070	97410	99480	94390	81000	79080
16	73320	74880	80600	84500	87080	90920	92390	97720	99480	93950	81410	78900
17	73380	75040	80750	84620	87210	90970	92930	97870	99480	93500	81240	78770
18	73410	75110	80850	84810	87250	90980	93200	97870	99280	93060	81050	78660
19	73450	75180	80830	84970	87330	91130	93300	97980	99120	92660	80900	78540
20	73480	75260	80940	85050	87410	91240	93550	97980	98960	92260	80710	78430
21	73510	75320	81050	85170	87410	91050	93650	97980	98760	91900	80560	78320
22	73560	75500	81210	85250	87410	91080	93800	97930	98500	91510	80360	78240
23	73560	75530	81300	85370	87450	91270	94140	97870	98240	91120	80140	78130
24	73550	75590	81340	85520	87540	91310	94290	97980	97980	90600	79940	78020
25	73570	75770	81530	85600	87530	91280	94450	98030	97670	90170	79750	77890
26	73680	75890	81610	85720	87570	91350	94600	98030	97350	89690	79600	77730
27	73560	75930	81730	85800	87610	91480	94760	98030	96990	89280	79520	77580
28	73530	76030	81900	85930	87900	91470	94860	97930	96580	88830	79420	77480
29	73570	76090	81980	86010	---	91390	95020	98130	96210	88370	79310	77290
30	73610	76220	82130	86010	---	91380	95170	99280	95850	87790	79230	77140
31	73640	---	82250	86170	---	91250	---	99430	---	87250	79150	---
MAX	73680	76220	82250	86170	87900	91480	95170	99430	100400	95800	86650	79510
MIN	72510	73680	76290	82370	86160	88330	90560	95280	95850	87250	79150	77140
(†)	1921.86	1922.59	1924.18	1925.17	1925.61	1926.35	1927.15	1927.97	1927.28	1925.44	1923.39	1922.84
(‡)	+1320	+2580	+6030	+3920	+1730	+3350	+3920	+4260	-3580	-8600	-8100	-2010

CAL YR 1980 MAX 85410 MIN 55880 ‡ -360
WTR YR 1981 MAX 100400 MIN 72510 ‡ +4820

† Elevation, in feet, at end of month for Middle Concho-Spring Creek pool below elevation 1,926.5 ft.
‡ Change in contents, in acre-feet.

08131200 TWIN BUTTES RESERVOIR NEAR SAN ANGELO, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT 22...	1030	712	21.0	200	59	40	24	64

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 22...	2.0	5.8	140	53	110	.4	12	393

08131400 PECAN CREEK NEAR SAN ANGELO, TX

LOCATION.--Lat 31°18'32", long 100°26'44", Tom Green County, Hydrologic Unit 12090102, on left bank 200 ft (61 m) upstream from U.S. Highway 277, 3.7 mi (6.0 km), revised, upstream from mouth, and 10.5 mi (16.9 km) south of San Angelo.

DRAINAGE AREA (revised).--81.1 mi^2 (210.0 km^2).

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

REVISED RECORDS.--WDR TX-75-3: 1971, 1972(M).

GAGE.--Water-stage recorder, crest-stage gages, and concrete control. Datum of gage is 1,930.72 ft (588.483 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 30, 1968, at site 1.2 mi (1.9 km) downstream at datum 20.21 ft (6.160 m) lower.

REMARKS.--Records good except those below 5 ft^3/s (0.14 m^3/s), which are fair. No known diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 2.44 ft^3/s (0.0691 m^3/s), 0.40 in/yr (10 mm/yr), 1,770 acre-ft/yr (2.18 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,600 ft^3/s (725 m^3/s) Sept. 8, 1980, gage height, 10.63 ft (3.240 m); maximum gage height, 11.15 ft (3.399 m) Sept. 24, 1964, site and datum then in use; no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1908, 14.36 ft (4.377 m), former site and datum, Sept. 15, 1936, discharge 30,500 ft^3/s (864 m^3/s), by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 117 ft^3/s (3.31 m^3/s) July 5 at 0400 hours, gage height, 1.02 ft (0.311 m), no other peak above base of 100 ft^3/s (2.83 m^3/s); minimum daily, 0.10 ft^3/s (0.003 m^3/s) Aug. 9, 12-15, 28-31, Sept. 18-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	8.1	6.5	6.5	5.1	7.9	2.7	2.7	4.9	2.0	1.0	.38
2	5.1	8.1	6.5	6.5	5.1	6.8	2.7	2.7	4.0	2.0	1.0	2.0
3	5.1	8.1	6.5	6.5	5.1	6.5	3.8	2.7	3.8	2.1	1.0	2.0
4	5.1	8.1	6.5	6.4	5.1	6.5	3.8	2.7	6.1	6.6	1.0	2.0
5	5.1	8.1	6.5	6.5	5.1	6.0	3.8	2.7	6.0	34	1.0	2.0
6	5.1	8.1	6.5	6.5	5.1	5.1	3.8	2.7	3.8	6.4	1.0	2.0
7	4.3	8.1	6.6	6.5	5.1	5.1	4.8	2.7	3.8	3.6	1.0	1.8
8	3.8	8.1	23	7.1	5.1	5.1	5.1	2.7	2.8	2.7	.11	1.0
9	3.8	8.0	13	8.1	5.1	5.1	3.8	2.7	2.7	2.7	.10	1.0
10	3.8	6.5	9.8	8.1	5.1	5.1	3.8	2.7	2.7	2.7	.56	1.0
11	5.1	5.1	9.8	8.1	3.1	6.1	3.8	2.7	2.2	2.7	1.1	1.0
12	5.1	5.1	9.8	8.1	4.6	9.8	3.8	2.7	2.0	2.7	.10	1.0
13	5.1	5.1	9.8	6.3	5.1	9.2	3.8	2.7	2.0	2.7	.10	1.0
14	5.1	5.1	9.8	6.5	5.1	7.3	5.7	2.7	2.0	2.7	.10	1.5
15	3.8	5.1	9.8	6.5	5.1	6.5	8.1	3.9	2.0	2.7	.10	2.0
16	3.8	8.8	9.8	6.5	5.1	3.8	7.5	9.5	3.5	2.0	.61	2.0
17	3.8	9.4	9.8	6.5	5.1	3.8	6.5	4.7	5.1	1.0	3.4	1.3
18	5.1	8.1	9.8	6.5	5.1	3.8	6.5	3.7	4.7	1.0	2.5	.10
19	5.1	8.1	9.8	6.5	3.8	3.8	3.8	2.7	3.8	1.0	2.0	.10
20	5.1	8.1	9.8	6.5	3.8	3.9	2.7	2.7	3.8	1.0	2.0	.10
21	5.1	8.1	9.8	6.5	5.0	3.8	2.7	2.7	3.8	1.0	2.0	.10
22	5.7	8.1	9.8	5.1	5.1	3.8	2.7	2.7	3.1	1.0	1.7	.10
23	6.5	8.1	9.8	5.1	5.1	3.8	2.7	2.7	2.0	1.0	1.0	.10
24	6.5	8.0	9.7	5.1	5.1	3.8	2.7	2.7	2.0	1.0	1.0	.10
25	6.5	6.5	7.6	5.1	3.8	3.0	2.7	2.7	2.0	1.0	1.0	.43
26	6.5	6.5	6.5	5.1	3.7	2.7	2.7	2.7	2.0	1.0	1.0	1.6
27	8.1	6.5	6.5	5.1	3.8	2.7	2.7	3.8	2.0	1.0	.82	3.8
28	8.1	6.5	6.5	5.1	4.7	2.4	2.7	3.8	2.0	1.0	.10	5.0
29	8.1	6.5	6.5	5.1	---	2.7	2.7	3.8	2.0	1.0	.10	2.6
30	8.1	6.5	6.5	5.1	---	2.7	2.7	7.7	2.0	1.0	.10	1.5
31	8.1	---	6.5	5.1	---	2.7	---	6.6	---	1.0	.10	---
TOTAL	171.7	218.6	275.1	194.2	133.2	151.3	117.3	106.9	94.6	95.3	28.70	40.61
MEAN	5.54	7.29	8.87	6.26	4.76	4.88	3.91	3.45	3.15	3.07	.93	1.35
MAX	8.1	9.4	23	8.1	5.1	9.8	8.1	9.5	6.1	34	3.4	5.0
MIN	3.8	5.1	6.5	5.1	3.1	2.4	2.7	2.7	2.0	1.0	.10	.10
CFSM	.07	.09	.11	.08	.06	.06	.05	.04	.04	.04	.01	.02
IN.	.08	.10	.12	.09	.06	.07	.05	.05	.04	.04	.01	.02
AC-FT	341	434	546	385	264	300	233	212	188	189	57	81

CAL YR 1980 TOTAL 6380.25 MEAN 17.4 MAX 3940 MIN .00 CFSM .21 IN 2.85 AC-FT 12660
WTR YR 1981 TOTAL 1627.51 MEAN 4.46 MAX 34 MIN .10 CFSM .05 IN .73 AC-FT 3230

08131600 TOM GREEN COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NO. 1 CANAL NEAR SAN ANGELO, TX

LOCATION.--Lat 31°24'58", long 100°23'29", Tom Green County, Hydrologic Unit 12090105, on left bank 1,900 ft (579 m) downstream from VFW Highway, 4.2 mi (6.8 km) southeast of San Angelo, and 6.1 mi (9.8 km) downstream from Lake Nasworthy.

PERIOD OF RECORD.--March 1963 to September 1981 (discontinued).

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 1,855.33 ft (565.505 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation reference mark).

REMARKS.--Records good. Discharge represents water released from Twin Buttes Reservoir (station 08131200) through Lake Nasworthy (station 08132000), principally for irrigation. Local flood runoff is excluded. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--8 years (water years 1964-71), no flow; 10 years (water years 1972-81), 19.3 ft^3/s (0.547 m^3/s), 13,980 acre-ft/yr (17.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 137 ft^3/s (3.88 m^3/s) July 31, 1981; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	19	.00	.00	79	134	6.3
2	.00	.00	.00	.00	.00	.00	19	.00	.00	74	115	6.3
3	.00	.00	.00	.00	.00	.00	17	.00	4.7	61	102	6.3
4	.00	.00	.00	.00	.00	.00	12	.00	13	2.2	90	6.7
5	.00	.00	.00	.00	.00	.00	10	.00	10	.13	86	6.6
6	.00	.00	.00	.00	.00	.00	12	.00	9.5	.00	95	6.6
7	.00	.00	.00	.00	.00	.00	16	.00	8.1	.00	91	6.6
8	.00	.00	.00	.00	.00	.00	19	.00	7.9	.00	81	7.1
9	.00	.00	.00	.00	.00	.00	16	.00	10	.00	64	6.7
10	.00	.00	.00	.00	.00	.00	13	.00	17	.00	75	6.8
11	.00	.00	.00	.00	.00	.00	8.8	.00	30	.00	85	6.8
12	.00	.00	.00	.00	.00	.00	7.6	.00	45	1.7	91	6.9
13	.00	.00	.00	.00	.00	.00	9.8	.00	71	30	81	6.9
14	.00	.00	.00	.00	.00	.00	11	10	63	55	89	6.8
15	.00	.00	.00	.00	.00	.00	7.6	15	80	86	85	5.2
16	.00	.00	.00	.00	.00	.00	7.2	9.5	75	102	80	2.6
17	.00	.00	.00	.00	.00	.00	7.7	.00	56	106	59	2.3
18	.00	.00	.00	.00	.00	.00	7.1	11	55	98	47	9.0
19	.00	.00	.00	.00	.00	.00	5.2	13	41	98	39	15
20	.00	.00	.00	.00	.00	.00	1.8	13	55	102	38	15
21	.00	.00	.00	.00	.00	.00	.00	6.9	55	103	34	15
22	.00	.00	.00	.00	.00	.00	.00	.00	59	103	40	20
23	.00	.00	.00	.00	.00	.00	.00	.00	66	113	41	20
24	.00	.00	.00	.00	.00	.00	.00	.00	72	126	38	20
25	.00	.00	.00	.00	.00	.00	.00	.00	90	128	31	19
26	.00	.00	.00	.00	.00	.00	.00	3.7	109	120	19	19
27	.00	.00	.00	.00	.00	.00	.00	15	103	111	11	19
28	.00	.00	.00	.00	.00	.00	.00	14	85	115	8.1	19
29	.00	.00	.00	.00	---	.00	.00	20	94	124	4.9	19
30	.00	.00	.00	.00	---	14	.00	13	91	134	6.2	16
31	.00	---	.00	.00	---	19	---	.00	---	137	6.3	---
TOTAL	.00	.00	.00	.00	.00	33.00	226.80	144.10	1475.20	2209.03	1866.5	328.5
MEAN	.000	.000	.000	.000	.000	1.06	7.56	4.65	49.2	71.3	60.2	11.0
MAX	.00	.00	.00	.00	.00	19	19	20	109	137	134	20
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.9	2.3
AC-FT	.00	.00	.00	.00	.00	65	450	286	2930	4380	3700	652

CAL YR 1980 TOTAL 7694.84 MEAN 21.0 MAX 129 MIN .00 AC-FT 15260
WTR YR 1981 TOTAL 6283.13 MEAN 17.2 MAX 137 MIN .00 AC-FT 12460

08132000 LAKE NASWORTHY NEAR SAN ANGELO, TX

LOCATION.--Lat 31°23'19", long 100°28'41", Tom Green County, Hydrologic Unit 12090102, on left bank 250 ft (76 m) upstream from Nasworthy Dam on South Concho River, 3.8 mi (6.1 km) downstream from Twin Buttes Dam, 6.0 mi (9.7 km) southwest of San Angelo, and 68.9 mi (110.9 km) upstream from mouth.

DRAINAGE AREA (revised).--3,975 mi² (10,295 km²), of which 3,868 mi² (10,018 km²) is above Twin Buttes Reservoir and 1,055 mi² (2,732 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,840.00 ft (560.832 m) National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a 6,090-foot (1,860 m) dam with a 5,590-foot (1,700 m) earthen section that has an earthen spillway 300 ft (91 m) long, a concrete spillway 475 ft (145 m) long with a bank of fifteen 25.0- by 18.0-foot (5.5 by 7.6 m) tainter gates, and a 25.0-by 3.0-foot (7.16 by 0.9 m) collapsible floodgate. The dam was completed and storage began Mar. 28, 1930. Since July 1966, West Texas Utilities Co. has operated a steam generating powerplant on the lake. Since September 1962, the lake has been almost totally controlled by releases or pumpage from Twin Buttes Reservoir (station 08131200). Siltation surveys in December 1938 and May 1953 by the Soil Conservation Service show that 1,191 acre-ft (1.47 hm³) of silt was deposited from March 1930 to December 1938 and an additional 1,023 acre-ft (1.26 hm³) was deposited from December 1938 to May 1953, totaling 2,214 acre-ft (2.73 hm³). Water is used for part of San Angelo municipal supply and for irrigation east of San Angelo (see station 08131600 for diversions). The capacity curve is based on a survey by the Soil Conservation Service in 1953 and has been used since 1955. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam	43.5	-
Crest of spillway (300 ft)	39.1	27,810
Top of gates	33.2	13,990
Top of collapsible floodgate	32.2	12,390
Lowest outlet to canal (invert)	27.5	6,370
Crest of spillway (tainter gates sill)	15.3	435
Lowest gated outlet (invert)	-4.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 26,900 acre-ft (33.2 hm³) Sept. 15, 1936, gage height, 38.36 ft (11.692 m); minimum, 209 acre-ft (0.258 hm³) Aug. 22, 1964, gage height, 13.21 ft (4.026 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 12,690 acre-ft (15.6 hm³) Oct. 1 at 0100 hours, gage height, 32.39 ft (9.872 m); minimum, 9,920 acre-ft (12.2 hm³) Aug. 16 at 1100 hours, gage height, 30.61 ft (9.330 m).

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

30.0	9,170
33.0	13,670

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12680	11090	10530	10470	10340	10570	10400	10330	10650	10550	10290	10270
2	12610	11060	10490	10460	10340	10570	10460	10300	10570	10550	10320	10290
3	12580	11030	10470	10440	10340	10710	10470	10270	10470	10650	10370	10290
4	12550	10980	10470	10410	10340	10630	10470	10260	10490	10730	10360	10290
5	12500	10970	10460	10430	10360	10580	10500	10270	10430	10760	10330	10270
6	12450	10970	10440	10400	10400	10550	10550	10270	10390	10690	10300	10250
7	12410	10870	10550	10400	10360	10580	10580	10320	10330	10610	10290	10220
8	12370	10840	10810	10490	10370	10530	10600	10360	10300	10500	10320	10360
9	12330	10810	10820	10500	10400	10500	10600	10270	10290	10430	10370	10340
10	12260	10770	10820	10490	10340	10490	10600	10290	10260	10360	10390	10330
11	12210	10730	10810	10490	10340	10650	10600	10320	10260	10270	10300	10320
12	12170	10680	10790	10490	10330	10680	10600	10340	10290	10180	10160	10300
13	12100	10650	10790	10470	10330	10680	10580	10320	10290	10150	10090	10290
14	12050	10580	10810	10460	10340	10710	10740	10360	10300	10250	10020	10440
15	12020	10600	10790	10440	10340	10650	10820	10600	10360	10330	9940	10440
16	11960	10810	10770	10410	10340	10610	10770	10580	10320	10370	10130	10400
17	11890	10790	10820	10400	10360	10580	10870	10530	10250	10400	10220	10390
18	11850	10770	10710	10430	10340	10520	10840	10400	10220	10430	10230	10360
19	11800	10740	10660	10430	10340	10490	10790	10330	10250	10440	10200	10340
20	11730	10710	10650	10410	10360	10460	10760	10300	10230	10470	10180	10320
21	11700	10690	10630	10400	10320	10390	10710	10340	10220	10470	10190	10290
22	11650	10710	10610	10400	10300	10330	10660	10390	10220	10440	10200	10260
23	11570	10680	10580	10390	10300	10330	10690	10430	10250	10410	10200	10230
24	11510	10630	10550	10370	10320	10340	10660	10490	10250	10370	10200	10190
25	11450	10650	10570	10370	10320	10340	10610	10550	10270	10330	10250	10180
26	11410	10630	10550	10360	10340	10340	10570	10570	10300	10320	10260	10190
27	11300	10600	10550	10340	10360	10340	10520	10550	10340	10330	10320	10190
28	11240	10580	10530	10340	10440	10360	10490	10500	10410	10290	10320	10200
29	11210	10570	10520	10360	---	10340	10440	10470	10460	10250	10300	10200
30	11160	10550	10520	10340	---	10360	10400	10760	10520	10260	10290	10200
31	11140	---	10490	10370	---	10370	---	10710	---	10290	10270	---
MAX	12680	11090	10820	10500	10440	10710	10870	10760	10650	10760	10390	10440
MIN	11140	10550	10440	10340	10300	10330	10400	10260	10220	10150	9940	10180
(†)	31.42	31.05	31.01	30.93	30.98	30.93	30.95	31.15	31.03	30.87	30.86	30.81
(‡)	-1550	-590	-60	-120	+70	-70	+30	+310	-190	-230	-20	-70

CAL YR 1980 MAX 12690 MIN 10270 ‡ -60
WTR YR 1981 MAX 12680 MIN 9940 ‡ -2490

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

08132000 LAKE NASWORTHY NEAR SAN ANGELO, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT 21...	0820	758	20.0	190	45	45	20	73

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 21...	2.3	5.6	150	49	120	.4	15	418

08133500 NORTH CONCHO RIVER AT STERLING CITY, TX

LOCATION.--Lat 31°49'48", long 100°59'36", Sterling County, Hydrologic Unit 12090104, on right bank 100 ft (30 m) upstream from bridge on State Highway 163, 0.5 mi (0.8 km) south of Sterling City, 4.0 mi (6.4 km) upstream from Sterling Creek, 5.1 mi (8.2 km) downstream from Lacy Creek, and at mile 57.2 (92.0 km), revised.

DRAINAGE AREA (revised).--588 mi^2 (1,523 km^2), of which 19.6 mi^2 (50.8 km^2) probably is noncontributing.

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

REVISED RECORDS.--WSP 1512: 1945, 1948. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,242.36 ft (683.471 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 6, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good. Small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--42 years, 8.48 ft^3/s (0.240 m^3/s), 6,140 acre-ft/yr (7.57 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,300 ft^3/s (462 m^3/s) July 6, 1948, gage height, 23.70 ft (7.224 m); no flow at times each year.
Maximum stage since at least 1891, that of July 6, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 128 ft^3/s (3.62 m^3/s) July 5 at 0300 hours, gage height, 5.23 ft (1.594 m), no peak above base of 300 ft^3/s (8.50 m^3/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	.35	.55	.63	.59	1.8	.53	2.8	1.0	.01	.00	.00
2	9.8	.34	.54	.63	.62	1.0	.58	3.0	.82	.00	.00	.00
3	5.6	.35	.51	.63	.56	2.4	.65	3.1	.68	.00	.00	.00
4	3.7	.36	.51	.63	.61	2.4	.65	2.8	2.2	.08	.00	.00
5	2.8	.34	.51	.63	.65	1.8	.49	2.5	1.6	46	.00	.00
6	2.2	.34	.57	.63	.67	1.2	.59	2.3	1.5	9.2	.00	.00
7	2.0	.32	.59	.63	.69	.98	.73	2.2	2.0	2.1	.00	.00
8	1.8	.29	.97	.64	.70	.84	.74	2.2	1.7	1.1	.00	.00
9	1.7	.27	1.3	1.7	.70	.74	.69	2.4	1.4	.76	.00	.00
10	1.6	.27	1.3	1.1	.74	.73	.67	2.0	1.1	.65	.00	.00
11	1.4	.27	1.3	1.0	.62	.81	.66	1.7	.87	.58	.00	.00
12	1.2	.28	1.2	.98	.93	.82	.65	1.7	.69	.45	.00	.00
13	1.1	.30	1.2	1.0	.90	.79	.67	1.5	.65	.42	.00	.00
14	.97	.30	1.1	1.0	1.1	.81	12	1.3	.59	.31	.00	.00
15	.92	.30	1.0	1.0	1.0	.77	16	1.6	.68	.25	.00	.00
16	.82	.32	1.0	1.1	.71	.69	3.4	2.2	1.3	.18	.00	.00
17	.72	.46	.92	1.0	.79	.68	.76	1.5	.70	.11	.00	.00
18	.68	.47	.89	1.4	.72	.80	.64	1.2	.59	.07	.00	.00
19	.64	.47	.78	1.8	.73	.57	.39	1.0	.53	.04	.00	.00
20	.60	.47	.70	1.9	.63	.65	.36	.76	.49	.01	.00	.00
21	.59	.47	.68	2.0	.60	.94	11	.66	.41	.00	.00	.00
22	.55	.47	.65	1.6	.58	.75	9.8	.62	.36	.00	.00	.00
23	.54	.47	.63	1.6	.56	.53	6.6	.61	.30	.00	.00	.00
24	.49	.47	.63	1.4	.81	.66	6.6	.47	.21	.00	.00	.00
25	.45	.50	.62	.84	.69	.75	4.9	.43	.18	.00	.00	.00
26	.45	.54	.63	.70	.76	.63	3.6	.55	.13	.00	.00	.00
27	.51	.59	.63	.80	.90	.68	3.4	.39	.09	.00	.00	.00
28	.47	.59	.63	.69	1.2	.70	3.2	.35	.08	.00	.00	.00
29	.40	.56	.63	.66	---	1.1	3.0	3.5	.06	.00	.00	.00
30	.37	.55	.63	.61	---	.71	2.8	35	.04	.00	.00	.00
31	.37	---	.63	.59	---	.55	---	4.4	---	.00	.00	---
TOTAL	68.44	12.08	24.43	31.52	20.76	29.28	96.75	86.74	22.95	62.32	.00	.00
MEAN	2.21	.40	.79	1.02	.74	.94	3.23	2.80	.77	2.01	.000	.000
MAX	23	.59	1.3	2.0	1.2	2.4	16	35	2.2	46	.00	.00
MIN	.37	.27	.51	.59	.56	.53	.36	.35	.04	.00	.00	.00
AC-FT	136	24	48	63	41	58	192	172	46	124	.00	.00

CAL YR 1980	TOTAL	6240.18	MEAN	17.0	MAX	3390	MIN	.00	AC-FT	12380
WTR YR 1981	TOTAL	455.27	MEAN	1.25	MAX	46	MIN	.00	AC-FT	903

08134000 NORTH CONCHO RIVER NEAR CARLSBAD, TX

LOCATION.--Lat 31°35'33", long 100°38'12", Tom Green County, Hydrologic Unit 12090104, near left bank on downstream side of bridge on county road, 0.6 mi (1.0 km) southeast of Carlsbad, 1.5 mi (2.4 km) upstream from Mule Creek, 2.5 mi (4.0 km) upstream from Grape Creek, 16.2 mi (26.1 km) upstream from O. C. Fisher Dam, and 21.3 mi (34.3 km), revised, upstream from mouth.

DRAINAGE AREA (revised).--1,266 mi² (3,279 km²), of which 75.1 mi² (194.5 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1924 to current year.

REVISED RECORDS.--WSP 1512: 1924(M), 1925, 1926(M), 1928, 1930, 1932(M), 1935, 1937-38(M), 1941(M), 1945(M), 1947-49(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,968.02 ft (599.852 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 4, 1925, and Sept. 27, 1936, to Feb. 7, 1937, nonrecording gage; Feb. 4, 1925, to Sept. 26, 1936, and Feb. 8, 1937, to Nov. 6, 1955, water-stage recorder, all at site 2.5 mi (4.0 km) upstream at datum 32.76 ft (9.985 m) higher.

REMARKS.--Water-discharge records good. Diversions by pumping above station.

AVERAGE DISCHARGE.--57 years, 34.9 ft³/s (0.988 m³/s), 25,290 acre-ft/yr (31.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,600 ft³/s (2,680 m³/s) Sept. 26, 1936, gage height, 16.0 ft (4.88 m) at former site, 29.1 ft (8.87 m) at present site, from floodmarks, by slope-area measurement of peak flow at former site; no flow at times.
Maximum stage since 1853, that of Sept. 26, 1936.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,480 ft³/s (41.9 m³/s) May 30 at 0400 hours, gage height, 8.17 ft (2.490 m), no peak above base of 1,500 ft³/s (42.5 m³/s); no flow Aug. 5-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	4.5	6.0	6.8	6.4	7.2	6.0	7.6	23	1.5	.03	.24
2	21	4.5	5.6	6.8	6.4	6.0	6.4	7.6	13	1.5	.03	.30
3	14	5.2	5.2	6.8	6.4	8.0	6.4	8.0	9.8	1.3	.02	.18
4	12	6.0	5.6	6.8	6.4	8.5	6.0	7.6	12	1.5	.01	.08
5	9.8	6.0	5.6	6.8	6.4	7.2	5.6	8.9	10	4.5	.00	.37
6	8.0	6.4	5.6	7.2	6.0	6.4	5.6	7.6	8.5	24	.00	.30
7	7.2	6.8	5.8	6.8	6.0	6.0	6.0	7.6	7.2	13	.00	.24
8	6.4	7.2	9.6	7.6	5.6	5.6	6.0	7.6	7.2	8.5	.00	.14
9	5.6	7.2	8.5	8.5	6.0	5.6	6.4	7.2	6.8	6.4	.00	.18
10	5.2	7.2	7.2	7.6	6.0	5.6	6.4	6.8	6.8	4.8	.00	.14
11	4.5	7.6	7.2	7.2	5.2	6.0	6.0	6.4	6.0	3.8	.00	.14
12	4.5	8.0	6.8	6.8	4.8	6.0	6.4	6.8	5.6	3.2	.00	.10
13	4.1	8.0	5.6	6.8	5.2	6.4	6.0	6.4	5.2	2.6	.00	.10
14	3.8	8.9	5.6	6.8	5.2	6.0	9.5	6.0	4.8	2.1	.00	.40
15	3.8	8.9	5.6	6.8	5.2	5.6	10	6.8	6.3	1.9	.00	.64
16	3.8	12	5.2	6.4	5.2	6.0	10	7.2	6.0	1.5	.00	.37
17	3.5	10	5.2	6.0	5.2	5.6	11	6.8	5.2	1.2	.00	.18
18	3.5	8.0	5.2	6.8	5.6	5.6	12	6.4	5.2	1.0	.00	.10
19	3.2	7.6	5.2	6.8	5.2	5.6	11	5.6	5.2	.87	.00	.08
20	3.2	6.8	4.5	6.8	5.2	5.6	10	4.8	4.8	.75	.00	.08
21	3.2	6.0	4.8	6.8	5.2	5.6	9.4	5.2	4.1	.54	.00	.08
22	3.2	6.0	4.8	6.8	5.2	5.2	12	5.2	3.8	.45	.00	.06
23	3.5	6.0	5.6	7.2	4.6	5.2	14	5.2	3.5	.30	.00	.06
24	3.8	5.6	6.0	7.2	4.5	5.6	11	6.4	3.0	.18	.00	.06
25	3.8	6.0	6.0	7.6	4.5	5.6	10	17	2.9	.14	.00	.04
26	4.1	5.6	6.4	7.6	4.8	5.6	9.4	12	2.6	.08	.00	.04
27	4.5	5.2	6.4	7.2	4.8	5.6	8.9	11	2.4	.08	.00	.04
28	4.1	5.6	6.4	6.8	6.0	6.0	8.5	8.5	2.1	.06	.00	.03
29	3.8	5.6	6.4	6.8	---	5.6	8.0	9.8	1.9	.04	.21	.03
30	3.8	5.6	6.4	6.4	---	6.0	8.0	205	1.7	.04	.54	.03
31	4.1	---	6.8	6.4	---	5.6	---	70	---	.04	.30	---
TOTAL	209.0	204.0	186.8	215.7	153.2	186.1	251.9	495.0	186.6	87.87	1.14	4.83
MEAN	6.74	6.80	6.03	6.96	5.47	6.00	8.40	16.0	6.22	2.83	.037	.16
MAX	40	12	9.6	8.5	6.4	8.5	14	205	23	24	.54	.64
MIN	3.2	4.5	4.5	6.0	4.5	5.2	5.6	4.8	1.7	.04	.00	.03
AC-FT	415	405	371	428	304	369	500	982	370	174	2.3	9.6

CAL YR 1980 TOTAL 13720.12 MEAN 37.5 MAX 4710 MIN .00 AC-FT 27210
WTR YR 1981 TOTAL 2182.14 MEAN 5.98 MAX 205 MIN .00 AC-FT 4330

08134000 NORTH CONCHO RIVER NEAR CARLSBAD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
APR 23...	0940	15	1040	7.7	21.0	5	92	8.8	105	2.8	410
MAY 26...	1035	13	1040	7.7	24.5	5	11	9.2	116	2.4	450
JUL 27...	1030	.07	1180	7.8	27.0	5	18	8.0	107	5.4	460

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 (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)
APR 23...	160	86	48	49	1.1	3.1	250	66	160	.6	15
MAY 26...	200	91	53	63	1.3	3.4	250	75	190	.6	22
JUL 27...	220	90	56	83	1.9	4.5	240	76	220	.5	24

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)
APR 23...	578	19	1	.06	.020	.08	.070	.64	.71	.090	3.2
MAY 26...	649	51	17	.00	.010	.01	.000	.80	.80	.070	7.8
JUL 27...	699	31	26	.11	.000	.11	.120	.87	.99	.080	2.8

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)
MAY 26...	1035	4	200	<1	10	<10	10
JUL 27...	1030	4	190	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAY 26...	74	2	.0	0	0	100
JUL 27...	<10	6	.5	0	0	5

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

LOCATION.--Lat 31°29'04", long 100°28'53", Tom Green County, Hydrologic Unit 12090104, in intake structure of O. C. Fisher Dam on North Concho River, 3.1 mi (5.0 km) northwest of San Angelo, and 6.6 mi (10.6 km) upstream from mouth.

DRAINAGE AREA.--1,488 mi² (3,854 km²), of which 105 mi² (272 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area.

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

REMARKS.--The lake is formed by a rolled earthfill dam 40,885 ft (12,462 m) long, including spillway. Closure was completed Mar. 7, 1951, and the dam was completed May 3, 1951. Deliberate impoundment began Feb. 1, 1952. The lake is operated for flood control and recreation with part as municipal supply for the city of San Angelo. The spillway is an uncontrolled off-channel concrete gravity dam with ogee weir section 1,150 ft (351 m) wide located to the right and upstream from the right end of dam. The spillway is designed to discharge 356,000 ft³/s (10,100 m³/s) at maximum design flood level. The control outlet works consist of six gate-controlled outlets, 7.5 by 14.5 ft (2.3 by 4.4 m), opening into two 18.0-foot-diameter (5.5 m) concrete conduits, and two 2.5-foot (0.8 m) gate-controlled outlets for water-supply outlets. Since February 1973, the capacity is based on a survey made in 1962. Prior to 1973, the capacity was based on a survey made in 1944. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	1,964.0	-
Design flood	1,958.0	690,000
Crest of spillway	1,938.5	392,700
Top of conservation pool	1,908.0	115,700
Lowest gated outlet (invert)	1,840.0	0

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 174,100 acre-ft (215 hm³) Oct. 14, 1957, elevation, 1,916.47 ft (584.140 m); minimum since first appreciable storage, lake dry July 16, 1970, to Apr. 15, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 35,950 acre-ft (44.3 hm³) June 8 at 1030 hours, elevation, 1,885.87 ft (574.813 m); minimum, 31,320 acre-ft (38.6 hm³) Sept. 30 at 2400 hours, elevation, 1,883.82 ft (574.188 m).

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

1,183.0	29,560
1,884.0	31,710
1,886.0	36,260

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35040	33900	33620	33870	33870	34080	33900	34470	35490	34900	33220	32550
2	35070	33870	33620	33850	33830	34100	33870	34490	35490	34810	33150	32610
3	35040	33850	33580	33850	33810	34310	33900	34470	35490	34810	33080	32570
4	35120	33810	33580	33830	33830	34310	33810	34440	35790	35070	32990	32550
5	35000	33780	33580	33850	33810	34240	33760	34440	35810	34950	32920	32480
6	34970	33760	33580	33830	33810	34260	33710	34400	35910	34930	32860	32460
7	34950	33740	33850	33830	33780	34280	33710	34370	35910	34880	32790	32440
8	34900	33690	34120	33940	33810	34240	33690	34370	35880	34810	32720	32370
9	34880	33670	34120	33960	33810	34240	33670	34280	35840	34770	32700	32300
10	34830	33650	34080	33960	33850	34240	33650	34210	35790	34740	32660	32260
11	34790	33620	34080	33960	33760	34350	33650	34170	35770	34700	32590	32240
12	34740	33600	34080	33960	33740	34370	33650	34150	35700	34630	32550	32170
13	34700	33600	34080	33960	33710	34370	33620	34100	35650	34580	32500	32130
14	34670	33560	34100	33960	33710	34420	34030	34060	35600	34510	32460	32150
15	34650	33530	34120	33940	33710	34350	34170	34100	35670	34420	32500	32080
16	34630	33830	34120	33940	33710	34350	34170	34080	35650	34350	32840	32020
17	34580	33780	34100	33920	33710	34350	34330	34060	35630	34280	32810	31950
18	34560	33780	34100	33960	33710	34310	34350	34010	35550	34210	32790	31880
19	34490	33760	34060	33960	33710	34260	34350	33920	35510	34150	32720	31840
20	34470	33740	34030	33960	33710	34260	34470	33870	35490	34100	32680	31770
21	34420	33710	33990	33940	33710	34280	34470	33830	35420	34030	32610	31750
22	34370	33740	33990	33940	33670	34150	34470	33810	35350	33940	32590	31690
23	34330	33710	33990	33940	33650	34120	34580	33760	35280	33850	32520	31640
24	34280	33690	33960	33940	33650	34120	34580	33940	35230	33780	32480	31580
25	34210	33740	33940	33920	33620	34100	34560	33900	35180	33710	32460	31530
26	34190	33710	33920	33920	33620	34080	34540	33900	35140	33620	32390	31490
27	34150	33670	33920	33920	33670	34060	34540	33870	35090	33580	32610	31450
28	34060	33650	33920	33920	33850	34080	34540	33830	35020	33490	32570	31400
29	33990	33620	33900	33870	---	34010	34510	34100	34970	33420	32500	31360
30	33940	33620	33900	33870	---	33990	34510	35280	34900	33350	32480	31320
31	33920	---	33830	33870	---	33920	---	35420	---	33260	32440	---
MAX	35120	33900	34120	33960	33870	34420	34580	35420	35910	35070	33220	32610
MIN	33920	33530	33580	33830	33620	33920	33620	33760	34900	33260	32390	31320
(†)	1884.99	1884.86	1884.95	1884.97	1884.96	1884.99	1885.25	1885.64	1885.42	1884.70	1884.33	1883.82
(‡)	-1080	-300	+210	+40	-20	+70	+590	+910	-520	-1640	-820	-1120

CAL YR 1980 MAX 35120 MIN 13110 ‡ +16720
WTR YR 1981 MAX 35910 MIN 31320 ‡ - 3680

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

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

WATER-QUALITY RECORDS

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

312900100290201 O. C. FISHER LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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...	1010	1.00	520	8.4	9.0	--	10.9	100	<1	K1
27...	1012	10.0	530	8.4	9.0	--	10.5	96	--	--
27...	1014	20.0	530	8.4	8.5	--	10.0	91	--	--
27...	1016	30.0	530	8.4	8.5	--	9.5	86	--	--
27...	1018	35.0	525	8.2	8.5	--	9.1	82	--	--
MAY										
27...	0905	1.00	583	8.0	24.5	1.10	8.8	111	<1	K6
27...	0907	10.0	593	7.9	23.0	--	7.0	86	--	--
27...	0909	20.0	596	7.5	22.0	--	4.0	48	--	--
27...	0911	30.0	599	7.2	22.0	--	1.7	20	--	--
27...	0913	35.0	608	7.1	22.0	--	.1	1	--	--
AUG										
11...	1010	1.00	612	7.8	27.0	.70	5.3	71	K1	K12
11...	1012	10.0	612	7.8	27.0	--	5.0	67	--	--
11...	1014	20.0	615	7.6	27.0	--	3.3	44	--	--
11...	1016	30.0	617	7.4	27.0	--	1.9	25	--	--
11...	1018	34.0	617	7.4	27.0	--	2.0	27	--	--

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										
27...	180	41	46	16	29	.9	11	140	33	64
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	180	43	47	16	29	.9	11	140	33	68
MAY										
27...	210	51	53	19	30	.9	12	160	33	72
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	220	46	55	19	29	.9	12	170	33	73
AUG										
11...	210	56	48	21	35	1.2	14	150	35	88
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	210	59	49	21	35	1.2	14	150	35	84

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, 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...	.2	8.1	291	--	.00	.99	.99	.070	10	<1
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	.00	1.10	1.1	.080	70	0
27...	--	--	--	--	--	--	--	--	--	--
27...	--	8.4	297	--	.00	1.10	1.1	.090	20	10
MAY										
27...	.2	4.8	320	--	.00	1.10	1.1	.050	10	<1
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	.00	1.10	1.1	.070	10	0
27...	--	--	--	--	.02	1.50	1.5	.100	40	10
27...	--	6.0	329	--	.00	1.80	1.8	.190	50	120
AUG										
11...	.3	7.7	339	--	.00	1.20	1.2	.040	37	8
11...	--	--	--	.010	.00	1.20	1.2	.030	130	20
11...	--	--	--	.010	.00	1.20	1.2	.040	130	30
11...	--	--	--	--	--	--	--	--	--	--
11...	--	8.3	337	--	.00	1.40	1.4	.060	51	92

O. C. FISHER LAKE AT SAN ANGELO, TX--Continued

312937100303801 O. C. FISHER LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN										
27...	1315	1.00	530	8.5	10.0	--	11.0	104	K6	<1
27...	1317	10.0	525	8.5	9.0	--	10.4	95	--	--
27...	1319	20.0	530	8.4	8.5	--	9.5	86	--	--
27...	1321	28.0	540	8.4	8.5	--	9.0	81	--	--
MAY										
27...	0945	1.00	585	8.0	25.0	1.10	8.8	113	K1	K5
27...	0947	10.0	597	7.7	23.0	--	6.1	75	--	--
27...	0949	20.0	601	7.4	22.5	--	3.3	40	--	--
27...	0951	29.0	604	7.2	22.0	--	1.2	14	--	--
AUG										
11...	1050	1.00	604	8.0	27.5	.80	7.2	97	K2	33
11...	1052	10.0	605	8.0	27.5	--	6.6	89	--	--
11...	1054	20.0	607	7.9	27.0	--	5.9	79	--	--
11...	1056	28.0	609	7.8	27.0	--	5.6	75	--	--

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
JAN										
27...	180	43	47	16	29	.9	11	140	33	65
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	190	52	49	17	29	.9	11	140	35	67
MAY										
27...	210	48	52	19	32	1.0	12	160	33	76
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	220	48	56	19	30	.9	12	170	34	74
AUG										
11...	210	56	48	21	35	1.2	13	150	35	88
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	210	56	48	21	35	1.2	14	150	35	83

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN. NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN									
27...	8.1	--	--	.00	1.00	1.0	.070	<10	<1
27...	--	--	--	.00	.98	.98	.070	10	0
27...	--	--	--	--	--	--	--	--	--
27...	8.6	--	--	.00	2.10	2.1	.270	60	20
MAY									
27...	4.7	325	--	.00	1.10	1.1	.050	10	<1
27...	--	--	--	.00	1.00	1.0	.060	20	10
27...	--	--	--	.00	.99	.99	.070	10	10
27...	5.9	333	--	.00	1.40	1.4	.100	30	20
AUG									
11...	7.6	338	--	.00	1.10	1.1	.030	10	<1
11...	--	--	.010	.00	1.10	1.1	.030	40	0
11...	--	--	--	--	--	--	--	--	--
11...	7.7	334	--	.00	1.10	1.1	.040	13	2

O. C. FISHER LAKE AT SAN ANGELO, TX--Continued

312907100311301 O. C. FISHER LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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...	1250	1.00	540	8.4	10.5	8.7	83
27...	1252	7.00	540	8.2	10.0	7.3	69
MAY							
27...	1020	1.00	605	7.3	23.5	3.7	46
27...	1022	9.00	608	7.0	22.5	.2	2
AUG							
11...	1135	1.00	653	7.6	27.0	4.2	56
11...	1137	7.00	650	7.5	27.0	3.6	48

313023100321101 O.C.FISHER LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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...	1140	1.00	730	8.4	10.0	.67	9.8	92	<1	K3
27...	1141	1.10	--	--	--	--	--	--	--	--
27...	1142	5.00	730	8.4	10.0	--	9.7	92	--	--
27...	1144	10.0	1050	8.3	9.5	--	9.4	87	--	--
27...	1146	14.0	1070	8.4	9.5	--	8.8	82	--	--
MAY										
27...	1045	1.00	750	7.8	27.5	.60	8.5	115	K2	K16
27...	1046	1.00	--	--	--	--	--	--	--	--
27...	1047	5.00	750	7.7	26.5	--	7.1	93	--	--
27...	1049	13.0	882	7.0	23.5	--	.0	0	--	--
AUG										
11...	1106	1.00	668	7.6	28.5	.50	4.6	63	K8	42
11...	1107	.90	--	--	--	--	--	--	--	--
11...	1108	12.0	670	7.6	28.0	--	4.3	59	--	--

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...	280	100	66	28	41	1.1	5.9	180	53
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	420	180	92	47	56	1.2	4.7	240	86
MAY									
27...	270	88	61	28	42	1.1	10	180	46
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	320	110	70	36	50	1.2	7.9	210	55
AUG									
11...	230	66	51	24	40	1.3	13	160	41
11...	--	--	--	--	--	--	--	--	--
11...	230	66	51	24	40	1.3	12	160	41

O. C. FISHER LAKE AT SAN ANGELO, TX--Continued

313023100321101 O. C. FISHER LAKE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN									
27...	110	7.8	420	.00	.80	.80	.070	110	30
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	.00	.98	.98	.070	160	30
27...	--	--	--	--	--	--	--	--	--
27...	170	11	611	.07	.84	.91	.090	<10	20
MAY									
27...	110	7.5	413	.00	1.70	1.7	.090	10	2
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	.00	1.00	1.0	.090	40	60
27...	130	12	488	.00	1.20	1.2	.170	530	510
AUG									
11...	100	10	375	.00	1.30	1.3	.050	12	15
11...	--	--	--	--	--	--	--	--	--
11...	100	10	374	.00	1.30	1.3	.060	16	10

312900100290201 O. C. FISHER LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	MAY 27,81	AUG 11,81
TIME	0906	1011
TOTAL CELLS/ML	20000	140000
DIVERSITY: DIVISION	1.0	0.7
.CLASS	1.0	0.7
..ORDER	1.5	1.5
...FAMILY	1.7	2.4
....GENUS	2.6	2.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)				
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...CHLOROCOCCACEAE				
....PLANKTOSPHAERIA	--	-	2600	2
...COELASTRACEAE				
....COELASTRUM	--	-	2600	2
...MICRACTINIACEAE				
....MICRACTINIUM	--	-	*	0
...OOCYSTACEAE				
....ANKISTRODESMUS	200	1	*	0
....DICTYOSPHAERIUM	--	-	2800	2
....OOCYSTIS	200	1	*	0
....SELENASTRUM	230	1	*	0
....TETRAEDRON	*	0	--	-
...SCENEDESMACEAE				
....CRUCIGENIA	1800	9	2600	2
....SCENEDESMUS	540	3	*	0
....TETRASTRUM	400	2	--	-
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CARTERIA	200	1	--	-
....CHLAMYDOMONAS	170	1	--	-
...PHACOTACEAE				
....PHACOTUS	--	-	*	0
...VOLVOCACEAE				
....PANDORINA	--	-	2600	2
..ZYGNEMATALES				
...DESMIDIACEAE				
....EUASTRUM	*	0	--	-
...ZYGNEMATACEAE				
....MOUGEOTIA	--	-	990	1

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

O. C. FISHER LAKE AT SAN ANGELO, TX--Continued

312900100290201 O. C. FISHER LAKE SITE AC--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE TIME	MAY 27,81 0906		AUG 11,81 1011	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA				
.BACILLARIOPHYCEAE				
..CENTRALES				
...COSCINODISCACEAE				
....CYCLOTELLA	540	3	*	0
..PENNALES				
...ACHNANTHACEAE				
....COCCONEIS	*	0	--	-
...FRAGILARIACEAE				
....FRAGILARIA	--	-	*	0
...NITZSCHIACEAE				
....NITZSCHIA	130	1	*	0
CRYPTOPHYTA (CRYPTOMONADS)				
.CRYPTOPHYCEAE				
..CRYPTOMONADALES				
...CRYPTOCHRYSIDACEAE				
....CHROOMONAS	130	1	--	-
...CRYPTOMONADACEAE				
....CRYPTOMONAS	*	0	820	1
CYANOPHYTA (BLUE-GREEN ALGAE)				
.CYANOPHYCEAE				
..CHROOCOCCALES				
...CHROOCOCCACEAE				
....AGMENELLUM	5500#	27	29000#	20
....ANACYSTIS	8600#	42	--	-
..HORMOGONALES				
...NOSTOCACEAE				
....ANABAENA	--	-	14000	10
...OSCILLATORIACEAE				
....LYNGBYA	--	-	44000#	30
....OSCILLATORIA	1600	8	30000#	20
...RIVULARIACEAE				
....RAPHIDIOPSIS	--	-	8700	6
EUGLENOPHYTA (EUGLENOIDS)				
.EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....TRACHELOMONAS	*	0	*	0
PYRRHOPHYTA (FIRE ALGAE)				
.DINOPHYCEAE				
..PERIDINIALES				
...CERATIACEAE				
....CERATIUM	--	-	*	0
...GLENODINIACEAE				
....GLENODINIUM	*	0	*	0
...PERIDINIACEAE				
....PERIDINIUM	--	-	*	0

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

O. C. FISHER LAKE AT SAN ANGELO, TX--Continued

313023100321101 O. C. FISHER LAKE SITE DC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	JAN 27,81		MAY 27,81		AUG 11,81	
TIME	1141		1046		1107	
TOTAL CELLS/ML	2400		15000		270000	
DIVERSITY: DIVISION	1.7		1.7		0.5	
.CLASS	2.0		1.7		0.5	
..ORDER	2.4		2.4		1.5	
...FAMILY	3.1		2.9		1.9	
....GENUS	3.7		3.8		2.4	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	330	2	--	-
...HYDRODICTYACEAE						
....PEDIASTRUM	28	1	130	1	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	*	0	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	260	11	440	3	6400	2
....DICTYOSPHAERIUM	--	-	*	0	--	-
....KIRCHNERIELLA	--	-	200	1	--	-
....OOCYSTIS	57	2	130	1	--	-
....TETRAEDRON	14	1	100	1	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	370#	15	3100#	22	*	0
....SCENEDESMUS	140	6	800	6	3200	1
....TETRASTRUM	280	12	400	3	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	440	3	*	0
....CHLAMYDOMONAS	71	3	330	2	*	0
....CHLOROGONIUM	--	-	*	0	--	-
...POLYBLEPHARIDACEAE						
....SPERMATOZOOPSIS	--	-	--	-	*	0
...VOLVOCACEAE						
....PANDORINA	--	-	--	-	2100	1
..ZYGNEMATALES						
...DESMIDIACEAE						
....EUASTRUM	--	-	*	0	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	270	11	370	3	2100	1
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	*	0	--	-
...FRAGILARIACEAE						
....SYNEDRA	230	9	--	-	*	0
...NAVICULACEAE						
....NAVICULA	14	1	*	0	--	-
...NITZSCHIACEAE						
....NITZSCHIA	85	4	400	3	*	0
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...MALLOMONADACEAE						
....MALLOMONAS	28	1	--	-	--	-
...OCHROMONADACEAE						
....DINOBRYON	160	7	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	14	1	440	3	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	130	5	100	1	1900	1

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

O. C. FISHER LAKE AT SAN ANGELO, TX--Continued

313023100321101 O. C. FISHER LAKE SITE DC--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE TIME	JAN 27,81 1141		MAY 27,81 1046		AUG 11,81 1107	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	1600	11	34000	13
....ANACYSTIS	200	8	1900	13	86000#	32
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	2000	14	--	-
....ANABAENOPSIS	--	-	470	3	--	-
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	1600	1
....OSCILLATORIA	--	-	--	-	91000#	34
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	37000	14
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	43	2	230	2	*	0
....PHACUS	--	-	*	0	*	0
....TRACHELOMONAS	--	-	270	2	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	14	1	*	0	--	-

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

08135000 NORTH CONCHO RIVER AT SAN ANGELO, TX

LOCATION.--Lat 31°27'57", long 100°26'51", Tom Green County, Hydrologic Unit 12090104, near left bank on downstream side of pier of Sixth Street Bridge in San Angelo, 3.2 mi (5.1 km) upstream from confluence with South Concho River, and 3.4 mi (5.5 km) downstream from O. C. Fisher Dam.

DRAINAGE AREA (revised).--1,525 mi² (3,950 km²), of which 75.1 mi² (194.5 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1915 to June 1928, February 1929 to September 1931, July 1947 to current year.

REVISED RECORDS.--WSP 568: 1916, 1918-22. WSP 1512: 1916(M), 1917-18, 1919-21(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,813.42 ft (552.730 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1920, nonrecording gage, and Sept. 1, 1920, to Feb. 11, 1929, water-stage recorder at site 1.6 mi (2.6 km) downstream at datum 11.02 ft (3.359 m) lower. Feb. 12, 1929, to Sept. 30, 1931, water-stage recorder at site 1.6 mi (2.6 km) downstream at datum 13.02 ft (3.968 m) lower.

REMARKS.--Water-discharge records fair. Since October 1951, flow regulated by O. C. Fisher Lake (station 08134500).

AVERAGE DISCHARGE.--17 years (water years 1917-27, 1930-31, 1948-51) prior to completion of O. C. Fisher Dam, 54.5 ft³/s (1.543 m³/s), 39,490 acre-ft/yr (48.7 hm³/yr); 30 years (water years 1952-81) regulated, 8.26 ft³/s (0.234 m³/s), 5,980 acre-ft/yr (7.37 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 47,000 ft³/s (1,330 m³/s) June 13, 1930, gage height, 22.52 ft (6.864 m), site and datum then in use; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 17, 1936, reached a stage of 34.6 ft (10.55 m), from floodmarks, discharge 184,000 ft³/s (5,210 m³/s), by slope-area measurement. The flood in 1936 was the greatest since flood in June 1853 (stage unknown).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 385 ft³/s (10.9 m³/s) May 30 at 0300 hours, gage height, 2.73 ft (0.832 m); minimum daily, 0.08 ft³/s (0.002 m³/s) Nov. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	.16	1.1	1.3	2.2	48	1.4	1.0	.98	.56	.46	1.7
2	.99	.16	.73	1.4	1.6	4.3	1.5	2.2	.89	.54	.48	11
3	1.1	.15	.69	1.4	1.3	34	1.0	2.8	.95	3.4	.56	4.1
4	1.1	.31	.67	1.3	1.3	10	1.0	2.1	15	19	.56	1.9
5	1.2	.58	.59	1.3	1.3	3.0	1.1	1.9	3.1	20	.46	1.3
6	1.4	.66	.51	1.3	1.2	2.6	1.1	1.9	2.2	.93	.40	1.1
7	1.4	.60	5.4	1.2	1.2	18	1.3	2.0	3.0	.55	.40	1.1
8	1.3	.68	82	19	1.1	4.8	1.6	1.9	1.9	.61	.42	1.1
9	1.2	2.3	4.8	5.2	1.1	2.4	1.5	1.8	1.6	.65	.48	1.1
10	1.0	.77	2.6	2.9	.96	2.3	1.5	1.7	1.5	.68	.59	.99
11	1.4	.42	3.3	1.9	.80	24	1.1	1.9	1.3	.61	.88	.97
12	1.1	.24	3.1	2.0	.73	11	.75	1.8	1.3	.56	.65	.89
13	1.2	.13	2.9	1.5	.69	2.1	.99	1.8	1.3	.56	.48	.89
14	1.2	.08	3.4	1.5	.69	1.8	25	1.5	1.5	.61	.46	1.2
15	1.0	.10	4.8	1.6	.70	1.4	27	4.3	11	.67	8.2	1.5
16	.89	41	3.0	1.4	.78	1.2	2.7	9.5	17	.67	38	1.1
17	.88	3.5	2.6	1.4	.70	1.7	5.3	2.4	2.3	.61	33	.96
18	.92	1.5	2.4	2.5	.65	1.2	25	1.8	1.5	.61	1.7	.90
19	.66	1.4	2.3	2.2	.75	.98	2.2	1.6	1.2	.54	1.0	.88
20	.89	.88	2.2	1.5	1.0	.80	1.6	1.8	1.0	.58	1.3	.89
21	.77	.88	2.2	1.3	1.2	.88	2.6	1.7	1.0	.61	1.2	.89
22	.65	1.2	2.1	2.0	1.4	1.1	.94	2.1	.73	.90	1.0	.89
23	.59	1.1	1.9	1.8	1.2	1.1	3.8	2.2	.56	.63	.94	.93
24	.53	.77	1.8	1.7	2.0	1.2	1.4	22	.49	.52	1.3	.86
25	.53	2.0	1.7	1.6	1.3	1.3	.97	4.4	.51	.54	1.1	.82
26	.55	1.8	1.6	1.6	1.3	1.3	.97	1.6	.62	.54	.87	.97
27	.39	1.1	1.5	1.4	1.3	1.1	.94	1.2	.65	.58	7.5	.86
28	.28	1.1	1.5	1.6	24	1.2	.91	1.0	.61	.63	9.6	.94
29	.26	.93	1.5	1.5	---	1.2	.91	1.2	.65	.54	2.2	.94
30	.21	.88	1.4	1.6	---	1.2	.88	83	.58	.48	1.1	.80
31	.15	---	1.2	2.3	---	1.2	---	3.6	---	.46	.83	---
TOTAL	26.74	67.38	147.49	72.2	54.45	188.36	118.96	171.7	76.92	59.37	118.12	44.47
MEAN	.86	2.25	4.76	2.33	1.94	6.08	3.97	5.54	2.56	1.92	3.81	1.48
MAX	1.4	41	82	19	24	48	27	83	17	20	38	11
MIN	.15	.08	.51	1.2	.65	.80	.75	1.0	.49	.46	.40	.80
AC-FT	53	134	293	143	108	374	236	341	153	118	234	88

CAL YR 1980 TOTAL 970.02 MEAN 2.65 MAX 167 MIN .00 AC-FT 1920
WTR YR 1981 TOTAL 1146.16 MEAN 3.14 MAX 83 MIN .08 AC-FT 2270

08135000 NORTH CONCHO RIVER AT SAN ANGELO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
JAN 29...	1600	1.7	1990	7.8	14.0	5	6.6	11.7	121	1.1	530
MAY 28...	1050	1.4	1450	7.5	26.5	10	28	9.3	122	13	410
AUG 10...	1320	.65	2100	8.1	27.5	5	16	15.8	211	4.4	510

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 (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 29...	190	100	68	200	3.8	4.9	340	160	370	1.1	13
MAY 28...	160	80	51	150	3.2	4.9	250	96	280	.7	19
AUG 10...	260	64	86	260	5.0	5.8	250	170	470	1.1	17

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)
JAN 29...	1120	20	13	1.6	.040	1.6	.070	1.1	1.2	.070	--
MAY 28...	832	84	19	.87	.060	.93	.060	1.7	1.8	.160	26
AUG 10...	1220	26	18	.53	.030	.56	.140	1.2	1.3	.030	7.4

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 29...	1600	2	200	<1	0	<10	10
MAY 28...	1050	6	200	1	10	<10	30
AUG 10...	1320	6	200	0	0	50	40

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 29...	35	20	.2	1	0	5
MAY 28...	59	40	.2	0	0	20
AUG 10...	0	20	.1	1	0	10

08136000 CONCHO RIVER AT SAN ANGELO, TX

LOCATION.--Lat 31°27'16", long 100°24'37", Tom Green County, Hydrologic Unit 12090105, on left bank 0.4 mi (0.6 km) downstream from confluence of North and South Concho Rivers, 1.8 mi (2.9 km) southeast of Tom Green County Courthouse, and 61.9 mi (99.6 km) upstream from mouth.

DRAINAGE AREA (revised).--5,542 mi^2 (14,354 km^2), of which 1,131 mi^2 (2,929 km^2) probably is noncontributing.

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

REVISED RECORDS.--WSP 568: 1915-16, 1919-22. WSP 1148: 1916-22(M), 1924(M), 1925-26, 1929(M), 1930-32, 1935-37. WSP 1512: 1917-18. WSP 1712: 1936. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,776.79 ft (541.566 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 11, 1917, nonrecording gage at same site and datum. Aug. 11, 1917, to May 15, 1963, water-stage recorder on right bank at same datum.

REMARKS.--Records good except those for Jan. 17 to Feb. 23, which are fair. Many diversions upstream from station for irrigation, industrial, and municipal supply. Records furnished by the city of San Angelo show that during the year they diverted 16,780 acre-ft (20.7 hm^3), of which 375 acre-ft (0.462 hm^3) was diverted from E.V. Spence Reservoir. All sewage effluent is used for irrigation about 6 mi (10 km) downstream from gage, and none is returned directly to the river. Flow is regulated by Twin Buttes Reservoir (station 08131200) on the South Concho River and by O. C. Fisher Lake (station 08134500) on the North Concho River. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--47 years (water years 1916-62) prior to construction of Twin Buttes Dam, 158 ft^3/s (4.475 m^3/s), 114,500 acre-ft/yr (141 hm^3/yr); 19 years (water years 1963-81) regulated, 23.3 ft^3/s (0.660 m^3/s), 16,880 acre-ft/yr (20.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft^3/s (6,510 m^3/s) Sept. 17, 1936, gage height, 46.6 ft (14.20 m), from floodmarks, from rating curve extended above 105,000 ft^3/s (2,970 m^3/s) on basis of slope-area measurements of 167,000 and 230,000 ft^3/s (4,730 and 6,510 m^3/s); no flow at times in 1921, 1952-53, 1965, and 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1853, 47.5 ft (14.48 m) Aug. 6, 1906, discharge, about 246,000 ft^3/s (6,970 m^3/s), from information by local resident. Other large floods are known to have occurred in June 1853, August 1882, and April 1900.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,200 ft^3/s (34.0 m^3/s) May 30 at 0300 hours, gage height, 4.69 ft (1.430 m); minimum, 4.1 ft^3/s (0.12 m^3/s) Aug. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	6.6	15	13	10	119	5.9	16	35	6.8	26	8.7
2	14	6.6	10	9.5	10	30	6.5	17	29	6.5	39	44
3	13	7.2	9.6	9.7	10	94	8.1	32	24	9.9	43	37
4	11	5.5	11	9.1	10	52	7.3	31	95	89	43	25
5	11	5.2	13	11	9.0	25	6.4	26	47	141	39	23
6	12	5.2	13	12	9.0	19	5.9	26	29	38	30	19
7	13	5.2	15	12	9.0	35	5.2	24	45	27	27	17
8	13	5.2	245	23	9.0	26	4.7	20	27	19	29	17
9	10	5.0	50	50	9.0	19	5.6	23	19	16	32	20
10	9.9	5.6	26	23	9.0	16	7.6	20	13	12	33	19
11	10	6.1	20	16	9.0	61	13	17	9.4	9.7	40	19
12	11	5.5	16	15	8.0	56	15	14	8.1	8.3	52	21
13	9.4	5.0	15	13	8.0	35	14	12	6.5	7.0	42	21
14	7.8	4.8	15	12	8.0	26	94	11	6.9	7.0	26	24
15	7.2	6.7	17	12	8.0	22	153	24	12	7.0	28	57
16	7.2	91	17	11	9.0	21	47	106	84	7.0	155	35
17	6.8	56	15	10	9.0	19	58	44	31	6.5	148	27
18	6.0	28	13	12	9.0	17	94	32	21	6.9	37	25
19	6.6	20	12	12	9.0	16	38	21	19	6.4	29	21
20	8.1	15	13	10	9.0	16	29	16	17	5.9	19	15
21	8.5	13	14	10	9.0	16	33	14	12	5.9	15	12
22	7.9	15	14	10	10	15	28	14	10	6.4	10	9.0
23	7.6	16	13	10	9.5	13	64	13	7.6	6.1	7.0	8.2
24	7.5	15	12	10	9.0	12	40	21	6.5	5.4	5.4	7.9
25	8.1	15	11	10	8.6	13	28	48	6.0	5.5	4.8	6.8
26	9.2	18	13	10	7.8	14	24	27	6.5	7.9	4.5	6.7
27	12	14	11	10	7.3	13	21	23	6.3	11	6.8	7.0
28	7.4	14	9.9	10	49	12	22	20	5.8	14	19	7.0
29	6.8	15	10	10	---	8.9	20	25	7.0	23	13	7.0
30	6.7	13	9.8	10	---	7.2	19	358	7.2	26	9.6	8.3
31	7.0	---	10	11	---	5.6	---	60	---	25	8.7	---
TOTAL	292.7	443.4	688.3	406.3	290.2	853.7	917.2	1155	652.8	573.1	1020.8	574.6
MEAN	9.44	14.8	22.2	13.1	10.4	27.5	30.6	37.3	21.8	18.5	32.9	19.2
MAX	17	91	245	50	49	119	153	358	95	141	155	57
MIN	6.0	4.8	9.6	9.1	7.3	5.6	4.7	11	5.8	5.4	4.5	6.7
AC-FT	581	879	1370	806	576	1690	1820	2290	1290	1140	2020	1140

CAL YR 1980 TOTAL 12180.9 MEAN 33.3 MAX 2670 MIN 3.0 AC-FT 24160
WTR YR 1981 TOTAL 7868.1 MEAN 21.6 MAX 358 MIN 4.5 AC-FT 15610

08136150 CONCHO RIVER NEAR VERIBEST, TX
(Low-flow partial-record station)

LOCATION.--Lat 31°32'07", long 100°13'05", Tom Green County, Hydrologic Unit 12090105, at bridge on county road, 2.8 mi (4.5 km) downstream from Crownest Creek, 4.5 mi (7.2 km) northeast of Veribest, and 17.3 mi (27.8 km) downstream from gaging station near San Angelo.

PERIOD OF RECORD.--Periodic discharge measurements: April 1970 to April 1974. Periodic water-quality data: February 1968 to September 1981 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 20...	1210	32	1910	7.9	11.5	13.5	131	1.7	490	280
JAN 22...	1200	30	2100	8.0	8.5	13.1	116	2.1	600	340
MAR 19...	1710	31	2000	8.2	18.0	10.2	113	2.9	490	280
MAY 21...	1800	28	2010	7.7	22.0	11.5	140	1.0	520	350
JUL 16...	1820	6.5	1950	8.0	32.0	14.7	216	4.6	480	330
SEP 17...	1715	33	1840	7.8	24.0	10.0	125	.0	490	270

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 (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 20...	110	53	210	4.1	5.5	210	160	420	.5
JAN 22...	140	61	230	4.1	3.9	260	230	420	.6
MAR 19...	110	53	230	4.5	5.0	210	190	420	.5
MAY 21...	110	59	230	4.4	5.5	170	200	440	.3
JUL 16...	95	59	220	4.4	5.0	150	210	430	.5
SEP 17...	110	53	210	4.1	5.2	210	180	400	.6

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
NOV 20...	16	1100	2.4	.010	2.4	.000	1.0	1.0	.060
JAN 22...	19	1260	5.0	.010	5.0	.010	.85	.86	.080
MAR 19...	13	1150	2.7	.080	2.8	.070	1.0	1.1	.340
MAY 21...	16	1160	1.3	.050	1.3	.050	1.2	1.2	.090
JUL 16...	18	1130	.96	.040	1.0	.000	1.3	1.3	.120
SEP 17...	20	1100	2.2	.050	2.2	.130	1.4	1.5	.010

08136500 CONCHO RIVER AT PAINT ROCK, TX

LOCATION.--Lat 31°30'57", long 99°55'09", Concho County, Hydrologic Unit 12090105, near left bank on downstream end of pier of bridge on U.S. Highway 83, 0.5 mi (0.8 km) north of Concho County Courthouse in Paint Rock, 2.7 mi (4.3 km) downstream from Kickapoo Creek, and 20.0 mi (32.2 km), revised, upstream from mouth.

DRAINAGE AREA (revised).--6,574 mi^2 (17,027 km^2), of which 1,131 mi^2 (2,929 km^2) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder with masonry dam control. Datum of gage is 1,574.36 ft (479.865 m) National Geodetic Vertical Datum of 1929. See WSP 1922 for history of changes prior to Jan. 15, 1940.

REMARKS.--Water-discharge records good. Many diversions above station for irrigation and municipal supply. Regulation same as that for Concho River at San Angelo (station 08136000). Flow is affected at times by discharge from flood-detention pools of two floodwater-retarding structures with combined detention capacity of 2,690 acre-ft (3.32 hm^3). These structures control runoff from 16.5 mi^2 (42.7 km^2) in the Willow Creek drainage basin.

AVERAGE DISCHARGE.--47 years (water years 1916-62) prior to construction of Twin Buttes Dam, 210 ft^3/s (5.947 m^3/s), 152,100 acre-ft/yr (188 hm^3/yr); 19 years (water years 1963-81) regulated, 59.8 ft^3/s (1.694 m^3/s), 43,330 acre-ft/yr (53.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 301,000 ft^3/s (8,520 m^3/s) Sept. 17, 1936, gage height, 43.4 ft (13.23 m), from floodmarks, from rating curve extended above 98,000 ft^3/s (2,780 m^3/s) on basis of slope-area measurements of 144,000 and 301,000 ft^3/s (4,080 and 8,520 m^3/s); no flow at times.
Maximum stage since at least 1853, that of Sept. 17, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1882 reached a stage of about 39.9 ft (12.16 m), and flood in August 1906 reached a stage of 39.5 ft (12.04 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,540 ft^3/s (43.6 m^3/s) May 30 at 2200 hours, gage height, 14.44 ft (4.401 m); minimum daily, 5.6 ft^3/s (0.16 m^3/s) Aug. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173	30	53	61	46	67	43	55	242	17	5.6	42
2	95	30	49	60	43	123	41	53	141	18	6.1	41
3	70	33	49	59	46	169	37	56	111	20	9.7	43
4	62	32	49	58	46	139	34	52	107	43	17	64
5	50	32	49	58	49	192	31	54	125	74	31	69
6	43	34	49	58	49	119	31	64	150	191	34	58
7	40	33	50	58	52	89	33	58	100	107	45	54
8	38	30	242	61	52	81	32	59	85	66	38	51
9	38	33	360	80	52	76	32	54	87	53	28	47
10	38	33	202	84	52	78	30	47	67	45	26	43
11	34	36	117	96	49	70	31	44	57	40	34	46
12	33	37	93	80	46	110	34	48	50	35	34	46
13	32	40	82	68	43	168	34	47	42	27	39	46
14	32	40	78	61	43	125	56	46	36	24	55	46
15	33	41	76	58	43	96	108	45	38	22	48	45
16	33	68	73	55	46	84	234	56	48	18	38	43
17	31	86	72	55	49	76	143	93	55	15	78	63
18	30	148	72	55	49	68	136	114	91	13	241	58
19	28	92	68	58	49	61	171	79	62	12	109	51
20	29	67	61	58	47	58	123	63	50	12	73	45
21	29	57	61	58	45	58	98	52	46	11	58	43
22	29	56	62	58	40	55	86	46	46	11	45	41
23	29	54	64	58	39	55	96	42	42	11	38	39
24	29	52	65	55	41	53	90	40	33	10	38	35
25	28	56	64	55	43	52	107	45	27	9.2	35	31
26	28	56	64	55	43	51	84	49	23	9.3	31	28
27	30	53	64	52	43	51	69	68	25	8.1	29	29
28	30	54	64	52	47	52	61	56	22	7.4	33	31
29	29	54	64	52	---	51	59	54	19	7.0	36	29
30	30	52	61	49	---	49	59	493	17	6.4	38	28
31	31	---	61	52	---	47	---	700	---	6.1	44	---
TOTAL	1284	1519	2638	1877	1292	2623	2223	2832	2044	948.5	1414.4	1335
MEAN	41.4	50.6	85.1	60.5	46.1	84.6	74.1	91.4	68.1	30.6	45.6	44.5
MAX	173	148	360	96	52	192	234	700	242	191	241	69
MIN	28	30	49	49	39	47	30	40	17	6.1	5.6	28
AC-FT	2550	3010	5230	3720	2560	5200	4410	5620	4050	1880	2810	2650

CAL YR 1980 TOTAL 59917.81 MEAN 164 MAX 23800 MIN .03 AC-FT 118800
WTR YR 1981 TOTAL 22029.90 MEAN 60.4 MAX 700 MIN 5.6 AC-FT 43700

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1967 to September 1981.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to current year.
WATER TEMPERATURES: October 1967 to current year.
SUSPENDED SEDIMENT DISCHARGE: February 1978 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,110 micromhos Apr. 20, 24, 25, 1974; minimum daily, 268 micromhos Sept. 9, 1980.
WATER TEMPERATURES (1967-73, 1975-81): Maximum daily, 35.0°C on several days during summer months; minimum daily 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,190 mg/L Sept. 9, 1980; minimum daily mean, 3 mg/L Feb. 2, 1979.
SEDIMENT LOADS: Maximum daily, 269,000 tons Sept. 9, 1980; minimum daily, 0.0 tons on several days during September 1980.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,530 micromhos Aug. 10; minimum daily, 747 micromhos Oct. 1.
WATER TEMPERATURES: Maximum daily, 34.0°C July 31; minimum daily, 4.0°C Dec. 21.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 131 mg/L Dec. 9; minimum daily mean, 6 mg/L Jan. 20.
SEDIMENT LOADS: Maximum daily, 349 tons May 30; minimum daily, 0.26 tons July 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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											
03...	1105	69	905	--	22.0	--	--	--	--	--	270
NOV											
20...	1010	59	2230	8.0	9.0	10	3.6	13.6	124	2.1	720
JAN											
05...	1005	59	2170	--	9.0	--	--	--	--	--	650
22...	1030	61	2200	8.0	7.5	5	1.2	12.2	108	1.8	680
FEB											
18...	1425	50	2440	--	16.5	--	--	--	--	--	720
MAR											
19...	1510	65	2090	8.0	16.0	10	22	10.7	114	2.1	580
MAY											
21...	1600	59	2150	8.0	23.0	10	23	10.7	130	.7	620
JUN											
01...	1150	240	1100	--	24.0	--	--	--	--	--	290
JUL											
16...	1540	20	2160	8.2	32.0	10	17	10.9	156	4.3	560
AUG											
17...	0935	45	2430	7.5	27.5	--	--	--	--	--	680
SEP											
17...	1615	65	2240	8.0	24.5	5	30	8.7	109	.5	650

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	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											
03...	140	69	24	75	2.0	7.7	130	74	170	.2	15
NOV											
20...	510	150	84	200	3.2	4.9	210	290	460	.5	16
JAN											
05...	440	150	68	190	3.2	4.4	210	250	420	.4	11
22...	460	160	69	200	3.3	3.6	220	270	440	.5	14
FEB											
18...	510	160	77	220	3.6	3.9	210	300	510	.1	1.5
MAR											
19...	400	130	62	210	3.8	4.6	180	250	440	.5	6.5
MAY											
21...	460	130	71	220	3.9	4.6	160	250	460	.3	13
JUN											
01...	160	70	28	100	2.8	9.6	130	110	210	.3	13
JUL											
16...	420	110	69	240	4.4	5.6	140	250	470	.5	22
AUG											
17...	500	140	80	250	4.2	5.1	180	290	520	.6	24
SEP											
17...	470	140	72	210	3.6	4.9	180	180	510	.6	20

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
03...	513	--	--	--	--	--	--	--	--	--	--
NOV											
20...	1330	0	1	9.3	.040	9.3	.010	.99	1.00	.040	4.4
JAN											
05...	1220	--	--	--	--	--	--	--	--	--	--
22...	1290	5	0	18	.040	18	.050	--	--	.070	11
FEB											
18...	1400	--	--	--	--	--	--	--	--	--	--
MAR											
19...	1210	22	13	5.8	.040	5.8	.060	1.3	1.40	.050	11
MAY											
21...	1250	33	13	5.3	.070	5.4	.060	1.5	1.60	.060	6.1
JUN											
01...	619	--	--	--	--	--	--	--	--	--	--
JUL											
16...	1250	17	13	2.5	.040	2.5	.040	1.3	1.30	.070	5.7
AUG											
17...	1420	--	--	--	--	--	--	--	--	--	--
SEP											
17...	1250	38	9	4.2	.090	4.3	.120	1.4	1.50	.020	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)
NOV							
20...	1010	2	200	0	0	0	30
MAR							
19...	1510	2	200	0	10	0	10
MAY							
21...	1600	3	200	0	10	0	10
JUL							
16...	1540	7	200	0	0	0	40

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV						
20...	0	10	.0	3	0	10
MAR						
19...	0	0	.1	1	0	10
MAY						
21...	0	10	.0	3	1	10
JUL						
16...	100	10	.2	2	0	20

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL 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)
NOV											
20...	1010	.00	2	.00	.00	.0	.00	.0	.00	.3	.00
JUL											
16...	1540	.00	0	.00	.00	.0	.00	.0	.00	.1	.00

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)
NOV										
20...	13	--	.1	.00	.00	.0	.00	.00	.0	.00
JUL										
16...	1.1	.00	.0	.00	.00	.1	.00	.00	.0	.00

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
NOV 20...	.00	.0	.00	.0	.00	.2	.00	.00	.0	.00
JUL 16...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00

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)
NOV 20...	.00	.00	.0	.00	0	.0	.00	.00	.00	.00
JUL 16...	.00	.00	.0	.00	0	.0	.00	.01	.00	.00

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	1284	1430	807	2800	280	957	150	509	410
NOV.	1980	1519	2200	1260	5180	450	1850	260	1050	660
DEC.	1980	2638	1990	1140	8120	400	2860	220	1590	590
JAN.	1981	1877	2180	1260	6360	450	2270	250	1280	660
FEB.	1981	1292	2380	1380	4810	500	1740	290	1000	730
MAR.	1981	2623	2030	1160	8220	410	2900	230	1620	600
APR.	1981	2223	2120	1220	7310	430	2600	240	1460	640
MAY	1981	2832	1790	1020	7820	360	2730	200	1500	530
JUNE	1981	2044	1580	894	4930	310	1690	160	901	460
JULY	1981	948.5	2090	1200	3070	430	1090	240	611	630
AUG.	1981	1414.4	2090	1200	4580	430	1630	240	913	630
SEPT	1981	1335	2070	1190	4270	420	1510	230	846	620
TOTAL		22029.9	**	**	67500	**	23800	**	13300	**
WTD. AVG.		60	1980	1130	**	400	**	220	**	590

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	747	2180	2130	2170	2150	2310	2290	1980	1300	2070	2300	1850
2	850	1910	2140	2160	2370	1750	2300	2020	1380	2120	2290	1840
3	957	2180	2170	2150	2340	1440	2260	2000	1440	2110	2260	1820
4	884	2190	2160	2140	2360	2210	2310	2040	1490	2030	2290	1850
5	962	2200	2170	2180	2380	2250	2330	2040	1320	2160	2340	2080
6	1100	2190	2150	2200	2220	2180	2320	1880	1250	2100	2290	2060
7	1280	2220	2130	2160	2250	2020	2310	1990	1460	2170	2300	2050
8	1300	2100	1930	2210	2360	2060	2320	2030	1520	1900	2350	2070
9	1360	1980	1950	2160	2320	2070	2340	2080	1590	1830	2450	2020
10	1410	2230	2020	2200	2350	1940	2360	2100	1610	1820	2530	2050
11	1560	2240	2030	2230	2400	1930	2370	2130	1640	2060	2490	2130
12	1570	2250	2040	2230	2420	1900	2380	2160	1710	2110	2470	2120
13	1610	2260	1980	2220	2410	1750	2400	2190	1730	2180	2400	2130
14	1680	2280	1920	2200	2430	1960	2360	2160	1750	2190	2250	2140
15	1500	2290	1950	2210	2300	2090	2370	2210	1770	2200	2400	2150
16	1770	2280	1930	2200	2450	2070	2000	2200	1670	2220	2470	2160
17	1800	2300	1940	2210	2450	2050	2300	2100	1800	2210	2040	2140
18	1840	2320	1930	2190	2440	2030	2350	1860	1770	2170	2150	2080
19	1860	2270	1930	1920	2390	2100	1810	2060	1860	2180	2040	2120
20	1880	2260	1920	1810	2470	2060	2120	2150	1890	2170	1950	2110
21	1930	2250	1910	2200	2480	2110	2070	2160	1910	2190	1840	2130
22	1950	2250	1930	2230	2320	2130	2050	2180	1930	2180	1760	2120
23	1990	2240	1940	2220	2470	2140	2000	2170	1920	2200	1750	2100
24	2010	2240	1960	2210	2460	2130	2000	2230	1940	2210	1740	2130
25	2040	2210	1840	2170	2450	2160	1850	2100	1960	2210	1760	2100
26	2050	2190	2020	2220	2470	2180	1980	2020	1990	2250	1720	2070
27	2080	1490	2090	2210	2480	2210	1970	2140	2050	2270	1710	2150
28	2110	2140	2120	2230	2430	2240	1990	2260	2040	2260	1720	2140
29	2140	2120	1740	2260	---	2260	2010	2220	2060	2270	1780	2150
30	2130	2120	2140	2280	---	2070	2040	1800	2070	2280	1810	2140
31	2150	---	2150	2300	---	2270	---	1100	---	2290	1820	---
MEAN	1630	2180	2010	2180	2390	2070	2190	2060	1730	2150	2110	2070

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	17.0	15.0	14.0	13.0	19.0	21.0	27.0	29.0	30.0	---	---
2	---	18.0	11.0	14.0	11.0	16.0	20.0	25.0	26.0	30.0	31.0	27.0
3	25.0	17.0	13.0	13.0	---	18.0	21.0	24.0	25.0	30.0	29.0	27.0
4	25.0	18.0	14.0	12.0	11.0	19.0	21.0	25.0	27.0	30.0	29.0	26.0
5	25.0	20.0	17.0	11.0	8.0	15.0	20.0	26.0	28.0	29.0	30.0	26.0
6	26.0	19.0	19.0	12.0	9.0	16.0	17.0	24.0	---	28.0	30.0	28.0
7	25.0	21.0	18.0	11.0	14.0	17.0	19.0	25.0	29.0	29.0	29.0	---
8	26.0	---	14.0	11.0	11.0	15.0	21.0	26.0	31.0	28.0	28.0	26.0
9	26.0	20.0	13.0	12.0	12.0	14.0	---	25.0	31.0	29.0	29.0	25.0
10	25.0	18.0	12.0	---	12.0	14.0	24.0	---	31.0	29.0	29.0	25.0
11	23.0	19.0	13.0	12.0	9.0	11.0	24.0	22.0	30.0	30.0	29.0	26.0
12	22.0	21.0	13.0	13.0	---	---	25.0	27.0	29.0	30.0	30.0	28.0
13	23.0	19.0	---	10.0	9.0	17.0	---	25.0	28.0	29.0	29.0	28.0
14	25.0	18.0	13.0	10.0	12.0	16.0	22.0	23.0	---	30.0	28.0	25.0
15	26.0	15.0	15.0	13.0	12.0	17.0	20.0	22.0	28.0	30.0	---	26.0
16	27.0	14.0	15.0	9.0	16.0	16.0	23.0	25.0	25.0	30.0	30.0	27.0
17	24.0	---	15.0	10.0	13.0	---	20.0	---	27.0	30.0	30.0	23.0
18	24.0	12.0	17.0	8.0	15.0	17.0	23.0	25.0	29.0	29.0	27.0	26.0
19	22.0	13.0	12.0	---	19.0	15.0	23.0	23.0	28.0	32.0	25.0	25.0
20	20.0	13.0	10.0	9.0	17.0	17.0	26.0	21.0	30.0	30.0	26.0	---
21	22.0	12.0	4.0	12.0	16.0	18.0	24.0	22.0	30.0	30.0	29.0	25.0
22	19.0	12.0	8.0	12.0	15.0	15.0	23.0	25.0	30.0	29.0	28.0	24.0
23	23.0	11.0	11.0	10.0	16.0	19.0	23.0	25.0	30.0	29.0	---	24.0
24	20.0	12.0	10.0	14.0	17.0	17.0	22.0	26.0	29.0	31.0	29.0	25.0
25	---	9.0	8.0	14.0	---	18.0	22.0	---	29.0	31.0	28.0	25.0
26	19.0	9.0	9.0	15.0	19.0	19.0	25.0	25.0	---	---	29.0	27.0
27	20.0	9.0	13.0	16.0	19.0	20.0	23.0	30.0	30.0	30.0	30.0	29.0
28	16.0	14.0	12.0	13.0	18.0	---	---	30.0	---	28.0	29.0	29.0
29	15.0	14.0	14.0	15.0	---	19.0	25.0	30.0	29.0	29.0	27.0	25.0
30	16.0	14.0	13.0	12.0	---	21.0	26.0	25.0	30.0	31.0	30.0	27.0
31	16.0	---	15.0	12.0	---	20.0	---	26.0	---	34.0	28.0	---
MEAN	22.5	15.5	13.0	12.0	13.5	17.0	22.5	25.0	29.0	30.0	29.0	26.0

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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	173	24	11	30	41	3.3	53	18	2.6
2	95	25	6.4	30	7	.57	49	50	6.6
3	70	28	5.3	33	28	2.5	49	50	6.6
4	62	15	2.5	32	19	1.6	49	32	4.2
5	50	25	3.4	32	19	1.6	49	52	6.9
6	43	30	3.5	34	21	1.9	49	39	5.2
7	40	16	1.7	33	28	2.5	50	19	2.6
8	38	14	1.4	30	24	1.9	242	67	44
9	38	16	1.6	33	20	1.8	360	131	139
10	38	13	1.3	33	30	2.7	202	65	35
11	34	20	1.8	36	42	4.1	117	19	6.0
12	33	21	1.9	37	24	2.4	93	16	4.0
13	32	22	1.9	40	36	3.9	82	15	3.3
14	32	13	1.1	40	20	2.2	78	14	2.9
15	33	40	3.6	41	40	4.4	76	22	4.5
16	33	16	1.4	68	13	2.4	73	20	3.9
17	31	30	2.5	86	45	10	72	20	3.9
18	30	25	2.0	148	127	51	72	25	4.9
19	28	23	1.7	92	41	10	68	27	5.0
20	29	21	1.6	67	14	2.5	61	25	4.1
21	29	17	1.3	57	16	2.5	61	22	3.6
22	29	15	1.2	56	16	2.4	62	22	3.7
23	29	14	1.1	54	79	12	64	24	4.1
24	29	16	1.3	52	33	4.6	65	20	3.5
25	28	22	1.7	56	36	5.4	64	15	2.6
26	28	28	2.1	56	14	2.1	64	21	3.6
27	30	26	2.1	53	12	1.7	64	30	5.2
28	30	22	1.8	54	20	2.9	64	19	3.3
29	29	37	2.9	54	16	2.3	64	12	2.1
30	30	12	.97	52	49	6.9	61	98	16
31	31	31	2.6	---	---	---	61	74	12
TOTAL	1284	---	76.67	1519	---	156.07	2638	---	354.9

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	61	63	10	46	39	4.8	67	30	5.4
2	60	88	14	43	49	5.7	123	32	11
3	59	76	12	46	54	6.7	169	19	8.7
4	58	72	11	46	60	7.5	139	38	14
5	58	75	12	49	61	8.1	192	28	15
6	58	80	13	49	16	2.1	119	32	10
7	58	82	13	52	58	8.1	89	33	7.9
8	61	54	8.9	52	64	9.0	81	34	7.4
9	80	83	18	52	48	6.7	76	34	7.0
10	84	86	20	52	93	13	78	28	5.9
11	96	90	23	49	26	3.4	70	34	6.4
12	80	72	16	46	40	5.0	110	63	19
13	68	74	14	43	20	2.3	168	32	15
14	61	75	12	43	22	2.6	125	14	4.7
15	58	43	6.7	43	12	1.4	96	56	15
16	55	60	8.9	46	32	4.0	84	22	5.0
17	55	59	8.8	49	26	3.4	76	54	11
18	55	35	5.2	49	37	4.9	68	84	15
19	58	20	3.1	49	38	5.0	61	76	13
20	58	6	.94	47	21	2.7	58	70	11
21	58	31	4.9	45	62	7.5	58	44	6.9
22	58	54	8.5	40	30	3.2	55	68	10
23	58	58	9.1	39	30	3.2	55	68	10
24	55	25	3.7	41	62	6.9	53	62	8.9
25	55	61	9.1	43	38	4.4	52	48	6.7
26	55	95	14	43	22	2.6	51	44	6.1
27	52	68	9.5	43	15	1.7	51	35	4.8
28	52	95	13	47	26	3.3	52	32	4.5
29	52	73	10	---	---	---	51	30	4.1
30	49	54	7.1	---	---	---	49	28	3.7
31	52	83	12	---	---	---	47	17	2.2
TOTAL	1877	---	331.44	1292	---	139.2	2623	---	275.3

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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	43	26	3.0	55	28	4.2	242	29	19
2	41	44	4.9	53	29	4.1	141	43	16
3	37	27	2.7	56	37	5.6	111	32	9.6
4	34	42	3.9	52	34	4.8	107	38	11
5	31	36	3.0	54	26	3.8	125	38	13
6	31	32	2.7	64	30	5.2	150	27	11
7	33	26	2.3	58	32	5.0	100	16	4.3
8	32	24	2.1	59	38	6.1	85	15	3.4
9	32	23	2.0	54	17	2.5	87	22	5.2
10	30	22	1.8	47	34	4.3	67	30	5.4
11	31	28	2.3	44	50	5.9	57	16	2.5
12	34	22	2.0	48	14	1.8	50	46	6.2
13	34	32	2.9	47	19	2.4	42	37	4.2
14	56	43	6.5	46	25	3.1	36	35	3.4
15	108	36	10	45	26	3.2	38	33	3.4
16	234	27	17	56	16	2.4	48	38	4.9
17	143	40	15	93	20	5.0	55	24	3.6
18	136	38	14	114	25	7.7	91	14	3.4
19	171	47	22	79	48	10	62	19	3.2
20	123	14	4.6	63	17	2.9	50	20	2.7
21	98	23	6.1	52	40	5.6	46	34	4.2
22	86	28	6.5	46	17	2.1	46	28	3.5
23	96	56	15	42	30	3.4	42	42	4.8
24	90	44	11	40	20	2.2	33	26	2.3
25	107	31	9.0	45	20	2.4	27	42	3.1
26	84	38	8.6	49	21	2.8	23	26	1.6
27	69	24	4.5	68	24	4.4	25	34	2.3
28	61	35	5.8	56	13	2.0	22	40	2.4
29	59	22	3.5	54	26	3.8	19	45	2.3
30	59	18	2.9	493	113	349	17	32	1.5
31	---	---	---	700	123	304	---	---	---
TOTAL	2223	---	197.6	2832	---	771.7	2044	---	163.4

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	17	34	1.6	5.6	23	.35	42	25	2.8
2	18	22	1.1	6.1	30	.49	41	38	4.2
3	20	62	3.3	9.7	30	.79	43	28	3.3
4	43	23	2.7	17	30	1.4	64	45	7.8
5	74	44	8.8	31	30	2.5	69	81	15
6	191	33	17	34	32	2.9	58	36	5.6
7	107	51	15	45	44	5.3	54	35	5.1
8	66	34	6.1	38	34	3.5	51	35	4.8
9	53	71	10	28	36	2.7	47	46	5.8
10	45	28	3.4	26	39	2.7	43	46	5.3
11	40	52	5.6	34	60	5.5	46	30	3.7
12	35	46	4.3	34	44	4.0	46	44	5.5
13	27	36	2.6	39	37	3.9	46	41	5.1
14	24	52	3.4	55	34	5.0	46	82	10
15	22	21	1.2	48	40	5.2	45	52	6.3
16	18	30	1.5	38	46	4.7	43	68	7.9
17	15	41	1.7	78	54	11	63	91	15
18	13	37	1.3	241	72	47	58	33	5.2
19	12	34	1.1	109	101	30	51	31	4.3
20	12	46	1.5	73	79	16	45	38	4.6
21	11	37	1.1	58	74	12	43	38	4.4
22	11	22	.65	45	39	4.7	41	52	5.8
23	11	29	.86	38	42	4.3	39	54	5.7
24	10	31	.84	38	46	4.7	35	40	3.8
25	9.2	30	.75	35	38	3.6	31	36	3.0
26	9.3	35	.88	31	26	2.2	28	18	1.4
27	8.1	38	.83	29	30	2.3	29	37	2.9
28	7.4	34	.68	33	28	2.5	31	62	5.2
29	7.0	42	.79	36	34	3.3	29	44	3.4
30	6.4	27	.47	38	39	4.0	28	33	2.5
31	6.1	16	.26	44	19	2.3	---	---	---
TOTAL	948.5	---	101.31	1414.4	---	200.83	1335	---	165.4
YEAR	22029.9		2933.82						

08136700 COLORADO RIVER NEAR STACY, TX

LOCATION.--Lat 31°29'37", long 99°34'25", Coleman County, Hydrologic Unit 12090106, on left bank at downstream side of bridge on Farm Road 503, 1.2 mi (1.9 km) upstream from Bois d'Arc Creek, 1.8 mi (2.9 km) northeast of Stacy, 24 mi (39 km) downstream from Concho River, and at mile 604.8 (973.1 km).

DRAINAGE AREA (revised).--24,193 mi^2 (62,660 km^2), approximately, of which 11,391 mi^2 (29,503 km^2) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,394.66 ft (425.092 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bridge plans).

REMARKS.--Water-discharge records good. Many diversions above station for irrigation, municipal, and oilfield operation uses. Effluent from numerous sewage plants is returned to the river. Flow is affected by reservoirs upstream (see stations 08126380 and 08136000) and at times by discharge from the flood-detention pools of 42 floodwater-retarding structures with combined detention capacity of 56,730 acre-ft (69.9 hm^3). These structures control runoff from 277 mi^2 (717 km^2).

AVERAGE DISCHARGE.--13 years (water years 1969-81), 218 ft^3/s (6.174 m^3/s), 157,900 acre-ft/yr (195 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft^3/s (1,270 m^3/s) Sept. 10, 1980, gage height, 28.00 ft (8.534 m); no flow June 22 to Aug. 3, 1974, and Aug. 5-16, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since since at least 1882, 356,000 ft^3/s (10,100 m^3/s) Sept. 18, 1936, gage height, 64.59 ft (19.687 m), by slope-area measurement of peak flow. The flood of Sept. 18, 1936, was 4 ft (1.2 m) higher than the 1906 flood and 7 to 8 ft (2.1 to 2.4 m) higher than the 1882 flood, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,380 ft^3/s (209 m^3/s) May 30 at 2400 hours, gage height, 11.32 ft (3.450 m); minimum daily, 8.2 ft^3/s (0.23 m^3/s) Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1360	71	108	152	122	138	139	174	1040	34	8.8	47
2	894	71	105	149	120	180	130	162	529	32	8.4	58
3	663	71	102	147	120	314	125	162	316	30	8.2	65
4	511	69	95	142	120	997	117	160	260	38	8.3	58
5	415	68	94	139	120	834	112	152	462	41	8.9	57
6	345	68	92	139	121	630	108	146	519	89	8.5	69
7	292	67	89	139	123	496	103	144	373	199	8.4	81
8	246	66	198	146	125	424	98	144	263	196	12	78
9	220	65	686	160	127	355	98	136	198	120	37	74
10	193	63	776	182	128	331	96	131	155	107	43	66
11	176	59	514	187	118	419	94	126	133	94	41	64
12	162	59	394	200	120	600	93	117	108	75	36	64
13	141	59	329	180	118	623	87	110	92	57	32	66
14	129	60	299	165	120	539	90	108	80	50	37	67
15	122	61	278	162	121	447	94	107	70	42	41	66
16	113	82	264	162	120	379	143	121	71	36	53	66
17	110	97	245	158	120	337	267	124	74	31	65	61
18	110	139	229	154	120	303	227	160	102	28	66	67
19	106	206	216	154	120	268	260	206	190	25	139	78
20	98	185	203	156	118	248	394	173	161	21	225	80
21	96	149	191	157	112	229	322	144	115	18	159	73
22	94	133	182	157	107	216	246	126	92	16	123	67
23	92	121	179	156	104	200	246	110	78	14	95	62
24	90	116	179	151	100	193	246	101	73	13	76	59
25	86	112	176	148	98	185	246	97	67	12	66	54
26	84	112	174	143	98	181	292	93	58	12	59	51
27	82	110	172	139	98	174	263	103	51	12	56	48
28	77	113	170	137	108	169	223	142	44	11	56	44
29	74	111	163	133	---	162	199	137	38	11	50	41
30	73	107	158	131	---	156	188	1070	38	10	47	38
31	72	---	154	127	---	149	---	3930	---	10	46	---
TOTAL	7326	2870	7214	4752	3246	10876	5346	8916	5850	1484	1719.5	1869
MEAN	236	95.7	233	153	116	351	178	288	195	47.9	55.5	62.3
MAX	1360	206	776	200	128	997	394	3930	1040	199	225	81
MIN	72	59	89	127	98	138	87	93	38	10	8.2	38
AC-FT	14530	5690	14310	9430	6440	21570	10600	17680	11600	2940	3410	3710

CAL YR 1980 TOTAL 128056.51 MEAN 350 MAX 31300 MIN .00 AC-FT 254000
WTR YR 1981 TOTAL 61468.50 MEAN 168 MAX 3930 MIN 8.2 AC-FT 121900

08136700 COLORADO RIVER NEAR STACY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1968 to current year. Sediment analyses: October 1974 to September 1979.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to current year.
WATER TEMPERATURES: April 1968 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,580 micromhos Sept. 23, 1970; minimum daily, 188 micromhos July 29, 1971.
WATER TEMPERATURES: Maximum daily, 35.0°C July 1, 1980; minimum daily, 0.0°C Feb. 9, 10, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,630 micromhos Aug. 27; minimum daily, 503 micromhos Oct. 1.
WATER TEMPERATURES: Maximum daily, 33.0°C on several days during July and August; minimum daily, 0.0°C Feb. 9, 10.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)
JAN 15...	1034	173	1840	--	9.0	540	350	130	52
FEB 25...	0946	100	2250	--	15.0	690	520	160	70
JUN 17...	1010	75	1450	--	23.0	450	300	110	42
JUL 22...	0835	17	1910	--	29.0	540	440	109	64
AUG 26...	0845	60	2590	7.3	29.0	760	660	160	87

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)
JAN 15...	160	3.0	3.9	190	250	320	.4	7.6	1040
FEB 25...	200	3.3	3.9	170	350	440	.3	3.3	1330
JUN 17...	130	2.9	5.9	150	240	240	.3	13	871
JUL 22...	180	3.8	6.2	100	320	380	.5	18	1140
AUG 26...	260	4.1	6.5	100	460	560	.6	20	1610

08136700 COLORADO RIVER NEAR STACY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	7326	793	445	8800	140	2750	88	1750	230
NOV.	1980	2870	1840	1070	8320	340	2650	270	2090	550
DEC.	1980	7214	1710	997	19400	320	6160	240	4760	510
JAN.	1981	4752	1820	1060	13700	340	4340	270	3420	550
FEB.	1981	3246	2140	1270	11100	410	3550	340	2970	650
MAR.	1981	10876	1530	886	26000	280	8220	210	6150	460
APR.	1981	5346	1870	1100	15900	350	5050	280	4040	570
MAY	1981	8916	1530	887	21300	280	6750	210	5060	460
JUNE	1981	5850	1110	626	9890	200	3100	130	2090	320
JULY	1981	1484	1720	998	4000	320	1270	240	980	510
AUG.	1981	1719.5	2240	1340	6200	430	1990	370	1700	690
SEPT	1981	1869	2000	1180	5930	370	1890	310	1550	610
TOTAL		61468.5	**	**	151000	**	47700	**	36600	**
WTD. AVG.		168	1560	907	**	290	**	220	**	470

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	503	1580	2000	1630	2000	2210	1530	1670	1190	1520	2050	2240
2	557	1600	2010	1640	2030	2140	1520	1660	856	1550	2070	2160
3	614	1630	1990	1650	2040	2080	1560	1680	803	1560	2080	2070
4	650	1660	2000	1660	2030	1700	1580	1700	833	1540	2090	2060
5	670	1690	2020	1670	2040	1770	1590	1800	910	1530	2100	2030
6	690	1700	2040	1700	2050	2120	1610	1900	952	1460	2120	1960
7	706	1720	2060	1720	2050	1640	1620	1890	1070	1560	2110	1860
8	736	1740	1850	1730	2060	1630	1630	1840	1150	1660	2130	1870
9	760	1760	1840	1740	2080	1610	1640	1810	1180	1690	2150	1850
10	787	1780	1570	1760	2090	1430	1640	1800	1140	1710	2170	1820
11	817	1800	1590	1770	2120	1320	1650	1790	1210	1830	2130	1790
12	860	1820	1640	1790	2140	1300	1650	1830	1200	1840	2080	1770
13	900	1830	1680	1820	2150	1260	1660	1820	1160	1850	2010	1760
14	935	1850	1770	1800	2180	1290	1680	1830	1200	1850	1950	1740
15	967	1870	1890	1840	2170	1280	1700	1840	1240	1860	1800	1750
16	1010	1840	1860	1830	2180	1270	1720	1810	1250	1870	1780	1790
17	1050	1820	1820	1840	2170	1280	1740	1800	1270	1880	1770	1810
18	1090	1850	1760	1830	2180	1320	1930	1800	1300	1880	1890	1830
19	1150	1870	1620	1850	2190	1370	1960	1830	1360	1870	1970	1890
20	1230	1930	1540	1860	2200	1360	1990	1880	1430	1890	2270	2010
21	1730	1850	1590	1870	2190	1350	1920	1840	1350	1910	2310	2140
22	1660	1910	1610	1900	2200	1370	1940	1880	1280	1920	2460	2150
23	1530	1850	1640	1910	2220	1380	1920	1900	1310	1940	2480	2170
24	1500	1850	1630	1930	2230	1390	1990	1930	1340	1950	2460	2180
25	1480	1860	1620	1940	2250	1410	2060	1950	1370	1960	2520	2220
26	1470	1890	1600	1960	2260	1420	2230	1960	1400	1970	2600	2320
27	1490	1940	1600	1970	2260	1450	2410	1960	1430	1990	2630	2340
28	1510	1970	1610	1980	2250	1470	2160	1950	1450	2000	2540	2370
29	1530	1980	1620	1990	---	1480	1880	1940	1470	2020	2430	2360
30	1550	1990	1630	1980	---	1500	1720	1500	1480	2030	2380	2350
31	1560	---	1620	1990	---	1520	---	1250	---	2070	2320	---
MEAN	1090	1810	1750	1820	2140	1520	1790	1810	1220	1810	2190	2020

08136700 COLORADO RIVER NEAR STACY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	15.0	9.0	---	---	---	23.0	29.0	26.0	32.0	32.0	31.0
2	22.0	---	8.0	7.0	6.0	17.0	23.0	26.0	26.0	32.0	---	26.0
3	23.0	21.0	6.0	8.0	6.0	16.0	24.0	---	27.0	33.0	31.0	29.0
4	24.0	18.0	8.0	---	4.0	17.0	22.0	25.0	25.0	---	31.0	30.0
5	---	19.0	9.0	5.0	3.0	16.0	---	26.0	26.0	---	32.0	30.0
6	26.0	18.0	10.0	7.0	3.0	17.0	21.0	25.0	28.0	31.0	33.0	---
7	26.0	19.0	---	7.0	5.0	18.0	22.0	26.0	---	30.0	31.0	---
8	---	20.0	10.0	6.0	---	---	23.0	26.0	31.0	29.0	30.0	28.0
9	26.0	---	7.0	6.0	.0	14.0	26.0	26.0	32.0	31.0	---	28.0
10	25.0	22.0	7.0	5.0	.0	15.0	24.0	---	32.0	31.0	30.0	29.0
11	24.0	---	7.0	---	---	14.0	24.0	24.0	32.0	32.0	29.0	29.0
12	---	21.0	6.0	5.0	---	13.0	---	25.0	30.0	---	30.0	30.0
13	---	21.0	8.0	5.0	---	14.0	26.0	26.0	30.0	33.0	31.0	---
14	25.0	17.0	---	6.0	9.0	15.0	24.0	25.0	---	32.0	31.0	29.0
15	26.0	17.0	10.0	4.0	---	---	20.0	23.0	29.0	32.0	32.0	29.0
16	26.0	---	8.0	6.0	---	18.0	22.0	23.0	25.0	33.0	---	28.0
17	26.0	10.0	11.0	3.0	14.0	18.0	21.0	---	25.0	32.0	28.0	25.0
18	22.0	10.0	9.0	---	16.0	17.0	22.0	27.0	27.0	33.0	28.0	24.0
19	---	10.0	6.0	1.0	19.0	17.0	---	25.0	29.0	---	28.0	24.0
20	22.0	11.0	3.0	4.0	18.0	17.0	26.0	25.0	29.0	33.0	27.0	---
21	21.0	11.0	---	5.0	20.0	17.0	25.0	26.0	---	33.0	30.0	27.0
22	22.0	8.0	3.0	5.0	---	---	24.0	27.0	31.0	32.0	29.0	27.0
23	22.0	5.0	5.0	5.0	17.0	15.0	24.0	29.0	32.0	33.0	---	26.0
24	20.0	---	5.0	6.0	18.0	18.0	24.0	---	31.0	33.0	30.0	28.0
25	19.0	4.0	---	---	19.0	18.0	26.0	---	30.0	33.0	31.0	28.0
26	---	5.0	4.0	8.0	19.0	20.0	---	30.0	32.0	---	32.0	28.0
27	19.0	---	6.0	9.0	18.0	19.0	26.0	29.0	30.0	30.0	31.0	---
28	16.0	5.0	---	10.0	18.0	19.0	26.0	31.0	---	31.0	30.0	29.0
29	16.0	6.0	6.0	10.0	---	---	28.0	29.0	31.0	33.0	31.0	28.0
30	15.0	---	7.0	7.0	---	21.0	29.0	26.0	32.0	32.0	---	29.0
31	16.0	---	7.0	6.0	---	21.0	---	---	---	33.0	32.0	---
MEAN	22.0	13.5	7.0	6.0	11.5	17.0	24.0	26.5	29.0	32.0	30.5	28.0

08138000 COLORADO RIVER AT WINCHELL, TX

LOCATION.--Lat 31°28'04", long 99°09'43", McCulloch-Brown County line, Hydrologic Unit 12090106, near left bank on downstream end of pier of bridge on U.S. Highway 377, 0.3 mi (0.5 km) south of Winchell, 5.9 mi (9.5 km) downstream from Home Creek, and at mile 560.7 (902.2 km).

DRAINAGE AREA (revised).--25,179 mi² (65,214 km²), approximately, of which 11,391 mi² (29,503 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1923 to September 1934 (published as "near Milburn"), June 1939 to current year.

REVISED RECORDS.--WSP 1118: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,264.86 ft (385.529 m) National Geodetic Vertical Datum of 1929. November 1923 to September 1934, nonrecording gage at site 4.2 mi (6.8 km) downstream at datum 10.14 ft (3.091 m) lower. Jan. 13, 1939, to Mar. 24, 1940, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Many diversions above station for irrigation, muincipal supply, and oilfield operation. Flow is affected by reservoirs upstream (see stations 08126380 and 08136000) and at times by discharge from the flood-dentention pools of 87 floodwater-retarding structures with a combined detention capacity of 103,000 acre-ft (127 hm³). These structures control runoff from 502 mi² (1,300 km²).

AVERAGE DISCHARGE.--39 years (water years 1925-34, 1940-68) prior to completion of Robert Lee Dam, 628 ft³/s (17.78 m³/s), 455,000 acre-ft/yr (561 hm³/yr); 13 years (water years 1969-81) partially regulated, 263 ft³/s (7.448 m³/s), 190,500 acre-ft/yr (235 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,100 ft³/s (2,160 m³/s) Oct. 15, 1930, gage height, 51.8 ft (15.79 m), present site and datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Highest stages since 1882 were 62.2 ft (18.96 m) Sept. 19, 1936, and 56.2 ft (17.13 m) Aug. 8, 1906, at railway bridge 1,000 ft (305 m) upstream and converted to present site and datum, from information by Gulf, Colorado, and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,610 ft³/s (159 m³/s) May 31 at 1400 hours, gage height, 12.13 ft (3.697 m); minimum daily, 0.26 ft³/s (0.007 m³/s) Aug. 8-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2690	81	113	141	112	114	175	173	2010	40	2.7	31
2	1610	80	110	137	111	138	165	156	912	38	1.7	31
3	1140	80	106	134	109	220	159	146	945	40	.92	35
4	896	79	104	130	113	949	153	148	640	36	.59	43
5	728	77	102	128	114	1330	144	144	437	343	.35	51
6	585	77	101	128	114	1000	136	136	592	226	.46	44
7	454	76	100	127	114	798	129	129	578	105	.35	40
8	360	75	399	129	116	668	125	122	445	184	.26	55
9	333	72	775	139	119	576	124	126	302	200	.26	67
10	300	72	1010	148	123	487	121	113	228	137	.26	66
11	280	70	826	168	119	456	120	108	177	110	.26	60
12	250	65	579	179	117	918	116	104	156	100	8.3	53
13	230	64	441	189	117	1040	114	100	136	84	32	60
14	200	62	356	178	117	964	110	94	121	64	25	58
15	180	62	312	160	118	835	108	91	334	55	21	342
16	170	80	282	148	117	682	110	181	199	46	20	87
17	160	94	264	141	114	569	129	191	132	40	28	50
18	150	99	244	137	115	483	287	112	122	31	319	46
19	140	127	221	137	115	419	305	126	107	26	167	43
20	130	200	204	135	115	356	287	158	189	22	99	44
21	130	193	187	137	113	313	427	154	180	18	204	57
22	130	165	176	140	110	284	331	129	135	16	148	63
23	120	144	169	139	106	266	317	114	111	13	117	54
24	120	130	164	137	102	245	258	102	97	10	95	48
25	110	125	162	136	99	227	240	94	88	9.0	78	44
26	110	127	160	131	97	221	243	88	83	7.6	62	42
27	100	120	158	127	96	213	275	82	75	6.3	51	37
28	100	117	156	124	100	207	251	81	64	5.2	49	36
29	90	117	153	123	---	200	213	105	55	3.6	45	33
30	81	115	151	119	---	190	188	131	46	3.6	42	29
31	82	---	145	115	---	182	---	2800	---	3.1	35	---
TOTAL	12159	3045	8430	4341	3132	15550	5860	6538	9696	2022.4	1653.41	1749
MEAN	392	102	272	140	112	502	195	211	323	65.2	53.3	58.3
MAX	2690	200	1010	189	123	1330	427	2800	2010	343	319	342
MIN	81	62	100	115	96	114	108	81	46	3.1	.26	29
AC-FT	24120	6040	16720	8610	6210	30840	11620	12970	19230	4010	3280	3470

CAL YR 1980 TOTAL 180603.78 MEAN 493 MAX 37500 MIN .00 AC-FT 358200
WTR YR 1981 TOTAL 74175.81 MEAN 203 MAX 2800 MIN .26 AC-FT 147100

08138000 COLORADO RIVER AT WINCHELL, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 29...	1145	89	1210	--	14.0	360	210	90	33
DEC 09...	1450	700	1410	--	12.0	460	280	120	39
JAN 14...	0956	187	1680	--	8.5	520	340	130	47
FEB 24...	1021	105	2140	--	15.0	650	490	150	66
MAR 31...	1241	184	1340	--	20.0	430	260	110	37
MAY 12...	1021	105	1680	--	19.0	470	330	100	53
JUN 16...	1130	204	1140	--	26.0	310	190	74	31
JUL 21...	0930	19	1630	--	30.0	520	410	120	54
AUG 25...	0945	79	1420	7.4	28.0	460	350	105	48

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 29...	100	2.3	6.5	150	150	210	.3	9.1	680
DEC 09...	110	2.2	4.3	180	210	240	.3	9.1	841
JAN 14...	140	2.7	4.0	180	230	280	.3	6.7	946
FEB 24...	190	3.3	4.2	160	310	400	.4	6.1	1220
MAR 31...	120	2.5	3.6	170	180	240	.4	6.6	800
MAY 12...	170	3.4	4.9	140	250	330	.4	7.8	1000
JUN 16...	110	3.0	6.4	120	120	220	.3	10	644
JUL 21...	140	2.9	6.5	110	300	300	.5	15	1000
AUG 25...	120	2.7	5.5	110	290	250	.4	16	901

08140600 LAKE CLYDE NEAR CLYDE, TX

LOCATION.--Lat 32°19'05", long 99°28'43", Callahan County, Hydrologic Unit 12090107, at Clyde pump station, 0.6 mi (1.0 km) west of dam on North Prong Pecan Bayou, 2.1 mi (3.4 km) downstream from bridge on Farm Road 604, and 7.0 mi (11.3 km) southeast of Clyde.

DRAINAGE AREA (revised).--36.9 mi² (95.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1970 to current year.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a rolled earthfill dam, 3,950 ft (1,204 m) long. Appreciable storage began in April 1970, and the dam was completed in May 1970. The uncontrolled emergency spillways are two 200-foot-wide (61 m) cut channels through natural ground located at left end of dam. The service spillway is an uncontrolled 3.5- by 10.5-foot (1.1 by 3.2 m) reinforced concrete drop inlet connected to a 42-inch (1,067 mm) concrete outlet pipe. A 14-inch (356 mm) controlled drain pipe is connected to the drop inlet. There are four 4.83- by 3.50-foot (1.47 by 1.07 m) rectangular slots, two on each side, divided by a 10-inch (254 mm) concrete web. 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	1,888.9	16,530
Crest of spillway	1,881.4	10,840
Crest of spillway (invert of drop inlet)	1,872.0	5,720
Lowest gated outlet (invert)	1,842.2	60

COOPERATION.--Record of lake elevations and diversions were furnished by the city of Clyde. Capacity table was furnished by the Soil Conservation Service.

EXTREMES (at 0700) FOR PERIOD OF RECORD.--Maximum contents, 7,420 acre-ft (9.15 hm³) Aug. 4, 1978, elevation, 1,875.5 ft (571.65 m); minimum, 1,460 acre-ft (1.80 hm³) Aug. 1, 2, 1978, elevation, 1,858.8 ft (566.56 m).

EXTREMES (at 0700) FOR CURRENT YEAR.--Maximum contents, 3,040 acre-ft (3.75 hm³) June 7-10, elevation, 1,865.0 ft (568.45 m); minimum, 2,160 acre-ft (2.66 hm³) Sept. 30, elevation, 1,861.9 ft (567.51 m).

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

1,861.0	1,940
1,863.0	2,450
1,865.0	3,040

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2800	2740	2680	2680	2480	2510	2800	2680	2510	2890	2590	2370
2	2800	2740	2650	2680	2480	2560	2800	2680	2480	2860	2590	2370
3	2800	2740	2650	2650	2480	2650	2800	2680	2480	2860	2590	2370
4	2800	2740	2650	2650	2480	2740	2770	2680	2510	2860	2590	2370
5	2800	2740	2650	2650	2450	2860	2770	2680	2710	2860	2560	2370
6	2800	2740	2650	2650	2450	2860	2770	2650	2890	2860	2560	2340
7	2770	2740	2650	2650	2450	2860	2770	2650	3040	2830	2540	2340
8	2770	2740	2650	2620	2450	2860	2770	2650	3040	2830	2540	2340
9	2770	2740	2680	2620	2450	2860	2770	2650	3040	2830	2510	2320
10	2770	2710	2710	2620	2560	2860	2740	2650	3040	2830	2510	2320
11	2770	2710	2740	2590	2560	2860	2740	2650	3010	2800	2510	2290
12	2770	2710	2740	2590	2560	2860	2740	2650	3010	2800	2480	2290
13	2740	2710	2740	2590	2560	2860	2740	2620	2980	2800	2480	2290
14	2740	2680	2740	2560	2560	2860	2740	2620	2980	2800	2450	2290
15	2740	2680	2740	2560	2560	2860	2740	2620	2980	2800	2450	2290
16	2740	2710	2710	2560	2560	2830	2740	2590	2980	2770	2450	2290
17	2800	2710	2710	2560	2560	2830	2740	2590	3010	2770	2450	2290
18	2800	2710	2710	2540	2540	2830	2740	2590	3010	2770	2450	2270
19	2800	2710	2710	2540	2540	2830	2740	2590	3010	2770	2450	2270
20	2800	2710	2710	2540	2540	2830	2740	2560	3010	2740	2430	2270
21	2800	2680	2710	2540	2510	2830	2740	2560	2980	2740	2430	2240
22	2800	2680	2710	2510	2510	2830	2710	2560	2980	2710	2430	2240
23	2800	2680	2680	2510	2510	2830	2710	2560	2980	2710	2430	2240
24	2770	2680	2680	2510	2510	2830	2710	2560	2950	2680	2430	2240
25	2770	2680	2680	2510	2510	2800	2710	2540	2950	2680	2430	2210
26	2770	2680	2680	2510	2510	2800	2710	2540	2950	2680	2400	2210
27	2770	2680	2680	2510	2510	2800	2710	2540	2920	2680	2400	2210
28	2770	2680	2680	2480	2510	2800	2710	2510	2920	2650	2400	2190
29	2770	2680	2680	2480	---	2800	2710	2510	2920	2620	2400	2190
30	2740	2680	2680	2480	---	2800	2680	2510	2920	2620	2370	2160
31	2740	---	2680	2480	---	2800	---	2510	---	2620	2370	---
MAX	2800	2740	2740	2680	2560	2860	2800	2680	3040	2890	2590	2370
MIN	2740	2680	2650	2480	2450	2510	2680	2510	2480	2620	2370	2160
(†)	1864.0	1863.8	1863.8	1863.1	1863.2	1864.2	1863.8	1863.2	1864.6	1863.6	1862.7	1861.9
(‡)	+60	-60	0	-200	+30	+290	-120	-170	+410	-300	-250	-210
(††)	28	25	24	23	23	24	31	38	36	51	49	35

CAL YR 1980 MAX 3970 MIN 2340 ‡ -1290 †† 414
WTR YR 1981 MAX 3040 MIN 2160 ‡ -520 †† 387

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use.

08140600 LAKE CLYDE NEAR CLYDE, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT 02...	0930	790	22.0	160	53	44	13	89

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 02...	3.0	9.9	55	160	.4	5.7	443

08141000 HORDS CREEK LAKE NEAR VALERA, TX

LOCATION.--Lat 31°49'58", long 99°33'38", Coleman County, Hydrologic Unit 12090108, at outlet-works structure near right end of dam on Hords Creek, 5.6 mi (9.0 km) north of Valera, and 8.8 mi (14.2 km) west of Coleman.

DRAINAGE AREA.--48 mi² (124 km²), approximately.

WATER-DISCHARGE RECORDS

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 6,800 ft (2,070 m) long, including spillway. The deliberate impoundment of water began Apr. 7, 1948, and the dam was completed in June 1948. The spillway is an excavated channel through natural ground, 500 ft (150 m) wide, located about 600 ft (180 m) from the right end of dam. The spillway consists of three concrete conduits; two controlled by 5.0- by 6.0-foot (1.5 by 1.8 m) slide gates, and the third an uncontrolled ogee spillway 4.0 ft (1.2 m) wide and 19.5 ft (5.9 m) high. The lake is operated for flood control and municipal water supply for the city of Coleman. The capacity table of August 1974 is based on a sedimentation survey made in 1948. Flow is affected at times by discharge from the flood-detention pool of a floodwater-retarding structure with a detention capacity of 1,370 acre-ft (1.69 hm³). This structure controls runoff from 6.82 mi² (17.7 km²) in the Jim Ned Creek drainage basin. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	1,939.0	-
Design flood	1,933.6	-
Crest of spillway	1,920.0	24,730
Crest of spillway (top of conservation pool)	1,900.0	8,110
Lowest gated outlet (invert)	1,856.0	3

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 12,790 acre-ft (15.8 hm³) May 1, 1956, elevation, 1,906.86 ft (581.211 m); minimum since first appreciable storage in June 1951, 2,260 acre-ft (2.79 hm³) May 2 1980, elevation, 1,882.10 ft (573.664 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,870 acre-ft (4.77 hm³) Mar. 28 at 2400 hours, elevation, 1,889.00 ft (575.767 m); minimum, 2,940 acre-ft (3.63 hm³) Sept. 30 at 2400 hours, elevation, 1,885.36 ft (574.658 m).

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

1,884.0	3,090	1,888.0	3,600
1,886.0	2,630	1,890.0	4,160

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3220	3100	3080	3190	3180	3200	3830	3790	3680	3530	3260	3060
2	3220	3100	3080	3180	3180	3210	3830	3790	3680	3520	3250	3070
3	3220	3100	3080	3180	3170	3440	3830	3780	3690	3510	3240	3090
4	3210	3100	3080	3190	3170	3590	3830	3780	3690	3510	3230	3090
5	3210	3100	3080	3190	3170	3610	3830	3770	3690	3520	3220	3080
6	3210	3090	3080	3190	3170	3620	3830	3770	3680	3510	3210	3080
7	3210	3090	3080	3190	3170	3640	3820	3760	3680	3500	3200	3070
8	3200	3080	3180	3200	3170	3650	3820	3760	3680	3500	3190	3070
9	3200	3080	3200	3200	3180	3660	3820	3750	3670	3490	3190	3060
10	3200	3080	3200	3200	3180	3670	3820	3740	3660	3490	3180	3050
11	3190	3080	3210	3200	3180	3720	3820	3730	3650	3480	3170	3050
12	3190	3070	3210	3200	3170	3750	3820	3720	3650	3470	3160	3040
13	3180	3070	3210	3200	3170	3780	3820	3720	3640	3460	3160	3040
14	3180	3070	3210	3200	3170	3800	3820	3710	3640	3450	3150	3030
15	3170	3070	3210	3200	3170	3810	3820	3720	3640	3440	3140	3030
16	3170	3090	3210	3200	3170	3820	3820	3740	3640	3430	3140	3020
17	3160	3100	3220	3200	3160	3830	3820	3730	3630	3410	3140	3010
18	3160	3090	3210	3200	3160	3830	3820	3730	3620	3410	3130	3000
19	3160	3090	3210	3200	3160	3840	3820	3720	3620	3390	3130	3000
20	3160	3090	3210	3190	3160	3850	3830	3710	3610	3380	3120	2990
21	3160	3090	3200	3190	3160	3850	3820	3710	3600	3380	3120	2980
22	3150	3090	3200	3190	3160	3850	3820	3700	3600	3360	3110	2980
23	3150	3090	3200	3190	3150	3850	3820	3690	3590	3350	3100	2980
24	3150	3090	3200	3190	3150	3850	3820	3700	3580	3340	3100	2970
25	3140	3090	3200	3190	3150	3860	3820	3690	3580	3330	3090	2960
26	3140	3090	3190	3190	3150	3860	3810	3690	3570	3320	3080	2960
27	3130	3090	3190	3190	3150	3870	3810	3690	3560	3310	3080	2950
28	3120	3090	3190	3190	3170	3870	3800	3680	3550	3300	3080	2950
29	3120	3090	3190	3190	---	3870	3800	3680	3540	3290	3070	2940
30	3110	3090	3190	3190	---	3870	3790	3690	3530	3280	3060	2940
31	3100	---	3190	3190	---	3830	---	3680	---	3270	3050	---
MAX	3220	3100	3220	3200	3180	3870	3830	3790	3690	3530	3260	3090
MIN	3100	3070	3080	3180	3150	3200	3790	3680	3530	3270	3050	2940
(†)	1886.07	1885.99	1886.40	1886.40	1886.32	1888.88	1888.73	1888.33	1887.76	1886.75	1885.85	1885.36
(‡)	-100	-10	+100	0	-20	+660	-40	-110	-150	-260	-220	-110
(††)	8.10	12	23	18	17	22	43	21	21	61	56	29

CAL YR 1980 MAX 3220 MIN 2260 ‡ +650 †† 242
WTR YR 1981 MAX 3870 MIN 2940 ‡ -260 †† 331

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use by city of Coleman.

WATER-QUALITY RECORDS

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

314959099333701 HORDS CREEK LAKE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)	HARD-NESS (MG/L AS CACO3)
JAN											
28...	1205	1.0	937	8.3	9.5	1.40	10.8	100	<1	K4	260
28...	1206	2.3	--	--	--	--	--	--	--	--	--
28...	1207	10	935	8.3	9.5	--	10.7	99	--	--	--
28...	1209	20	936	8.4	9.0	--	9.5	87	--	--	--
28...	1211	25	937	8.4	9.0	--	9.1	84	--	--	260
MAY											
18...	1220	1.0	1080	8.0	23.0	.90	8.4	104	K7	K8	310
18...	1221	1.5	--	--	--	--	--	--	--	--	--
18...	1222	10	1080	7.9	22.0	--	8.2	100	--	--	--
18...	1224	20	1080	7.5	20.0	--	4.6	54	--	--	--
18...	1226	27	1080	7.4	20.5	--	3.2	38	--	--	320
AUG											
12...	1022	1.0	1170	7.6	26.5	.80	4.9	65	K6	24	300
12...	1023	1.4	--	--	--	--	--	--	--	--	--
12...	1024	10	1170	7.5	26.5	--	4.7	63	--	--	--
12...	1026	20	1170	7.6	26.5	--	4.7	63	--	--	--
12...	1028	25	1170	7.6	26.5	--	4.9	65	--	--	310

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											
28...	140	63	25	81	2.2	5.5	120	46	200	.2	6.3
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	130	63	25	82	2.2	5.7	130	45	200	--	6.6
MAY											
18...	160	75	29	96	2.4	5.6	150	54	230	.2	6.9
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	170	77	30	99	2.4	6.3	150	58	230	--	8.1
AUG											
12...	170	70	31	110	3.0	7.1	130	59	260	.3	8.7
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	170	71	32	110	3.0	7.2	140	60	250	--	8.7

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	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...	499	--	--	.10	--	--	.95	1.1	.050	<10	1
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	.08	--	--	.91	.99	.050	10	10
28...	--	--	--	--	--	--	--	--	--	--	--
28...	506	--	--	.09	--	--	1.20	1.3	.060	10	30
MAY											
18...	587	.00	.010	.01	--	--	1.00	1.0	.050	10	<1
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	.00	.010	.01	--	--	1.40	1.4	.050	10	10
18...	--	--	--	.01	--	--	1.00	1.0	.070	30	90
18...	599	--	--	.00	--	--	1.30	1.3	.080	10	320
AUG											
12...	624	--	--	.00	--	--	.90	.90	.020	10	3
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	.01	.010	.02	--	--	.83	.85	.020	20	10
12...	--	--	--	--	--	--	--	--	--	--	--
12...	623	.00	.000	.00	.110	.89	1.00	1.0	.030	14	10

HORDS CREEK LAKE NEAR VALERA, TX--Continued

315021099341501 HORDS CREEK LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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...	1235	1.0	939	8.5	9.5	10.6	98
28...	1237	8.0	939	8.5	9.5	10.4	96
MAY							
18...	1255	1.0	1080	7.9	22.5	7.8	95
18...	1257	11	1080	7.7	21.5	5.9	71
AUG							
12...	1050	1.0	1170	7.8	27.0	6.0	80
12...	1052	8.0	1170	7.7	27.0	5.9	79

315002099341301 HORDS CREEK LAKE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)	HARD-NESS (MG/L AS CACO3)
JAN											
28...	1255	1.0	942	8.4	9.5	--	10.7	99	<1	<1	260
28...	1257	10	940	8.4	9.0	--	10.4	95	--	--	--
28...	1259	18	942	8.3	9.0	--	9.2	84	--	--	260
MAY											
18...	1305	1.0	1080	8.0	23.0	.90	8.3	102	K3	K4	310
18...	1307	10	1080	7.7	21.0	--	6.1	73	--	--	--
18...	1309	20	1080	7.5	20.5	--	4.1	48	--	--	310
AUG											
12...	1056	1.0	1170	7.7	27.0	.80	5.8	77	K12	27	320
12...	1058	10	1180	7.6	26.5	--	5.1	68	--	--	--
12...	1100	18	1180	7.6	26.5	--	4.9	65	--	--	310

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)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
JAN											
28...	140	63	24	82	2.2	5.6	120	46	200	5.7	498
28...	--	--	--	--	--	--	--	--	--	--	--
28...	130	63	25	83	2.2	5.6	130	46	200	6.0	507
MAY											
18...	160	76	29	97	2.4	5.5	150	55	240	6.9	600
18...	--	--	--	--	--	--	--	--	--	--	--
18...	160	76	30	99	2.4	6.2	150	60	230	7.6	599
AUG											
12...	180	77	31	110	2.9	7.3	140	60	270	8.6	648
12...	--	--	--	--	--	--	--	--	--	--	--
12...	180	71	32	110	3.0	7.3	130	60	260	8.8	627

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN										
28...	--	--	.10	--	--	1.20	1.3	.050	20	1
28...	--	--	.09	--	--	.86	.95	.050	0	10
28...	--	--	.10	--	--	1.10	1.2	.070	10	10
MAY										
18...	.01	.010	.02	--	--	.68	.70	.070	10	1
18...	--	--	.00	--	--	1.00	1.0	.050	30	10
18...	--	--	.02	--	--	1.40	1.4	.090	10	160
AUG										
12...	--	--	.00	--	--	.86	.86	.020	<10	1
12...	--	.010	.00	--	--	1.10	1.1	.030	10	10
12...	.00	.000	.00	.100	1.1	1.20	1.2	.030	<10	14

HORDS CREEK LAKE NEAR VALERA, TX--Continued

315020099344601 HORDS CREEK LAKE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
JAN											
28...	1325	1.0	1060	8.3	11.0	.79	10.7	103	K40	21	300
28...	1326	1.3	--	--	--	--	--	--	--	--	--
28...	1328	4.0	1060	8.3	11.0	--	10.5	101	--	--	--
MAY											
18...	1325	.9	1090	7.9	23.0	.50	7.5	93	K2	K6	310
18...	1327	6.0	1100	7.6	21.5	--	5.6	67	--	--	--
AUG											
12...	1115	1.0	1180	7.7	27.0	.50	6.2	83	K6	21	310
12...	1116	.8	--	--	--	--	--	--	--	--	--

DATE	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
JAN											
28...	160	73	28	97	2.4	5.4	140	56	230	5.3	579
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	160	76	30	99	2.4	5.6	150	56	250	6.9	614
18...	--	--	--	--	--	--	--	--	--	--	--
AUG											
12...	170	71	32	110	3.0	7.4	140	61	270	8.7	644
12...	--	--	--	--	--	--	--	--	--	--	--

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN										
28...	--	--	.08	--	--	1.10	1.2	.070	20	4
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
MAY										
18...	.00	.010	.01	--	--	.98	.99	.060	10	4
18...	--	--	--	--	--	--	--	--	--	--
AUG										
12...	--	.010	.00	.060	.94	1.00	1.0	.030	19	2
12...	--	--	--	--	--	--	--	--	--	--

HORDS CREEK LAKE NEAR VALERA, TX--Continued

314959099333701 HORDS CREEK LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	JAN 28,81		MAY 18,81		AUG 12,81	
TIME	1206		1221		1023	
TOTAL CELLS/ML	3400		13000		41000	
DIVERSITY: DIVISION	1.1		1.3		0.7	
.CLASS	1.1		1.3		0.8	
..ORDER	1.4		1.7		1.7	
...FAMILY	1.8		2.7		1.7	
....GENUS	2.1		3.2		2.9	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	3700#	30	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	190	1	470	1
....CLOSTERIOPSIS	--	-	*	0	--	-
....DICTYOSPHAERIUM	180	5	--	-	*	0
....FRANCEIA	--	-	*	0	--	-
....KIRCHNERIELLA	--	-	93	1	*	0
....OOCYSTIS	700#	20	1100	9	560	1
....TETRAEDRON	25	1	*	0	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	750	6	*	0
....SCENEDESMUS	480	14	2300#	19	840	2
....TETRASTRUM	--	-	--	-	*	0
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	280	8	840	7	*	0
..ZYGNEMATALES						
...DESMIDIACEAE						
....EUASTRUM	--	-	--	-	*	0
...ZYGNEMATACEAE						
....MOUGEOTIA	--	-	--	-	*	0
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	50	1	190	1	280	1
..PENNALES						
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	280	1
...NITZSCHIACEAE						
....NITZSCHIA	--	-	--	-	*	0
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	650	5	330	1
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	1700#	50	--	-	1000	3
...CRYPTOMONADACEAE						
....CRYPTOMONAS	25	1	230	2	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	1100	9	7600#	19
....ANACYSTIS	--	-	700	6	10000#	25
....GOMPHOSPHAERIA	--	-	--	-	3000	7
..HORMOGONALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	10000#	25
....OSCILLATORIA	--	-	--	-	4700	11
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	*	0
....PHACUS	--	-	--	-	*	0
....TRACHELOMONAS	--	-	420	3	*	0
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...PERIDINIACEAE						
....PERIDINIUM	--	-	*	0	--	-

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

HORDS CREEK LAKE NEAR VALERA, TX--Continued

315020099344601 HORDS CREEK LAKE SITE DC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	JAN 28,81		MAY 18,81		AUG 12,81	
TIME	1326		1325		1116	
TOTAL CELLS/ML	7600		5300		60000	
DIVERSITY: DIVISION	1.7		1.4		0.7	
.CLASS	1.7		1.4		0.7	
..ORDER	1.8		1.8		1.6	
...FAMILY	2.3		2.6		2.0	
....GENUS	2.8		3.2		2.9	

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	*	0	--	-
...COELASTRACEAE						
....COELASTRUM	--	-	200	4	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	450	6	100	2	680	1
....CHODATELLA	--	-	--	-	*	0
....CLOSTERIOPSIS	*	0	*	0	--	-
....FRANCEIA	--	-	--	-	*	0
....OOCYSTIS	--	-	350	7	830	1
....QUADRIGULA	--	-	67	1	--	-
....SELENASTRUM	230	3	33	1	--	-
....TETRAEDRON	--	-	50	1	--	-
....TREUBARIA	--	-	*	0	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	1200#	16	270	5	1400	2
....SCENEDESMUS	--	-	2100#	39	760	1
....TETRASTRUM	--	-	67	1	300	1
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	*	0	150	3	380	1
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	*	0	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	130	2	50	1	460	1
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	*	0	--	-	--	-
...FRAGILARIACEAE						
....SYNEDRA	50	1	--	-	460	1
...NAVICULACEAE						
....NAVICULA	*	0	50	1	--	-
...NITZSCHIACEAE						
....NITZSCHIA	200	3	*	0	*	0
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	500	7	120	2	830	1
...CRYPTOMONADACEAE						
....CRYPTOMONAS	850	11	120	2	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	2800#	37	--	-	16000#	27
....ANACYSTIS	980	13	890#	17	4700	8
....GOMPHOSPHAERIA	--	-	--	-	1500	3
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENOPSIS	--	-	--	-	1500	3
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	21000#	35
....OSCILLATORIA	--	-	400	8	5700	9
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	1500	3
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	120	2	*	0
....PHACUS	--	-	*	0	*	0
....TRACHELOMONAS	75	1	67	1	460	1

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

08141500 HORDS CREEK NEAR VALERA, TX

LOCATION (revised).-Lat 31°50'03", long 99°32'04", Coleman County, Hydrologic Unit 12090108, on right bank 74 ft (23 m) downstream and 50 ft (15 m) south of bridge on Farm Road 503, 1.1 mi (1.8 km) downstream from Hords Creek Dam, 5.7 mi (9.2 km) north of Valera, 7.5 mi (12.1 km) west of Coleman, and 27.4 mi (44.1 km) upstream from mouth.

DRAINAGE AREA (revised).--54.2 mi^2 (140.4 km^2), approximately, of which 49.3 mi^2 (127.7 km^2) is above Hords Creek.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,826.72 ft (556.784 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 1, 1979, at site 0.5 mi (0.8 km) downstream at datum 6.84 ft (2.08 m) lower.

REMARKS.--Water-discharge records good except those above 10 ft^3/s (0.28 m^3/s), which are fair. Flow is regulated by Hords Creek Lake (station 08141000).

AVERAGE DISCHARGE.--34 years, 1.64 ft^3/s (0.0464 m^3/s), 1,190 acre-ft/yr (1.47 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,860 ft^3/s (109 m^3/s) Apr. 30, 1956, gage height, 14.73 ft (4.490 m), at site 0.5 mi (0.8 km) downstream at datum 6.84 ft (2.08 m) lower, from rating curve extended above 1,900 ft^3/s (53.8 m^3/s); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 23.0 ft (7.01 m) July 3, 1932, from information by local residents (discharge not determined). Flood in July or September 1900 reached a stage of 3.7 ft (1.13 m) higher than that of July 1932, 12 mi (19 km) downstream from station, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 217 ft^3/s (6.15 m^3/s) Apr. 21, gage height, 2.97 ft (0.905 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	.19	.23	.37	.19	.62	.99	.70	.05	.00	.00	.00
2	2.2	.19	.23	.37	.19	.33	.90	.59	.05	.00	.00	.00
3	1.5	.19	.21	.37	.19	20	.90	.54	.04	.00	.00	.00
4	1.2	.17	.21	.33	.17	14	.83	.54	.04	.00	.00	.00
5	.96	.17	.21	.33	.17	6.9	.76	.45	.04	.00	.00	.00
6	.84	.17	.21	.33	.17	5.3	.76	.45	.04	.00	.00	.00
7	.74	.17	.21	.33	.17	6.9	.76	.45	.04	.00	.00	.00
8	.69	.17	7.7	.37	.13	4.3	.70	.41	.04	.00	.00	.00
9	.62	.17	3.5	.41	.13	3.8	.65	.38	.04	.00	.00	.00
10	.57	.17	2.0	.37	.13	3.4	.59	.33	.03	.00	.00	.00
11	.48	.17	1.6	.37	.13	9.8	.59	.31	.03	.00	.00	.00
12	.45	.19	1.3	.33	.13	10	.59	.25	.03	.00	.00	.00
13	.43	.20	1.1	.29	.11	8.7	.50	.21	.03	.00	.00	.00
14	.41	.21	1.0	.29	.11	6.2	.50	.15	.03	.00	.00	.00
15	.39	.21	.98	.26	.11	5.1	.50	.28	.03	.00	.00	.00
16	.34	.61	.83	.26	.11	4.0	.50	.34	.04	.00	.00	.00
17	.33	.45	.76	.23	.11	3.8	.50	.20	.03	.00	.00	.00
18	.33	.34	.70	.23	.11	3.0	.54	.13	.03	.00	.00	.00
19	.31	.26	.54	.23	.11	2.6	.54	.10	.02	.00	.00	.00
20	.29	.23	.50	.23	.11	2.6	1.5	.10	.01	.00	.00	.00
21	.26	.21	.50	.23	.13	2.4	26	.09	.00	.00	.00	.00
22	.26	.22	.50	.23	.13	2.0	2.4	.08	.00	.00	.00	.00
23	.26	.23	.45	.21	.11	2.0	2.2	.08	.00	.00	.00	.00
24	.23	.22	.41	.21	.11	1.8	1.4	.07	.00	.00	.00	.00
25	.23	.26	.41	.21	.11	1.7	1.1	.07	.00	.00	.00	.00
26	.23	.32	.41	.21	.11	1.6	.98	.07	.00	.00	.00	.00
27	.22	.28	.41	.19	.11	1.6	.90	.06	.00	.00	.00	.00
28	.19	.26	.41	.19	.16	1.5	.83	.05	.00	.00	.00	.00
29	.18	.26	.39	.19	---	1.4	.83	.05	.00	.00	.00	.00
30	.19	.25	.37	.19	---	1.2	.76	.05	.00	.00	.00	.00
31	.19	---	.37	.19	---	1.1	---	.05	---	.00	.00	---
TOTAL	19.62	7.14	28.65	8.55	3.75	139.65	51.50	7.63	.69	.00	.00	.00
MEAN	.63	.24	.92	.28	.13	4.50	1.72	.25	.023	.000	.000	.000
MAX	4.1	.61	7.7	.41	.19	20	26	.70	.05	.00	.00	.00
MIN	.18	.17	.21	.19	.11	.33	.50	.05	.00	.00	.00	.00
AC-FT	39	14	57	17	7.4	277	102	15	1.4	.00	.00	.00

CAL YR 1980 TOTAL 185.82 MEAN .51 MAX 23 MIN .00 AC-FT 369
WTR YR 1981 TOTAL 267.18 MEAN .73 MAX 26 MIN .00 AC-FT 530

08141500 HORDS CREEK AT VALERA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
JAN 28...	0952	.20	1100	7.6	8.5	5	1.4	9.8	88	.4	320
MAY 18...	1100	.19	1050	7.2	23.5	10	1.8	7.3	91	.0	300

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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 28...	120	98	19	96	2.3	2.0	200	48	210	.3	3.8
MAY 18...	140	87	21	92	2.3	3.4	160	46	210	.2	4.7

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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 28...	598	1	2	.00	.000	.00	.000	.54	.54	.040	--
MAY 18...	561	6	11	.00	.000	.00	.030	.36	.39	.050	6.6

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)
JAN 28...	0952	1	100	<1	0	<10	10
MAY 18...	1100	2	100	<1	0	<10	40

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 28...	26	20	.0	0	1	4
MAY 18...	<10	140	.3	0	0	4

08142500 BROWN COUNTY WATER IMPROVEMENT DISTRICT NO. 1 CANAL NEAR BROWNWOOD, TX

LOCATION.--Lat 31°49'43", long 98°59'53", Brown County, Hydrologic Unit 12090107, on right bank 100 ft (30 m) upstream from bridge on Farm Road 2125, 6,000 ft (1,830 m) downstream from Brownwood Dam, and 7 mi (11 km) north of Brownwood.

PERIOD OF RECORD.--March 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,403.96 ft (427.927 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Water is released into the canal from Lake Brownwood (station 08143000) at Brownwood Dam on Pecan Bayou. Diversions began Apr. 9, 1939. A small amount of water is diverted from the canal upstream from the gage for domestic use. Water for irrigation has been diverted from the canal above gage since 1971. Records furnished by Brown County Water Improvement District No. 1 show that during the current year 509 acre-ft (0.628 hm^3) was diverted from the canal above gage for irrigation, and that of the total flow of canal passing gage, 7,890 acre-ft (9.73 hm^3) was used for municipal and industrial supply and 2,000 acre-ft (2.47 hm^3) was used for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years, 27.1 ft^3/s (0.767 m^3/s), 19,630 acre-ft/yr (24.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 77 ft^3/s (2.18 m^3/s) July 17, 1957; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	28	21	29	28	31	31	30	41	47	42	47
2	32	28	13	29	28	29	31	27	42	47	43	35
3	32	25	25	29	28	28	32	27	42	44	43	34
4	30	21	31	29	28	29	31	24	39	45	42	34
5	30	18	27	27	28	27	31	23	29	46	42	34
6	31	16	28	26	28	26	34	22	24	43	44	34
7	32	20	28	26	28	26	36	22	23	48	47	34
8	32	25	29	26	28	26	37	22	23	48	47	34
9	32	25	29	26	27	25	44	22	23	48	48	31
10	34	26	29	26	16	26	50	21	25	47	48	18
11	30	28	29	26	30	26	46	29	30	46	48	47
12	29	32	29	26	30	26	48	37	32	45	48	47
13	30	33	29	24	28	26	49	36	32	45	48	48
14	33	29	29	23	26	27	51	39	32	44	47	48
15	31	24	21	22	26	27	51	45	32	44	46	37
16	28	21	13	22	25	29	49	30	29	43	47	40
17	27	20	21	22	24	31	43	23	27	43	46	45
18	26	20	29	22	24	31	42	21	27	42	41	46
19	25	20	29	22	27	30	38	19	28	40	41	46
20	23	21	29	19	32	30	41	21	29	40	44	46
21	20	21	29	4.1	34	31	48	24	30	40	46	46
22	19	21	29	3.1	34	31	48	24	31	40	47	46
23	18	22	29	16	33	24	41	25	32	39	46	47
24	17	22	29	38	33	3.1	35	25	40	38	46	45
25	16	23	29	38	34	12	33	25	47	37	46	39
26	15	24	29	32	33	33	32	30	45	42	47	42
27	11	24	29	28	32	33	13	37	46	43	50	44
28	11	24	29	28	32	33	10	34	42	43	50	45
29	30	24	29	28	---	33	9.9	35	19	43	49	44
30	27	25	29	28	---	33	24	42	44	41	50	43
31	27	---	29	28	---	31	---	41	---	42	51	---
TOTAL	812	710	837	772.2	804	853.1	1108.9	882	985	1343	1430	1226
MEAN	26.2	23.7	27.0	24.9	28.7	27.5	37.0	28.5	32.8	43.3	46.1	40.9
MAX	34	33	31	38	34	33	51	45	47	48	51	48
MIN	11	16	13	3.1	16	3.1	9.9	19	19	37	41	18
AC-FT	1610	1410	1660	1530	1590	1690	2200	1750	1950	2660	2840	2430

CAL YR 1980 TOTAL 10616.22 MEAN 29.0 MAX 67 MIN .00 AC-FT 21060
WTR YR 1981 TOTAL 11763.20 MEAN 32.2 MAX 51 MIN 3.1 AC-FT 23330

08143000 LAKE BROWNWOOD NEAR BROWNWOOD, TX

LOCATION.--Lat 31°50'13", long 99°00'13", Brown County, Hydrologic Unit 12090107, at outlet structure for irrigation canal just upstream from right end of dam on Pecan Bayou, 0.2 mi (0.4 km) downstream from Jim Ned Creek, 8 mi (13 km) north of Brownwood, and 57.1 mi (91.9 km) upstream from mouth.

DRAINAGE AREA (revised).--1,565 mi² (4,053 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1933 to May 1941, November 1944 to current year. Fragmentary records July 1934 to April 1935, and October 1940 to May 1941. Prior to October 1970, published as Brownwood Reservoir.

REVISED RECORDS.--WSP 1212: 1948-50.

GAGE.--Nonrecording gage read once daily. Datum of gage is 0.50 ft (0.152 m) below National Geodetic Vertical Datum of 1929. Prior to November 1944, nonrecording gages or water-stage recorder at various sites at dam at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam, 1,580 ft (482 m) long. The dam was completed in 1933 and deliberate impoundment began in July 1933. The capacity table is based on a 1959 survey. The uncontrolled emergency spillway is a broad-crested weir 479 ft (146 m) long located 800 ft (240 m) to the left of dam. The controlled service spillway consists of two 12-foot (4 m) horseshoe-shaped concrete conduits. Water is released into Brown County canal through a 5-foot (2 m) circular conduit that is controlled by a slide gate in a service structure located near the right end of dam. Water is used for irrigation, municipal, and industrial supply by the city of Brownwood (see station 08142500). Flow is affected at times by discharge from the flood-detention pools of 59 floodwater-retarding structures with a combined capacity of 73,310 acre-ft (90.4 hm³). These structures control runoff from 353 mi² (914 km²) in the Jim Ned Creek and Pecan Bayou drainage basins. 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	1,450.0	-
Crest of spillway	1,425.1	143,400
Lowest gated outlet to irrigation canal (invert)	1,406.0	46,510
Lowest gated outlet (invert)	1,330.0	-

COOPERATION.--Record of daily gage heights were furnished by Brown County Water Improvement District No. 1. Capacity table was furnished by the Corps of Engineers and by the Soil Conservation Service.

EXTREMES (at 1800) FOR PERIOD OF RECORD.--Maximum contents, 192,300 acre-ft (237 hm³) May 2, 1956, gage height, 1,431.4 ft (436.29 m); minimum, 11,900 acre-ft (14.7 hm³) July 15, 1934, gage height, 1,389.5 ft (423.52 m).

EXTREMES (at 1800) FOR CURRENT YEAR.--Maximum contents observed, 116,300 acre-ft (143 hm³) June 8-12, gage height, 1,421.1 ft (433.15 m); minimum, 97,850 acre-ft (121 hm³) Sept. 30, gage height, 1,418.0 ft (432.21 m).

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

1,418.0	97,850
1,420.0	109,700
1,422.0	121,700

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 1800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108500	104900	103700	104300	103100	102500	111500	109700	109700	113300	108500	101300
2	10°500	104900	103700	104300	103100	102500	110900	109700	109100	113300	107900	101300
3	108500	104900	103700	104300	103100	103700	110900	109700	109100	113300	107900	101300
4	108500	104900	103700	104300	103100	107300	110900	109100	112100	113300	107300	101300
5	108500	104900	103700	104300	103100	109100	110300	109100	112700	115100	107300	101300
6	108500	104900	103100	104300	103100	109700	110300	109100	115700	115100	106700	101300
7	108500	104900	103100	104300	103100	110300	110300	109100	115700	115100	106700	101300
8	108500	104300	104300	104300	103100	110300	110300	109100	116300	114500	106700	100700
9	108500	104300	104900	104300	103100	110900	110300	108500	116300	114500	106100	100700
10	108500	104300	105500	104300	102500	110900	110300	108500	116300	113900	106100	100700
11	107900	104300	105500	104300	102500	110900	110300	108500	116300	113900	105500	100700
12	107900	104300	105500	104300	102500	111500	110300	108500	116300	113900	105500	100100
13	107900	103700	105500	104300	102500	111500	109700	107900	115700	113300	104900	100100
14	107900	103700	105500	104300	102500	112100	109700	107900	115700	113300	104900	100100
15	107300	104300	105500	103700	102500	112100	109700	107900	115700	113300	104300	100700
16	107300	104300	105500	103700	102500	112100	109700	109700	115700	112700	104300	100700
17	107300	104300	105500	103700	102500	112100	109700	109700	115700	112700	104300	100100
18	107300	104300	105500	103700	102500	112100	109700	109700	115700	112100	104300	100100
19	107300	104300	105500	103700	102500	112100	109700	109700	115100	112100	104300	99530
20	107300	103700	105500	103700	102500	112100	109100	109100	115100	111500	103700	99530
21	107300	103700	104900	103700	101900	112100	109100	109100	115100	111500	103700	99530
22	106700	103700	104900	103700	101900	111500	109100	109100	115100	111500	103700	99530
23	106700	103700	104900	103700	101900	111500	110300	109100	115100	110900	103100	99530
24	106700	103700	104900	103700	101900	111500	110300	10°700	115100	110900	103100	98970
25	106100	103700	104900	103700	101900	111500	110300	109700	114500	110300	102500	98410
26	106100	103700	104900	103700	101900	111500	110300	109700	114500	110300	102500	98410
27	106100	103700	104900	103700	101900	111500	110300	109700	114500	109700	102500	98970
28	106100	103700	104900	103700	101900	111500	110300	109700	114500	10°700	102500	98410
29	105500	103700	104900	103100	---	111500	110300	109700	113900	109100	101900	98410
30	105500	103700	104300	103100	---	111500	110300	109700	113900	10°100	101900	97850
31	105500	---	104300	103100	---	111500	---	109700	---	108500	101900	---
MAX	108500	104900	105500	104300	103100	112100	111500	109700	116300	115100	108500	101300
MIN	105500	103700	103100	103100	101900	102500	109100	107900	109100	108500	101900	97850
(†)	1419.3	1419.0	1419.1	1418.9	1418.7	1420.3	1420.1	1420.0	1420.7	1419.8	1418.7	1418.0
(‡)	-3000	-1800	+600	-1200	-1200	+9600	-1200	-600	+4200	-5400	-6600	-4050

CAL YR 1980 MAX 125900 MIN 102500 ‡ -18800
WTR YR 1981 MAX 116300 MIN 97850 ‡ -10650

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

08143000 LAKE BROWNWOOD NEAR BROWNWOOD, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
OCT 27...	1610	629	170	54	50	12	53	1.7

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 27...	8.0	120	41	100	.3	4.8	341

08143500 PECAN BAYOU AT BROWNWOOD, TX

LOCATION.--Lat 31°43'54", long 98°58'25", Brown County, Hydrologic Unit 12090107, on right bank at Brownwood, 502 ft (153 m) upstream from city dam, 6.3 mi (10.1 km) downstream from Salt Creek, 10 mi (16 km) downstream from Lake Brownwood, and 48.6 mi (78.2 km), revised, upstream from mouth.

DRAINAGE AREA.--1,660 mi² (4,299 km²), revised.

PERIOD OF RECORD.--May 1917 to June 1918, October 1923 to current year.

REVISED RECORDS.--WSP 1312: 1928. WSP 1512: 1924(M), 1926-27, 1928(M), 1930-32, 1935(M), 1936, 1941.

GAGE.--Water-stage recorder. Datum of gage is 1,318.58 ft (401.903 m) National Geodetic Vertical Datum of 1929. See WSP 1922 for history of changes prior to Apr. 2, 1962.

REMARKS.--Records good. Flow regulated by Lake Brownwood (station 08143000). Brown County Water Improvement District No. 1 canal (station 08142500) diverts water from Lake Brownwood 10 mi (16 km) upstream. At end of year, flow from 20.8 mi² (53.9 km²) above this station and below Lake Brownwood was partly controlled by nine floodwater-retarding structures with a combined detention capacity of 4,720 acre-ft (5.82 hm³). Gage-height and rainfall telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years (water years 1925-28, 1930-32) prior to completion of Lake Brownwood, 251 ft³/s (7.108 m³/s), 181,800 acre-ft/yr (224 hm³/yr); 49 years (water years 1933-81) partially regulated, 116 ft³/s (3.285 m³/s), 84,040 acre-ft/yr (104 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,600 ft³/s (895 m³/s) Oct. 14, 1930, gage height, 16.92 ft (5.157 m); no flow at times.
Flood of July 3, 1932, probably the greatest, reached a discharge of about 235,000 ft³/s (6,660 m³/s) as it entered Lake Brownwood (computed from rate of change in contents in the partially completed lake); data furnished by engineers of Brownwood County Water Improvement District No. 1.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 21.7 ft (6.61 m) in September 1900, from information by Gulf, Colorado, and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 479 ft³/s (13.6 m³/s) May 16 at 0700 hours, gage height, 1.89 ft (0.576 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	.00	.59	.77	.19	1.9	1.1	.21	2.0	.00	.00	.00
2	2.9	.00	.61	.77	.28	1.6	1.0	.68	9.5	.00	.00	.00
3	2.0	.00	.39	.87	.44	66	.90	.98	7.5	.00	.00	.00
4	1.6	.00	.00	.96	.89	83	.80	1.8	19	.94	.00	.00
5	1.2	.00	.00	.79	1.5	11	.80	2.1	13	16	.00	.00
6	.82	.00	.00	.91	1.7	5.8	.60	1.8	46	10	.09	.00
7	.66	.00	.00	.98	1.9	4.9	.60	1.4	27	9.1	.11	.00
8	.56	.00	12	1.0	1.9	4.2	.60	1.1	8.2	8.7	.00	.00
9	.42	.00	8.1	1.5	1.5	3.4	.40	.98	4.8	8.7	.00	.00
10	.36	.00	4.1	1.8	1.7	2.8	.40	.87	3.6	8.7	.00	.00
11	.25	.00	1.9	1.8	1.9	3.7	.40	.59	2.4	6.7	.00	.00
12	.18	.00	1.1	1.7	1.3	14	.40	.37	1.9	4.5	.00	.00
13	.12	.00	1.1	1.5	1.1	9.1	.20	.30	1.6	4.4	.00	.00
14	.07	.00	.95	1.4	1.1	5.4	.20	.37	1.7	4.3	.00	.00
15	.02	.00	.87	1.2	.92	4.3	.20	.15	1.1	3.9	.00	.00
16	.01	1.1	.94	1.2	.73	4.4	.20	208	1.3	1.4	.00	.00
17	.02	4.6	.39	1.1	.59	4.8	.10	25	.95	.03	.00	.00
18	.02	4.2	.00	.98	.52	5.2	.10	8.7	.64	.03	.97	.00
19	.03	3.1	.00	.98	.83	4.8	.10	9.6	.51	.30	4.5	.00
20	.02	2.1	.00	.63	1.4	3.1	.10	7.4	.92	1.9	2.8	.00
21	.03	1.5	.00	.04	1.3	2.5	.00	5.5	1.4	2.1	.62	.00
22	.03	1.3	.00	.10	.87	2.5	.00	4.1	1.7	3.4	.00	.00
23	.03	1.3	.00	.00	.65	1.9	13	3.0	1.8	1.9	.03	.00
24	.01	1.3	.12	.00	.48	1.6	4.6	2.1	1.6	.74	.17	.00
25	.00	1.4	.22	.00	.34	2.0	2.7	1.6	1.3	.13	.36	.00
26	.00	1.8	.27	.00	.30	2.4	2.7	.66	.00	.00	.90	.00
27	.00	1.6	.37	.00	.30	2.2	2.7	.03	.00	.00	.85	.00
28	.00	1.5	.52	.00	.46	2.1	2.0	.00	.00	.00	.54	.00
29	.00	1.0	.75	.00	---	2.0	.73	.00	.00	.00	2.4	.00
30	.00	.76	.77	.00	---	1.6	.00	.00	.00	.00	2.2	.00
31	.00	---	.77	.03	---	1.5	---	.00	---	.00	.46	---
TOTAL	16.66	28.56	36.83	23.01	27.09	265.7	37.63	289.39	161.42	97.87	17.00	.00
MEAN	.54	.95	1.19	.74	.97	8.57	1.25	9.34	5.38	3.16	.55	.000
MAX	5.3	4.6	12	1.8	1.9	83	13	208	46	16	4.5	.00
MIN	.00	.00	.00	.00	.19	1.5	.00	.00	.00	.00	.00	.00
AC-FT	33	57	73	46	54	527	75	574	320	194	34	.00

CAL YR 1980 TOTAL 3092.44 MEAN 8.45 MAX 850 MIN .00 AC-FT 6130
WTR YR 1981 TOTAL 1001.16 MEAN 2.74 MAX 208 MIN .00 AC-FT 1990

08143600 PECAN BAYOU NEAR MULLIN, TX

LOCATION.--Lat 31°31'02", long 98°44'25", Mills County, Hydrologic Unit 12090107, on right bank 44 ft (13 m) downstream from bridge on Farm Road 573, 0.6 mi (1.0 km) downstream from Blanket Creek, 5.5 mi (8.8 km) southwest of Mullin, and 13.6 mi (21.9 km), revised, upstream from mouth.

DRAINAGE AREA.--2,073 mi² (5,369 km²), revised.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,202.93 ft (366.653 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is affected by Lake Brownwood 47 mi (76 km) upstream (see station 08143000). At end of year, flow from 152 mi² (394 km²) above this station and below Lake Brownwood was partly controlled by 41 floodwater-retarding structures with a combined detention capacity of 34,420 acre-ft (42.4 hm³) below the flood-spillway crests.

AVERAGE DISCHARGE.--14 years, 116 ft³/s (3.285 m³/s), 84,040 acre-ft/yr (104 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft³/s (388 m³/s) Jan. 23, 1968, gage height, 29.26 ft (8.918 m); no flow for many days in 1974, 1978, and 1980-81.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,030 ft³/s (57.5 m³/s) Sept. 1 at 1800 hours, gage height, 7.46 ft (2.274 m); no flow July 30 to Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	1.6	10	7.3	10	11	12	14	14	5.1	.00	294
2	21	1.1	10	7.7	10	43	15	124	15	4.5	.00	59
3	13	.82	8.7	7.5	10	34	14	35	12	4.0	.00	32
4	9.1	1.3	11	7.2	12	266	13	23	19	3.2	.00	20
5	6.5	2.4	13	7.2	14	141	11	30	65	15	.00	8.1
6	5.0	3.8	11	7.2	17	46	9.3	22	52	23	.00	4.8
7	4.1	4.7	9.2	7.2	17	30	8.3	19	36	31	.00	3.8
8	3.4	4.6	110	7.8	16	28	9.0	15	60	20	.00	2.5
9	3.1	3.9	195	8.2	15	24	11	14	28	19	.00	2.3
10	2.7	3.3	63	8.6	15	18	11	13	18	14	.00	1.8
11	2.5	3.3	32	11	14	17	12	11	12	12	.00	2.3
12	2.2	3.2	23	9.9	13	59	12	10	9.6	15	.00	2.6
13	2.2	4.2	19	9.3	12	88	11	11	9.2	13	.00	5.0
14	2.1	9.9	16	9.1	11	50	8.9	10	11	9.3	.00	13
15	1.9	6.9	14	8.8	10	32	8.4	8.4	15	6.7	.00	16
16	1.9	10	12	8.8	11	24	9.8	68	25	7.1	.00	29
17	2.2	23	12	8.8	13	19	12	199	61	4.8	.00	14
18	2.3	36	14	8.4	13	16	14	57	33	2.7	28	7.2
19	3.0	19	13	7.7	12	14	15	30	24	1.6	15	4.4
20	3.8	13	11	7.7	12	13	15	24	18	1.4	5.9	3.3
21	5.1	12	8.9	7.5	12	12	14	20	15	.90	4.0	3.2
22	3.1	11	7.2	7.6	10	13	14	18	12	.72	3.3	2.8
23	4.4	11	6.0	7.5	10	12	18	17	10	.53	3.1	2.7
24	4.7	11	5.8	7.0	10	11	48	15	9.7	.31	2.6	2.6
25	4.5	16	5.8	6.5	10	11	45	12	10	.23	2.0	3.0
26	4.2	16	5.8	6.2	11	11	30	11	9.5	.16	1.4	3.1
27	3.1	24	5.3	6.2	11	11	26	10	7.1	.09	.93	6.5
28	2.6	21	5.3	5.6	11	9.8	22	8.5	4.9	.06	.65	3.4
29	2.2	14	5.6	6.4	---	9.7	20	6.6	4.3	.02	.40	3.2
30	2.0	11	6.2	9.8	---	10	16	5.5	5.2	.00	.50	2.9
31	1.7	---	6.0	10	---	8.2	---	7.3	---	.00	.54	---
TOTAL	165.6	303.02	674.8	245.7	342	1091.7	484.7	868.3	624.5	215.42	68.32	558.5
MEAN	5.34	10.1	21.8	7.93	12.2	35.2	16.2	28.0	20.8	6.95	2.20	18.6
MAX	36	36	195	11	17	266	48	199	65	31	28	294
MIN	1.7	.82	5.3	5.6	10	8.2	8.3	5.5	4.3	.00	.00	1.8
AC-FT	328	601	1340	487	678	2170	961	1720	1240	427	136	1110

CAL YR 1980	TOTAL	11430.01	MEAN	31.2	MAX	2570	MIN	.00	AC-FT	22670
WTR YR 1981	TOTAL	5642.56	MEAN	15.5	MAX	294	MIN	.00	AC-FT	11190

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

WATER-QUALITY RECORDS

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,230 micromhos May 14, 1978; minimum daily, 203 micromhos Sept. 18, 1974.
WATER TEMPERATURES: Maximum daily, 37.0°C July 18, 1979; minimum daily, 0.5°C Feb. 7, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,900 micromhos Feb. 18; minimum daily, 344 micromhos Sept. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 29...	0900	2.5	954	--	13.0	200	38	58	13
NOV 20...	1030	12	1840	--	7.0	260	81	73	19
DEC 09...	1234	192	885	--	12.0	180	63	55	11
FEB 24...	0845	10	1760	--	12.0	330	110	99	20
JUN 16...	0915	25	677	--	25.0	170	40	50	11
AUG 25...	0840	2.6	1050	7.4	25.0	220	52	64	15

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 29...	120	3.7	10	160	68	170	.3	5.6	541
NOV 20...	270	7.3	12	180	89	430	.3	1.6	1000
DEC 09...	100	3.2	7.7	120	57	170	.2	6.0	479
FEB 24...	230	5.5	13	220	110	380	.2	3.4	988
JUN 16...	67	2.4	7.7	130	49	110	.2	2.2	375
AUG 25...	130	4.0	10	170	77	200	.4	11	610

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	165.6	1180	657	294	210	92	89	40	290
NOV.	1980	303.02	1480	829	678	290	237	110	89	330
DEC.	1980	674.8	913	505	921	150	273	69	126	240
JAN.	1981	245.7	1390	776	515	260	176	100	68	310
FEB.	1981	342	1690	950	877	350	320	120	114	350
MAR.	1981	1091.7	767	423	1250	120	347	59	173	210
APR.	1981	484.7	1470	824	1080	280	373	110	142	330
MAY	1981	868.3	960	531	1250	160	364	73	171	250
JUNE	1981	624.5	980	542	914	160	271	74	125	250
JULY	1981	215.42	1130	625	364	200	115	84	49	280
AUG.	1981	68.32	1070	595	110	180	33	81	15	270
SEPT	1981	558.5	695	382	577	100	154	54	81	200
TOTAL		5642.56	**	**	8820	**	2760	**	1190	**
WTD. AVG.		16	1040	579	**	180	**	78	**	260

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1050	917	1610	755	1650	1520	858	1580	863	1590	---	596
2	997	926	1640	800	1660	1530	950	1080	829	1640	---	572
3	1100	945	1720	840	1640	1390	1000	990	840	1660	---	344
4	1210	940	1710	850	1650	550	1050	1070	807	1680	---	735
5	1300	932	1710	859	1670	575	1100	1200	933	1600	---	800
6	1390	908	1770	1010	1640	625	1140	1300	1090	1250	---	900
7	1490	901	1830	1090	1600	631	1180	1260	1230	969	---	1010
8	1520	900	1100	1040	1580	665	1190	1120	1360	706	---	940
9	1550	905	885	1070	1560	700	1260	1000	1220	750	---	929
10	1560	903	890	1110	1540	743	1300	950	1240	785	---	908
11	1550	900	710	1350	1600	737	1340	885	1210	829	---	906
12	1540	926	527	1360	1670	732	1400	804	1150	910	---	907
13	1520	918	510	1370	1720	937	1420	670	1180	1130	---	950
14	1510	923	500	1420	1740	969	1440	592	1000	1320	---	987
15	1500	940	499	1480	1770	1220	1450	603	900	1460	---	975
16	1480	1100	511	1560	1800	1010	1460	567	672	1500	---	962
17	1440	1350	520	1600	1810	850	1500	1000	700	1530	---	917
18	1410	1570	600	1650	1900	666	1510	892	721	1580	1210	1030
19	1390	1700	640	1680	1890	636	1570	851	680	1640	1160	1080
20	1330	1830	653	1730	1890	645	1620	852	688	1670	763	1070
21	1260	1810	668	1710	1860	653	1660	875	740	1690	646	988
22	1240	1760	672	1690	1720	700	1680	892	790	1700	800	969
23	1140	1730	675	1670	1790	726	1660	900	836	1710	975	982
24	1110	1700	661	1730	1750	741	1630	905	953	1700	1100	1040
25	1080	1670	657	1710	1690	767	1610	903	1060	1720	1040	1100
26	1040	1740	655	1700	1620	775	1650	901	1180	1700	995	1210
27	1010	1500	665	1690	1600	781	1680	890	1260	1710	942	1260
28	970	1600	675	1650	1580	790	1680	888	1350	1730	920	1270
29	934	1650	681	1650	---	795	1630	871	1400	1750	1000	1280
30	945	1630	700	1660	---	783	1640	868	1470	---	1060	1290
31	959	---	727	1640	---	812	---	865	---	---	1100	---
MEAN	1280	1270	902	1390	1700	828	1410	936	1010	1430	979	964

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

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

08144000 NOYES CANAL AT MENARD, TX

LOCATION.--Lat 30°54'57", long 99°47'02", Menard County, Hydrologic Unit 12090109, on right bank at intersection of Canal and Gay Streets in Menard and 4.7 mi (7.6 km) downstream from headgates.

PERIOD OF RECORD.--March 1924 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,878.06 ft (572.433 m) National Geodetic Vertical Datum of 1929. Prior to July 23, 1940, nonrecording gage at site 2,000 ft (610 m) upstream at datum 4.99 ft (1.521 m) higher.

REMARKS.--Records good. Discharge represents flow diverted from San Saba River; local runoff between diversion point and gage excluded. Canal diverts water from right bank of San Saba River 4.7 mi (7.6 km) upstream from Menard for irrigation near Menard. First diversion was about 1890. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--57 years (water-years 1925-81), 13.5 ft^3/s (0.382 m^3/s), 9,780 acre-ft/yr (12.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge (exclusive of times canal was submerged by floodwaters of San Saba River, or when flow was affected by local runoff between point of diversion and station), 43 ft^3/s (1.22 m^3/s) Apr. 29, 30, 1928; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.5	19	20	21	20	18	21	22	21	16	13
2	.00	9.1	20	20	20	21	18	21	22	15	16	13
3	.00	12	19	20	21	22	18	22	22	20	15	13
4	.00	17	19	20	21	21	18	22	23	21	15	13
5	.00	12	19	20	20	16	17	22	23	21	9.6	13
6	.00	14	19	20	21	11	17	22	23	21	15	12
7	.00	13	19	20	21	12	17	22	22	20	15	12
8	.00	14	21	21	21	12	16	22	22	20	15	12
9	.00	14	20	21	21	12	15	22	22	20	15	12
10	.00	14	20	21	20	15	14	22	23	19	15	14
11	.00	14	19	20	20	22	15	21	23	19	15	20
12	.00	15	20	20	19	22	15	22	23	19	15	20
13	.00	16	20	20	20	21	16	22	23	18	15	20
14	.00	16	20	20	21	20	17	22	23	18	15	20
15	.00	17	20	20	20	20	17	22	23	17	15	20
16	.00	20	20	21	19	20	17	23	26	17	16	20
17	.00	20	19	20	19	20	18	23	25	17	18	20
18	.00	19	19	21	17	21	18	22	24	17	20	20
19	.00	19	18	21	18	21	17	22	24	9.7	20	20
20	.00	19	18	21	18	21	17	22	23	17	19	20
21	.00	19	19	21	18	21	17	22	23	17	16	20
22	.00	20	19	21	18	20	18	22	22	16	16	20
23	.00	20	19	21	18	20	20	22	22	16	16	20
24	.00	19	18	21	18	20	20	22	22	17	15	20
25	.00	20	18	21	18	20	22	23	22	16	15	20
26	.00	20	17	21	18	20	21	23	22	16	15	20
27	.00	20	18	20	19	19	21	23	22	16	14	21
28	.00	20	20	20	20	19	21	22	22	16	14	24
29	.00	20	20	20	---	19	21	22	22	16	13	23
30	.00	19	20	20	---	19	21	22	21	16	13	23
31	.00	---	20	20	---	19	---	22	---	16	12	---
TOTAL	.00	492.6	596	633	545	586	537	684	681	544.7	473.6	538
MEAN	.000	16.4	19.2	20.4	19.5	18.9	17.9	22.1	22.7	17.6	15.3	17.9
MAX	.00	20	21	21	21	22	22	23	26	21	20	24
MIN	.00	1.5	17	20	17	11	14	21	21	9.7	9.6	12
AC-FT	.00	977	1180	1260	1080	1160	1070	1360	1350	1080	939	1070

CAL YR 1980 TOTAL 5371.84 MEAN 14.7 MAX 22 MIN .00 AC-FT 10660
WTR YR 1981 TOTAL 6310.90 MEAN 17.3 MAX 26 MIN .00 AC-FT 12520

08144500 SAN SABA RIVER AT MENARD, TX

LOCATION.--Lat 30°55'08", long 99°47'07", Menard County, Hydrologic Unit 12090109, on downstream side of bridge on U.S. Highway 83 in Menard, 1.1 mi (1.8 km) downstream from Las Moras Creek, 1.9 mi (3.1 km) upstream from Volkmann Draw, and 116.3 mi (187.1 km), revised, upstream from mouth.

DRAINAGE AREA.--1,335 mi^2 (3,458 km^2), of which 6.6 mi^2 (17.1 km^2) probably is noncontributing.

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

REVISED RECORDS.--WSP 568: Drainage area. WSP 1512: 1918-20, 1922-25, 1926(M), 1927-32, 1934(M), 1936, 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,863.05 ft (567.858 m) National Geodetic Vertical Datum of 1929. Sept. 14, 1915, to Mar. 12, 1924, nonrecording gage at site 635 ft (194 m) downstream at datum 2.20 ft (0.671 m) lower. Mar. 13, 1924, to Feb. 21, 1939, nonrecording gage at site 1,000 ft (305 m) upstream at datum 2.00 ft (0.610 m) higher. Feb. 22, 1939, to Jan. 25, 1940, nonrecording gage at present site and datum. Jan. 26, 1940, to Sept. 19, 1957, water-stage recorder at site 240 ft (73 m) to right at present datum. Feb. 8, 1962, to Jan. 22, 1963, nonrecording gage at site 600 ft (180 m) downstream at present datum.

REMARKS.--Records good except those for Oct. 30 to Dec. 10, which are fair. Since about 1890, low flow during irrigation season regulated by diversions to Noyes Canal 4.5 mi (7.2 km) upstream and diversions by pumping at several locations upstream. Records of the Texas Department of Water Resources show that permits have been granted to irrigate 3,338 acres (1,400 hm^2) above station. See record for (station 08144000). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--66 years, 65.2 ft^3/s (1.846 m^3/s), 47,240 acre-ft/yr (58.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft^3/s (3,680 m^3/s) July 23, 1938, gage height, 22.2 ft (6.77 m), present site and datum, from floodmark, from rating curve extended above 56,000 ft^3/s (1,590 m^3/s) on basis of slope-area measurement of peak flow; no flow at times as result of upstream diversion to Noyes Canal (station 08144000).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 23.3 ft (7.10 m) June 6, 1899, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,440 ft^3/s (126 m^3/s) Aug. 18 at 0015 hours, gage height, 8.85 ft (2.697 m), no other peak above base of 670 ft^3/s (19.0 m^3/s); minimum daily, 6.3 ft^3/s (0.18 m^3/s) June 19, July 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	53	38	35	38	40	31	37	30	6.3	16	31
2	94	43	38	35	37	38	32	35	28	16	16	31
3	74	33	38	36	37	43	35	36	29	18	15	30
4	67	33	38	36	38	51	35	36	31	18	14	30
5	64	33	38	36	40	46	34	35	35	27	15	30
6	61	34	40	37	39	45	33	34	32	31	15	30
7	60	35	40	37	39	49	34	33	30	26	13	30
8	59	34	45	38	38	46	36	33	28	23	13	30
9	53	33	55	42	37	43	37	33	27	22	14	30
10	56	32	45	40	39	40	38	31	26	21	15	28
11	56	32	41	38	35	38	38	30	25	21	16	17
12	55	32	39	37	34	64	36	31	26	20	15	16
13	55	32	39	36	35	55	37	30	26	20	15	16
14	55	42	39	36	36	45	34	30	26	20	15	16
15	56	52	39	35	36	40	36	29	26	20	15	19
16	59	54	38	35	36	39	41	46	39	19	16	18
17	57	55	37	34	36	37	40	41	38	18	239	17
18	62	54	37	36	29	35	57	32	19	17	1520	14
19	64	52	36	40	31	33	50	23	6.3	18	195	14
20	59	55	35	38	36	33	42	27	58	18	80	17
21	57	50	36	36	44	34	45	28	28	17	44	17
22	56	45	38	34	43	32	51	29	25	17	33	17
23	56	40	39	35	39	31	68	30	24	14	32	16
24	55	38	39	35	36	32	139	30	23	18	31	15
25	54	40	39	35	35	33	157	30	22	17	30	16
26	55	39	40	35	38	33	80	30	22	15	30	18
27	56	38	40	36	38	33	52	28	23	16	29	18
28	54	38	36	35	38	34	42	27	23	18	30	15
29	54	38	36	35	---	34	39	28	23	18	30	15
30	53	38	35	36	---	32	38	30	11	17	30	14
31	53	---	36	36	---	31	---	31	---	17	30	---
TOTAL	1920	1227	1209	1125	1037	1219	1467	983	809.3	583.3	2621	625
MEAN	61.9	40.9	39.0	36.3	37.0	39.3	48.9	31.7	27.0	18.8	84.5	20.8
MAX	151	55	55	42	44	64	157	46	58	31	1520	31
MIN	53	32	35	34	29	31	31	23	6.3	6.3	13	14
AC-FT	3810	2430	2400	2230	2060	2420	2910	1950	1610	1160	5200	1240

CAL YR 1980	TOTAL	40585.0	MEAN	111	MAX	20900	MIN	5.0	AC-FT	80500
WTR YR 1981	TOTAL	14825.6	MEAN	40.6	MAX	1520	MIN	6.3	AC-FT	29410

08144600 SAN SABA RIVER NEAR BRADY, TX

LOCATION.--Lat 31°00'14" (revised), long 99°16'07", McCulloch County, Hydrologic Unit 12090109, on right bank at downstream side of bridge on U.S. Highways 87 and 377, 0.4 mi (0.6 km) upstream from Hudson Branch, and 8.4 mi (13.5 km) southeast of Brady, and 72.9 mi (117.3 km) upstream from mouth.

DRAINAGE AREA.--1,633 mi² (4,229 km²), of which 6.60 mi² (17.09 km²) probably is noncontributing.

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,530.98 ft (466.643 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diversions above station for irrigation (see station 08144000). Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,000 ft³/s (1,870 m³/s) Sept. 8, 1980, gage height, 25.50 ft (7.772 m); minimum, 0.24 ft³/s (0.007 m³/s) Aug. 1, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Highest stage since June 1899, 33.8 ft (10.30 m) July 23, 1938, from high-water mark on left bank 150 ft (46 m) upstream from present site.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 23	2145	*12,200	346	11.12	3.389
June 16	0800	1,210	34.3	4.82	1.469
Aug. 18	1345	2,960	83.8	6.60	2.012

Minimum discharge, 13 ft³/s (0.37 m³/s) Aug. 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	461	71	57	60	59	58	72	74	64	92	19	52
2	266	71	54	58	55	58	69	71	58	82	20	60
3	189	68	54	56	55	82	70	76	50	74	19	58
4	155	52	54	55	56	149	69	75	60	67	18	54
5	135	48	54	57	58	100	66	64	127	60	19	50
6	130	46	52	57	62	86	67	67	97	54	17	48
7	125	42	52	57	66	84	67	63	80	50	14	46
8	112	44	87	59	58	82	62	63	76	48	13	45
9	107	48	114	65	60	80	69	64	67	46	14	40
10	104	50	97	63	59	77	72	59	64	50	15	38
11	89	50	87	63	57	85	68	56	64	52	18	38
12	89	46	81	63	58	194	65	55	70	48	17	37
13	89	46	71	62	57	201	62	51	64	45	17	56
14	89	46	69	61	58	158	65	55	202	43	17	45
15	93	50	69	58	58	131	62	54	104	43	17	56
16	90	65	69	57	57	115	56	90	716	37	18	56
17	89	67	69	57	60	102	54	73	565	36	143	43
18	88	65	68	57	58	97	95	74	360	30	1060	40
19	106	66	66	60	57	88	88	64	241	30	618	38
20	105	61	62	62	57	88	81	63	188	30	255	38
21	93	57	62	65	55	86	74	54	164	25	149	37
22	84	59	62	65	51	83	72	53	178	24	98	37
23	82	62	62	63	49	82	164	1300	160	23	76	37
24	78	60	62	58	56	82	158	894	153	22	63	37
25	76	63	62	57	57	82	137	130	143	20	58	35
26	76	69	62	57	50	82	210	92	137	18	58	35
27	76	65	60	57	51	82	134	84	127	18	54	34
28	73	62	61	57	55	79	101	74	121	19	54	30
29	73	62	62	58	---	78	89	80	110	18	48	28
30	74	57	61	58	---	77	74	87	99	17	46	28
31	71	---	60	60	---	76	---	71	---	18	46	---
TOTAL	3567	1718	2062	1842	1589	3004	2592	4230	4709	1239	3098	1276
MEAN	115	57.3	66.5	59.4	56.8	96.9	86.4	136	157	40.0	99.9	42.5
MAX	461	71	114	65	66	201	210	1300	716	92	1060	60
MIN	71	42	52	55	49	58	54	51	50	17	13	28
AC-FT	7080	3410	4090	3650	3150	5960	5140	8390	9340	2460	6140	2530

CAL YR 1980	TOTAL	64796.41	MEAN	177	MAX	23900	MIN	.31	AC-FT 128500
WTR YR 1981	TOTAL	30926.00	MEAN	84.7	MAX	1300	MIN	13	AC-FT 61340

08144800 BRADY CREEK NEAR EDEN, TX

LOCATION (revised).--Lat 31°11'03", long 99°50'27", Concho County, Hydrologic Unit 12090110, on right bank at upstream side of bridge on U.S. Highway 83, 0.8 mi (1.3 km) downstream from Fitzgerald Creek, 2.2 mi (3.5 km) south of Eden, 2.4 mi (3.9 km) upstream from Hardin Branch, and 63.8 mi (102.7 km) upstream from mouth.

DRAINAGE AREA (revised).--101 mi^2 (262 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 2,000.99 ft (609.902 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for Aug. 26 to Sept. 30, which are fair. Flow is affected at times by discharge from the flood-detention pools of five floodwater-retarding structures with combined detention capacity of 22,190 acre-ft (27.4 hm^3). These structures control runoff from 65.0 mi^2 (168.4 km^2) above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 1.09 ft^3/s (0.0309 m^3/s), 790 acre-ft/yr (0.974 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,110 ft^3/s (145 m^3/s) Apr. 28, 1966, gage height, 7.08 ft (2.158 m); no flow for many days most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1884, 15.8 ft (4.82 m) in July 1938, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 48 ft^3/s (1.36 m^3/s) May 16 at 0230 hours, gage height, 2.03 ft (0.619 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	.64	.41	.71	.51	1.2	.36	.36	.19	.11	.00	.03
2	.97	.64	.41	.71	.51	.74	.37	.36	.11	.09	.00	.03
3	.79	.64	.41	.71	.51	.88	.43	.36	.11	.09	.00	.03
4	.79	.64	.41	.71	.53	.80	.30	.36	.27	.09	.00	.03
5	.79	.62	.44	.71	.57	.41	.29	.36	.40	.09	.00	.03
6	.79	.57	.46	.79	.57	.41	.29	.36	.35	.09	.00	.03
7	.88	.42	.46	.88	.57	.51	.30	.36	.23	.09	.00	.03
8	.97	.51	2.8	1.2	.57	.51	.41	.32	.16	.09	.00	.04
9	.79	.51	1.5	1.8	.51	.51	.51	.28	.12	.09	.00	.04
10	.88	.51	1.0	1.3	.57	.51	.51	.18	.11	.09	.00	.04
11	.88	.51	.82	1.2	.53	1.2	.57	.17	.11	.09	.00	.04
12	.97	.51	.79	1.1	.51	1.8	.57	.13	.11	.09	.02	.04
13	.97	.51	.79	.82	.51	1.0	.57	.13	.11	.09	.02	.25
14	1.1	.46	.79	.69	.51	.68	.59	.13	.11	.09	.01	.25
15	1.2	.50	.79	.64	.54	.52	.64	1.2	.11	.08	.00	.25
16	1.1	3.2	.79	.64	.57	.51	.82	16	.11	.05	.25	.25
17	1.1	1.7	.79	.59	.61	.46	.92	.79	.11	.04	1.1	.25
18	1.1	.91	.79	.57	.64	.41	1.5	.24	.11	.03	.34	.22
19	1.1	.74	.81	.57	.64	.41	.99	.10	.11	.03	.15	.22
20	1.1	.51	.88	.64	.64	.38	.73	.07	.11	.03	.09	.22
21	1.1	.51	.88	.64	.64	.40	.71	.06	.11	.03	.04	.22
22	1.1	.73	.88	.57	.59	.41	.72	.06	.09	.03	.04	.22
23	1.0	.85	.88	.57	.51	.36	1.8	.07	.11	.02	.04	.20
24	.84	.71	.88	.57	.51	.36	.79	.07	.09	.00	.03	.20
25	.79	.74	.88	.52	.51	.36	.47	.09	.11	.00	.03	.20
26	.79	.77	.88	.51	.51	.39	.41	.09	.09	.00	.03	.20
27	.85	.63	.79	.51	.51	.42	.40	.07	.11	.00	.02	.17
28	.71	.55	.79	.51	.53	.46	.30	.07	.09	.03	.02	.17
29	.71	.46	.79	.51	---	.40	.32	.07	.11	.03	.02	.17
30	.71	.43	.73	.51	---	.36	.36	.17	.09	.03	.02	.17
31	.64	---	.71	.51	---	.36	---	.22	---	.02	.02	---
TOTAL	28.71	21.63	25.43	22.91	15.43	18.13	17.95	23.30	4.15	1.73	2.29	4.24
MEAN	.93	.72	.82	.74	.55	.58	.60	.75	.14	.056	.074	.14
MAX	1.2	3.2	2.8	1.8	.64	1.8	1.8	16	.40	.11	1.1	.25
MIN	.64	.42	.41	.51	.51	.36	.29	.06	.09	.00	.00	.03
AC-FT	57	43	50	45	31	36	36	46	8.2	3.4	4.5	8.4

CAL YR 1980 TOTAL 621.38 MEAN 1.70 MAX 205 MIN .00 AC-FT 1230
WTR YR 1981 TOTAL 185.90 MEAN .51 MAX 16 MIN .00 AC-FT 369

08144900 BRADY CREEK RESERVOIR NEAR BRADY, TX

LOCATION.--Lat 31°08'17", long 99°23'07", McCulloch County, Hydrologic Unit 12090110, at mouth of Bear Creek on Brady Creek, 280 ft (85 m) upstream from Farm Road 3022 over Brady Creek Dam, 3.0 mi (4.8 km) west of Brady, and 34.1 mi (54.9 km) upstream from mouth.

DRAINAGE AREA (revised).--523 mi² (1,355 km²).

WATER-DISCHARGE RECORDS

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

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

REMARKS.--The reservoir is formed by a compacted earthfill dam 8,400 ft (2,560 m) long. The dam was completed and storage began in May 1963. The dam was built by the city of Brady in cooperation with the Soil Conservation Service and the Farmers Home Administration for flood control, municipal, and industrial water supply. The spillway is a cut channel through natural ground 1,000 ft (305 m) wide located at right end of dam. The top of conservation pool is an uncontrolled concrete drop-inlet structure that discharges through a 7.0- by 7.0-foot (2.1 by 2.1 m) concrete box conduit and is designed to discharge 4,000 ft³/s (113 m³/s) at a 19.4-foot (5.9 m) head. The gated outlet is a 36-inch (914 mm) pipe that extends through the embankment and is equipped with three sluice gates for controlled releases downstream. Flow into reservoir is affected at times by discharge from the flood-detention pools of 35 floodwater-retarding structures with a combined detention capacity of 77,950 acre-ft (96.1 hm³). These structures were built during the period February 1955 to July 1962 and control runoff from 263 mi² (681 km²) in the Brady Creek watershed above this station. The capacity curve is based on Geological Survey topographic map but was not adjusted for borrow. 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	1,783.0	-
Crest of spillway	1,762.4	90,310
Crest of spillway (top of conservation pool)	1,743.0	30,430
Lowest gated outlet (invert)	1,712.0	1,320

COOPERATION.--Records furnished by the city of Brady show no diversions during year for municipal or industrial use. Capacity curve was furnished by the city of Brady.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 40,880 acre-ft (50.4 hm³) Sept. 24, 1971, elevation, 1,747.70 ft (532.669 m); minimum since first appreciable storage, 1,030 acre-ft (1.27 hm³) Sept. 18, 1964, elevation, 1,710.4 ft (521.33 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 20,840 acre-ft (25.7 hm³) Mar. 21 at 1400 hours, elevation, 1,737.66 ft (529.639 m); minimum, 18,160 acre-ft (22.4 hm³) Sept. 30, elevation, 1,735.89 ft (529.099 m).

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

1,735.0	16,910
1,736.0	18,320
1,738.0	21,370

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20540	20010	20030	20260	20310	20370	20530	20510	20280	19970	18780	18500
2	20530	20000	20000	20260	20290	20370	20500	20480	20260	19930	18740	18540
3	20530	20000	20000	20260	20280	20590	20470	20500	20230	19900	18680	18600
4	20530	19980	20010	20260	20310	20610	20450	20470	20310	19860	18650	18600
5	20500	19970	20030	20260	20320	20570	20420	20470	20310	19840	18600	18600
6	20500	19950	20040	20260	20340	20560	20400	20450	20290	19840	18570	18570
7	20480	19930	20060	20260	20340	20590	20370	20420	20280	19800	18530	18560
8	20470	19930	20290	20320	20340	20590	20370	20400	20250	19750	18500	18560
9	20430	19920	20290	20320	20360	20570	20370	20390	20220	19720	18470	18530
10	20430	19900	20290	20320	20340	20570	20360	20290	20170	19710	18440	18500
11	20400	19890	20310	20340	20280	20700	20360	20250	20140	19680	18410	18470
12	20370	19890	20320	20340	20280	20750	20340	20220	20110	19630	18380	18450
13	20340	19860	20340	20340	20280	20760	20320	20200	20060	19600	18350	18420
14	20340	19840	20360	20340	20290	20780	20290	20170	20220	19540	18320	18630
15	20360	19840	20370	20320	20290	20780	20280	20290	20340	19500	18310	18600
16	20340	19980	20370	20320	20290	20780	20280	20340	20320	19450	18390	18560
17	20320	19930	20360	20310	20290	20790	20340	20370	20370	19420	18530	18510
18	20370	19920	20370	20320	20310	20750	20450	20420	20360	19360	18560	18470
19	20340	19920	20320	20360	20310	20730	20450	20370	20340	19330	18540	18440
20	20320	19920	20290	20360	20310	20700	20430	20370	20310	19300	18510	18410
21	20310	19920	20290	20340	20340	20710	20430	20360	20260	19260	18500	18380
22	20290	19980	20290	20340	20280	20640	20500	20360	20220	19200	18470	18350
23	20280	19980	20310	20360	20260	20620	20610	20390	20200	19150	18440	18330
24	20220	19970	20280	20360	20260	20610	20610	20370	20150	19110	18410	18310
25	20180	20030	20260	20340	20280	20610	20590	20370	20140	19050	18390	18280
26	20180	20030	20280	20360	20260	20590	20570	20360	20110	19020	18360	18250
27	20150	20010	20280	20360	20290	20590	20560	20320	20090	19010	18450	18240
28	20090	20000	20280	20340	20290	20590	20560	20310	20040	18960	18420	18210
29	20040	20000	20280	20340	---	20570	20560	20320	20030	18920	18410	18180
30	20030	20010	20260	20320	---	20540	20540	20310	19980	18870	18380	18160
31	20030	---	20260	20340	---	20530	---	20290	---	18830	18360	---
MAX	20540	20030	20370	20360	20360	20790	20610	20510	20370	19970	18780	18630
MIN	20030	19840	20000	20260	20260	20370	20280	20170	19980	18830	18310	18160
(†)	1737.14	1737.13	1737.29	1737.34	1737.31	1737.46	1737.47	1737.31	1737.11	1736.34	1736.03	1735.89
(‡)	-410	-20	+250	+80	-50	+240	+10	-250	-310	-1150	-470	-200

CAL YR 1980 MAX 20540 MIN 15160 ‡ +2450
WTR YR 1981 MAX 20790 MIN 18160 ‡ -2340

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

08144900 BRADY CREEK RESERVOIR NEAR BRADY, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
FEB 17...	1015	1600	9.0	300	150	63	35	200

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
FEB 17...	5.0	11	150	140	350	.3	8.8	898

08145000 BRADY CREEK AT BRADY, TX

LOCATION.--Lat 31°08'17", long 99°20'05", McCulloch County, Hydrologic Unit 12090110, on left bank just upstream from bridge on U.S. Highway 377 on North Bridge Street in Brady, 0.4 mi (0.6 km) downstream from Live Oak Creek, and 30.4 mi (48.9 km), revised, upstream from mouth.

DRAINAGE AREA (revised).--588 mi² (1,523 km²).

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

REVISED RECORDS.--WSP 1512: 1941(M), 1951(M).

GAGE.--Water-stage recorder. Datum of gage is 1,646.50 ft (501.853 m) National Geodetic Vertical Datum of 1929. Prior to July 9, 1940, nonrecording gage at site 3,600 ft (1,100 m) upstream at datum 8.24 ft (2.512 m) higher.

REMARKS.--Records good. The city of Brady, which obtains its water supply from ground-water sources, reported that 636 acre-ft (784,000 m³) of sewage effluent was returned to Brady Creek downstream from the gage during the current year. Since May 22, 1962, flow largely controlled by Brady Creek Reservoir (station 08144900). At end of year, flow from 24.2 mi² (62.7 km²) above this station and below Brady Creek Reservoir was partly controlled by six floodwater-retarding structures with a combined capacity of 6,440 acre-ft (7.94 hm³) below flood-spillway crests. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years (water years 1940-62) prior to completion of Brady Creek Reservoir, 25.2 ft³/s (0.714 m³/s), 18,260 acre-ft/yr (22.5 hm³/yr); 19 years (water years 1963-81) regulated, 10.4 ft³/s (0.295 m³/s), 7,530 acre-ft/yr (9.28 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,100 ft³/s (1,110 m³/s) Sept. 10, 1952, gage height, 24.80 ft (7.559 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, 29.1 ft (8.87 m) July 23, 1938, present site and datum, discharge at site 5 mi (8 km) downstream, 86,000 ft³/s (2,440 m³/s), by slope-area measurement. Flood of Oct. 6, 1930 (second highest since 1882), reached a stage of 25.9 ft (7.89 m), discharge 50,300 ft³/s (1,420 m³/s), present site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 76 ft³/s (2.15 m³/s) July 6 at 1630 hours, gage height, 6.76 ft (2.060 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.19	.01	.29	.28	.08	1.3	.09	.00	3.4	5.3	.00	.62
2	.05	.01	.34	.31	.04	.00	.17	.00	4.6	4.9	.00	.46
3	.00	.00	.41	.39	.05	8.2	.16	.03	4.4	4.4	.00	.04
4	.00	.00	.51	.39	.24	2.2	.21	.04	13	3.9	.00	.00
5	.00	.00	.61	.46	.20	.31	.46	.22	13	3.4	.00	.01
6	.00	.00	.72	.65	.13	.18	.50	.12	12	16	.00	.00
7	.00	.00	.82	.69	.09	.69	.50	.07	8.9	2.8	.00	.00
8	.00	.00	8.2	1.2	.07	.22	.65	.10	.00	.41	.00	.03
9	.00	.00	.55	.34	.04	.45	.83	.13	.00	.05	.00	.04
10	.00	.00	.56	.23	.00	.09	.49	.24	.00	.03	.00	.04
11	.00	.00	.77	.10	.00	2.6	.30	.51	.00	.01	.00	.05
12	.00	.00	.88	.10	.00	1.4	.05	.54	.00	.03	.00	.05
13	.00	.00	.98	.05	.00	.48	.08	.68	.00	.03	.00	.04
14	.00	.00	.00	.00	.00	.19	.04	.74	2.3	.00	.00	1.7
15	.00	.00	.00	.02	.00	.11	.00	1.2	.17	.00	.00	.40
16	.00	1.5	.00	.00	.00	.06	.03	10	4.2	.00	.00	.14
17	.00	.08	.00	.00	.00	.05	.14	2.5	2.6	.00	1.3	.10
18	.37	.01	.06	.00	.00	.10	5.3	.55	.92	.00	.06	.07
19	.00	.00	.42	.00	.00	.10	.27	1.8	1.5	.00	.00	.02
20	.00	.00	.51	.00	.00	.05	.05	2.8	1.7	.00	.00	.01
21	.00	.09	.18	.00	.00	.00	.63	3.5	2.1	.00	.00	.02
22	.00	.47	.21	.00	.00	.00	1.2	4.1	2.7	.00	.00	.02
23	.00	.24	.28	.00	.00	.00	9.4	3.5	3.5	.00	.00	.02
24	.00	.29	.27	.00	.00	.00	.03	.29	4.1	.00	.00	.02
25	.00	1.5	.27	.00	.00	.10	.00	1.2	4.3	.00	.00	.02
26	.01	1.1	.19	.00	.00	.15	.00	1.6	4.4	.00	.00	.02
27	.00	.34	.00	.00	.00	.09	.00	2.0	4.6	.00	3.4	.02
28	.02	.02	.00	.00	.00	.11	.00	2.1	5.3	.00	.71	.02
29	.01	.08	.03	.03	---	.09	.00	4.2	5.4	.00	.05	.03
30	.00	.18	.12	.05	---	.06	.00	5.2	5.4	.00	.00	.03
31	.00	---	.21	.07	---	.02	---	2.1	---	.00	.00	---
TOTAL	.65	5.92	18.39	5.36	.94	19.40	21.58	52.06	114.49	41.26	5.52	4.04
MEAN	.021	.20	.59	.17	.034	.63	.72	1.68	3.82	1.33	.18	.13
MAX	.37	1.5	8.2	1.2	.24	8.2	9.4	10	13	16	3.4	1.7
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	1.3	12	36	11	1.9	38	43	103	227	82	11	8.0

CAL YR 1980 TOTAL 76.31 MEAN .21 MAX 12 MIN .00 AC-FT 151
WTR YR 1981 TOTAL 289.61 MEAN .79 MAX 16 MIN .00 AC-FT 574

08146000 SAN SABA RIVER AT SAN SABA, TX

LOCATION (revised).--Lat 31°12'47", long 98°43'09", San Saba County, Hydrologic Unit 12090109, on right bank at downstream side of bridge on State Highway 16, 1.2 mi (1.9 km) north of San Saba, 2.7 mi (4.3 km) upstream from Mill Creek, 4.8 mi (7.7 km) downstream from China Creek, and 16.8 mi (27.0 km), revised, upstream from mouth.

DRAINAGE AREA (revised).--3,046 mi^2 (7,889 km^2), of which 6.6 mi^2 (17.1 km^2) probably is noncontributing.

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

REVISED RECORDS.--WSP 458: 1915-16. WSP 1282: Drainage area. WSP 1512: 1918-19(M), 1922, 1931(M), 1935-36. WSP 1922: 1917.

GAGE.--Water-stage recorder. Datum of gage is 1,162.16 ft (354.226 m) National Geodetic Vertical Datum of 1929. See WSP 1922 for history of changes prior to July 8, 1953. Since Oct. 1, 1956, supplementary water-stage recorder 2,780 ft (847 m) to right of main-channel gage used for floodflows.

REMARKS.--Records good. Many diversions above station for irrigation and municipal use affect low flow. Flow partly affected by Brady Creek Reservoir (see station 08144900), capacity 90,300 acre-ft (111 hm^3). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--66 years, 237 ft^3/s (6.712 m^3/s), 171,700 acre-ft/yr (212 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 203,000 ft^3/s (5,750 m^3/s) July 23, 1938, gage height, 39.3 ft (11.98 m), present site and datum, from rating curve extended above 41,000 ft^3/s (1,160 m^3/s) on basis of slope-area measurement of peak flow; no flow at times in 1918, 1930, 1954-56, and 1963-64.
Maximum stage since at least 1899, that of July 23, 1938.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 6, 1899, reached a stage of 36.7 ft (11.19 m), present site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,560 ft^3/s (101 m^3/s) May 24 at 1530 hours, gage height, 13.60 ft (4.145 m), no other peak above base of 3,000 ft^3/s (85.0 m^3/s); minimum, 14 ft^3/s (0.40 m^3/s) Aug. 6-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	787	102	113	108	96	103	114	136	124	86	19	67
2	524	97	107	107	95	108	116	125	112	84	22	74
3	369	100	103	106	92	122	115	123	102	81	22	86
4	294	99	100	105	95	242	111	124	169	77	20	141
5	228	94	100	103	105	274	108	125	258	70	20	110
6	198	82	101	103	109	219	103	121	222	63	17	84
7	180	82	100	105	109	180	102	116	169	65	15	77
8	164	80	126	108	108	174	106	112	132	58	15	71
9	154	74	183	113	104	169	106	109	114	58	20	66
10	145	77	236	115	103	149	105	100	100	64	21	64
11	137	81	197	114	102	141	107	94	90	72	21	61
12	130	82	170	110	100	172	106	94	84	68	22	60
13	124	80	153	109	98	343	102	93	82	61	22	67
14	123	77	142	107	96	325	98	91	87	58	22	64
15	122	75	138	104	95	267	95	84	155	54	22	89
16	134	93	134	101	94	225	97	120	279	52	22	108
17	127	118	132	98	94	202	98	290	653	49	25	90
18	120	122	128	97	94	182	99	174	610	42	48	74
19	122	108	121	102	97	166	358	124	393	42	1000	64
20	133	112	116	106	94	155	205	111	267	42	700	61
21	133	109	112	106	95	155	151	101	211	35	400	61
22	127	105	113	105	94	147	136	96	164	35	200	60
23	121	109	114	104	89	141	146	89	152	28	100	56
24	114	110	114	102	86	138	392	1490	139	25	95	54
25	110	110	112	100	80	135	267	541	124	25	88	56
26	109	125	112	96	89	134	213	261	112	27	81	54
27	111	153	114	95	90	133	246	186	110	26	74	52
28	106	128	114	96	89	131	213	145	105	24	71	51
29	102	118	113	96	---	132	172	124	96	21	153	49
30	100	116	112	93	---	128	152	112	90	20	98	47
31	103	---	110	94	---	120	---	135	---	18	72	---
TOTAL	5551	3018	3940	3208	2692	5412	4539	5746	5505	1530	3527	2118
MEAN	179	101	127	103	96.1	175	151	185	184	49.4	114	70.6
MAX	787	153	236	115	109	343	392	1490	653	86	1000	141
MIN	100	74	100	93	80	103	95	84	82	18	15	47
AC-FT	11010	5990	7810	6360	5340	10730	9000	11400	10920	3030	7000	4200

CAL YR 1980	TOTAL	76624.6	MEAN 209	MAX 31000	MIN 2.1	AC-FT	152000
WTR YR 1981	TOTAL	46786.0	MEAN 128	MAX 1490	MIN 15	AC-FT	92800

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

LOCATION.--Lat 31°13'04", long 98°33'51", San Saba-Lampasas County line, Hydrologic Unit 12090201, near left bank at downstream side of pier of bridge on U.S. Highway 190, 5.2 mi (8.4 km) downstream from San Saba River, 9.2 mi (14.8 km) east of San Saba, and at mile 474.3 (763.1 km).

DRAINAGE AREA (revised).--31,217 mi² (80,852 km²), approximately, of which 11,398 mi² (29,521 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 458: 1916. WSP 858: 1900(M), 1936(M). WSP 1118: Drainage area. WSP 1512: 1916-18(M), 1936. WSP 1732: 1925-26(M).

GAGE.--Water-stage recorder. Datum of gage is 1,096.22 ft (334.128 m) National Geodetic Vertical Datum of 1929. See WSP 1922 for history of changes prior to May 23, 1940.

REMARKS.--Water-discharge records good. Many diversion above station for irrigation, municipal use, and oilfield operation. Flow is affected by four reservoirs upstream from Winchell and one reservoir in the San Saba River and Pecan Bayou basins; combined capacity, 1,973,000 acre-ft (2.43 km³). Flow is affected at times by discharge from the flood-detention pools of 187 floodwater-retarding structures with combined detention capacity of 203,600 acre-ft (251 hm³). These structures control runoff from 934 mi² (2,419 km²). Gage-height telemeter at this station.

AVERAGE DISCHARGE.--50 years (water years 1917-19, 1921-22, 1924-68) prior to completion of Robert Lee Dam, 1,340 ft³/s (37.95 m³/s), 970,100 acre-ft/yr (1,200 hm³/yr); 13 years (water years 1969-81) partially regulated, 662 ft³/s (18.75 m³/s), 479,600 acre-ft/yr (591 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 224,000 ft³/s (6,340 m³/s) July 23, 1938, gage height, 63.2 ft (19.26 m), present site, based on floodmarks at site then in use; no flow Aug. 27-31, 1954; Aug. 3-13, 1963; July 20 to Aug. 8, Aug. 11-14, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage during period 1878 to July 22, 1938, 58.4 ft (17.80 m) Sept. 25, 1900, discharge, 184,000 ft³/s (5,210 m³/s), present site, from floodmarks at former site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,900 ft³/s (365 m³/s) Oct. 1 at 0030 hours, gage height, 13.29 ft (4.051 m), occurred on recession following peak of Sept. 30, 1980; maximum independent peak discharge, 4,360 ft³/s (123 m³/s) June 16, gage height, 7.09 ft (2.161 m); minimum, 11 ft³/s (0.31 m³/s) Aug. 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9380	194	263	281	220	196	293	355	1800	153	15	120
2	3910	190	254	274	215	201	281	317	2440	144	14	673
3	2420	190	239	271	212	423	276	366	1170	133	16	322
4	1820	188	233	267	215	715	262	345	1200	128	19	183
5	1420	186	231	262	224	1270	245	296	1100	127	18	227
6	1140	184	228	256	233	1820	236	283	940	131	17	145
7	955	182	228	256	235	1480	225	275	760	337	15	122
8	803	176	294	257	231	1160	217	260	852	313	12	117
9	666	173	1030	261	229	936	210	236	692	203	11	108
10	590	171	1310	269	218	835	199	213	530	220	13	100
11	520	171	1380	274	218	731	200	201	393	268	18	96
12	466	168	1230	277	215	748	201	194	324	217	17	107
13	412	165	928	296	215	1180	204	188	275	174	18	114
14	381	164	740	313	215	1650	194	182	262	155	19	1490
15	369	162	612	320	210	1510	184	172	322	145	17	876
16	357	158	540	309	210	1240	179	563	2140	126	18	483
17	346	156	496	285	208	1030	175	569	1140	115	29	413
18	318	171	465	269	205	858	177	735	987	102	57	234
19	302	196	431	269	203	723	320	426	803	87	467	161
20	291	214	396	266	201	643	603	278	506	80	1020	129
21	291	210	366	265	198	568	477	237	378	72	601	120
22	276	292	350	262	196	500	459	257	373	55	336	118
23	271	342	334	253	192	448	583	276	349	48	325	112
24	256	317	320	253	184	420	636	834	303	37	284	116
25	251	294	307	251	176	399	719	1600	253	28	225	123
26	237	303	298	247	173	378	559	494	214	25	187	118
27	233	311	296	240	178	358	508	336	198	26	161	109
28	228	307	296	236	179	419	523	257	191	26	140	98
29	220	279	292	232	---	547	484	214	179	24	151	93
30	204	267	291	225	---	325	420	194	165	20	199	89
31	195	---	285	220	---	302	---	190	---	17	138	---
TOTAL	29528	6481	14963	8216	5808	24013	10249	11343	21239	3736	4577	7316
MEAN	953	216	483	265	207	775	342	366	708	121	148	244
MAX	9380	342	1380	320	235	1820	719	1600	2440	337	1020	1490
MIN	195	156	228	220	173	196	175	172	165	17	11	89
AC-FT	58570	12860	29680	16300	11520	47630	20330	22500	42130	7410	9080	14510

CAL YR 1980 TOTAL 275385.5 MEAN 752 MAX 28000 MIN 3.8 AC-FT 546200
WTR YR 1981 TOTAL 147469.0 MEAN 404 MAX 9380 MIN 11 AC-FT 292500

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1947 to current year. Chemical and biochemical analyses: October 1969 to current year. Pesticide analyses: January 1968 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,660 micromhos June 28, 1962; minimum daily, 150 micromhos Sept. 14, 1981.
WATER TEMPERATURES: Maximum daily, 37.0°C Aug. 3, 1956; minimum daily, 0.0°C Jan. 29, 1948, Jan. 30, 1951.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,590 micromhos Sept. 2; minimum daily, 150 micromhos Sept. 14.
WATER TEMPERATURES: Maximum daily, 33.0°C July 12; minimum daily, 4.0°C Jan. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
22...	0945	281	687	8.0	17.5	--	8.4	90	2.5	130	51
NOV											
18...	1600	171	820	7.8	11.0	--	11.0	102	1.1	150	46
DEC											
16...	1145	533	1270	7.9	14.0	41	8.5	85	1.2	K300	460
JAN											
13...	1530	307	1220	7.9	9.0	.40	12.0	107	1.2	21	37
FEB											
18...	1110	202	1310	7.9	11.0	1.6	12.3	115	.4	1200	K16000
MAR											
17...	1300	976	926	7.2	16.0	33	9.3	98	1.6	100	120
APR											
14...	1000	194	917	7.8	22.0	31	7.8	91	2.3	100	100
MAY											
12...	1330	194	1160	7.9	21.5	51	11.2	130	3.3	72	110
JUN											
09...	1615	690	903	8.2	30.5	45	8.0	111	2.7	170	560
JUL											
14...	1305	160	952	7.9	29.0	44	8.3	111	2.5	30	1500
AUG											
18...	1530	61	655	7.7	27.0	--	5.8	75	1.8	K260	320
SEP											
22...	1430	118	840	7.8	25.0	--	9.5	116	3.2	360	600

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 (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT										
22...	270	73	73	22	39	1.0	5.0	200	53	79
NOV										
18...	330	140	85	29	54	1.3	4.7	190	80	120
DEC										
16...	400	220	100	36	97	2.1	4.3	180	150	210
JAN										
13...	400	180	100	37	96	2.1	3.1	220	140	180
FEB										
18...	420	210	100	41	110	2.3	3.6	210	160	210
MAR										
17...	290	120	76	24	71	1.8	3.9	170	92	140
APR										
14...	310	120	74	31	66	1.6	3.3	190	90	130
MAY										
12...	350	170	75	40	100	2.3	4.4	180	140	200
JUN										
09...	270	150	66	26	78	2.1	5.3	120	100	160
JUL										
14...	310	150	72	32	76	1.9	5.1	160	110	150
AUG										
18...	260	43	54	31	39	1.2	3.4	220	23	72
SEP										
22...	280	110	65	28	56	1.6	6.2	170	72	130

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)
OCT 22...	.2	13	406	405	.44	.40	.030	.070	.35	.51
NOV 18...	.2	12	496	504	1.0	1.1	.030	.040	.57	.45
DEC 16...	.3	9.3	770	732	2.6	2.5	.160	.130	.79	.75
JAN 13...	.3	8.3	715	699	1.9	1.9	.020	.050	.82	.71
FEB 18...	.3	5.9	761	769	2.8	2.7	.000	.040	1.3	.55
MAR 17...	.3	8.0	532	518	1.1	1.1	.080	.040	1.2	1.1
APR 14...	.3	7.2	548	519	.59	.57	.050	.050	.89	.62
MAY 12...	.3	8.6	720	677	.14	.14	.110	.260	1.5	.94
JUN 09...	.3	9.1	569	523	1.3	1.3	.030	.080	1.1	.82
JUL 14...	.2	14	582	556	.09	.10	.060	.080	1.0	.61
AUG 18...	.2	16	358	372	.14	.14	.110	.100	.61	.63
SEP 22...	.3	13	519	474	.31	.25	.070	.120	1.1	.98

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 22...	.38	.58	.210	.060	13	--	--	66	50	99
NOV 18...	.60	.49	.030	.010	--	6.3	.6	56	26	84
DEC 16...	.95	.88	.150	.090	7.6	--	--	64	92	95
JAN 13...	.84	.76	.060	.020	5.2	--	--	74	61	90
FEB 18...	1.3	.59	.100	.040	--	6.5	.9	56	31	98
MAR 17...	1.3	1.1	.100	.070	7.7	--	--	72	190	98
APR 14...	.94	.67	.080	.030	5.9	--	--	96	50	94
MAY 12...	1.6	1.2	.150	.090	--	6.1	4.6	107	56	98
JUN 09...	1.1	.90	.130	.030	4.7	--	--	115	214	99
JUL 14...	1.1	.69	.060	.050	4.9	--	--	94	41	95
AUG 18...	.72	.73	.060	.040	--	5.3	--	64	11	85
SEP 22...	1.2	1.1	.080	.020	5.3	--	--	55	18	92

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL (UG/L AS CR)
NOV 18...	1600	2	1	1	100	0	200	16	--	<1	0
FEB 18...	1110	1	0	1	300	200	100	0	0	1	0
MAY 12...	1330	1	0	2	100	0	100	1	--	<1	10
AUG 18...	1530	3	0	3	100	0	110	0	--	<1	10

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL (UG/L AS PB)
NOV 18...	0	0	2	<3	2	0	2	300	--	<10	7
FEB 18...	0	0	0	<3	3	1	2	410	--	<10	3
MAY 12...	0	10	2	<3	4	2	2	780	770	10	7
AUG 18...	10	0	1	<3	6	5	1	840	830	12	7

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV 18...	5	2	40	40	2	.1	.1	.0	3	0
FEB 18...	3	0	40	--	<1	.2	.1	.1	2	0
MAY 12...	6	1	110	110	5	.1	.0	.1	13	13
AUG 18...	7	0	50	50	3	.1	.1	.0	3	1

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 18...	3	1	0	1	0	0	0	180	160	20
FEB 18...	3	1	0	1	0	0	0	10	5	5
MAY 12...	0	1	0	1	0	0	0	0	0	4
AUG 18...	2	1	0	1	0	0	0	20	--	<3

DATE	TIME	PCB TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
NOV 18...	1600	ND	ND	ND	ND	ND	ND	.34	ND	ND	.85

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)
NOV 18...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 18,80		MAR 17,81		MAY 12,81		JUN 9,81	
TIME	1600		1300		1330		1615	
TOTAL CELLS/ML	31000		9900		340000		17000	
DIVERSITY: DIVISION	1.0		1.6		0.9		1.6	
.CLASS	1.0		1.6		0.9		1.6	
..ORDER	1.7		2.0		1.8		2.0	
...FAMILY	1.9		2.8		1.9		2.7	
....GENUS	2.2		3.4		2.4		3.1	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	2600	1	500	3
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	2300	1	1000	6
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	*	0	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	160	1	1000	10	*	0	610	4
....DICTYOSPHAERIUM	590	2	1100	11	--	-	--	-
....KIRCHNERIELLA	--	-	270	3	--	-	--	-
....OOCYSTIS	210	1	530	5	*	0	390	2
....SELENASTRUM	210	1	--	-	*	0	*	0
....TETRAEDRON	--	-	--	-	*	0	500	3
...SCENEDESMACEAE								
....CRUCIGENIA	640	2	210	2	6900	2	440	3
....SCENEDESMUS	1900	6	1900#	19	9800	3	2400	14
....TETRASTRUM	430	1	--	-	*	0	440	3
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	--	-	*	0
....CHLAMYDOMONAS	--	-	370	4	*	0	550	3
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	530	2	950	10	23000	7	3300#	20
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	*	0	--	-
....COCCONEIS	*	0	--	-	2600	1	--	-
...CYMBELLACEAE								
....AMPHORA	--	-	53	1	--	-	--	-
....CYMBELLA	--	-	53	1	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	1100	4	160	2	--	-	--	-
...NAVICULACEAE								
....NAVICULA	--	-	640	6	2000	1	110	1
...NITZSCHIACEAE								
....NITZSCHIA	370	1	530	5	2300	1	610	4
...SURIRELLACEAE								
....SURIRELLA	--	-	110	1	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	160	1	--	-	*	0	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	430	1	--	-	46000	13	--	-
....ANACYSTIS	6200#	20	1700#	18	100000#	30	5500#	33
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENOPSIS	--	-	--	-	--	-	--	-
....CYLINDROSPERMUM	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	--	-
....OSCILLATORIA	18000#	58	--	-	140000#	40	--	-

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

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 18,80		MAR 17,81		MAY 12,81		JUN 9,81	
TIME	1600		1300		1330		1615	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	270	3	--	-	110	1
....TRACHELOMONAS	*	0	--	-	*	0	*	0
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	*	0	--	-	--	-	*	0

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

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	JUL 14,81		AUG 18,81		SEP 22,81	
TIME	1305		1530		1430	
TOTAL CELLS/ML	72000		1600		17000	
DIVERSITY: DIVISION	0.8		1.1		1.8	
.CLASS	0.8		1.1		1.8	
..ORDER	1.7		1.9		2.6	
...FAMILY	2.1		2.2		3.2	
....GENUS	2.3		2.4		3.9	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..						
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	110	7	--	-
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	700	4
...HYDRODICTYACEAE						
....PEDIASTRUM	--	-	--	-	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	*	0	72	5	2300	13
....DICTYOSPHAERIUM	*	0	--	-	350	2
....KIRCHNERIELLA	--	-	--	-	--	-
....OOCYSTIS	400	1	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	--	-
....SCENEDESMUS	1700	2	630#	41	700	4
....TETRASTRUM	--	-	--	-	1100	6
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	2000	3	270#	18	970	6
....CHLAMYDOMONAS	*	0	--	-	350	2

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

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE TIME	JUL 14,81 1305		AUG 18,81 1530		SEP 22,81 1430	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	1500	2	--	-	1200	7
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-
...CYMBELLACEAE						
....AMPHORA	--	-	--	-	--	-
....CYMBELLA	--	-	--	-	--	-
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	--	-
...NAVICULACEAE						
....NAVICULA	--	-	--	-	260	2
...NITZSCHIACEAE						
....NITZSCHIA	2900	4	72	5	1100	7
...SURIRELLACEAE						
....SURIRELLA	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	*	0	--	-	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	*	0	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	23000#	32	--	-	2100	12
....ANACYSTIS	1500	2	--	-	1400	8
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENOPSIS	7200	10	--	-	--	-
....CYLINDROSPERMUM	--	-	--	-	440	3
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	1300	8
....OSCILLATORIA	30000#	42	--	-	1400	8
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	400	1	240#	16	1200	7
....TRACHELOMONAS	--	-	140	9	350	2
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	--	-	--	-	--	-

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

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1980	29528	470	258	20600	46	3630	26	2090	180
NOV.	1980	6481	981	547	9570	130	2340	96	1670	330
DEC.	1980	14963	1200	672	27200	180	7350	140	5510	390
JAN.	1981	8216	1200	674	15000	180	4030	140	3020	390
FEB.	1981	5808	1240	696	10900	190	3000	140	2260	400
MAR.	1981	24013	1130	632	41000	170	10900	120	8080	370
APR.	1981	10249	1020	569	15700	140	3890	100	2790	340
MAY	1981	11343	937	523	16000	130	3990	94	2880	310
JUNE	1981	21239	769	427	24500	97	5570	67	3840	270
JULY	1981	3736	842	467	4710	100	1060	71	720	290
AUG.	1981	4577	691	382	4720	78	960	50	617	250
SEPT	1981	7316	736	411	8110	100	2030	74	1470	250
TOTAL		147469	**	**	198000	**	48700	**	35000	**
WTD. AVG.		404	892	497	**	120	**	88	**	300

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	349	760	1190	1290	1200	1260	919	1190	1400	683	646	1000
2	385	756	1200	1280	1210	1250	932	1260	1250	717	651	1590
3	405	774	1190	1290	1190	1220	945	1320	802	756	656	1460
4	437	760	1230	1280	1150	1280	962	1360	647	736	661	929
5	468	743	1250	1260	1210	1430	964	1260	634	678	655	610
6	506	775	1240	1230	1200	1040	946	1250	608	706	652	582
7	533	779	1230	1160	1180	1190	900	1260	698	1070	645	595
8	557	830	1210	1140	1210	1300	929	1200	834	834	633	608
9	578	850	1520	1120	1220	1430	900	1130	800	706	640	634
10	595	863	1160	1130	1200	1500	868	1140	764	780	645	621
11	605	841	1010	1140	1230	1490	911	1150	761	875	625	602
12	625	873	1050	1150	1240	1300	904	1160	721	962	631	625
13	645	876	1100	1200	1220	1470	906	1140	737	980	600	643
14	647	893	1220	1220	1230	1000	917	1150	742	951	539	150
15	664	883	1230	1210	1260	1120	920	1140	700	902	552	225
16	670	881	1260	1200	1230	965	917	1020	425	879	652	801
17	676	909	1320	1230	1240	932	902	1170	536	883	645	1260
18	680	820	1280	1190	1270	878	915	1100	436	886	648	1300
19	687	893	1220	1180	1260	925	922	1170	500	893	623	1310
20	695	966	1180	1170	1270	930	978	1220	559	870	545	1090
21	691	996	1210	1160	1280	932	1050	1120	600	753	767	890
22	690	1190	1230	1160	1290	922	1120	983	660	811	676	840
23	688	1290	1190	1170	1310	968	1200	996	723	815	858	815
24	709	1190	1160	1180	1300	965	1140	650	721	819	717	865
25	720	1220	1180	1200	1310	961	954	407	706	751	801	913
26	726	1150	1170	1210	1320	944	1080	602	690	742	750	826
27	735	1120	1190	1220	1290	935	1100	655	682	748	683	736
28	742	1100	1200	1230	1280	900	1130	610	712	700	764	685
29	745	1140	1240	1220	---	824	1140	524	725	678	834	651
30	753	1130	1280	1230	---	916	1160	575	745	657	756	669
31	767	---	1310	1220	---	921	---	621	---	650	825	---
MEAN	625	942	1210	1200	1240	1100	984	1020	717	802	677	818

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	---	15.0	12.0	12.0	16.0	23.0	28.0	27.0	31.0	31.0	---
2	---	17.0	12.0	13.0	---	16.0	---	25.0	---	30.0	31.0	27.0
3	23.0	18.0	12.0	4.0	12.0	17.0	24.0	24.0	26.0	31.0	29.0	28.0
4	25.0	---	12.0	12.0	9.0	18.0	23.0	25.0	25.0	31.0	30.0	29.0
5	25.0	18.0	---	11.0	10.0	17.0	23.0	25.0	24.0	31.0	30.0	29.0
6	24.0	20.0	21.0	12.0	9.0	---	20.0	26.0	29.0	30.0	29.0	30.0
7	25.0	21.0	22.0	12.0	9.0	17.0	22.0	26.0	29.0	30.0	30.0	---
8	25.0	20.0	---	10.0	11.0	15.0	23.0	26.0	30.0	30.0	29.0	28.0
9	26.0	---	14.0	11.0	---	17.0	---	26.0	---	30.0	30.0	28.0
10	---	22.0	13.0	10.0	12.0	17.0	23.0	24.0	32.0	31.0	30.0	28.0
11	26.0	20.0	13.0	12.0	9.0	15.0	25.0	25.0	---	---	---	30.0
12	25.0	20.0	---	10.0	---	14.0	26.0	26.0	28.0	33.0	30.0	---
13	24.0	21.0	14.0	11.0	9.0	17.0	26.0	27.0	26.0	31.0	30.0	30.0
14	25.0	13.0	14.0	11.0	8.0	---	---	26.0	28.0	32.0	30.0	---
15	24.0	13.0	15.0	12.0	10.0	18.0	22.0	22.0	29.0	31.0	31.0	25.0
16	25.0	12.0	16.0	11.0	13.0	17.0	23.0	25.0	28.0	31.0	29.0	26.0
17	24.0	11.0	16.0	10.0	14.0	15.0	23.0	27.0	26.0	---	27.0	25.0
18	---	12.0	16.0	7.0	17.0	15.0	24.0	---	27.0	31.0	26.0	24.0
19	21.0	---	16.0	8.0	---	16.0	26.0	25.0	---	31.0	27.0	24.0
20	22.0	14.0	10.0	10.0	18.0	---	26.0	25.0	29.0	31.0	28.0	25.0
21	20.0	12.0	---	10.0	19.0	18.0	---	24.0	30.0	32.0	24.0	25.0
22	21.0	10.0	11.0	11.0	17.0	16.0	25.0	25.0	---	32.0	30.0	26.0
23	21.0	11.0	13.0	8.0	12.0	18.0	25.0	28.0	30.0	---	29.0	26.0
24	19.0	11.0	12.0	13.0	15.0	18.0	24.0	25.0	30.0	32.0	30.0	---
25	20.0	---	---	14.0	13.0	18.0	25.0	20.0	31.0	32.0	30.0	27.0
26	17.0	11.0	---	14.0	13.0	21.0	26.0	25.0	31.0	30.0	30.0	28.0
27	---	---	13.0	14.0	18.0	20.0	26.0	28.0	30.0	29.0	30.0	28.0
28	16.0	11.0	13.0	---	18.0	---	---	29.0	31.0	30.0	30.0	27.0
29	15.0	14.0	12.0	16.0	---	22.0	29.0	28.0	31.0	30.0	30.0	25.0
30	16.0	15.0	---	13.0	---	22.0	28.0	---	31.0	31.0	28.0	26.0
31	16.0	---	15.0	12.0	---	23.0	---	28.0	---	31.0	29.0	---
MEAN	22.0	15.5	14.0	11.0	13.0	17.5	24.5	25.5	28.5	31.0	29.0	27.0

08148000 LAKE BUCHANAN NEAR BURNET, TX

LOCATION.--Lat 30°45'04", long 98°25'06", Burnet County, Hydrologic Unit 12090201, in powerhouse at Buchanan Dam on Colorado River, 1.3 mi (2.1 km) upstream from bridge on State Highway 29, 11 mi (18 km) west of Burnet, and at mile 413.6 (665.6 km).

DRAINAGE AREA (revised).--31,910 mi² (82,647 km²), approximately, of which 11,398 mi² (29,521 km²) probably is noncontributing.

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

REVISED RECORDS.--WSP 1118: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 0.48 ft (0.146 m) National Geodetic Vertical Datum of 192[illegible] levels by Lower Colorado River Authority). Prior to July 1938, temporary staff and float gages at same site and datum.

REMARKS.--The lake is formed by two reinforced concrete multiple-arch sections, three banks of tainter gates, a 1,100-foot (335 m) uncontrolled emergency concrete spillway, and natural ground. A net opening of 1,270 ft (387 m) is controlled by thirty 33- by 15-foot (10 by 5 m) and by seven 40- by 15-foot (12 by 5 m) tainter gates. The dam was completed and storage began May 20, 1937. Water is used for power development and for irrigation below Columbus. The power generating features consist of three generating units, each with a 12,677 kilowatt capacity. A pump-back unit, with a capacity of 840 ft³/s (23.8 m³/s), returns water from Inks Lake to Lake Buchanan during off-peak power demand periods. Inflow is largely regulated by twelve major reservoirs with a combined capacity of 2,438,000 acre-ft (3.01 km³), of which 1,091,000 acre-ft (1.35 km³) is for flood control. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08147000. The capacity table is based on a 1925 survey. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam	1,025.5	-
Crest of gravity overflow spillway (top of conservation storage)	1,020.0	992,000
Crest of spillway (15 ft gates)	1,005.0	678,000
Crest of spillway (25 ft gates)	995.0	505,000
Invert of three 12-foot-diameter penstocks	937.0	36,800

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

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 1,010,000 acre-ft (1.25 km³) Jan. 24, 1968, gage height, 1,020.8 ft (311.14 m); minimum after initial filling of lake in July 1938, 340,800 acre-ft (420 hm³) Sept. 8-10, 1952, gage height, 983.4 ft (299.74 m).

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents observed, 983,300 acre-ft (1.21 km³) Oct. 2, gage height, 1,019.62 ft (310.780 m); minimum, 889,700 acre-ft (1.10 km³) Aug. 15, gage height, 1,015.44 ft (309.506 m).

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

1,015.0	880,000	1,018.0	946,000
1,016.0	902,000	1,020.0	992,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	979600	923100	924200	949200	[illegible]52400	955700	956800	949000	959100	972900	919800	896900
2	983300	923300	924400	949200	952400	956100	956100	948100	963700	972200	918100	896900
3	973800	923800	924400	949900	952400	958200	956100	948800	963500	970600	917400	898900
4	975000	921100	924900	949700	954300	961200	955400	949500	971500	969200	913900	898500
5	975700	921400	925300	948800	954700	962100	954700	950100	972500	967600	911700	898500
6	974500	921400	925800	949000	953400	965300	953400	947600	970600	966200	909000	897400
7	973400	921800	926600	947800	953800	967200	952400	945800	966900	964600	907300	897600
8	971800	922000	930400	946500	953800	967600	951500	946000	963300	962800	905100	896700
9	969900	921600	931000	944900	954100	966500	950800	946700	960700	962100	902700	896300
10	968100	921600	932800	944200	953400	965100	949500	945800	958200	960700	900700	895200
11	965800	921800	935200	944000	949900	965100	949000	945100	965800	959300	898700	894100
12	963000	922000	937600	943400	949200	964400	947600	945100	963700	958000	896300	894300
13	960300	922200	940100	943600	949500	963000	946700	944700	964400	956100	893900	894100
14	957700	922700	941400	944000	949900	963000	946500	944500	967600	954700	891900	894300
15	955000	922500	942500	944200	950400	963700	945100	944500	96[illegible]100	950600	889700	895800
16	952400	922900	942900	944900	950800	963500	944700	946900	981900	949000	890100	897400
17	949900	919600	944000	944900	951100	963000	943400	946500	978400	947400	894100	896900
18	947400	918700	945100	945100	951500	962300	943100	945800	976400	945600	892800	896700
19	942700	918100	946000	946500	951800	960300	943800	946500	975700	943800	891200	896300
20	940100	918100	945600	947200	952200	958400	944200	946500	977300	942000	891900	896300
21	937900	918100	945600	947400	953400	956800	944700	946200	976100	940900	893000	896300
22	936100	918300	946000	947800	952700	956600	944700	946500	974500	938300	893600	896300
23	935900	918900	946700	948300	953100	952200	949000	949000	974800	936500	893900	896100
24	931900	919600	947600	949000	952200	94[illegible]700	949700	953600	974300	935000	894100	895400
25	929700	921800	947400	949200	952900	948300	950800	957700	974800	933700	894300	895000
26	929300	922200	947800	949700	953400	948500	951800	958700	974800	932400	894500	895000
27	928000	922700	948300	950100	953600	947800	952700	959100	974500	930400	894100	895200
28	924000	922700	949000	950600	954500	950600	953600	959300	973800	928600	893600	895200
29	923300	923100	949700	951100	---	955400	953400	959300	973400	926000	893400	894700
30	923100	923300	949200	951300	---	955400	952400	959100	972900	924000	893600	893600
31	923100	---	949200	951800	---	956100	---	959100	---	922200	893900	---
MAX	983300	923800	949700	951800	954700	967600	956800	959300	981900	972900	919800	898900
MIN	923100	918100	924200	943400	949200	947800	943100	944500	958200	922200	889700	893600
(†)	1016.96	1016.97	1018.14	1018.25	1018.37	1018.44	1018.28	1018.57	1019.17	1016.92	1015.63	1015.62
(‡)	-56500	+200	+25900	+2600	+2700	+1600	-3700	+6700	+13800	-50700	-28300	-300

CAL YR 1980 MAX 983300 MIN 753600 ‡ +22300
WTR YR 1981 MAX 983300 MIN 889700 ‡ -86000

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

08150000 LLANO RIVER NEAR JUNCTION, TX

LOCATION (revised).--Lat 30°29'51", long 99°43'19", Kimble County, Hydrologic Unit 12090204, on right bank 600 ft (180 m) north of Farm Road 2169, 1.4 mi (2.3 km) east of Junction, 3.6 mi (5.8 km) downstream from bridge on Interstate Highway 10, 3.9 mi (6.3 km) downstream from confluence of North and South Llano Rivers, 4.3 mi (6.9 km) upstream from Johnson Fork, and 113.8 mi (183.1 km) upstream from mouth.

DRAINAGE AREA (revised).--1,856.14 mi² (4,807.40 km²), of which 5.14 mi² (13.31 km²) probably is noncontributing.

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

REVISED RECORDS.--WSP 568: 1915-16, 1918-20, 1922. WSP 1342: Drainage area. WSP 1922: 1920, 1923.

GAGE.--Water-stage recorder. Datum of gage is 1,630.32 ft (496.922 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 14, 1925, nonrecording gage, and Aug. 14, 1925, to May 17, 1940, water-stage recorder, at present site and datum. May 18, 1940, to Aug. 17, 1944, water-stage recorder at site 5,330 ft (1,620 m) upstream at datum 6.0 ft (1.83 m) higher. Since Aug. 18, 1944, gage at site 5,330 ft (1,620 m) upstream has been used as a supplementary gage.

REMARKS.--Records good. Diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--66 years, 194 ft³/s (5.494 m³/s), 1.40 in/yr (36 mm/yr), 140,600 acre-ft/yr (173 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 319,000 ft³/s (9,030 m³/s) June 14, 1935, gage height, 43.3 ft (13.20 m) at regular gage, 41.4 ft (12.62 m) at supplementary gage, from floodmarks, from rating curve extended above 54,000 ft³/s (1,530 m³/s) on basis of slope-area measurements of 154,000 and 319,000 ft³/s (4,360 and 9,030 m³/s); minimum, 3.1 ft³/s (0.088 m³/s) Aug. 16, 17, 1956.
Maximum stage since at least 1875, that of June 14, 1935.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 18	1730	2,110	59.8	3.73	1.137
				a4.63	1.411
Apr. 18	1500	10,900	309	7.92	2.414
				a9.87	3.008
June 12	0830	4,710	133	5.26	1.603
				a6.49	1.978
June 16	1900	16,700	473	9.80	2.987
				a13.33	4.063
June 17	1600	*19,900	564	10.70	3.261
				a15.19	4.630

a From supplementary gage.

Minimum daily discharge, 97 ft³/s (2.75 m³/s) Feb. 23-26, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	560	142	119	113	109	118	152	199	141	281	151	177
2	374	138	119	113	104	112	152	202	148	271	149	204
3	300	140	117	112	103	152	158	238	147	263	147	174
4	264	138	116	112	104	168	157	218	167	254	144	168
5	237	136	117	111	107	145	154	196	172	248	143	164
6	217	135	119	113	105	129	153	187	157	246	143	160
7	202	135	118	114	105	140	152	181	150	244	145	157
8	190	134	124	116	104	122	152	176	146	238	148	154
9	181	129	135	119	105	116	152	172	140	232	149	152
10	174	130	127	117	107	116	152	165	137	225	148	150
11	168	129	125	116	103	171	152	162	136	219	146	149
12	161	128	124	114	102	255	151	161	1250	214	143	148
13	156	126	122	113	102	245	150	159	377	209	138	151
14	152	125	122	117	103	242	151	156	242	203	137	155
15	151	123	125	114	103	239	156	154	223	197	136	163
16	152	133	122	113	102	234	158	163	7670	191	136	154
17	146	142	120	111	101	234	160	155	8980	191	159	147
18	694	131	119	112	101	228	2470	150	1960	188	179	146
19	445	126	117	118	101	218	738	146	806	184	367	145
20	236	122	119	116	99	218	318	143	610	182	383	144
21	198	120	119	113	99	218	270	142	521	177	235	143
22	182	121	119	112	99	200	312	143	464	175	195	142
23	174	129	119	110	97	192	299	141	425	171	181	142
24	163	120	118	110	97	192	691	151	393	165	172	140
25	157	116	116	110	97	188	342	169	370	163	168	139
26	156	122	116	110	97	180	262	149	358	163	164	137
27	154	119	116	109	99	180	236	140	346	163	166	136
28	148	116	116	108	97	188	222	135	334	163	169	134
29	145	114	114	108	---	192	215	137	314	159	179	133
30	143	119	113	108	---	180	205	144	295	155	176	134
31	142	---	113	108	---	161	---	147	---	152	170	---
TOTAL	6922	3838	3705	3490	2852	5673	9192	5081	27579	6286	5366	4542
MEAN	223	128	120	113	102	183	306	164	919	203	173	151
MAX	694	142	135	119	109	255	2470	238	8980	281	383	204
MIN	142	114	113	108	97	112	150	135	136	152	136	133
CFSM	.12	.07	.06	.06	.05	.10	.16	.09	.49	.11	.09	.08
IN.	.14	.08	.07	.07	.06	.11	.18	.10	.55	.12	.11	.09
AC-FT	13730	7610	7350	6920	5660	11250	18230	10080	54700	12470	10640	9010

CAL YR 1980 TOTAL 81885 MEAN 224 MAX 35900 MIN 41 CFSM .12 IN 1.63 AC-FT 162400
WTR YR 1981 TOTAL 84526 MEAN 232 MAX 8980 MIN 97 CFSM .12 IN 1.68 AC-FT 167700

08150700 LLANO RIVER NEAR MASON, TX

LOCATION (revised).--Lat 30°39'38", long 99°06'32", Mason County, Hydrologic Unit 12090204, on right bank 98 ft (30 m) downstream from downstream bridge on U.S. Highway 87, 1.0 mi (1.6 km) upstream from Beaver Creek, 9.1 mi (14.6 km) southeast of Mason, 10.2 mi (16.4 km) downstream from James River, and 61.1 mi (98.3 km) upstream from mouth.

DRAINAGE AREA (revised).--3,247.14 mi^2 (8,410.09 km^2), of which 5.14 mi^2 (13.31 km^2) probably is noncontributing.

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

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

GAGE.--Water-stage recorder. Datum of gage is 1,230.36 ft (375.014 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 19, 1971, at site 190 ft (58 m) upstream at same datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years (water years 1969-81), 354 ft^3/s (10.03 m^3/s), 1.45 in/yr (37 mm/yr), 256,500 acre-ft/yr (316 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 260,000 ft^3/s (7,360 m^3/s) Sept. 8, 1980, gage height, 37.00 ft (11.278 m), from floodmark, from rating curve extended above 151,000 ft^3/s (4,280 m^3/s) on basis of slope-area measurement and discharge measurement of 145,000 ft^3/s (4,110 m^3/s); minimum, 16 ft^3/s (0.45 m^3/s) July 23, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1875 occurred June 14, 1935, discharge 388,000 ft^3/s (11,000 m^3/s), by slope-area measurement of peak flow at site 17.0 mi (27.4 km) downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft^3/s (85.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 18	1000	25,700	728	11.80	3.597	June 16	1030	6,900	195	7.06	2.152
Apr. 19	0100	13,500	382	9.03	2.752	June 17	2330	*29,800	844	12.71	3.874
May 24	0200	11,300	320	8.42	2.566						

Minimum daily discharge, 116 ft^3/s (3.29 m^3/s) Dec. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1380	199	141	155	166	160	190	262	290	495	190	225
2	700	196	134	154	165	170	179	286	270	477	187	238
3	510	188	118	155	162	191	176	348	270	457	183	277
4	431	184	116	155	161	280	175	376	902	442	178	251
5	380	178	120	157	167	220	168	423	1470	438	172	222
6	340	172	120	158	172	195	165	380	624	463	169	209
7	313	166	119	161	172	192	161	348	468	441	169	201
8	278	154	234	165	166	194	160	324	395	409	172	195
9	255	149	423	183	163	181	159	305	344	396	178	190
10	228	145	307	185	171	174	159	263	301	383	183	184
11	210	141	242	184	167	188	161	236	282	371	182	181
12	187	138	207	181	163	489	160	228	324	358	178	178
13	172	132	198	177	163	558	157	215	1190	346	171	359
14	157	126	194	172	161	439	155	212	861	332	167	217
15	148	118	218	175	161	376	160	195	667	322	165	313
16	145	183	214	175	160	329	165	443	3900	310	172	247
17	157	232	195	172	160	305	168	347	21500	299	266	207
18	427	203	182	169	159	274	4400	232	9100	290	359	187
19	1140	171	174	181	155	245	4730	184	1980	282	347	178
20	752	150	159	189	154	236	1050	154	1330	274	332	173
21	496	141	156	187	150	226	1310	145	1070	261	476	169
22	408	143	157	180	141	211	738	148	908	255	343	168
23	358	175	163	174	134	206	1620	145	790	246	283	165
24	316	167	165	170	130	205	756	2460	719	237	253	162
25	283	168	160	168	130	203	608	1050	663	231	237	159
26	261	271	159	164	133	201	372	496	625	223	221	152
27	257	227	159	163	135	197	274	368	603	225	214	149
28	244	180	158	163	144	196	270	297	599	223	215	146
29	223	158	159	162	---	222	278	248	560	215	238	143
30	208	150	157	162	---	292	270	364	522	209	219	140
31	203	---	155	158	---	214	---	344	---	201	226	---
TOTAL	11567	5105	5563	5254	4365	7769	19494	11826	53527	10111	7045	5985
MEAN	373	170	179	169	156	251	650	381	1784	326	227	200
MAX	1380	271	423	189	172	558	4730	2460	21500	495	476	359
MIN	145	118	116	154	130	160	155	145	270	201	165	140
CFSM	.11	.05	.06	.05	.05	.08	.20	.12	.54	.10	.07	.06
IN.	.13	.06	.06	.06	.05	.09	.22	.13	.61	.11	.08	.07
AC-FT	22940	10130	11030	10420	8660	15410	38670	23460	106200	20060	13970	11870

CAL YR 1980 TOTAL 147939 MEAN 404 MAX 69200 MIN 26 CFSM .12 IN 1.68 AC-FT 293400
WTR YR 1981 TOTAL 147611 MEAN 404 MAX 21500 MIN 116 CFSM .12 IN 1.67 AC-FT 292800

08150800 BEAVER CREEK NEAR MASON, TX

LOCATION (revised).--Lat 30°38'36", long 99°05'44", Mason County, Hydrologic Unit 12090204, on left bank at downstream side of downstream bridge on U.S. Highway 87, 1.8 mi (2.9 km) upstream from Llano River, 6.4 mi (10.3 km) downstream from Spring Creek, and 11.1 mi (17.9 km) southeast of Mason.

DRAINAGE AREA.--215 mi^2 (557 km^2), revised.

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

REVISED RECORDS.--WSP 2122: 1964-65.

GAGE.--Water-stage recorder. Datum of gage is 1,253.24 ft (381.988 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 3, 1978, at site 300 ft (91 m) upstream at same datum.

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

AVERAGE DISCHARGE.--18 years, 18.7 ft^3/s (0.530 m^3/s), 1.16 in/yr (29 mm/yr), 13,550 acre-ft/yr (16.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,900 ft^3/s (1,890 m^3/s) Aug. 3, 1978, gage height, 24.0 ft (7.315 m), from floodmarks, from rating curve extended above 7,400 ft^3/s (210 m^3/s) on basis of slope-area measurements of 20,100 and 66,900 ft^3/s (569 and 1,890 m^3/s); no flow at times most years.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 29	0245	1,330	37.7	3.93	1.198	June 4	2030	*3,190	90.3	5.37	1.637
Apr. 23	1430	1,000	28.3	3.60	1.097	June 16	0645	1,480	41.9	4.45	1.356
May 24	2315	1,320	37.4	3.94	1.201						

Minimum daily discharge, 0.46 ft^3/s (0.013 m^3/s) July 16 to Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	1.8	2.0	4.3	4.7	8.1	19	19	30	7.5	2.4	2.6
2	3.2	1.8	2.0	4.3	5.1	10	16	15	28	9.2	2.1	2.5
3	2.4	1.8	2.0	4.3	3.9	12	15	17	29	8.5	2.1	2.3
4	1.8	1.8	2.0	4.3	4.2	14	22	22	564	8.0	1.8	1.2
5	1.6	1.8	2.0	4.3	6.5	8.5	14	15	403	9.3	1.6	.73
6	1.4	1.8	2.0	3.9	7.0	5.5	11	13	77	17	1.6	.56
7	1.2	1.8	2.0	4.3	6.2	6.9	9.8	11	49	11	1.4	.46
8	1.0	1.8	15	4.3	5.0	7.5	10	10	37	11	1.4	.68
9	1.0	1.6	25	5.8	4.8	6.6	9.7	9.3	29	10	1.2	1.3
10	1.0	1.6	16	6.2	13	6.2	9.3	8.3	24	9.6	1.0	1.5
11	.84	1.6	14	5.0	10	12	9.3	7.6	22	9.0	.84	1.4
12	.84	1.6	11	4.3	7.3	51	8.5	7.6	56	8.5	.84	1.5
13	.84	1.6	9.6	4.3	6.7	59	7.7	7.2	34	7.6	.70	26
14	.70	1.6	8.5	4.3	6.8	34	7.0	7.4	27	7.1	.70	48
15	1.0	1.6	11	3.7	6.5	25	7.3	7.7	24	6.2	.57	46
16	1.2	25	10	3.1	6.0	19	8.8	28	498	5.8	.57	46
17	1.8	15	8.0	2.8	5.8	17	9.1	19	145	5.8	14	41
18	46	2.0	7.6	2.8	5.9	14	60	14	92	5.4	9.0	30
19	29	2.0	5.8	6.7	5.8	12	44	13	64	5.0	6.2	3.9
20	8.5	2.0	5.0	9.2	5.6	11	20	11	49	4.6	5.4	3.1
21	5.0	2.0	5.0	5.7	5.4	11	56	11	41	4.6	4.6	2.9
22	4.0	3.0	5.0	4.4	4.8	8.6	23	10	34	4.3	3.9	2.9
23	2.5	2.5	5.4	4.0	4.2	8.3	293	12	31	4.3	3.2	2.3
24	2.2	3.0	5.0	3.8	4.1	8.8	76	86	25	3.9	2.8	2.2
25	2.2	3.0	4.6	3.7	4.3	8.3	38	314	22	3.6	2.6	2.2
26	2.1	10	4.6	3.5	4.7	8.4	29	56	21	3.6	2.1	2.2
27	2.1	4.0	4.6	3.6	5.0	8.0	25	38	18	3.2	2.1	2.3
28	2.1	3.0	4.6	3.6	5.0	22	21	31	20	3.2	1.9	2.2
29	2.1	2.5	4.6	3.4	---	314	19	28	15	2.8	1.9	2.2
30	1.8	2.5	4.3	3.1	---	44	16	28	12	2.6	2.1	2.1
31	1.8	---	4.3	3.5	---	25	---	36	---	2.6	2.7	---
TOTAL	138.22	107.1	212.5	134.5	164.3	805.7	913.5	912.1	2520	204.8	85.32	284.23
MEAN	4.46	3.57	6.85	4.34	5.87	26.0	30.5	29.4	84.0	6.61	2.75	9.47
MAX	46	25	25	9.2	13	314	293	314	564	17	14	48
MIN	.70	1.6	2.0	2.8	3.9	5.5	7.0	7.2	12	2.6	.57	.46
CFSM	.02	.02	.03	.02	.03	.12	.14	.14	.39	.03	.01	.04
IN.	.02	.02	.04	.02	.03	.14	.16	.16	.43	.03	.01	.05
AC-FT	274	212	421	267	326	1600	1810	1810	5000	406	169	564

CAL YR 1980 TOTAL 3336.42 MEAN 9.12 MAX 722 MIN .03 CFSM .04 IN .57 AC-FT 6620
WTR YR 1981 TOTAL 6482.27 MEAN 17.8 MAX 564 MIN .46 CFSM .08 IN 1.11 AC-FT 12860

NOTE.--No gage-height record July 16 to Aug. 26.

08151500 LLANO RIVER AT LLANO, TX
(National stream-gaging accounting network)

LOCATION.--Lat 30°45'04", long 98°40'10", Llano County, Hydrologic Unit 12090204, on right bank in Llano, 0.4 mi (0.6 km) downstream from bridge on State Highway 16, 7 mi (11 km) upstream from Little Llano River, and 2°.3 mi (47.1 km) upstream from mouth.

DRAINAGE AREA (revised).--4,197.14 mi² (10,870.59 km²), of which 5.14 km² (13.31 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1342: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 970.01 ft (295.659 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Many small diversions above station. Part of low flow of Llano River disappears into various formations, many of which are faulted, between stations near Junction and Llano. Gage-height telemeter and rain gage at station.

AVERAGE DISCHARGE.--42 years, 363 ft³/s (10.28 m³/s), 1.16 in/yr (29 mm/yr), 263,000 acre-ft/yr (324 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 232,000 ft³/s (6,570 m³/s) Sept. 10, 1952, gage height, 32.6 ft (9.94 m), from rating curve extended above 129,000 ft³/s (3,650 m³/s) on basis of slope-area measurement of peak flow; no flow at times in 1952-56, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, 41.5 ft (12.65 m) June 14, 1935, discharge, 380,000 ft³/s (10,800 m³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,500 ft³/s (212 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 18	1715	10,500	297	9.28	2.829	June 17	0930	22,900	649	12.43	3.789
June 4	2000	16,200	459	10.39	3.167	June 18	0400	*32,900	932	a14.24	4.340
June 16	1800	8,100	229	8.36	2.548						

a From floodmark.

Minimum discharge, 118 ft³/s (3.34 m³/s) Oct. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2390	210	193	159	163	183	307	495	312	504	226	266
2	1050	210	171	161	153	200	255	495	294	483	217	268
3	597	205	150	160	159	286	234	470	263	461	210	1070
4	454	197	142	164	166	414	233	490	4720	449	207	421
5	358	185	140	159	189	391	218	489	6160	433	197	312
6	319	184	140	165	193	315	203	448	1690	426	197	265
7	282	175	139	165	203	285	199	409	900	456	188	247
8	246	169	194	171	194	273	194	384	643	418	186	234
9	286	164	573	185	182	263	192	366	528	399	190	226
10	241	156	537	193	237	241	190	338	434	392	194	220
11	199	147	384	201	220	270	184	321	382	387	199	208
12	174	143	321	193	194	719	183	312	356	371	199	205
13	159	137	279	191	169	1180	177	304	746	362	198	205
14	145	132	261	182	169	778	176	295	993	353	194	370
15	136	124	266	175	169	581	179	292	938	347	191	279
16	131	181	279	172	169	479	181	645	5320	332	198	316
17	122	211	257	172	169	420	187	643	16200	320	292	275
18	353	250	227	170	163	370	2540	422	15400	316	317	240
19	972	222	204	208	159	335	4790	310	3110	307	356	222
20	1190	197	179	226	158	307	1870	259	1700	301	345	213
21	655	176	167	232	156	296	1570	241	1240	294	349	209
22	465	183	168	216	138	282	1130	235	1010	280	418	203
23	370	178	177	194	130	269	1980	253	864	269	331	199
24	308	179	177	180	124	259	2730	1730	758	260	285	199
25	268	223	171	171	126	266	1440	1830	689	254	260	197
26	246	323	170	165	132	277	1070	877	638	244	251	187
27	236	354	166	161	135	282	779	504	593	245	241	179
28	218	282	170	158	148	283	644	361	582	239	230	172
29	225	233	166	158	---	939	573	303	566	235	225	167
30	225	211	167	152	---	573	529	274	535	232	241	166
31	214	---	162	147	---	406	---	347	---	228	246	---
TOTAL	13234	5941	6897	5506	4667	12422	25137	15142	68564	10597	7578	7940
MEAN	427	198	222	178	167	401	838	488	2285	342	244	265
MAX	2390	354	573	232	237	1180	4790	1830	16200	504	418	1070
MIN	122	124	139	147	124	183	176	235	263	228	186	166
CFSM	.10	.05	.05	.04	.04	.10	.20	.12	.54	.08	.06	.06
IN.	.12	.05	.06	.05	.04	.11	.22	.13	.60	.09	.07	.07
AC-FT	26250	11780	13680	10920	9260	24640	49860	30030	136000	21020	15030	15750

CAL YR 1980	TOTAL	166255.7	MEAN 454	MAX 71200	MIN 7.3	CFSM .11	IN 1.46	AC-FT 329800		
WTR YR 1981	TOTAL	183625.0	MEAN 503	MAX 16200	MIN 122	CFSM .12	IN 1.61	AC-FT 364200		

08151500 LLANO RIVER AT LLANO, TX --Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1979 to current year.
WATER TEMPERATURES: April 1979 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, 487 micromhos Jan. 3, 1981; minimum daily, 191 micromhos Sept. 3, 1981.
WATER TEMPERATURES: Maximum daily, 33.0°C on several days during summer of 1980-81; minimum daily, 6.0°C Jan. 29, Feb. 9, Dec. 22, 1980, and Jan. 19, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 487 micromhos Jan. 3; minimum daily, 191 micromhos Sept. 3.
WATER TEMPERATURES: Maximum daily, 33.0°C July 21, 22; minimum daily, 6.0°C Dec. 22, Jan. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 18...	1115	257	432	7.9	8.0	--	11.2	96	.3	96	35
JAN 13...	1120	205	485	7.9	10.0	.40	10.9	98	.4	K12	20
MAR 17...	0915	422	437	7.1	15.5	4.5	9.5	98	1.0	88	110
MAY 12...	0920	320	432	7.9	21.0	4.7	8.3	95	.3	180	120
JUL 14...	0910	347	427	8.0	28.0	6.0	7.9	103	1.0	180	250
SEP 22...	1100	210	407	7.8	25.0	1.4	8.5	104	1.0	80	220

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)
NOV 18...	200	26	47	20	14	.4	2.4	174	19	26
JAN 13...	210	25	48	23	16	.5	1.9	190	22	23
MAR 17...	190	18	44	19	16	.5	2.0	170	23	26
MAY 12...	200	21	44	22	15	.5	2.4	180	22	28
JUL 14...	190	27	37	23	15	.5	2.5	160	18	26
SEP 22...	170	26	32	21	14	.5	2.4	140	15	36

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
NOV 18...	.2	11	235	244	.39	.42	.020	.040	.37	.32
JAN 13...	.2	4.4	260	255	.41	.41	.030	.040	.54	.32
MAR 17...	.3	7.4	242	240	.10	.11	.070	.020	.71	.49
MAY 12...	.2	11	245	253	.05	.08	.110	.080	.44	.41
JUL 14...	.2	15	240	233	.08	.00	.100	.080	.47	.32
SEP 22...	.2	13	258	219	<.10	<.10	.060	<.060	.48	.30

08151500 LLANO RIVER AT LLANO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 18...	.39	.36	.020	.010	--	3.6	.4	53	37	41
JAN 13...	.57	.36	.040	.010	--	4.6	.2	28	15	90
MAR 17...	.78	.51	.030	.030	6.5	--	--	27	31	77
MAY 12...	.55	.49	.040	.050	--	3.9	.5	77	67	61
JUL 14...	.57	.40	.020	.020	--	2.0	.4	21	20	78
SEP 22...	.54	.40	.100	.100	2.9	--	--	6	3.4	85

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
NOV 18...	1115	2	0	2	0	0	60	3	--	<1	0
JAN 13...	1120	1	0	1	100	40	60	0	0	1	0
MAY 12...	0920	2	0	2	100	40	60	1	--	<1	0
JUL 14...	0910	2	0	2	100	40	60	0	--	<1	0

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
NOV 18...	0	0	2	0	3	1	0	2	150	--	<10
JAN 13...	0	0	0	--	<3	4	0	4	150	--	<10
MAY 12...	0	0	1	--	<3	3	2	1	220	190	30
JUL 14...	0	0	3	--	<3	5	3	2	100	--	<10

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV 18...	6	3	3	10	5	5	.1	.1	.0	0	0
JAN 13...	4	4	0	20	10	6	.2	.2	.0	0	0
MAY 12...	4	3	1	20	10	6	.2	.1	.1	7	7
JUL 14...	0	0	0	20	20	4	.1	.0	.1	3	2

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 18...	2	0	0	0	0	0	0	150	140	8
JAN 13...	0	0	0	0	0	0	0	30	20	9
MAY 12...	0	0	0	0	0	0	0	0	0	4
JUL 14...	1	0	0	0	0	0	0	10	--	<3

08151500 LLANO RIVER AT LLANO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 18,80		MAR 17,81		MAY 12,81		JUL 14,81		SEP 22,81	
TIME	1115		0915		0920		0910		1100	
TOTAL CELLS/ML	960		390		300		490		260	
DIVERSITY: DIVISION	1.0		2.0		0.8		1.0		1.3	
.CLASS	1.0		2.0		0.8		1.0		1.3	
..ORDER	1.0		2.2		1.3		1.1		1.7	
...FAMILY	1.1		2.8		1.9		1.2		2.4	
....GENUS	1.1		2.9		2.1		2.0		2.6	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS	13	1	--	-	--	-	13	3	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	51	5	100#	27	--	-	51	11	58#	22
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	--	-	77#	26	--	-	58#	22
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	26	3	26	7	39	13	26	5	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	13	1	13	3	--	-	--	-	--	-
....COCCONEIS	--	-	26	7	13	4	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	14	6
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	--	-	14	6
....SYNEDRA	--	-	--	-	--	-	--	-	58#	22
...NAVICULACEAE										
....NAVICULA	--	-	39	10	26	9	--	-	43#	17
...NITZSCHIACEAE										
....DENTICULA	--	-	--	-	13	4	--	-	--	-
....NITZSCHIA	26	3	39	10	130#	43	26	5	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	26	3	13	3	--	-	--	-	--	-
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	-	13	3	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	100#	27	--	-	210#	42	--	-
....ANACYSTIS	800#	83	--	-	--	-	170#	34	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	13	3	--	-	--	-	--	-
....TRACHELOMONAS	13	1	--	-	--	-	--	-	14	6

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

08151500 LLANO RIVER AT LLANO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	13234	376	203	7270	24	844	15	525	160
NOV.	1980	5941	447	233	3740	31	494	18	287	190
DEC.	1980	6897	448	233	4340	31	575	18	334	190
JAN.	1981	5506	480	245	3640	35	514	19	289	210
FEB.	1981	4667	461	238	3000	32	407	19	233	200
MAR.	1981	12422	410	218	7310	27	904	16	544	180
APR.	1981	25137	373	202	13700	23	1580	15	990	160
MAY	1981	15142	377	204	8330	24	974	15	604	160
JUNE	1981	68564	300	170	31400	17	3110	11	2120	130
JULY	1981	10597	426	225	6430	28	813	17	484	180
AUG.	1981	7578	395	213	4350	25	516	16	318	170
SEPT	1981	7940	345	190	4080	21	444	13	287	150
TOTAL		183625	**	**	97600	**	11200	**	7010	**
WTD. AVG.		503	362	197	**	23	**	14	**	150

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260	457	459	480	466	449	384	439	433	432	400	360
2	330	460	461	483	470	444	415	445	425	435	403	358
3	351	464	463	487	463	439	444	442	421	438	401	191
4	354	462	466	484	465	426	453	446	262	442	400	289
5	365	464	465	481	460	427	455	441	282	440	400	368
6	385	436	464	482	463	423	460	444	339	443	401	370
7	397	434	463	483	461	430	462	443	398	432	404	375
8	419	450	447	481	457	440	461	437	420	435	402	377
9	420	460	395	480	458	444	462	438	427	433	401	378
10	428	466	397	475	438	448	463	439	430	431	400	380
11	434	456	427	472	461	416	463	436	426	429	400	382
12	440	453	433	480	442	406	461	435	430	430	405	381
13	442	451	438	485	456	304	464	427	431	428	406	380
14	441	449	442	478	462	395	467	429	447	426	409	389
15	442	450	450	484	468	417	465	432	413	425	412	382
16	443	441	455	473	472	425	460	375	307	424	407	377
17	443	440	451	480	471	435	453	371	261	420	394	373
18	428	439	453	486	469	449	400	409	232	421	392	340
19	398	442	469	481	468	455	348	413	293	418	385	356
20	391	446	463	480	466	458	260	422	361	417	390	365
21	421	450	467	475	465	460	275	419	396	418	397	377
22	424	457	470	473	465	458	328	425	423	414	404	374
23	426	458	473	476	463	459	323	392	428	413	409	375
24	432	455	475	481	462	457	373	303	431	412	398	379
25	430	442	473	483	459	459	418	258	427	412	392	381
26	424	430	474	482	457	458	431	292	433	411	389	383
27	420	416	477	483	456	460	436	324	435	414	385	382
28	421	437	471	483	450	459	445	359	434	409	377	380
29	433	452	473	479	---	339	444	395	433	407	372	383
30	442	455	470	481	---	351	443	410	430	406	367	384
31	452	---	475	484	---	383	---	422	---	404	365	---
MEAN	411	449	457	480	461	428	421	405	390	423	396	366

08151500 LLANO RIVER AT LLANO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	16.0	15.0	---	11.0	18.0	22.0	25.0	28.0	31.0	31.0	22.0
2	26.0	17.0	13.0	---	10.0	16.0	21.0	23.0	29.0	---	31.0	26.0
3	25.0	19.0	13.0	---	10.0	16.5	23.0	23.0	29.0	---	31.0	27.0
4	26.0	19.0	16.0	13.0	9.0	17.0	22.0	24.0	22.0	---	30.0	27.0
5	26.0	19.0	18.0	14.0	9.0	16.0	22.0	25.0	25.0	---	30.0	27.0
6	26.0	19.0	---	12.0	9.0	16.0	21.0	25.0	29.0	---	31.0	27.0
7	26.0	17.0	19.0	11.0	11.0	---	22.0	25.0	30.0	---	31.0	28.0
8	26.0	---	18.0	11.0	11.0	16.0	23.0	25.0	31.0	---	---	27.0
9	26.0	23.0	14.0	12.0	12.0	15.0	---	---	31.0	---	30.0	28.0
10	26.0	22.0	12.0	12.0	12.0	---	22.0	22.0	31.0	---	31.0	27.0
11	25.0	22.0	12.0	12.0	8.0	14.0	23.0	22.0	30.0	---	31.0	27.0
12	25.0	22.0	13.0	---	7.0	14.0	22.0	25.0	27.0	---	30.0	---
13	24.0	20.0	15.0	11.0	8.0	16.0	---	26.0	27.0	---	30.0	27.0
14	24.0	17.0	15.0	10.0	9.0	17.0	---	25.0	28.0	---	---	27.0
15	24.0	15.0	15.0	11.0	10.0	19.0	---	22.0	29.0	---	---	27.0
16	24.0	13.0	16.0	10.0	12.0	18.0	---	---	25.0	30.0	---	26.0
17	25.0	10.0	16.0	8.0	14.0	19.0	---	26.0	23.0	32.0	---	25.0
18	24.0	9.0	18.0	7.0	16.0	17.0	---	28.0	24.0	30.0	---	24.0
19	20.0	---	13.0	6.0	19.0	17.0	20.0	25.0	27.0	32.0	31.0	24.0
20	21.0	12.0	9.0	8.0	18.5	17.0	22.0	25.0	29.0	32.0	---	24.0
21	21.0	12.0	7.0	9.0	19.0	17.0	22.0	24.0	30.0	33.0	29.0	25.0
22	21.0	12.0	6.0	9.0	17.0	16.0	21.0	24.0	30.0	33.0	29.0	25.0
23	21.0	14.0	12.0	10.0	16.0	16.0	20.0	24.0	31.0	32.0	28.0	25.0
24	19.0	12.0	11.0	11.0	15.0	18.0	20.0	24.0	30.0	32.0	30.0	25.0
25	18.0	10.0	10.0	13.0	16.0	17.0	21.0	24.0	30.0	32.0	30.0	27.0
26	18.0	8.0	8.0	14.0	18.0	19.0	21.0	25.0	28.0	32.0	30.0	27.0
27	18.0	9.0	---	14.0	19.0	19.0	21.0	27.0	---	29.0	30.0	27.0
28	16.0	9.0	---	15.0	18.0	20.0	22.0	28.0	31.0	30.0	30.0	27.0
29	---	10.0	---	16.0	---	19.0	22.0	27.0	---	---	---	27.0
30	15.0	11.0	---	14.0	---	20.0	24.0	27.0	---	30.0	29.0	27.0
31	16.0	---	---	---	---	22.0	---	25.0	---	31.0	30.0	---
MEAN	22.5	15.0	13.5	11.5	13.0	17.5	21.5	25.0	28.5	31.5	30.0	26.0

08152000 SANDY CREEK NEAR KINGSLAND, TX

LOCATION (revised).--Lat 30°33'30", long 98°28'19", Llano County, Hydrologic Unit 12090201, on left bank at downstream side of bridge on State Highway 71, 6.6 mi (10.6 km) upstream from mouth, and 7.3 mi (11.7 km) south of kingsland.

DRAINAGE AREA (revised).--346 mi^2 (896 km^2).

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 862.31 ft (262.832 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Some diversions above station for irrigation, amount unknown. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years, 66.4 ft^3/s (1.880 m^3/s), 2.61 in/yr (66 mm/yr), 48,110 acre-ft/yr (59.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft^3/s (779 m^3/s) June 16, 1981, gage height, 17.63 ft (5.374 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Sept. 11, 1952, which was the highest since at least 1881, reached a stage of 34.2 ft (10.42 m), discharge 163,000 ft^3/s (4,620 m^3/s), from slope-area measurement at gage site.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 4	2000	14,400	408	13.67	4.167
June 16	0300	*27,500	779	17.63	5.374

Minimum discharge, no flow Oct. 12-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	6.1	23	9.8	12	40	49	18	29	42	11	115
2	9.9	5.9	19	9.2	10	53	36	24	34	39	12	238
3	7.1	5.3	15	9.2	8.8	84	50	26	43	35	11	662
4	5.5	5.0	16	9.2	14	282	101	24	2870	32	11	108
5	4.2	4.8	18	9.3	30	162	65	23	2390	31	11	43
6	2.6	4.7	17	11	28	75	36	20	564	45	10	22
7	1.8	4.6	16	10	24	65	31	17	262	34	11	16
8	.98	4.3	36	10	20	64	28	15	142	32	10	13
9	.61	4.3	139	13	18	45	27	12	81	32	10	9.8
10	.30	4.2	109	12	106	38	24	9.7	50	30	9.9	10
11	.06	4.2	59	11	130	48	26	9.4	128	28	8.3	9.3
12	.00	4.0	36	11	65	228	23	8.4	44	26	7.0	8.7
13	.00	3.8	27	10	36	626	22	8.8	45	24	9.3	8.5
14	.00	4.0	24	10	26	340	21	8.9	387	24	8.5	27
15	.15	4.0	39	9.8	24	225	21	9.1	205	22	6.5	34
16	.03	27	64	9.3	21	146	24	222	7080	17	6.5	21
17	.01	27	40	8.7	20	109	23	135	981	16	24	13
18	111	14	26	9.3	19	106	21	62	439	17	64	8.8
19	418	8.6	19	28	16	77	20	33	261	16	75	7.9
20	77	5.3	14	33	15	73	23	23	177	15	38	7.9
21	38	4.3	12	26	14	64	25	18	117	15	28	7.9
22	25	9.3	12	21	13	48	28	18	101	13	22	7.9
23	19	9.8	14	16	11	39	87	17	91	14	18	8.3
24	14	5.4	13	14	11	36	128	109	78	13	14	8.3
25	10	41	12	14	11	36	56	783	93	13	13	8.3
26	8.7	176	11	14	12	35	38	222	72	13	12	7.5
27	9.9	204	11	13	12	34	31	72	54	13	11	7.1
28	11	122	11	12	14	36	25	40	47	14	12	6.7
29	8.9	49	11	11	---	212	23	29	48	13	12	6.2
30	7.0	29	10	11	---	216	20	37	46	12	13	6.3
31	6.5	---	9.9	10	---	80	---	43	---	11	14	---
TOTAL	813.24	800.9	882.9	404.8	740.8	3722	1132	2096.3	16959	701	523.0	1457.4
MEAN	26.2	26.7	28.5	13.1	26.5	120	37.7	67.6	565	22.6	16.9	48.6
MAX	418	204	139	33	130	626	128	783	7080	45	75	662
MIN	.00	3.8	9.9	8.7	8.8	34	20	8.4	29	11	6.5	6.2
CFSM	.08	.08	.09	.04	.08	.37	.12	.21	1.73	.07	.05	.15
IN.	.09	.09	.10	.05	.08	.42	.13	.24	1.93	.08	.06	.17
AC-FT	1610	1590	1750	803	1470	7380	2250	4160	33640	1390	1040	2890

CAL YR 1980 TOTAL 12150.08 MEAN 33.2 MAX 1380 MIN .00 CFSM .10 IN 1.38 AC-FT 24100
WTR YR 1981 TOTAL 30233.34 MEAN 82.8 MAX 7080 MIN .00 CFSM .25 IN 3.44 AC-FT 59970

08152900 PEDERNALES RIVER NEAR FREDERICKSBURG, TX

LOCATION.--Lat 30°13'13", long 98°52'10", Gillespie County, Hydrologic Unit 12090206, on left bank at downstream side of bridge on U.S. Highway 87, 2.0 mi (3.2 km) upstream from Mueseback Creek, 3.8 mi (6.1 km) south of Fredericksburg, and 88.7 mi (142.7 km²) upstream from mouth.

DRAINAGE AREA.--369 mi² (956 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 1,564.96 ft (477.000 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known regulation or diversions above station. Several observations of water temperature were obtained during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s (379 m³/s) June 4, 1981, gage height, 23.23 ft (7.081 m); minimum, 1.1 ft³/s (0.031 m³/s) at times each day Aug. 4-6, 1980, gage height, 4.08 ft (1.244 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Aug. 2, 1978, which is the highest since 1907, reached a stage of 41.6 ft (12.68 m), discharge not known. The highest known discharge was 64,000 ft³/s (1.810 m³/s) June 1, 1979, gage height, 34.4 ft (10.49 m), from floodmark, from rating curve extended above a discharge measurement of 42,300 ft³/s (1,200 m³/s) June 1, 1979.

EXRTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 29	0300	5,160	146	14.34	4.371	June 14	1315	3,300	93.5	11.67	3.557
Apr. 20	2000	2,080	58.9	9.73	2.966	June 16	1015	7,820	221	17.65	5.380
June 4	1830	*13,400	379	23.23	7.081	Sept. 1	2345	1,840	52.1	9.30	2.835

Minimum discharge, 10 ft³/s (0.28 m³/s) at times each day Oct. 7-13 and Nov. 5-8, 10, 13-15, minimum gage height, 2.32 ft (0.707 m) Oct. 7-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	11	21	17	17	27	72	64	44	99	33	208
2	14	11	20	16	17	29	65	60	84	93	32	274
3	13	11	18	17	17	56	66	67	71	88	31	64
4	12	11	18	17	18	148	71	75	3940	84	30	46
5	11	11	19	17	21	82	63	64	1350	219	27	40
6	11	10	20	18	23	59	57	57	271	161	26	36
7	11	10	19	18	23	56	55	53	177	99	25	35
8	11	10	20	18	20	48	56	48	139	88	25	33
9	11	11	23	19	20	41	55	46	115	83	24	31
10	10	10	27	19	23	40	55	42	98	83	24	30
11	10	11	23	19	23	43	55	39	89	79	23	30
12	10	11	21	18	21	84	55	39	234	74	23	29
13	10	11	20	18	20	105	54	39	295	70	22	29
14	11	10	20	20	20	81	52	37	664	67	19	36
15	13	10	21	19	20	70	50	35	245	63	20	61
16	25	17	21	17	20	62	53	36	3010	59	20	57
17	18	18	20	17	19	58	58	37	553	57	24	40
18	117	19	19	16	19	54	299	55	345	53	49	35
19	49	17	18	21	19	49	137	39	252	51	61	32
20	23	16	17	25	18	47	233	25	211	48	43	31
21	17	15	17	25	17	47	163	23	187	47	33	31
22	15	16	17	21	17	44	79	23	168	45	29	31
23	14	17	17	20	17	42	261	23	153	44	27	31
24	12	16	17	19	16	42	190	32	141	40	26	30
25	11	21	17	18	21	42	104	82	130	39	25	30
26	11	33	17	18	27	42	86	51	143	37	24	28
27	13	32	17	18	25	43	79	38	126	42	24	28
28	11	26	17	18	24	45	74	31	124	48	23	27
29	11	23	17	17	---	910	72	28	113	41	22	26
30	11	22	17	17	---	120	68	33	105	37	22	25
31	11	---	17	17	---	84	---	54	---	35	22	---
TOTAL	544	467	592	574	562	2700	2837	1375	13577	2173	858	1464
MEAN	17.5	15.6	19.1	18.5	20.1	87.1	94.6	44.4	453	70.1	27.7	48.8
MAX	117	33	27	25	27	910	299	82	3940	219	61	274
MIN	10	10	17	16	16	27	50	23	44	35	19	25
AC-FT	1080	926	1170	1140	1110	5360	5630	2730	26930	4310	1700	2900

CAL YR 1980	TOTAL	7733.6	MEAN 21.1	MAX 673	MIN 1.2	AC-FT	15340	
WTR YR 1981	TOTAL	27723.0	MEAN 76.0	MAX 3940	MIN 10	AC-FT	54990	

08153500 PEDERNALES RIVER NEAR JOHNSON CITY, TX

LOCATION.--Lat 30°17'27", long 98°24'01", Blanco County, Hydrologic Unit 12090206, near center of span at downstream side of bridge on U.S. Highway 281, 0.2 mi (0.3 km) downstream from Towhead Creek, 1.1 mi (1.8 km) northeast of Johnston City, 3.4 mi (5.5 km) downstream from Buffalo Creek, and 48.0 mi (77.2 km), revised, upstream from mouth.

DRAINAGE AREA.--901 mi² (2,334 km²), revised.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1632: 1953(M), 1957, 1958(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,096.70 ft (334.274 m) National Geodetic Vertical Datum of 1929. May 4 to Sept. 13, 1939, nonrecording gage, and Sept. 14, 1939, to Sept. 10, 1952, water-stage recorder at upstream side of bridge at same datum. Sept. 11, 1952, to June 29, 1953, nonrecording gage, and June 30, 1953, to Oct. 7, 1954, water-stage recorder at site 360 ft (110 m) downstream at same datum.

REMARKS.--Water-discharge records good. Some diversions above station for irrigation. During year, the city of Fredericksburg discharged about 849 acre-ft (1.05 hm³) of sewage effluent into the river. Records furnished by the city of Johnson City show that 119 acre-ft (147,000 m³) was diverted from pool at gage and 82.6 acre-ft (102,000 m³) of treated sewage effluent was returned to the river below gage. Flow is affected at times by discharge from the flood-detention pools of four floodwater-retarding structures with a combined detention capacity of 4,580 acre-ft (5.65 hm³). These structures control runoff from 15.6 mi² (40.4 km²) in the Williamson Creek drainage basin. Gage-height and rain-gage telemeters at station.

AVERAGE DISCHARGE.--42 years (water years 1940-81), 179 ft³/s (5.069 m³/s), 129,700 acre-ft/yr (160 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s (12,500 m³/s) Sept. 11, 1952, gage height, 42.5 ft (12.95 m), from floodmark, from rating curve extended above 116,000 ft³/s (3,290 m³/s) on basis of slope-area measurement of 441,000 ft³/s (12,500 m³/s); no flow at times in 1951-52, 1954, 1956-57, 1963-64, 1967-68, 1971.

Maximum stage since at least 1859, 42.5 ft (12.95 m) Sept. 11, 1952.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1869 reached a stage of 33 ft (10.1 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,100 ft³/s (116 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 4	2315	*49,600	1,400	18.43	5.617
June 14	1330	15,100	428	14.40	4.389
June 16	0815	37,000	1,050	17.19	5.240

Minimum daily, 24 ft³/s (0.68 m³/s) Oct. 11-14, Nov. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	35	67	43	45	62	186	139	173	324	85	60
2	42	35	64	43	42	66	165	132	121	294	80	365
3	39	35	57	43	42	165	160	134	165	274	77	402
4	36	35	56	43	48	1460	273	147	7830	253	72	161
5	35	32	56	42	57	475	198	160	11200	265	69	112
6	31	31	57	43	59	258	154	135	1310	702	66	83
7	31	31	57	45	62	190	142	124	716	348	64	72
8	28	31	57	45	57	164	142	115	462	265	72	63
9	27	31	50	46	54	143	133	105	349	241	67	62
10	26	31	55	45	56	133	133	96	281	221	64	57
11	24	31	57	45	64	159	127	91	269	208	64	57
12	24	31	57	45	65	298	125	87	280	199	61	57
13	24	31	57	45	59	620	125	76	611	182	57	55
14	24	27	57	45	60	349	117	72	5540	169	57	70
15	25	24	63	45	57	243	115	73	1900	162	55	70
16	218	57	57	45	54	207	117	83	14000	151	51	78
17	133	64	57	41	54	188	115	80	2930	142	56	80
18	76	64	56	40	53	170	114	75	1680	138	119	69
19	419	47	51	56	51	154	352	72	1230	132	107	59
20	159	43	44	64	50	147	211	78	983	125	111	57
21	91	40	45	60	45	142	766	66	802	120	96	55
22	63	43	45	55	45	133	309	57	661	115	79	51
23	57	43	46	51	44	125	775	57	560	106	69	51
24	38	42	45	52	45	125	758	64	524	101	64	51
25	40	62	45	50	45	124	332	355	603	96	65	50
26	37	129	45	45	46	124	221	207	606	96	58	46
27	35	142	44	45	46	122	183	128	469	116	57	45
28	35	92	45	45	48	124	164	91	412	117	57	45
29	35	80	45	46	---	1130	154	79	383	106	85	44
30	35	72	45	46	---	503	146	135	356	95	59	56
31	35	---	42	45	---	243	---	278	---	88	59	---
TOTAL	1974	1491	1624	1449	1453	8546	7012	3591	57406	5951	2202	2583
MEAN	63.7	49.7	52.4	46.7	51.9	276	234	116	1914	192	71.0	86.1
MAX	419	142	67	64	65	1460	775	355	14000	702	119	402
MIN	24	24	42	40	42	62	114	57	121	88	51	44
AC-FT	3920	2960	3220	2870	2880	16950	13910	7120	113900	11800	4370	5120

CAL YR 1980 TOTAL 21055.8 MEAN 57.5 MAX 950 MIN 1.2 AC-FT 41760
WTR YR 1981 TOTAL 95282.0 MEAN 261 MAX 14000 MIN 24 AC-FT 189000

08153500 PEDERNALES RIVER NEAR JOHNSON CITY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1948 to September 1950, October 1971 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE, WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
NOV 05...	0810	26	552	15.0	210	28	34	30	33
DEC 18...	0850	55	666	13.5	260	44	43	38	39
APR 21...	1515	688	474	24.0	210	18	42	25	22
JUN 03...	0855	99	563	27.0	250	37	41	35	33
JUL 15...	1150	162	548	29.0	230	29	34	35	28
AUG 19...	0905	117	600	26.0	230	40	31	37	37

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	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 05...	1.0	3.2	180	33	53	.3	6.8	302
DEC 18...	1.0	2.6	220	40	63	.3	3.4	362
APR 21...	.7	2.9	190	30	29	.3	10	275
JUN 03...	.9	3.2	210	36	48	.3	12	335
JUL 15...	.9	2.6	200	22	41	.3	16	299
AUG 19...	1.2	3.0	190	36	60	.3	15	334

08154500 LAKE TRAVIS NEAR AUSTIN, TX

LOCATION.--Lat 30°23'29", long 97°54'24", Travis County, Hydrologic Unit 12090205, in powerhouse at Mansfield Dam on Colorado River, 7.3 mi (11.7 km) downstream from Sandy Creek, 12 mi (19 km) northwest of Austin, and at mile 318.0 (511.7 km).

DRAINAGE AREA (revised).-38,755 mi² (100,375 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing.

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

REVISED RECORDS.--WSP 1342: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 0.12 ft (0.037 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Dec. 26, 1940, staff gages on left bank near dam, datum is NGVD, unadjusted. Dec. 26, 1940, to February 1942, mercury manometer in powerhouse, datum is NGVD, unadjusted.

REMARKS.--The lake is formed by a 7,098-foot-long (2,163 m) concrete gravity, earth, and rockfill dam. Storage began Sept. 9, 1940, and dam was completed in early 1942. Capacity curve is based on October 1939 survey. Capacity between gage heights 681.0 and 714.0 ft (207.57 and 217.63 m) is 778,000 acre-ft (959 hm³) and is reserved for flood control. Water is used for power development and for irrigation below Columbus. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08153500. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam (roadway)	750.1	-
Design flood	748.9	3,223,000
Crest of spillway	714.0	1,950,000
Top of power storage	681.0	1,172,000
Lowest gated outlet (invert)	535.8	27,900

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

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 1,770,000 acre-ft (2.18 km³) May 18, 1957, gage height, 707.4 ft (215.62 m); minimum, 332,600 acre-ft (410 hm³) Aug. 13, 14, 1951, gage height, 614.2 ft (187.21 m).

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 1,345,000 acre-ft (1.66 km³) June 18, gage height, 689.63 ft (210.199 m); minimum, 1,008,000 acre-ft (1.24 km³) Sept. 29, 30; minimum gage height, 671.88 ft (204.789 m) Sept. 30.

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

671.0	993,000	685.0	1,252,000
675.0	1,062,700	690.0	1,352,000
680.0	1,152,000		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1052000	1156000	1161000	1161000	1157000	1162000	1163000	1164000	1127000	1213000	1146000	1060000
2	1073000	1154000	1160000	1161000	1156000	1165000	1164000	1164000	1128000	1210000	1144000	1061000
3	1079000	1156000	1158000	1161000	1156000	1168000	1165000	1161000	1130000	1209000	1140000	1071000
4	1081000	1155000	1158000	1161000	1157000	1167000	1167000	1157000	1163000	1206000	1139000	1071000
5	1083000	1154000	1159000	1163000	1157000	1163000	1169000	1155000	1220000	1207000	1137000	1069000
6	1086000	1154000	1160000	1163000	1156000	1160000	1169000	1156000	1230000	1205000	1132000	1068000
7	1088000	1154000	1160000	1166000	1156000	1159000	1168000	1155000	1225000	1202000	1131000	1068000
8	1090000	1154000	1163000	1163000	1156000	1159000	1167000	1153000	1222000	1199000	1129000	1064000
9	1092000	1156000	1159000	1161000	1156000	1159000	1166000	1149000	1219000	1196000	1129000	1061000
10	1096000	1157000	1156000	1160000	1160000	1164000	1165000	1148000	1216000	1191000	1126000	1057000
11	1100000	1156000	1156000	1158000	1158000	1166000	1161000	1145000	1238000	1189000	1124000	1053000
12	1103000	1156000	1155000	1156000	1157000	1169000	1157000	1144000	1244000	1187000	1122000	1049000
13	1104000	1156000	1162000	1155000	1158000	1171000	1156000	1144000	1244000	1183000	1120000	1046000
14	1108000	1156000	1162000	1154000	1157000	1169000	1155000	1140000	1262000	1179000	1118000	1044000
15	1111000	1155000	1162000	1156000	1158000	1170000	1152000	1137000	1257000	1175000	1108000	1042000
16	1130000	1159000	1163000	1153000	1159000	1168000	1151000	1137000	1323000	1171000	1106000	1039000
17	1133000	1159000	1162000	1152000	1159000	1169000	1149000	1137000	1337000	1168000	1104000	1035000
18	1137000	1159000	1161000	1157000	1161000	1167000	1150000	1138000	1345000	1167000	1106000	1031000
19	1142000	1158000	1161000	1164000	1160000	1167000	1154000	1134000	1325000	1166000	1104000	1030000
20	1146000	1159000	1160000	1163000	1161000	1167000	1163000	1130000	1308000	1166000	1099000	1027000
21	1169000	1157000	1159000	1163000	1160000	1168000	1156000	1126000	1285000	1165000	1094000	1023000
22	1152000	1158000	1159000	1162000	1159000	1167000	1156000	1122000	1268000	1163000	1091000	1020000
23	1159000	1159000	1162000	1161000	1160000	1167000	1161000	1117000	1258000	1162000	1087000	1019000
24	1160000	1158000	1161000	1160000	1160000	1167000	1167000	1126000	1255000	1159000	1084000	1017000
25	1160000	1161000	1161000	1160000	1160000	1165000	1166000	1138000	1249000	1157000	1079000	1014000
26	1160000	1158000	1161000	1159000	1160000	1161000	1165000	1139000	1242000	1155000	1074000	1013000
27	1161000	1158000	1161000	1159000	1160000	1161000	1163000	1135000	1237000	1153000	1071000	1012000
28	1162000	1159000	1161000	1158000	1161000	1163000	1163000	1133000	1231000	1153000	1068000	1011000
29	1161000	1162000	1164000	1158000	---	1163000	1160000	1131000	1225000	1152000	1063000	1008000
30	1159000	1161000	1161000	1157000	---	1168000	1159000	1133000	1218000	1150000	1060000	1008000
31	1157000	---	1161000	1157000	---	1166000	---	1131000	---	1148000	1059000	---
MAX	1169000	1162000	1164000	1166000	1161000	1171000	1169000	1164000	1345000	1213000	1146000	1071000
MIN	1052000	1154000	1155000	1152000	1156000	1159000	1149000	1117000	1127000	1148000	1059000	1008000
(†)	680.24	680.44	680.44	680.24	680.44	680.71	680.33	678.85	683.31	679.75	674.83	671.88
(‡)	+121000	+4000	0	-4000	+4000	+5000	-7000	-28000	+87000	-70000	-89000	-51000

CAL YR 1980 MAX 1169000 MIN 801600 ‡ +138000
WTR YR 1981 MAX 1345000 MIN 1008000 ‡ - 28000

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

08154510 COLORADO RIVER BELOW MANSFIELD DAM, AUSTIN, TX

LOCATION.--Lat 30°23'30", long 97°54'28", Travis County, Hydrologic Unit 12090205, at the downstream side of Mansfield Dam, 12.9 mi (20.8 km) northwest of the State Capitol at Austin, and at mile 318.0 (511.7 km).

DRAINAGE AREA (revised).--38,755 mi² (100,375 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Water-discharge records fair.

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

AVERAGE DISCHARGE.--7 years, 1,711 ft³/s (48.46 m³/s), 1,240,000 acre-ft/yr (1.53 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 25,300 ft³/s (716 m³/s) Apr. 17-19, 1977; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 22,700 ft³/s (643 m³/s) June 18; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	457	565	883	.00	451	.00	1890	2850	2480	4180	2090	1440
2	692	866	891	246	.00	.00	1170	1660	1610	3570	1680	1530
3	601	.00	962	.00	652	1860	1230	1500	2120	3540	2480	744
4	504	.00	352	129	1110	2950	1010	2120	2120	3170	2060	1850
5	571	303	63	698	663	3090	1080	1090	4640	3130	2160	1790
6	527	.00	224	178	269	3090	1440	1200	5530	3340	1900	1560
7	773	.00	.00	1340	.00	3010	1990	1580	5530	3230	1850	1170
8	603	.00	293	2350	.00	3090	1900	1480	5400	3230	2480	1830
9	.00	112	1840	1630	66	1730	1990	1390	5530	3230	2110	1880
10	.00	837	1220	1360	822	.00	1740	563	5320	3230	2050	2000
11	.00	.00	488	1540	1280	1620	2280	1620	4320	3230	2050	2190
12	.00	19	404	988	753	1810	2090	1660	5530	3420	2230	2090
13	521	214	.00	719	.00	2240	1930	1990	4630	3240	2170	2020
14	.00	.00	.00	622	.00	3290	1700	1650	5530	3240	2560	2060
15	.00	.00	688	666	14	3160	1820	1800	11200	3440	2560	1890
16	.00	336	219	408	44	3460	1730	1900	14200	3090	2240	1630
17	.00	1340	260	.00	.00	3110	1860	2040	20300	1670	2450	1840
18	.00	528	1000	.00	223	3000	1950	2030	22700	1310	1940	1500
19	.00	378	633	375	825	2080	1720	1550	20300	1970	2340	1380
20	176	89	64	684	254	2080	2630	2580	15300	1320	2480	1510
21	.00	565	.00	387	470	1960	2930	1930	15300	1660	2290	1600
22	.00	129	98	570	157	2000	1900	2220	13300	1780	2230	1210
23	131	.00	71	1020	683	2000	2980	2490	8360	1500	2460	1280
24	.00	22	.00	487	38	2180	1930	2240	5530	1930	2290	1320
25	.00	488	.00	27	.00	2050	1840	484	5530	1990	2400	943
26	447	1740	.00	160	.00	2060	1990	1900	5530	1820	2350	921
27	1830	81	.00	419	.00	1230	1950	2310	5530	1800	2320	889
28	907	.00	.00	488	.00	1230	2020	2280	5530	1720	2410	1040
29	434	.00	1150	120	---	1350	2230	2040	5530	1640	2110	986
30	800	175	1640	232	---	1210	2090	1800	5530	1760	2120	426
31	610	---	845	430	---	1850	---	2040	---	1910	688	---
TOTAL	10584.00	8787.00	14288.00	18273.00	8774.00	63790.00	57010	55987	239960	79290	67548	44519
MEAN	341	293	461	589	313	2058	1900	1806	7999	2558	2179	1484
MAX	1830	1740	1840	2350	1280	3460	2980	2850	22700	4180	2560	2190
MIN	.00	.00	.00	.00	.00	.00	1010	484	1610	1310	688	426
AC-FT	20990	17430	28340	36240	17400	126500	113100	111100	476000	157300	134000	88300

CAL YR 1980 TOTAL 374511.00 MEAN 1023 MAX 3840 MIN .00 AC-FT 742800
WTR YR 1981 TOTAL 668810.00 MEAN 1832 MAX 22700 MIN .00 AC-FT 1327000

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

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
APR										
13...	1200	3100	511	7.8	13.0	8.8	85	1.2	180	43
JUN										
09...	0945	5570	504	7.7	16.5	9.8	102	2.0	190	50
17...	0950	5600	527	7.2	16.0	9.1	93	.3	190	40

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 (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)
APR									
13...	42	19	29	.9	3.6	140	37	51	.3
JUN									
09...	43	20	30	.9	3.7	140	40	54	.2
17...	43	20	29	.9	4.0	150	37	53	.2

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)
APR									
13...	8.3	274	.34	.000	.34	.060	.56	.62	.020
JUN									
09...	8.5	284	.29	.010	.30	.040	.63	.67	.020
17...	7.3	284	.30	.000	.30	.030	.59	.62	.020

08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX

LOCATION.--Lat 30°22'19", long 97°47'04", Travis County, Hydrologic Unit 12090205, on right bank at downstream side of bridge at Loop 360, 1.0 mi (1.6 km) upstream from West Fork Bull Creek and Farm Road 2222, and 7.1 mi (11.4 km) northwest of the State Capitol Building in Austin.

DRAINAGE AREA.--22.3 mi² (57.8 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is 534.08 ft (162.788 m) National Geodetic Vertical Datum of 1929 (levels from city of Austin bench mark).

REMARKS.--Water-discharge records good. No known regulation or diversion above station. There are two recording rain gages in the watershed. This station is part of a hydrologic research project to study the rainfall-runoff relationship for the Austin urban-rural areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,300 ft³/s (348 m³/s) May 24, 1981, gage height, 11.50 ft (3.505 m); minimum discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 16	0600	1,760	49.8	6.40	1.951	June 10	2345	224	6.34	4.03	1.228
Mar. 3	2400	1,590	45.0	6.25	1.905	June 11	1145	4,320	122	8.12	2.475
May 24	2315	*12,300	348	11.50	3.505	June 13	2100	1,560	44.2	6.22	1.896
June 4	1600	367	10.8	4.49	1.369	June 16	0600	1,830	51.8	6.46	1.969

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	3.7	5.5	3.7	4.9	6.3	6.3	3.6	19	17	2.8	2.6
2	2.4	4.6	4.9	3.5	4.0	5.3	6.1	3.8	18	15	2.7	2.8
3	1.8	2.6	4.5	3.4	3.7	82	6.1	4.4	19	14	2.5	5.6
4	1.6	1.9	4.5	3.4	4.5	207	6.1	4.3	80	13	2.1	3.3
5	1.6	2.0	4.9	3.4	6.9	37	6.0	3.6	55	41	1.9	2.4
6	1.5	2.0	4.7	3.4	5.9	27	5.4	2.9	42	21	1.8	2.0
7	1.5	2.2	4.4	3.4	5.6	28	5.4	2.7	33	19	1.7	2.0
8	1.3	2.2	7.8	3.1	5.1	22	5.4	2.4	27	26	1.9	1.8
9	1.3	2.0	8.0	3.4	5.0	18	5.2	2.4	23	21	2.0	1.6
10	1.2	2.0	6.3	3.4	9.5	16	5.6	2.3	26	17	2.0	1.6
11	1.0	2.0	5.8	3.4	5.7	15	5.5	1.9	760	15	2.0	1.5
12	1.0	1.8	5.7	3.1	5.2	18	5.2	1.6	168	13	3.4	1.4
13	1.0	1.9	5.4	3.0	5.0	19	4.6	1.6	481	11	3.0	1.3
14	1.0	1.8	5.4	3.0	5.0	16	3.1	1.6	419	11	2.6	2.2
15	1.0	1.8	5.7	3.0	5.0	15	2.5	1.5	177	9.4	2.3	6.8
16	110	12	6.0	2.9	5.0	14	3.0	14	504	8.0	2.1	3.0
17	15	7.6	5.6	2.7	5.0	13	4.3	4.3	172	7.7	4.6	1.9
18	11	4.2	5.3	2.7	5.0	12	5.0	3.0	97	7.2	4.6	1.6
19	14	3.8	4.9	7.0	5.0	10	4.5	2.4	71	6.7	3.2	1.6
20	10	3.6	4.5	6.9	4.7	10	4.0	2.2	59	6.1	3.0	1.6
21	7.7	3.4	4.4	4.9	4.7	9.5	3.6	2.2	49	5.7	2.6	1.6
22	7.0	3.4	4.4	4.5	4.6	8.8	3.4	2.2	42	5.1	2.0	1.6
23	5.7	3.5	4.4	4.4	4.2	7.9	5.3	2.3	35	5.0	1.2	1.5
24	5.4	3.6	4.4	4.4	4.1	7.7	4.4	624	31	4.7	1.0	1.5
25	5.1	6.7	4.1	4.4	4.1	7.2	3.7	540	30	4.7	1.0	1.3
26	5.0	11	4.1	4.4	4.1	7.2	3.3	38	28	3.8	.96	1.2
27	4.4	7.9	4.1	4.2	4.1	6.8	3.0	25	24	4.7	.92	1.2
28	4.6	7.0	4.1	4.1	4.1	6.8	3.0	19	22	4.6	.88	1.1
29	4.4	6.3	4.1	4.1	---	8.1	2.7	16	20	3.9	1.0	.99
30	4.1	5.9	3.8	3.9	---	6.8	2.7	31	19	3.4	2.2	.92
31	3.7	---	3.7	3.7	---	6.4	---	27	---	3.3	3.3	---
TOTAL	239.8	124.4	155.4	118.8	139.7	673.8	134.4	1393.2	3550	348.0	69.26	61.51
MEAN	7.74	4.15	5.01	3.83	4.99	21.7	4.48	44.9	118	11.2	2.23	2.05
MAX	110	12	8.0	7.0	9.5	207	6.3	624	760	41	4.6	6.8
MIN	1.0	1.8	3.7	2.7	3.7	5.3	2.5	1.5	18	3.3	.88	.92
CFSM	.35	.19	.23	.17	.22	.97	.20	2.01	5.29	.50	.10	.09
IN.	.40	.21	.26	.20	.23	1.12	.22	2.32	5.92	.58	.12	.10
AC-FT	476	247	308	236	277	1340	267	2760	7040	690	137	122
(††)	3.45	3.25	1.11	1.29	1.35	4.88	1.29	9.73	12.64	2.98	1.60	1.84

CAL YR 1980 TOTAL 2984.19 MEAN 8.15 MAX 135 MIN .12 CFSM .37 IN 4.98 AC-FT 5920 †† 34.80
WTR YR 1981 TOTAL 7008.27 MEAN 19.2 MAX 760 MIN .88 CFSM .86 IN 11.69 AC-FT 13900 †† 45.41

†† Weighted-mean rainfall on watershed, in inches, based on two rain gages.

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: April 1978 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT												
16...	0600	1760	385	--	--	40	3800	--	--	27	290000	98000
16...	0610	1430	255	7.6	--	120	220	--	--	20	210000	60000
16...	1135	70	405	7.9	22.5	60	300	8.5	99	3.7	44000	34000
JAN												
27...	0850	4.2	651	8.3	12.0	0	.60	10.6	97	.5	120	K100
JUN												
04...	1635	337	503	--	--	5	330	--	--	3.1	--	--
16...	1530	337	519	7.5	21.0	20	20	8.6	97	1.0	12000	5200
AUG												
24...	0940	1.0	583	7.7	26.0	0	.80	6.2	78	.8	780	110

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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												
16...	55000	--	--	--	--	--	--	--	--	--	--	--
16...	50000	120	21	35	6.9	6.5	.3	3.8	95	24	14	.2
16...	29000	--	--	--	--	--	--	--	--	--	--	--
JAN												
27...	23	280	68	75	22	32	.8	1.4	210	65	48	.2
JUN												
04...	--	--	--	--	--	--	--	--	--	--	--	--
16...	8000	260	18	82	13	9.1	.2	2.0	240	15	14	.1
AUG												
24...	260	240	52	64	20	30	.9	2.1	190	55	48	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT												
16...	--	--	4150	386	.38	.040	.42	.280	5.6	5.9	.080	170
16...	8.3	156	4210	132	.45	.030	.48	.210	16	16	.560	210
16...	--	--	324	145	.61	.020	.63	.110	2.2	2.3	.070	21
JAN												
27...	5.7	376	2	0	.04	.000	.04	.060	.30	.36	.030	11
JUN												
04...	--	--	482	48	.41	.030	.44	.140	.48	.62	.130	8.5
16...	11	290	36	6	.75	.000	.75	.040	.76	.80	.040	4.5
AUG												
24...	13	347	2	3	.01	.000	.01	.010	.25	.26	.010	2.5

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)
OCT							
16...	0600	1	40	<1	0	<10	110
16...	0610	1	30	1	0	<10	50
16...	1135	1	0	0	0	0	60
AUG							
24...	0940	1	50	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT						
16...	<10	3	.0	0	1	<3
16...	<10	<1	.0	0	0	6
16...	0	10	.0	0	0	10
AUG						
24...	<10	7	.0	0	0	<3

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
OCT									
16...	0600	.00	.0	.00	.1	.01	.01	.00	.12
16...	1135	.00	.0	.00	.0	.00	.00	.00	.13
JUN									
04...	1635	.00	.0	.00	.0	.00	.00	.00	.01
AUG									
24...	0940	.00	.0	.00	.0	.00	.00	.00	.02

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
OCT									
16...	.00	.00	.00	.00	.00	.00	.00	.00	.00
16...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN									
04...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG									
24...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT									
16...	.00	.00	.00	.00	0	.00	.00	.00	.00
16...	.00	.00	.00	.00	0	.00	.00	.00	.00
JUN									
04...	.00	.00	.00	.00	0	.00	.01	.00	.00
AUG									
24...	.00	.00	.00	.00	0	.00	.00	.00	.00

08154900 LAKE AUSTIN AT AUSTIN, TX

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

301739097471601 LAKE AUSTIN SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
02...	1135	1.00	496	8.3	15.5	8.7	88
02...	1137	10.0	496	8.3	15.5	8.7	88
02...	1139	20.0	496	8.2	15.5	8.6	87
02...	1142	32.0	496	8.2	15.5	8.5	86
JUL							
28...	1050	1.00	464	7.4	27.5	5.5	70
28...	1052	10.0	464	7.2	26.5	4.2	52
28...	1054	20.0	471	7.2	26.0	3.5	43
28...	1056	34.0	474	7.1	26.0	3.0	37

301739097471201 LAKE AUSTIN SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
MAR										
02...	1145	1.00	498	8.3	15.5	3.00	0	.90	9.1	92
02...	1147	10.0	499	8.3	15.5	--	--	--	9.1	92
02...	1149	20.0	499	8.3	15.5	--	--	--	9.0	91
02...	1151	30.0	502	8.3	15.5	--	--	--	8.9	90
02...	1153	35.0	499	8.2	14.0	--	--	--	9.3	91
02...	1155	40.0	502	8.2	12.5	--	--	--	9.4	89
02...	1157	53.0	502	8.1	12.0	--	5	1.5	9.5	89
JUL										
28...	1100	1.00	476	7.4	27.5	1.20	5	2.0	5.3	67
28...	1102	10.0	476	7.2	26.5	--	--	--	4.1	51
28...	1104	20.0	476	7.2	26.0	--	--	--	3.9	48
28...	1106	30.0	480	7.1	26.0	--	--	--	3.3	41
28...	1108	40.0	482	7.1	26.0	--	--	--	3.1	38
28...	1110	52.0	485	7.0	26.0	--	5	12	1.7	21

DATE	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	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
MAR										
02...	.7	93	88	130	190	47	42	20	31	1.0
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	.4	--	--	--	190	51	42	21	32	1.0
JUL										
28...	.8	K56	K10	K7	180	23	42	19	24	.8
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	.8	--	--	--	180	32	43	18	25	.9

LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 LAKE AUSTIN SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAR										
02...	3.4	140	39	55	.2	5.5	280	3	1	.08
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	.10
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	3.5	140	41	55	.2	6.7	286	3	2	.12
JUL										
28...	3.4	160	22	41	.2	8.5	256	9	4	.60
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	.64
28...	3.5	150	22	41	.2	8.9	252	19	19	.16

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR									
02...	.020	.10	.000	.55	.55	.65	.030	<10	<1
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	.000	.10	.000	.54	.54	.64	.030	50	10
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	.010	.13	.000	.68	.68	.81	.030	40	10
JUL									
28...	.000	.60	.610	.16	.77	1.4	.010	<10	2
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	.000	.64	.590	.10	.69	1.3	.020	40	30
28...	.040	.20	.240	.58	.82	1.0	.020	<10	95

301739097470901 LAKE AUSTIN SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
02...	1125	1.00	496	8.3	15.5	8.3	84
02...	1130	14.0	496	8.3	15.5	8.0	81
JUL							
28...	1135	1.00	470	7.8	28.5	7.1	91
28...	1140	9.00	474	7.2	26.0	3.7	46

LAKE AUSTIN AT AUSTIN, TX--Continued

302043097472401 LAKE AUSTIN SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAR									
02...	1220	1.00	496	8.3	15.5	2.70	9.9	100	.13
02...	1222	10.0	496	8.3	15.5	--	9.9	100	--
02...	1224	20.0	496	8.2	15.5	--	9.9	100	--
02...	1226	32.0	496	8.2	14.0	--	9.9	97	.12
JUL									
28...	1150	1.00	475	7.6	29.0	1.50	6.2	81	.13
28...	1153	10.0	475	7.5	28.5	--	5.8	74	--
28...	1155	20.0	470	7.2	26.0	--	4.1	51	--
28...	1158	32.0	470	7.2	26.0	--	4.3	53	.19

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR									
02...	.000	.13	.000	.62	.62	.75	.030	30	0
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	.000	.12	.000	.56	.56	.68	.040	30	0
JUL									
28...	.030	.16	.150	.53	.68	.84	.010	40	0
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	.020	.21	.150	.59	.74	.95	.030	20	10

302044097472301 LAKE AUSTIN SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
02...	1230	1.00	497	8.3	16.0	10.0	102
02...	1232	10.0	497	8.3	15.5	10.0	101
02...	1235	18.0	497	8.2	15.5	10.0	101
JUL							
28...	1210	1.00	480	7.6	29.0	6.3	82
28...	1213	10.0	480	7.6	28.5	6.1	78
28...	1215	15.0	477	7.2	27.0	4.0	50

LAKE AUSTIN AT AUSTIN, TX--Continued

301926097502201 LAKE AUSTIN SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR										
02...	1250	1.00	490	8.3	16.5	3.6	0	.90	9.7	100
02...	1252	10.0	490	8.3	16.0	--	--	--	9.8	100
02...	1254	20.0	495	8.2	15.0	--	--	--	10.0	100
02...	1256	28.0	497	8.0	14.0	--	0	.70	10.3	101
JUL										
28...	1235	1.00	468	7.3	26.5	2.00	5	1.8	4.9	61
28...	1237	10.0	468	7.3	26.0	--	--	--	4.5	55
28...	1239	20.0	468	7.3	25.5	--	--	--	4.5	55
28...	1242	25.0	468	7.4	26.0	--	5	2.2	4.6	57

DATE	OXYGEN DEMAND BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
MAR										
02...	.7	31	K1	K5	180	42	40	20	30	1.0
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	.9	--	--	--	180	45	41	20	31	1.0
JUL										
28...	.6	160	K140	20	180	17	41	18	23	.8
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	1.2	--	--	--	180	17	41	18	23	.8

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAR										
02...	3.5	140	39	56	.2	5.7	279	1	0	.07
02...	--	--	--	--	--	--	--	--	--	.11
02...	--	--	--	--	--	--	--	--	--	--
02...	3.5	140	39	55	.2	6.7	281	1	1	.11
JUL										
28...	3.2	160	20	40	.2	8.1	250	7	6	.63
28...	--	--	--	--	--	--	--	--	--	.61
28...	--	--	--	--	--	--	--	--	--	--
28...	3.5	160	19	42	.2	8.0	251	3	0	.19

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR									
02...	.020	.09	.000	.49	.49	.58	.040	<10	<1
02...	.000	.11	.000	.55	.55	.66	.040	20	0
02...	--	--	--	--	--	--	--	--	--
02...	.010	.12	.000	.57	.57	.69	.030	<10	3
JUL									
28...	.000	.63	.630	.10	.73	1.4	.020	<10	14
28...	.000	.61	.500	.12	.62	1.2	.010	30	10
28...	--	--	--	--	--	--	--	--	--
28...	.030	.22	.220	.41	.63	.85	<.010	<10	16

LAKE AUSTIN AT AUSTIN, TX--Continued

302021097540001 LAKE AUSTIN SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAR									
02...	1325	1.00	489	8.4	16.0	3.2	9.8	100	.12
02...	1328	10.0	497	8.0	14.5	--	8.4	83	--
02...	1330	15.0	497	8.0	14.5	--	8.5	84	.14
JUL									
28...	1315	1.00	464	7.3	25.5	2.60	4.7	57	.63
28...	1317	10.0	464	7.3	25.0	--	4.4	53	--
28...	1320	17.0	464	7.3	25.0	--	4.3	52	.20

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR									
02...	.000	.12	.000	.82	.82	.94	.030	20	0
02...	--	--	--	--	--	--	--	--	--
02...	.000	.14	.000	1.2	1.20	1.3	.030	20	20
JUL									
28...	.000	.63	.510	.19	.70	1.3	.010	20	20
28...	--	--	--	--	--	--	--	--	--
28...	.030	.23	.180	.30	.48	.71	.020	30	10

302314097544901 LAKE AUSTIN SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR										
02...	1400	1.00	494	8.2	13.5	2.10	5	1.7	10.3	100
02...	1402	7.00	494	8.2	13.0	--	5	1.3	10.3	99
JUL										
28...	1350	1.00	464	7.2	24.0	2.60	5	.50	3.4	40
28...	1355	7.00	464	7.3	24.5	--	5	.00	3.5	42

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
MAR										
02...	.6	28	18	<1	190	47	42	20	31	1.0
02...	.6	--	--	--	180	45	41	20	32	1.0
JUL										
28...	.4	K10	<1	K3	170	24	40	18	22	.8
28...	.5	--	--	--	170	24	40	18	22	.8

LAKE AUSTIN AT AUSTIN, TX--Continued

302314097544901 LAKE AUSTIN SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAR										
02...	3.5	140	40	56	.2	7.2	284	1	1	.19
02...	3.5	140	40	56	.2	7.3	284	1	0	.19
JUL										
28...	3.3	150	15	39	.2	7.9	236	7	7	.22
28...	3.4	150	16	39	.2	7.8	237	5	5	.23

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR									
02...	.010	.20	.000	.51	.51	.71	.030	<10	3
02...	.010	.20	.000	.46	.46	.66	.030	<10	2
JUL									
28...	.030	.25	.150	.46	.61	.86	<.010	<10	18
28...	.030	.26	.160	.40	.56	.82	<.010	<10	18

301739097471201 LAKE AUSTIN SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)
MAR							
02...	1145	1.00	2	70	<1	0	<10
02...	1151	30.0	--	--	--	--	--
02...	1157	53.0	1	70	<1	0	<10
JUL							
28...	1100	1.00	2	70	<1	10	<10
28...	1108	40.0	--	--	--	--	--
28...	1110	52.0	1	60	<1	10	<10

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
MAR							
02...	<10	<10	<1	.0	0	0	<3
02...	50	--	10	--	--	--	--
02...	40	<10	10	.0	0	0	5
JUL							
28...	<10	<10	2	.1	0	0	<3
28...	40	--	30	--	--	--	--
28...	<10	17	95	.0	0	0	<3

LAKE AUSTIN AT AUSTIN, TX--Continued

301926097502201 LAKE AUSTIN SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)
MAR							
02...	1250	1.00	2	70	1	0	<10
02...	1252	10.0	--	--	--	--	--
02...	1256	28.0	2	70	<1	0	<10
JUL							
28...	1235	1.00	2	60	<1	10	<10
28...	1237	10.0	--	--	--	--	--
28...	1242	25.0	2	60	<1	10	<10

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR							
02...	<10	<10	<1	.0	0	0	<3
02...	20	--	0	--	--	--	--
02...	<10	<10	3	.0	0	0	<3
JUL							
28...	<10	<10	14	.7	1	0	<3
28...	30	--	10	--	--	--	--
28...	<10	<10	16	.0	0	0	<3

302314097544901 LAKE AUSTIN SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)
MAR							
02...	1400	1.00	2	80	<1	10	<10
02...	1402	7.00	2	70	<1	0	<10
JUL							
28...	1350	1.00	2	60	<1	10	<10
28...	1355	7.00	1	60	<1	10	<10

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR							
02...	<10	19	3	.0	0	0	30
02...	<10	<10	2	.3	0	0	<3
JUL							
28...	<10	<10	18	.0	0	0	<3
28...	<10	<10	18	.0	0	0	<3

LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 LAKE AUSTIN SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)
MAR									
02...	1145	1.00	.00	.00	.00	.00	.00	.00	.00
02...	1157	53.0	.00	.00	.00	.00	.00	.00	.00
JUL									
28...	1100	1.00	.00	.00	.00	.00	.00	.00	.00
28...	1110	52.0	.00	.00	.00	.00	.00	.00	.00

DATE	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
MAR									
02...	.00	.00	.00	.00	.00	.00	.00	.00	.00
02...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL									
28...	.00	.00	.00	.00	.00	.00	.00	.00	.00
28...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR								
02...	.00	.00	.00	.00	.00	.22	.00	.00
02...	.00	.00	.00	.00	.00	.08	.00	.00
JUL								
28...	.00	.00	.00	.00	.00	.32	.00	.00
28...	.00	.00	.00	.00	.00	.19	.01	.00

301926097502201 LAKE AUSTIN SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)
MAR									
02...	1250	1.00	.00	.00	.00	.00	.00	.00	.00
02...	1256	28.0	.00	.00	.00	.00	.00	.00	.00
JUL									
28...	1235	1.00	.00	.00	.00	.00	.00	.00	.00
28...	1242	25.0	.00	.00	.00	.00	.00	.00	.00

DATE	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
MAR									
02...	.00	.00	.00	.00	.00	.00	.00	.00	.00
02...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL									
28...	.00	.00	.00	.00	.00	.00	.00	.00	.00
28...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR								
02...	.00	.00	.00	.00	.00	.91	.00	.00
02...	.00	.00	.00	.00	.00	.81	.00	.00
JUL								
28...	.00	.00	.00	.00	.00	.06	.00	.00
28...	.00	.00	.00	.00	.00	--	--	--

LAKE AUSTIN AT AUSTIN, TX--Continued

302314097544901 LAKE AUSTIN SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)
MAR									
02...	1400	1.00	.00	.00	.00	.00	.00	.00	.00
02...	1402	7.00	.00	.00	.00	.00	.00	.00	.00
JUL									
28...	1350	1.00	.00	.00	.00	.00	.00	.00	.00
28...	1355	7.00	.00	.00	.00	.00	.00	.00	.00

DATE	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
MAR									
02...	.00	.00	.00	.00	.00	.00	.00	.00	.00
02...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL									
28...	.00	.00	.00	.00	.00	.00	.00	.00	.00
28...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR								
02...	.00	.00	.00	.00	.00	.00	.00	.00
02...	.00	.00	.00	.00	.00	.00	.00	.00
JUL								
28...	.00	.00	.00	.00	.00	.02	.01	.00
28...	.00	.00	.00	.00	.00	>.01	.00	.00

08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX

LOCATION.--Lat 30°17'46", long 97°55'31", Travis County, Hydrologic Unit 12090205, at downstream side of bridge on State Highway 71, 0.1 mi (0.2 km) downstream from Little Barton Creek, and 5.8 mi (9.3 km) northwest of Oak Hill.

DRAINAGE AREA.--89.7 mi² (232.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1975 to February 1978 (periodic gage heights and discharge measurements only), February 1978 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 737.04 ft (224.650 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair above 15.0 ft³/s (0.42 m³/s) and poor below. No known regulation or diversions. There are two recording rain gages in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,120 ft³/s (230 m³/s) June 11, 1981, gage height, 15.64 ft (4.767 m); no flow for many days each year except 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 16	0845	5,750	163	12.82	3.908	June 12	1445	5,500	156	12.50	3.810
Mar. 4	0315	3,270	92.6	9.52	2.902	June 13	1300	3,860	109	10.37	3.161
May 25	0030	1,720	48.7	6.87	2.094	June 14	1000	7,040	199	14.41	4.392
June 11	1445	*8,120	230	15.64	4.767	June 16	1000	3,900	110	10.42	3.176

Minimum daily discharge, 0.59 ft³/s (0.017 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	14	35	26	20	24	61	16	37	79	11	6.5
2	18	14	32	25	21	26	56	16	38	66	11	4.8
3	14	13	30	24	19	87	56	16	51	59	11	13
4	13	13	30	24	19	913	49	17	154	56	10	8.3
5	11	12	31	23	24	228	34	16	243	205	10	5.2
6	11	12	31	23	26	187	35	14	162	115	9.6	3.8
7	9.5	11	30	23	25	192	34	12	114	72	9.0	2.9
8	8.8	11	39	22	25	171	33	12	93	68	8.7	2.2
9	8.6	11	61	22	24	148	33	11	76	62	8.0	1.8
10	8.0	11	48	22	28	138	31	10	170	56	7.3	1.4
11	7.3	10	45	21	29	141	29	9.3	3000	48	7.3	1.3
12	7.0	9.9	45	19	26	166	28	8.4	2310	46	7.3	1.3
13	6.3	9.5	44	19	26	214	26	8.4	1920	44	6.8	1.2
14	6.0	9.6	44	19	27	177	25	7.8	2930	42	5.8	1.3
15	5.8	9.6	51	18	27	163	23	7.3	1100	40	5.4	3.8
16	785	15	51	18	27	146	23	13	1950	38	4.8	4.4
17	59	30	45	17	28	140	23	12	941	36	5.4	2.9
18	40	19	44	16	28	126	23	7.5	607	34	16	2.1
19	43	15	40	21	26	115	22	6.3	446	32	35	1.5
20	28	14	37	33	26	111	21	5.6	356	30	21	1.3
21	25	13	37	27	26	106	21	5.0	288	28	11	1.1
22	23	14	37	23	25	94	21	5.0	247	26	8.7	.94
23	21	15	37	22	24	89	23	5.2	204	29	5.4	.84
24	20	17	35	22	24	86	25	90	176	23	2.6	.79
25	18	19	32	21	24	81	21	296	182	22	2.2	.79
26	18	44	32	21	24	77	20	36	163	21	2.1	.71
27	18	44	31	20	24	75	19	24	121	20	1.8	.66
28	17	39	30	19	24	72	17	20	117	16	1.5	.66
29	16	37	29	19	---	103	17	18	106	13	1.4	.66
30	16	36	27	19	---	78	16	36	88	13	2.0	.59
31	15	---	27	19	---	65	---	51	---	12	4.7	---
TOTAL	1327.3	541.6	1167	667	696	4539	865	811.8	18390	1451	253.8	78.74
MEAN	42.8	18.1	37.6	21.5	24.9	146	28.8	26.2	613	46.8	8.19	2.62
MAX	785	44	61	33	29	913	61	296	3000	205	35	13
MIN	5.8	9.5	27	16	19	24	16	5.0	37	12	1.4	.59
CFSM	.48	.20	.42	.24	.28	1.63	.32	.29	6.83	.52	.09	.03
IN.	.55	.22	.48	.28	.29	1.88	.36	.34	7.63	.60	.11	.03
AC-FT	2630	1070	2310	1320	1380	9000	1720	1610	36480	2880	503	156
(††)	3.08	3.20	1.23	1.50	1.17	4.72	.85	6.02	13.99	2.57	3.27	2.14

CAL YR 1980 TOTAL 7815.19 MEAN 21.4 MAX 785 MIN .00 CFSM .24 IN 3.24 AC-FT 15500 †† 34.63
WTR YR 1981 TOTAL 30788.24 MEAN 84.4 MAX 3000 MIN .59 CFSM .94 IN 12.77 AC-FT 61070 †† 43.74

†† Weighted-mean rainfall on watershed, in inches, based on two rain gages.

08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: April 1978 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 21...	1430	26	456	7.7	10.0	0	.30	12.8	112	.4	K10	K6
APR 08...	0852	33	468	8.0	19.5	5	.60	8.2	89	.8	K320	80
JUN 16...	1340	2630	357	8.0	22.0	30	130	8.4	97	1.6	28000	6200
AUG 19...	1000	41	391	7.8	26.0	10	.40	7.0	89	.5	740	240

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN 21...	K14	220	25	62	17	7.7	.2	.7	200	26	12	.2
APR 08...	110	230	14	64	18	8.0	.2	.9	220	23	13	.3
JUN 16...	26000	170	0	52	10	3.9	.1	2.2	180	2.2	5.6	.1
AUG 19...	220	200	18	53	16	7.1	.2	1.3	180	15	11	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 21...	6.5	252	0	0	.17	.000	.17	.030	.31	.34	.030	6.3
APR 08...	7.5	267	1	0	.12	.000	.12	.040	.57	.61	.030	3.9
JUN 16...	11	195	314	44	.10	.020	.12	.080	1.6	1.7	.060	35
AUG 19...	11	223	4	6	.02	.000	.02	.010	.14	.15	.010	.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)
APR 08...	0852	0	30	1	10	<10	<10
AUG 19...	1000	0	20	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR 08...	25	2	.0	0	0	<3
AUG 19...	<10	2	.0	0	0	<3

08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
APR 08...	0852	.00	.0	.00	.0	.00	.00	.00	.00
AUG 19...	1000	.00	.0	.00	.0	.00	.00	.00	.00

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
APR 08...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 19...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
APR 08...	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 19...	.00	.00	.00	.00	0	.00	.00	.00	.00

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX

LOCATION.--Lat 30°14'40", long 97°48'07", Travis County, Hydrologic Unit 12090205, on Loop 360, 0.9 mi (1.4 km) west of the intersection of Ben White and Lamar Boulevards, and 4.3 mi (6.9 km) southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--116 mi² (300 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1975 to January 1977 (periodic gage heights and discharge measurements only), February 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 510.32 ft (155.546 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Records fair. No known regulation or diversions. There are three recording rain gages located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,100 ft³/s (513 m³/s) May 25, 1981, gage height, 15.03 ft (4.581 m); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of May 28, 1929, was probably the highest since that date, discharge 39,400 ft³/s (1,120 m³/s), based on a slope-area measurement of peak flow at a site about 2 mi (3 km) upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 16	1300	5,250	149	8.57	2.612	June 12	1815	6,560	186	9.24	2.816
Mar. 4	0900	2,800	79.3	7.15	2.179	June 13	2000	8,150	231	10.03	3.057
May 25	0015	*18,100	513	15.03	4.581	June 14	1315	9,350	265	10.70	3.261
June 11	1200	14,100	399	13.29	4.051	June 16	1400	5,160	146	8.52	2.597

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	7.6	5.7	13	19	56	1.6	88	174	.00	.00
2	.00	.00	4.9	5.3	12	19	51	1.2	81	152	.00	.00
3	.00	.00	3.5	4.8	11	18	49	1.9	82	142	.00	.00
4	.00	.00	2.9	4.4	9.4	570	573	2.1	129	122	.00	.00
5	.00	.00	3.1	4.1	9.3	207	40	2.0	263	286	.00	.00
6	.00	.00	3.1	3.8	13	152	35	.81	196	269	.00	.00
7	.00	.00	2.9	3.7	17	144	34	.00	148	174	.00	.00
8	.00	.00	7.4	3.4	18	147	33	.00	142	169	.00	.00
9	.00	.00	33	3.2	17	125	31	.00	132	145	.00	.00
10	.00	.00	31	2.9	24	111	29	.00	151	120	.00	.00
11	.00	.00	24	2.6	27	108	28	.00	6430	98	.00	.00
12	.00	.00	22	2.4	27	121	28	.00	3410	73	.00	.00
13	.00	.00	18	2.2	24	164	26	.00	3440	63	.00	.00
14	.00	.00	16	2.0	25	144	24	.00	4620	49	.00	.00
15	.00	.00	25	1.8	26	141	24	.00	1540	41	.00	.00
16	683	.03	31	1.6	27	137	25	1.5	2720	38	.00	.00
17	94	.03	25	1.4	27	131	26	.00	1300	29	.00	.00
18	28	2.4	22	1.3	24	122	23	.00	747	27	.00	.00
19	28	.21	19	7.5	24	109	22	.00	513	23	.00	.00
20	13	.00	16	17	23	103	20	.00	366	19	.00	.00
21	4.1	.00	15	25	22	101	18	.00	269	16	.00	.00
22	1.6	.00	15	24	22	90	16	.00	216	12	.00	.00
23	.68	.00	15	22	22	83	12	.00	172	7.1	.00	.00
24	.17	.00	14	22	22	80	11	254	140	6.0	.00	.00
25	.04	.00	12	21	22	77	9.4	1950	130	4.9	.00	.00
26	.00	1.4	11	19	21	75	7.4	116	169	3.8	.00	.00
27	.00	25	8.7	18	20	70	6.3	73	114	2.7	.00	.00
28	.00	19	8.0	17	20	67	5.7	54	138	1.6	.00	.00
29	.00	14	7.4	15	---	77	4.1	44	207	.50	.00	.00
30	.00	10	6.8	15	---	86	2.6	68	194	.00	.00	.00
31	.00	---	6.3	14	---	63	---	107	---	.00	.00	---
TOTAL	852.59	72.07	436.6	293.1	568.7	3661	1269.5	2677.11	28247	2267.60	.00	.00
MEAN	27.5	2.40	14.1	9.45	20.3	118	42.3	86.4	942	73.1	.000	.000
MAX	683	25	33	25	27	570	573	1950	6430	286	.00	.00
MIN	.00	.00	2.9	1.3	9.3	18	2.6	.00	81	.00	.00	.00
CFSM	.24	.02	.12	.08	.18	1.02	.37	.75	8.12	.63	.000	.000
IN.	.27	.02	.14	.09	.18	1.17	.41	.86	9.06	.73	.00	.00
AC-FT	1690	143	866	581	1130	7260	2520	5310	56030	4500	.00	.00
(††)	2.78	3.22	1.29	1.52	1.16	4.74	.92	6.49	14.95	2.72	2.88	2.32

CAL YR 1980 TOTAL 5353.43 MEAN 14.6 MAX 683 MIN .00 CFSM .13 IN 1.72 AC-FT 10620 †† 33.99
WTR YR 1981 TOTAL 40345.27 MEAN 111 MAX 6430 MIN .00 CFSM .96 IN 12.94 AC-FT 80020 †† 44.99

†† Weighted-mean rainfall on watershed, in inches, based on three rain gages.

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX--Continued

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1979 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT												
16...	1240	4300	398	--	--	15	2200	--	--	15	32000	20000
16...	1520	1500	175	7.9	--	120	18	--	--	7.4	100000	42000
16...	1600	1190	163	--	--	--	--	--	--	7.0	--	--
16...	1605	1100	156	7.8	22.0	--	--	8.4	--	5.6	--	--
17...	0810	105	263	8.1	23.0	30	8.3	7.9	93	1.7	15000	8800
JAN												
21...	1330	25	420	7.7	8.5	0	.70	13.8	117	.2	K17	K8
MAR												
04...	0910	2590	266	7.7	16.5	50	630	--	--	4.9	54000	K37000
APR												
08...	0942	33	423	8.1	19.5	0	.80	9.1	99	.7	140	K9
JUN												
16...	1450	5050	378	8.1	22.5	15	180	8.4	98	1.3	20000	8400

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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												
16...	22000	--	--	--	--	--	--	--	--	--	--	--
16...	25000	77	5	24	4.2	1.9	.1	2.5	72	5.2	3.9	.2
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
17...	11000	--	--	--	--	--	--	--	--	--	--	--
JAN												
21...	K14	210	27	55	17	8.2	.2	.8	180	29	12	.2
MAR												
04...	96000	130	11	38	8.7	3.7	.1	2.0	120	15	5.7	.2
APR												
08...	120	210	16	53	18	8.1	.2	.9	190	22	11	.2
JUN												
16...	18000	200	0	63	11	4.2	.1	2.1	210	1.6	6.0	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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												
16...	--	--	3080	291	.18	.010	.19	.030	7.4	7.4	.060	190
16...	6.7	--	1290	80	.11	.020	.13	.050	5.9	5.9	.400	170
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	246	112	.46	.030	.49	.040	3.0	3.0	.130	14
JAN												
21...	6.1	237	0	0	.21	.000	.21	.030	.33	.36	.040	1.6
MAR												
04...	7.2	153	1050	131	.17	.050	.22	.040	3.3	3.3	.240	45
APR												
08...	6.7	234	4	4	.08	.000	.08	.010	.50	.51	.020	6.8
JUN												
16...	10	224	362	58	.16	.010	.17	.050	1.3	1.3	.060	83

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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...	1240	1	40	<1	0	<10	20
16...	1520	1	20	<1	0	<10	50
17...	0810	1	0	10	0	20	140
MAR							
04...	0910	0	20	2	0	<10	20
APR							
08...	0942	0	20	<1	10	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT						
16...	<10	<1	.0	0	0	<3
16...	<10	4	.0	0	0	5
17...	0	10	.0	0	0	10
MAR						
04...	<10	1	.1	0	0	<3
APR						
08...	<10	<1	.0	0	0	<3

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)
OCT									
16...	1240	.00	.0	.00	.0	.00	.00	.00	.01
17...	0810	.00	.0	.00	.0	.00	.00	.00	.00
APR									
08...	0942	.00	.0	.00	.0	.00	.00	.00	.00

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
OCT									
16...	.00	.00	.00	.00	.00	.00	.00	.00	.00
17...	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR									
08...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT									
16...	.00	.00	.00	.00	0	.00	.00	.00	.00
17...	.00	.00	.00	.00	0	.00	.00	.00	.00
APR									
08...	.00	.00	.00	.00	0	.00	.00	.00	.00

08155500 BARTON SPRINGS AT AUSTIN, TX

LOCATION.--Lat 30°15'48", long 97°46'16", Travis County, Hydrologic Unit 12090205, at ground-water well (YD 58-42-903), on right bank 0.4 mi (0.6 km) upstream from Barton Springs Road bridge over Barton Creek, 0.7 mi (1.1 km) upstream from mouth, and 1.8 mi (2.9 km) southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--Not applicable. Only flow from springs is published for this station.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1894 to April 1917, and October 1918 to February 1978 (discharge measurements only), May 1917 to September 1918 (published as "Barton Creek at Austin, Texas"), and March 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage, at ground-water well (YD 58-42-903), is 462.34 ft (140.92 m) National Geodetic Vertical Datum of 1929. May 1917 to September 1918, nonrecording gage at site 1,000 ft (305 m) downstream at different datum.

REMARKS.--Water-discharge records fair. Entire flow published is springflow from the Edwards and associated limestones in the Balcones Fault Zone. This station is part of an urban hydrologic project to study the ground-water resources in the Austin urban area.

EXTREMES FOR PERIOD OF RECORD (DISCHARGE MEASUREMENTS ONLY).--Maximum measured discharge, 166 ft^3/s (4.70 m^3/s) May 10, 1941; minimum measured, 9.6 ft^3/s (0.27 m^3/s) Mar. 29, 1956.

EXTREMES FOR PERIOD OF RECORD (1917-18 AND SINCE MARCH 1978).--Maximum daily discharge, 108 ft^3/s (3.06 m^3/s) June 9-11, 16, 20, 21, 1979; minimum daily, 12 ft^3/s (0.34 m^3/s) Feb. 25, 1918.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 105 ft^3/s (2.97 m^3/s) July 12; minimum daily, 39 ft^3/s (1.10 m^3/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	45	47	51	49	55	67	61	66	99	99	90
2	42	44	47	50	49	55	66	61	67	100	99	90
3	45	44	47	50	49	55	66	61	67	101	98	90
4	46	44	48	50	49	59	66	61	68	101	98	90
5	47	43	48	50	49	63	65	60	69	101	98	89
6	48	43	48	50	50	67	65	60	70	102	97	89
7	48	43	48	49	51	69	65	59	71	102	96	88
8	48	43	48	49	51	70	65	59	72	102	97	88
9	47	42	49	49	52	71	65	58	73	102	96	88
10	47	42	49	49	52	70	65	57	73	102	96	87
11	47	42	49	48	53	70	65	56	74	104	95	87
12	46	42	50	48	53	71	64	56	76	105	95	86
13	46	42	50	47	53	70	63	56	77	104	94	86
14	46	42	50	47	54	70	63	56	78	104	94	86
15	46	41	51	46	54	69	63	56	80	104	93	86
16	48	43	52	46	54	69	63	56	81	103	93	86
17	48	43	52	46	55	68	63	55	83	103	92	86
18	47	43	51	46	55	67	63	55	84	103	92	85
19	47	43	51	46	55	67	63	54	86	103	92	85
20	47	42	51	48	55	66	63	53	87	102	92	85
21	47	42	51	48	55	66	63	53	88	102	92	84
22	47	42	51	48	54	66	62	53	90	103	92	84
23	47	42	51	49	54	66	62	53	91	103	92	84
24	46	42	51	49	54	66	62	53	92	102	91	84
25	46	43	51	49	54	66	62	55	94	102	91	83
26	46	44	50	49	54	67	62	57	94	102	91	83
27	46	45	50	49	54	67	61	59	95	101	91	83
28	45	46	50	49	55	67	61	61	95	100	91	82
29	45	46	50	49	---	67	61	62	96	100	91	82
30	45	51	51	49	---	67	61	63	98	99	91	82
31	45	---	51	49	---	67	---	65	---	99	90	---
TOTAL	1430	1299	1543	1502	1476	2053	1905	1784	2435	3160	2909	2578
MEAN	46.1	43.3	49.8	48.5	52.7	66.2	63.5	57.5	81.2	102	93.8	85.9
MAX	48	51	52	51	55	71	67	65	98	105	99	90
MIN	39	41	47	46	49	55	61	53	66	99	90	82
AC-FT	2840	2580	3060	2980	2930	4070	3780	3540	4830	6270	5770	5110

CAL YR 1980 TOTAL 17111 MEAN 46.8 MAX 78 MIN 34 AC-FT 33940
WTR YR 1981 TOTAL 24074 MEAN 66.0 MAX 105 MIN 39 AC-FT 47750

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: December 1978 to September 1979. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT												
17...	0850	48	600	7.1	22.0	0	.40	6.4	74	.1	440	34
18...	1700	47	583	7.0	22.0	0	.30	5.9	69	.3	110	23
20...	1340	47	539	7.0	22.0	0	.50	6.3	72	.4	120	41
JAN												
13...	0830	47	604	7.1	19.5	0	.70	--	--	.1	K44	K1
28...	1310	51	593	7.0	19.5	0	.60	--	--	.3	160	<1
APR												
08...	1315	65	552	7.1	20.0	0	1.1	6.8	74	.6	K47	K7
MAY												
27...	1000	66	552	7.0	21.5	0	.80	6.5	72	.1	720	170
JUL												
17...	0930	103	561	6.9	22.0	--	--	7.2	81	.4	200	K9
AUG												
03...	0940	98	590	7.1	22.0	--	--	6.8	76	--	--	K3
11...	0830	94	590	7.1	22.0	--	--	9.5	109	--	--	K7
17...	0840	92	608	7.4	23.0	--	--	7.3	85	--	--	<1
19...	1340	84	600	7.1	21.5	--	--	6.6	75	--	--	2600
24...	0845	91	582	7.3	22.0	0	.40	6.9	79	.1	120	K7
31...	0840	90	584	6.8	22.0	--	--	8.0	93	--	--	160
SEP												
08...	0845	88	586	6.7	21.5	--	--	7.2	82	--	--	K11
14...	0830	86	582	6.8	22.0	--	--	7.4	86	--	--	K3
21...	1445	84	562	7.4	24.0	--	--	9.5	112	--	--	24
28...	0830	82	578	6.7	22.0	--	--	6.5	75	--	--	K3

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT												
17...	120	280	27	78	20	17	.4	1.1	250	29	24	.3
18...	K8	--	--	--	--	--	--	--	--	--	--	--
20...	39	--	--	--	--	--	--	--	--	--	--	--
JAN												
13...	<1	270	24	75	21	18	.5	1.3	250	33	28	.3
28...	K8	290	36	80	21	18	.5	10	250	32	28	.2
APR												
08...	22	270	18	76	19	14	.4	1.2	250	26	21	.3
MAY												
27...	400	270	31	77	19	13	.3	1.2	240	25	20	.2
JUL												
17...	260	--	--	--	--	--	--	--	--	--	--	--
AUG												
03...	K3	--	--	--	--	--	--	--	--	--	--	--
11...	K2	--	--	--	--	--	--	--	--	--	--	--
17...	K5	--	--	--	--	--	--	--	--	--	--	--
19...	2100	--	--	--	--	--	--	--	--	--	--	--
24...	33	290	25	85	20	11	.3	1.2	270	21	14	.2
31...	72	--	--	--	--	--	--	--	--	--	--	--
SEP												
08...	K17	--	--	--	--	--	--	--	--	--	--	--
14...	K6	--	--	--	--	--	--	--	--	--	--	--
21...	260	--	--	--	--	--	--	--	--	--	--	--
28...	K1	--	--	--	--	--	--	--	--	--	--	--

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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												
17...	11	330	0	0	1.4	.000	1.4	.020	.37	.39	.010	2.4
18...	--	--	8	0	1.3	.000	1.3	.000	.38	.38	.010	4.8
20...	--	--	4	0	1.1	.000	1.1	.000	.39	.39	.010	9.8
JAN												
13...	9.8	336	3	3	1.3	.010	1.3	.050	1.2	1.20	.010	7.4
28...	10	350	0	0	1.1	.000	1.1	.030	.60	.63	.020	13
APR												
08...	9.7	318	4	1	.95	.000	.95	.010	.51	.52	.020	5.0
MAY												
27...	11	311	8	6	1.0	.000	1.0	.060	.61	.67	.020	--
JUL												
17...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
03...	--	--	3	--	1.4	.030	1.4	.170	.40	.57	.010	.3
11...	--	--	11	--	1.3	.000	1.3	.070	.48	.55	.020	.7
17...	--	--	13	--	1.3	.010	1.3	.070	.53	.60	.020	<.1
19...	--	--	11	--	1.4	.000	1.4	.010	.22	.23	.020	<.1
24...	12	327	6	0	1.3	.000	1.3	.060	.53	.59	.030	<.1
31...	--	--	4	--	1.6	.020	1.6	.080	.58	.66	<.010	.9
SEP												
08...	--	--	5	--	1.4	.000	1.4	.050	.58	.63	.020	1.3
14...	--	--	11	--	1.2	.000	1.2	.050	.51	.56	.010	<.1
21...	--	--	0	--	1.1	.010	1.1	.030	.51	.54	.010	.6
28...	--	--	0	--	--	<.020	1.4	<.070	--	.61	.020	.1

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT							
17...	0850	1	50	<1	10	<10	<10
APR							
08...	1315	0	40	<1	10	<10	<10
MAY							
27...	1000	0	100	<1	10	<10	<10
AUG							
24...	0845	0	50	<1	0	<10	87

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						
17...	12	<1	.0	0	0	<3
APR						
08...	<10	2	.0	0	1	7
MAY						
27...	<10	<1	.0	0	0	<3
AUG						
24...	<10	1	.0	0	0	<3

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)
OCT									
17...	0850	.00	.00	.00	.00	.00	.00	.00	.00
APR									
08...	1315	.00	.00	.00	.00	.00	.00	.00	.00
MAY									
27...	1000	.00	.00	.00	.00	.00	.00	.00	.00
AUG									
24...	0845	.00	.00	.00	.00	.00	.00	.00	.00

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
OCT 17...	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR 08...	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAY 27...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 24...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT 17...	.00	.00	.00	.00	0	.00	.00	.00	.00
APR 08...	.00	.00	.00	.00	0	.00	.00	.00	.00
MAY 27...	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 24...	.00	.00	.00	.00	0	.00	.00	.00	.00

08155505 BARTON CREEK BELOW BARTON SPRINGS AT AUSTIN, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 30°15'50", long 97°46'03", Travis County, Hydrologic Unit 12090205, 800 ft (240 m) upstream from bridge on Barton Springs Road and 1.8 mi (2.9 km) southwest of State Capitol at Austin.

DRAINAGE AREA.--125.3 mi² (324.5 km²).

PERIOD OF RECORD.--Occasional discharge measurements: January 1975 to current year. Chemical, biochemical, and pesticide analyses: January 1975 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 28...	1330	50	587	7.3	19.5	0	.50	10.6	115	.4	84	K3
APR 08...	1240	85	497	7.3	20.5	0	.90	7.8	85	.3	120	28
JUN 16...	1540	4000	397	8.1	22.5	15	160	7.9	92	1.1	37000	8000
AUG 24...	1300	91	588	6.9	22.5	0	.70	7.4	86	.1	130	24

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN 28...	K11	280	31	78	21	18	.5	1.6	250	32	26	.2
APR 08...	88	250	16	67	19	12	.3	1.1	230	24	17	.2
JUN 16...	22000	210	12	65	12	4.7	.1	2.0	200	11	6.2	.1
AUG 24...	64	290	25	85	20	11	.3	1.2	270	20	19	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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...	9.7	337	0	0	1.1	.000	1.1	.050	.59	.64	.020	9.0
APR 08...	8.5	287	4	0	.64	.000	.64	.020	.72	.74	.020	13
JUN 16...	10	231	414	52	.23	.010	.24	.070	1.5	1.6	.080	30
AUG 24...	12	331	7	2	1.4	.000	1.4	.020	.33	.35	.010	.3

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)
APR 08...	1240	0	40	<1	10	<10	<10
AUG 24...	1300	0	50	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR 08...	10	2	.0	0	0	<3
AUG 24...	<10	1	.0	0	0	<3

08155505 BARTON CREEK BELOW BARTON SPRINGS AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
APR 08...	1240	.00	.0	.00	.0	.00	.00	.00	.00
AUG 24...	1300	.00	.0	.00	.0	.00	.00	.00	.00

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
APR 08...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 24...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
APR 08...	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 24...	.00	.00	.00	.00	0	.00	.00	.00	.00

08156700 SHOAL CREEK AT NORTHWEST PARK, AUSTIN, TX

LOCATION.--Lat 30°20'50", long 97°44'41", Travis County, Hydrologic Unit 12090205, at Northwest Park in Austin, 400 ft (122 m) upstream from Shoal Creek Boulevard bridge, 0.5 mi (0.8 km) west of intersection of Burnet Road and Justin Lane, and 5.0 mi (8.0 km) north of State Capitol Building in Austin.

DRAINAGE AREA.--7.03 mi² (18.21 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 661.34 ft (201.576 m) National Geodetic Vertical Datum of 1929 (city of Austin bench mark).

REMARKS.--Records fair. The city of Austin diverts water into the channel above gage during the summer months from a swimming pool at Northwest Park. There is some diversion into and out of the drainage area by storm sewers. This station is part of a hydrologic project to study the rainfall-runoff relationship for the Austin urban area. There are two recording rain gages in the watershed. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--6 years, 3.16 ft³/s (0.0895 m³/s), 6.10 in/yr (155 mm/yr), 2,290 acre-ft/yr (2.82 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,600 ft³/s (413 m³/s) May 24, 1981, gage height, 18.00 ft (5.486 m); no flow for several days each year except 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1885, occurred Apr. 22, 1915, stage and discharge unknown. Flood on Sept. 9, 1921, probably lower than the 1915 flood.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 750 ft³/s (21.2 m³/s), revised, and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 3	2110	1,110	31.4	9.55	2.911	June 11	1105	1,700	48.1	8.57	2.612
May 1	1235	1,120	31.7	7.03	2.143	June 13	1905	1,660	47.0	8.47	2.582
May 16	0255	1,380	39.1	7.74	2.359	June 16	0445	1,640	46.4	8.42	2.566
May 24	0040	1,280	36.2	7.47	2.277	Sept. 3	0540	755	21.4	5.90	1.798
May 24	2310	*14,600	413	18.00	5.486	Sept. 15	0855	997	28.2	6.66	2.030
May 30	1540	1,230	34.8	7.32	2.231						

Minimum daily discharge, 0.01 ft³/s (0.0003 m³/s) Oct. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	.02	.90	.52	3.0	1.5	.22	60	7.7	.77	.06	.10
2	.05	.02	.88	.52	.22	.18	.18	12	19	.60	.10	.10
3	.04	.02	.84	.52	.22	66	.18	3.1	32	.31	.10	46
4	.04	.02	1.3	.52	4.5	4.5	.18	.28	32	.30	.10	.20
5	.04	.02	1.9	.52	5.3	1.2	.14	.08	24	51	.10	.10
6	.09	.02	1.6	.76	1.4	.93	.14	.05	3.2	1.1	.16	.08
7	.03	.02	1.5	.58	.72	2.1	.12	.05	1.7	13	.20	.06
8	.02	.02	7.5	1.7	.52	.90	.15	.05	1.2	1.1	.19	.05
9	.02	.03	3.1	.45	.45	.78	.17	.05	.94	.51	.17	.26
10	.02	.03	.74	.20	4.8	1.1	.16	.05	2.1	.29	.14	.10
11	.02	.03	.52	.16	.54	1.2	.15	.05	383	.15	.12	.08
12	.02	.03	.47	.17	.59	2.7	.13	.08	46	.10	2.4	.06
13	.03	.02	.47	.17	.45	1.1	.14	.05	387	.08	.37	.04
14	.03	.02	.88	.15	.39	.81	.11	.05	100	.07	.10	13
15	.03	.08	3.3	.14	.30	.75	.11	.04	21	.05	.08	46
16	2.7	10	.68	.14	.27	.70	.23	99	238	.06	.07	.45
17	.05	3.9	.64	.14	.22	.67	.70	.44	14	.05	17	.10
18	.67	1.1	.62	.14	.19	.67	.41	.34	7.1	.04	2.8	.08
19	.06	.78	.49	9.7	.78	.59	.13	.10	4.9	.04	.25	.05
20	.03	.69	.43	2.9	.27	.59	.09	.07	3.8	.03	.14	.04
21	.02	.64	.43	.58	.41	.62	.09	.09	3.1	.03	.13	.04
22	.02	2.4	.43	.33	.47	.62	.11	.14	2.5	.03	.11	.04
23	.02	1.1	.43	.29	.37	.59	.97	.23	2.1	.03	.10	.04
24	.01	1.3	.66	.27	1.0	.67	.10	803	1.7	.03	.16	.04
25	.01	8.3	.47	.22	.49	.54	.09	343	7.0	.03	.03	.04
26	.02	6.9	.47	.22	.43	.47	.07	17	1.5	2.2	.03	.04
27	.02	2.0	.47	.21	.31	.45	.06	11	1.1	1.8	.03	.04
28	.12	1.2	.47	.19	.27	.45	.08	6.1	.92	.10	.03	.12
29	.03	1.0	.52	.19	---	.92	.08	12	.80	.04	1.1	.07
30	.02	.92	.52	.19	---	.23	.09	78	1.1	.04	7.4	.05
31	.02	---	.52	.38	---	.23	---	8.9	---	.04	4.3	---
TOTAL	4.43	42.63	34.15	23.17	28.88	94.76	5.58	1455.39	1350.46	74.02	38.07	107.47
MEAN	.14	1.42	1.10	.75	1.03	3.06	.19	46.9	45.0	2.39	1.23	3.58
MAX	2.7	10	7.5	9.7	5.3	66	.97	803	387	51	17	46
MIN	.01	.02	.43	.14	.19	.18	.06	.04	.80	.03	.03	.04
CFSM	.02	.22	.17	.12	.16	.47	.03	7.19	6.90	.37	.19	.55
IN.	.03	.24	.19	.13	.16	.54	.03	8.30	7.70	.42	.22	.61
AC-FT	8.8	85	68	46	57	188	11	2890	2680	147	76	213
(††)	1.14	3.45	1.14	1.45	1.25	5.02	1.02	12.45	11.36	2.31	2.00	3.31

CAL YR 1980 TOTAL 538.10 MEAN 1.47 MAX 112 MIN .00 CFSM .23 IN 3.07 AC-FT 1070 †† 31.25
WTR YR 1981 TOTAL 3259.01 MEAN 8.93 MAX 803 MIN .01 CFSM 1.37 IN 18.59 AC-FT 6460 †† 45.90

†† Weighted-mean rainfall on watershed, in inches, based on two rain gages.

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°16'35", long 97°45'00", Travis County, Hydrologic Unit 12090205, at downstream side of bridge on 12th Street and 0.6 mi (1.0 km) west of the State Capitol Building in Austin.

DRAINAGE AREA.--12.8 mi² (33.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1975 to current year. Periodic discharge measurements only: November 1974 to current year.

GAGE.--Flood-hydrograph recorder and crest-stage gage. Datum of gage is 455.33 ft (138.785 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Additional storm rainfall-runoff data for this site can be obtained from the report "Hydrologic Data for Urban Studies in the Austin, Texas Metropolitan Area, 1980." Two recording rain gages are located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s (453 m³/s) May 24, 1981, gage height, 23.22 ft (7.077 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,000 ft³/s (453 m³/s) May 24, gage height, 23.22 ft (7.077 m).

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1975 to current year. Water temperatures: January 1975 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAR												
03...	2130	498	178	--	--	150	450	--	--	6.4	--	--
03...	2145	500	154	--	--	--	--	--	--	>44	--	--
03...	2200	2300	168	--	--	200	2700	--	--	46	--	--
03...	2215	2220	163	--	--	--	--	--	--	--	--	--
03...	2230	1810	146	8.0	--	--	--	--	--	--	--	--
03...	2245	1560	138	--	--	--	--	--	--	15	--	--
03...	2300	1550	125	--	--	250	1800	--	--	13	--	--
MAY												
24...	0100	314	252	--	--	--	--	--	--	12	--	--
24...	0130	1040	180	7.8	--	--	--	--	--	--	--	--
24...	0145	1050	208	--	--	--	--	--	--	14	--	--
24...	0200	907	179	--	--	--	--	--	--	6.8	--	--
24...	0215	763	156	--	--	--	--	--	--	6.7	--	--
JUN												
16...	0420	385	473	--	--	35	250	--	--	3.3	--	--
16...	0430	405	455	--	--	--	--	--	--	--	--	--
16...	0445	708	438	--	--	--	--	--	--	5.5	230000	78000
16...	0500	1460	263	7.9	--	--	--	--	--	7.5	--	--
16...	0515	2410	249	--	--	45	2600	--	--	10	--	--
16...	0530	3230	219	--	--	--	--	--	--	7.5	--	--
16...	0545	3310	181	--	--	140	1400	--	--	7.2	350000	80000
16...	0900	609	263	7.8	21.0	50	290	7.9	89	2.4	210000	72000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
MAR												
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	2.1	3.6	--	2.7	56	19	3.1	.1
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	79	3	29	1.5	4.7	.2	3.3	76	2.6	6.7	.1
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	120000	--	--	--	--	--	--	--	--	--	--	--
16...	--	120	44	43	2.9	10	.4	3.1	75	40	13	.1
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	320000	--	--	--	--	--	--	--	--	--	--	--
16...	100000	110	16	39	2.5	6.5	.3	3.3	92	19	8.2	.1

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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)
MAR												
03...	--	--	1320	69	.51	.050	.56	.090	5.2	5.3	1.100	66
03...	--	--	--	--	.34	.040	.38	.240	17	17	3.700	190
03...	--	--	4060	32	.37	.030	.40	.200	14	14	3.400	250
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	4.3	--	--	--	.65	.030	.68	.240	11	11	.600	--
03...	--	--	--	--	.42	.050	.47	.270	9.7	10	1.300	149
03...	--	--	2780	23	--	--	--	--	--	--	--	150
MAY												
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	3.1	97	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	.26	.040	.30	.120	.78	.90	.110	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	.34	.030	.37	.100	.76	.86	.130	18
JUN												
16...	--	--	604	162	2.3	.110	2.4	.190	1.1	1.3	.410	19
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	2.0	.130	2.1	.190	1.2	1.4	.670	26
16...	6.8	164	--	--	2.0	.130	2.1	.190	.91	1.1	.490	3.1
16...	--	--	2460	230	1.0	.100	1.1	.140	1.3	1.4	1.700	15
16...	--	--	--	--	--	--	--	--	--	--	--	9.4
16...	--	--	2340	208	.44	.120	.56	.250	1.7	1.9	2.000	26
16...	7.3	141	542	68	.77	.040	.81	.110	1.7	1.8	.300	7.0

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)
MAR							
03...	2145	3	20	1	0	<10	100
MAY							
24...	0100	3	200	<1	0	<10	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)
MAR						
03...	13	2	.0	0	0	7
MAY						
24...	<10	2	.0	0	0	10

DATE	TIME	PCB TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
MAR									
03...	2215	.30	.0	.00	1.4	.38	.40	.97	.14
MAY									
23...	0115	.00	.0	.00	.0	.00	.00	.00	.46
23...	0230	.00	.0	.00	.1	.00	.03	.00	.84
JUN									
16...	0430	.00	.0	.00	.1	.00	.07	.17	.09

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
MAR									
03...	.12	.00	.00	.00	.03	.03	.00	.04	.00
MAY									
23...	.00	.00	.00	.00	.00	.00	.04	.02	.00
23...	.00	.00	.00	.00	.00	.01	.00	.07	.00
JUN									
16...	.00	.00	.00	.00	.00	.00	.00	.02	.00

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR									
03...	.00	.00	.00	.00	0	.00	.15	.00	.00
MAY									
23...	.00	.00	.00	.00	0	.00	.08	.03	.00
23...	.00	.00	.00	.00	0	.00	.13	.02	.00
JUN									
16...	.00	.00	.00	.00	0	.00	--	--	--

08157900 TOWN LAKE AT AUSTIN, TX

LOCATION.--Lat 30°14'56", long 97°43'03", Travis County, Hydrologic Unit 12090205, at Longhorn Dam on the Colorado River at Austin, 1.5 mi (2.4 km) downstream from Interstate Highway 35, and 2.3 mi (3.7 km) southeast of the State Capitol in Austin.

DRAINAGE AREA.--38,390 mi² (99,430 km²), approximately, of which 12,880 mi² (33,360 km²) probably is noncontributing.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: February 1975 to current year.

301559097424801 TOWN LAKE SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
04...	1130	1.00	454	7.9	16.5	8.3	86
04...	1132	10.0	456	7.9	16.5	8.3	86
04...	1135	20.0	458	7.9	16.5	8.3	86
APR							
27...	1050	1.00	509	8.0	18.5	8.9	96
27...	1053	10.0	509	8.0	18.0	8.9	95
27...	1056	23.0	509	8.0	18.0	8.7	93
MAY							
26...	1120	1.00	353	7.7	22.0	7.8	90
26...	1122	10.0	358	7.8	20.5	8.2	91
26...	1125	24.0	381	7.8	20.0	8.2	91

301500097424801 TOWN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR										
04...	1100	1.00	447	7.9	16.5	.20	10	57	8.0	83
04...	1102	10.0	447	7.9	16.5	--	--	--	8.1	84
04...	1104	20.0	447	7.9	16.5	--	--	--	8.0	83
04...	1106	28.0	447	7.9	16.5	--	10	66	9.2	96
APR										
27...	1015	1.00	508	8.2	18.0	3.1	5	1.2	9.2	98
27...	1020	10.0	508	8.2	18.0	--	--	--	9.1	97
27...	1030	22.0	508	8.3	18.0	--	5	2.8	9.2	98
MAY										
26...	1054	1.00	331	7.7	22.5	.20	35	56	7.5	87
26...	1056	10.0	350	7.7	20.5	--	--	--	8.1	90
26...	1058	20.0	372	7.8	20.0	--	--	--	8.2	91
26...	1100	25.0	372	7.6	20.5	--	35	72	7.9	88

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
MAR										
04...	1.0	18000	3700	12000	180	37	43	17	24	.8
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	1.1	--	--	--	190	47	47	17	25	.8
APR										
27...	.9	170	96	19	190	45	45	20	29	.9
27...	--	--	--	--	--	--	--	--	--	--
27...	.4	--	--	--	190	35	45	20	29	.9
MAY										
26...	1.5	60000	14000	8300	150	26	43	9.4	12	.4
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	1.0	--	--	--	140	34	36	13	19	.7

TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 TOWN LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAR										
04...	3.0	140	37	45	.2	5.5	259	60	5	.25
04...	--	--	--	--	--	--	--	--	--	.03
04...	--	--	--	--	--	--	--	--	--	--
04...	3.0	140	36	44	.2	5.8	262	52	5	.02
APR										
27...	3.6	150	37	50	.3	7.3	282	1	0	--
27...	--	--	--	--	--	--	--	--	--	--
27...	3.5	160	37	46	.3	7.5	285	--	--	.27
MAY										
26...	1.7	120	3.4	18	.1	7.0	167	50	30	.59
26...	--	--	--	--	--	--	--	--	--	.41
26...	--	--	--	--	--	--	--	--	--	--
26...	3.4	110	12	33	.2	6.3	189	53	14	.31

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR									
04...	.020	.27	.040	.66	.70	.97	.100	20	2
04...	.240	.27	.030	1.1	1.10	1.4	.120	30	10
04...	--	--	--	--	--	--	--	--	--
04...	.240	.26	.050	.67	.72	.98	.100	130	40
APR									
27...	--	.32	.040	1.6	1.60	1.9	.030	50	7
27...	--	--	--	--	--	--	--	--	--
27...	.010	.28	.070	.42	.49	.77	.040	40	10
MAY									
26...	.020	.61	.120	.83	.95	1.6	.060	120	3
26...	.010	.42	.140	.74	.88	1.3	.060	20	10
26...	--	--	--	--	--	--	--	--	--
26...	.010	.32	.160	.94	1.10	1.4	.080	40	4

301503097424701 TOWN LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
04...	1042	1.00	435	8.1	16.5	9.1	95
04...	1045	10.0	440	8.1	16.0	9.1	94
04...	1050	22.0	447	8.1	16.0	9.0	93
APR							
27...	1100	1.00	509	8.0	18.5	9.1	98
27...	1105	10.0	509	8.0	18.0	9.0	96
27...	1110	16.0	509	8.0	18.0	9.0	96

TOWN LAKE AT AUSTIN, TX--Continued

301500097440801 TOWN LAKE SITE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
04...	1155	1.00	429	8.0	16.5	8.3	86
04...	1157	10.0	429	8.0	16.5	8.3	86
04...	1158	20.0	429	8.0	16.0	8.2	85
04...	1200	25.0	429	8.0	16.5	8.0	83
APR							
27...	1126	1.00	507	8.2	17.5	9.0	95
27...	1130	13.0	507	8.2	17.5	8.9	94
MAY							
26...	1210	1.00	362	7.6	21.5	7.1	81
26...	1212	10.0	360	7.6	21.5	7.0	80
26...	1214	16.0	360	7.6	21.5	7.0	80

301504097440901 TOWN LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
04...	1205	1.00	426	8.0	16.5	8.7	91
04...	1207	10.0	426	8.0	16.5	9.0	94
04...	1209	20.0	426	8.0	16.5	9.0	94
04...	1210	28.0	426	8.0	16.5	8.9	93
APR							
27...	1115	1.00	507	8.2	18.0	9.0	96
27...	1118	10.0	507	8.2	17.5	9.0	95
27...	1120	20.0	507	8.2	17.5	8.9	94
27...	1122	30.0	507	8.2	17.5	8.8	93
MAY							
26...	1200	1.00	362	7.5	22.0	7.0	80
26...	1202	10.0	368	7.5	21.5	7.0	80
26...	1204	20.0	368	7.5	21.5	7.0	80
26...	1206	25.0	368	7.5	21.5	6.8	77

301544097445201 TOWN LAKE SITE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
04...	1220	1.00	401	8.0	17.0	8.4	88
04...	1222	11.0	407	8.0	17.0	8.2	86
APR							
27...	1150	1.00	509	8.1	17.0	8.6	90
27...	1155	8.00	509	8.1	17.0	8.6	90
MAY							
26...	1235	1.00	397	7.6	21.0	7.6	85
26...	1238	7.00	397	7.6	21.0	7.5	84

TOWN LAKE AT AUSTIN, TX--Continued

301546097445101 TOWN LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
04...	1230	1.00	465	8.1	16.5	8.4	88
04...	1232	10.0	452	8.1	16.5	8.4	88
04...	1235	18.0	445	8.1	16.5	8.4	88
APR							
27...	1140	1.00	508	8.2	17.0	8.6	90
27...	1145	13.0	507	8.2	17.0	8.7	91
MAY							
26...	1229	1.00	402	7.5	21.5	7.2	82
26...	1231	11.0	402	7.5	21.5	7.1	81

301556097452301 TOWN LAKE SITE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
04...	1240	1.00	322	7.9	17.5	8.3	88
04...	1242	10.0	322	7.9	17.5	8.3	88
04...	1245	14.0	322	7.9	17.5	8.2	87
APR							
27...	1216	1.00	510	8.0	17.5	8.8	93
27...	1218	13.0	510	8.0	17.0	8.9	93
MAY							
26...	1314	1.00	406	7.5	21.5	7.2	82
26...	1316	10.0	406	7.5	21.5	6.9	78

301558097452201 TOWN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
MAR										
04...	1250	1.00	479	8.2	16.5	.20	5	44	8.7	91
04...	1252	10.0	479	8.1	16.5	--	--	--	8.6	90
04...	1254	18.0	398	8.0	17.0	--	10	92	8.8	93
APR										
27...	1200	1.00	508	8.0	17.5	2.70	5	1.2	8.7	92
27...	1205	10.0	508	8.1	17.0	--	--	--	8.7	91
27...	1210	21.0	508	8.1	17.0	--	5	1.7	8.6	90
MAY										
26...	1245	1.00	385	7.7	21.0	.20	30	69	8.2	92
26...	1247	10.0	382	7.7	21.0	--	--	--	8.2	92
26...	1249	20.0	382	7.6	21.0	--	30	66	8.2	92

DATE	OXYGEN DEMAND BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	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
MAR										
04...	.9	3800	K2400	K5000	180	43	42	19	28	.9
04...	--	--	--	--	--	--	--	--	--	--
04...	1.7	--	--	--	170	35	42	17	24	.8
APR										
27...	1.0	62	57	18	190	42	44	20	28	.9
27...	--	--	--	--	--	--	--	--	--	--
27...	.6	--	--	--	190	45	45	20	28	.9
MAY										
26...	1.0	29000	7800	5600	160	21	43	13	18	.6
26...	--	--	--	--	--	--	--	--	--	--
26...	1.2	--	--	--	160	28	42	13	18	.6

TOWN LAKE AT AUSTIN, TX--Continued

301558097452201 TOWN LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAR										
04...	3.2	140	38	49	.2	6.0	270	65	8	.14
04...	--	--	--	--	--	--	--	--	--	.12
04...	2.9	140	32	36	.2	6.4	245	121	14	.15
APR										
27...	3.5	150	37	49	.3	7.3	279	0	0	.00
27...	--	--	--	--	--	--	--	--	--	--
27...	3.4	150	36	47	.3	7.3	277	6	4	--
MAY										
26...	3.4	140	19	32	.2	.4	213	35	12	.39
26...	--	--	--	--	--	--	--	--	--	.38
26...	3.8	130	22	32	.2	6.8	216	52	14	.37

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR									
04...	.010	.15	.000	.71	.71	.86	.070	30	3
04...	.010	.13	.000	.86	.86	.99	.040	40	10
04...	.020	.17	.000	1.0	1.00	1.2	.080	40	4
APR									
27...	--	.29	.060	.43	.49	.78	.050	10	6
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	1.10	--	.020	10	6
MAY									
26...	.010	.40	.150	.77	.92	1.3	.050	30	4
26...	.010	.39	.150	.81	.96	1.4	.050	120	10
26...	.010	.38	.110	.75	.86	1.2	.050	50	5

301712097470701 TOWN LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR										
04...	1325	1.00	492	8.3	16.0	1.80	5	2.0	8.7	90
04...	1327	14.0	492	8.2	16.0	--	5	2.0	8.4	87
APR										
27...	1220	1.00	496	8.4	17.0	2.30	5	1.5	9.1	95
27...	1223	10.0	496	8.4	17.0	--	--	--	9.1	95
27...	1226	17.0	504	8.4	17.0	--	5	1.5	8.8	92
MAY										
26...	1345	1.00	375	7.8	20.0	.20	30	66	6.9	77
26...	1347	10.0	374	7.8	20.0	--	--	--	7.0	78
26...	1349	18.0	374	7.8	21.0	--	30	62	6.8	76

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
MAR										
04...	.7	820	290	640	190	47	42	20	30	1.0
04...	.7	--	--	--	--	--	--	--	--	--
APR										
27...	1.4	36	K14	K14	190	52	44	20	29	.9
27...	--	--	--	--	--	--	--	--	--	--
27...	1.0	--	--	--	190	52	44	20	29	.9
MAY										
26...	.8	3300	1600	8100	150	36	37	13	19	.7
26...	--	--	--	--	--	--	--	--	--	--
26...	.8	--	--	--	150	26	37	13	19	.7

TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 TOWN LAKE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAR										
04...	3.4	140	39	55	.2	5.8	280	1	0	.13
04...	--	--	--	--	--	--	--	19	3	.10
APR										
27...	3.6	140	40	47	.3	7.4	276	3	2	--
27...	--	--	--	--	--	--	--	--	--	--
27...	3.7	140	37	50	.3	7.4	276	2	2	--
MAY										
26...	3.2	110	31	34	.2	6.3	210	133	13	.34
26...	--	--	--	--	--	--	--	--	--	--
26...	1.5	120	18	34	.2	6.4	201	32	14	.34

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR									
04...	.010	.14	.000	.69	.69	.83	.050	10	1
04...	.020	.12	.000	.59	.59	.71	.030	--	--
APR									
27...	--	--	--	--	.45	--	.030	20	4
27...	--	--	--	--	--	--	--	--	--
27...	--	.19	.040	.71	.75	.94	.030	20	3
MAY									
26...	.010	.35	.140	.75	.89	1.2	.050	50	2
26...	--	--	--	--	--	--	--	--	--
26...	.010	.35	.150	.75	.90	1.3	.050	40	1

301601097454001 TOWN LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
04...	1310	1.00	276	7.8	18.0	8.5	91
04...	1315	5.00	280	7.8	18.0	8.3	89
APR							
27...	1236	1.00	554	7.2	21.5	11.7	133
MAY							
26...	1322	1.00	447	7.5	24.5	8.4	101

TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 TOWN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)
MAR							
04...	1100	1.00	2	60	<1	10	<10
04...	1102	10.0	--	--	--	--	--
04...	1106	28.0	2	60	<1	0	<10
APR							
27...	1015	1.00	--	--	--	--	--
27...	1030	22.0	--	--	--	--	--
MAY							
26...	1054	1.00	2	200	<1	0	<10
26...	1056	10.0	--	--	--	--	--
26...	1100	25.0	2	200	<1	0	<10

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
MAR							
04...	20	<10	2	.0	0	0	5
04...	30	--	10	--	--	--	--
04...	130	31	40	.0	0	0	20
APR							
27...	50	--	7	--	--	--	--
27...	40	--	10	--	--	--	--
MAY							
26...	120	<10	3	.0	0	0	4
26...	20	--	10	--	--	--	--
26...	40	<10	4	.0	0	0	<3

301712097470701 TOWN LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)
MAR							
04...	1325	1.00	2	70	1	10	10
APR							
27...	1220	1.00	--	--	--	--	--
27...	1226	17.0	--	--	--	--	--
MAY							
26...	1345	1.00	1	200	<1	0	<10
26...	1349	18.0	1	200	<1	0	<10

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
MAR							
04...	10	10	1	.0	0	0	3
APR							
27...	20	--	4	--	--	--	--
27...	20	--	3	--	--	--	--
MAY							
26...	50	<10	2	.0	0	0	<3
26...	40	<10	1	.4	0	0	<3

TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 TOWN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)
MAR									
04...	1100	1.00	.00	.00	.00	.00	.00	.00	.00
04...	1106	28.0	.00	.00	.00	.00	.01	.01	.00
MAY									
26...	1054	1.00	.00	.00	.00	.00	.00	.00	.00
26...	1100	25.0	.00	.00	.00	.00	.00	.00	.00

DATE	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN 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)
MAR									
04...	.04	.00	.00	.00	.01	.00	.00	.01	.00
04...	.03	.00	.00	.00	.01	.00	.00	.00	.00
MAY									
26...	.07	.00	.00	.00	.00	.00	.00	.01	.00
26...	.07	.00	.00	.00	.00	.00	.00	.02	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR								
04...	.00	.00	.00	.00	.00	.22	.00	.00
04...	.00	.00	.00	.00	.00	.16	.00	.00
MAY								
26...	.00	.00	.00	.00	.00	.05	.01	.00
26...	.00	.00	.00	.00	.00	.14	.01	.00

301712097470701 TOWN LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)
MAR									
04...	1325	1.00	.00	.00	.00	.00	.00	.00	.00
04...	1327	14.0	.00	.00	.00	.00	.00	.00	.00
MAY									
26...	1345	1.00	.00	.00	.00	.00	.00	.00	.00
26...	1349	18.0	.00	.00	.00	.00	.00	.00	.00

DATE	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN 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)
MAR									
04...	.00	.00	.00	.00	.00	.00	.00	.00	.00
04...	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAY									
26...	.07	.00	.00	.00	.00	.00	.00	.00	.00
26...	.06	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR								
04...	.00	.00	.00	.00	.00	.62	.00	.00
04...	.00	.00	.00	.00	.00	.71	.00	.00
MAY								
26...	.00	.00	.00	.00	.00	.12	.01	.00
26...	.00	.00	.00	.00	.00	.12	.01	.00

08158000 COLORADO RIVER AT AUSTIN, TX
(National stream-quality accounting network)

LOCATION.--Lat 30°14'40", long 97°41'39", Travis County, Hydrologic Unit 12090205, on right bank 1,000 ft (305 m) upstream from upstream bridge on U.S. Highway 183 in Austin, 1.4 mi (2.3 km) downstream from Longhorn Dam, and at mile 290.3 (467.1 km).

DRAINAGE AREA (revised).-39,009 mi² (101,033 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1898 to current year. Records of daily discharge for Dec. 13-26, 1914, and Feb. 9-17, 1915, published in WSP 408, have been found unreliable and should not be used.

REVISED RECORDS.--WSP 508: 1915(m). WSP 528: 1900(M), 1918(m). WSP 548: 1901-16. WSP 1342: Drainage area. WSP 1562: 1908, 1929(M), 1936.

GAGE.--Water-stage recorder. Datum of gage is 402.27 ft (122.612 m) National Geodetic Vertical Datum of 1929. Prior to June 19, 1939, all records collected at or near Congress Avenue Bridge 3.9 mi (6.3 km) upstream at datum 19.6 ft (5.97 m) higher; prior to June 18, 1915, nonrecording gages, recording gages thereafter; June 20, 1939, to Oct. 16, 1963, at site 1,000 ft (305 m) downstream from present site at datum 5.0 ft (1.52 m) higher.

REMARKS.--Water-discharge records fair. Since 1937, at least 10 percent of drainage area regulated by reservoirs. Flow largely regulated by Lake Travis (station 08154500). The city of Austin reported that 80,380 acre-ft (99.1 hm³) was diverted for municipal use above station and 48,660 acre-ft (60.0 hm³) of treated sewage was returned below station. Many other diversions above Lake Buchanan for irrigation, municipal supplies, and oilfield operations. Gage-height telemeter at station.

AVERAGE DISCHARGE.--38 years (water years 1899-1936) unregulated, 2,711 ft³/s (76.78 m³/s), 1,964,000 acre-ft/yr (2.42 km³/yr); 45 years (water years 1937-81) regulated, 2,013 ft³/s (57.01 m³/s), 1,458,000 acre-ft/yr (1.80 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 481,000 ft³/s (13,600 m³/s) June 15, 1935, gage height, 50 ft (15.2 m), present site and datum, from floodmark; minimum daily, 10 ft³/s (0.28 m³/s) Dec. 17, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 51 ft (15.5 m) July 7, 1869, present site and datum (adjusted to present site on basis of record for flood of June 15, 1935), determined from information concerning stage at former site furnished by Dean T. U. Taylor.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,100 ft³/s (767 m³/s) May 25 at 0300 hours, gage height, 25.76 ft (7.852 m); minimum daily, 52 ft³/s (1.47 m³/s) Mar. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	694	789	906	110	511	122	1530	2640	2950	5090	2580	2240
2	776	683	1050	379	123	52	1630	2580	2450	3810	2450	1420
3	895	122	1090	105	771	1880	1420	1870	2610	3780	2490	1770
4	771	95	515	157	1180	5050	1180	2260	2650	3800	2210	1730
5	758	86	228	911	862	4160	1180	1470	5210	4740	2670	2180
6	746	61	102	509	391	3780	1350	1360	6370	3980	2440	1860
7	748	73	95	1360	97	3760	1780	1350	6000	3900	2520	1810
8	755	81	565	1840	94	3250	2100	1550	6070	3810	3230	1830
9	106	83	2040	2050	149	2380	2100	1870	5970	3780	2470	2140
10	94	943	1310	1230	1160	369	1650	762	5790	3780	2370	2110
11	84	106	523	1420	1630	2170	2130	1670	19600	3750	2940	2490
12	77	71	526	1020	447	2430	2100	1830	10200	3590	2670	2750
13	191	91	118	997	87	2670	2120	1870	12600	3780	2720	2510
14	78	79	118	727	86	3850	2140	1870	14900	3800	2720	2550
15	88	62	880	554	80	3840	2030	1990	12100	3770	2990	2300
16	605	839	429	452	124	3820	1920	2800	19100	3730	2800	2070
17	259	1890	979	94	74	3810	1910	2230	22100	2640	2930	2130
18	221	811	1120	83	267	3680	1930	2240	21300	1840	2940	1790
19	120	443	772	686	471	2980	1900	2290	19600	1730	2950	1740
20	292	157	196	554	500	2010	2350	2230	16700	1700	2940	1760
21	103	607	116	498	443	2180	3420	2500	16700	2000	2760	1750
22	99	95	130	556	219	2210	2080	2440	15300	1970	2690	1480
23	271	100	178	1010	594	1710	3090	2830	9340	1980	2700	1480
24	118	281	119	676	322	2200	2330	3370	6130	2270	2710	1470
25	116	796	115	174	68	2160	2080	9950	6260	2340	2690	1120
26	116	2130	128	267	64	2290	2110	2800	6160	2380	2670	1110
27	2020	155	109	495	57	1460	2130	3100	6070	2350	2670	1100
28	1110	107	109	600	56	1440	2130	2740	5990	2440	2670	1080
29	732	102	1200	212	---	1390	2340	2650	5980	2170	2690	1080
30	1140	105	1620	324	---	1480	2380	3120	5860	2200	2780	574
31	873	---	943	541	---	2130	---	2490	---	2420	994	---
TOTAL	15056	12043	18329	20591	10927	76713	60540	76722	298060	95320	82054	53424
MEAN	486	401	591	664	390	2475	2018	2475	9935	3075	2647	1781
MAX	2020	2130	2040	2050	1630	5050	3420	9950	22100	5090	3230	2750
MIN	77	61	95	83	56	52	1180	762	2450	1700	994	574
AC-FT	29860	23890	36360	40840	21670	152200	120100	152200	591200	189100	162800	106000

CAL YR 1980 TOTAL 437734 MEAN 1196 MAX 2890 MIN 30 AC-FT 868200
WTR YR 1981 TOTAL 819779 MEAN 2246 MAX 22100 MIN 52 AC-FT 1626000

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1947 to October 1973. Chemical and biochemical analyses: October 1973 to current year. Sediment records: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1947 to current year.
WATER TEMPERATURES: October 1947 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 737 micromhos Jan. 12, 1964; minimum daily, 243 micromhos Dec. 2, 1953.
WATER TEMPERATURES: Maximum daily, 33.0°C July 25, 1979;minimum daily, 6.0°C Jan. 28, 1948, Feb. 4, 1949.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 566 micromhos Nov. 10; minimum daily, 300 micromhos Oct. 17.
WATER TEMPERATURES: Maximum daily, 26.5°C Sept. 7, 9; minimum daily, 10.5°C Feb. 12-14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 20...	0920	357	514	7.4	23.5	2.0	6.2	73	.6	200	130
NOV 17...	1230	1860	497	7.3	16.0	2.0	5.0	51	.9	2500	760
DEC 15...	1000	241	526	7.6	17.0	2.0	9.4	97	1.1	620	2100
JAN 12...	1215	1580	535	7.8	11.0	.30	11.4	103	.1	1000	K11
FEB 26...	0930	45	530	7.6	16.5	1.0	8.9	92	1.4	49	230
MAR 16...	1030	3820	511	7.2	14.0	1.4	10.9	106	.5	65	41
APR 20...	0930	2810	515	7.1	18.0	1.5	9.8	104	.3	230	71
MAY 11...	1040	1000	514	7.9	18.0	.70	12.8	135	.5	26	24
JUN 08...	0930	6530	514	7.7	19.0	4.1	6.6	73	.6	500	140
JUL 13...	1145	3750	491	7.3	26.5	4.7	6.4	80	1.1	140	64
AUG 17...	1100	3670	463	8.2	27.0	1.3	5.4	68	.9	K270	120
SEP 21...	1145	3190	504	7.1	23.0	2.4	7.9	92	1.1	620	100

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 20...	200	36	48	19	28	.9	3.6	162	33	47	.3
NOV 17...	200	39	49	18	26	.8	3.4	157	31	48	.3
DEC 15...	180	41	41	19	26	.8	3.3	140	35	48	.2
JAN 12...	200	56	44	21	30	.9	3.0	140	36	56	.3
FEB 26...	210	47	50	20	29	.9	3.0	160	40	49	.2
MAR 16...	200	57	46	20	29	.9	3.2	140	41	54	.2
APR 20...	200	49	45	21	29	.9	3.4	150	37	48	.3
MAY 11...	200	42	48	20	30	.9	3.7	160	39	55	.2
JUN 08...	200	57	46	20	28	.9	3.5	140	41	54	.2
JUL 13...	200	48	48	19	26	.8	1.7	150	43	34	.2
AUG 17...	180	32	45	17	21	.7	3.3	150	21	37	.2
SEP 21...	180	32	45	17	21	.7	3.2	150	17	41	.2

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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)
OCT 20...	9.3	284	286	--	--	.24	.22	.060	.050	.49	.50
NOV 17...	9.6	286	280	--	--	.39	.40	.050	.050	.44	.34
DEC 15...	7.6	281	265	--	--	.26	.25	.070	.060	.08	.08
JAN 12...	7.2	280	282	--	--	.32	.30	.070	.020	.53	.50
FEB 26...	5.2	297	294	--	--	.24	.26	.020	.050	1.1	.91
MAR 16...	7.3	308	286	--	--	.27	.30	.080	.060	.60	.75
APR 20...	7.3	295	281	--	--	.29	.18	.070	.050	.69	.44
MAY 11...	5.8	302	298	--	--	.14	.35	.100	.070	.57	.58
JUN 08...	8.5	302	288	--	--	.28	.68	.040	.060	.68	.53
JUL 13...	8.1	279	272	--	--	.57	.41	.130	.080	.49	.48
AUG 17...	9.5	255	244	.15	.010	.16	.15	.070	.090	.68	.44
SEP 21...	10	213	245	--	--	.15	.16	.140	.140	.40	.36

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 20...	.55	.55	.120	.090	13	--	--	458	441	41
NOV 17...	.49	.39	.040	.020	--	11	.3	5	25	83
DEC 15...	.15	.14	.090	.090	3.7	--	--	33	21	47
JAN 12...	.60	.52	.060	.020	3.7	--	--	3	13	95
FEB 26...	1.10	.96	.040	.030	--	3.6	1.0	7	.85	52
MAR 16...	.68	.81	.030	.040	4.0	--	--	9	93	98
APR 20...	.76	.49	.020	.020	6.7	--	--	10	76	80
MAY 11...	.67	.65	.040	.060	--	6.5	.5	12	32	87
JUN 08...	.72	.59	.020	.010	3.4	--	--	26	458	81
JUL 13...	.62	.56	.000	.010	2.7	--	--	19	192	75
AUG 17...	.75	.53	.010	.020	--	3.9	1.7	5	50	77
SEP 21...	.54	.50	.010	.010	3.9	--	--	4	34	41

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)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)
NOV 17...	1230	1	0	1	0	0	70	4	<1	0	0
FEB 26...	0930	1	0	1	100	30	70	1	<1	10	0
MAY 11...	1040	1	0	1	100	20	80	1	<1	10	0
AUG 17...	1100	1	0	2	200	100	60	0	<1	0	0

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
NOV 17...	0	1	<3	4	1	3	110	--	<10	10
FEB 26...	10	0	<1	3	1	2	170	150	20	4
MAY 11...	10	2	<3	4	0	4	10	0	30	6
AUG 17...	0	2	<3	9	5	4	3000	3000	11	12

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV 17...	8	2	10	6	4	.1	.1	.0	2	0
FEB 26...	3	1	10	1	9	.1	.1	.0	5	0
MAY 11...	4	2	10	1	9	.2	.2	.0	12	12
AUG 17...	12	0	200	200	5	.1	.1	.0	7	5

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 17...	2	0	0	0	0	0	0	130	110	20
FEB 26...	7	0	0	0	0	0	0	10	0	10
MAY 11...	0	0	0	0	0	0	0	0	--	<3
AUG 17...	2	0	0	0	1	1	0	30	--	<3

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 17,80		MAR 16,81		MAY 11,81		JUN 8,81	
TIME	1230		1030		1040		0930	
TOTAL CELLS/ML	390		130		180		90	
DIVERSITY: DIVISION	1.6		0.5		1.1		0.9	
.CLASS	1.6		0.5		1.1		0.9	
..ORDER	2.1		0.9		1.8		0.9	
...FAMILY	2.5		0.9		1.8		0.9	
....GENUS	2.5		0.9		2.3		0.9	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)								
.BACILLARIOPHYCEAE								
..ACHNANTHALES								
...ACHNANTHACEAE								
....ACHNANTHES	13	3	13	10	--	-	--	-
....COCCONEIS	--	-	--	-	26	14	--	-
....RHOICOSPHENIA	--	-	--	-	77#	43	--	-
..BACILLARIALES								
...NITZSCHIACEAE								
....NITZSCHIA	64#	17	--	-	--	-	--	-
..EUPODISCALES								
...COSCINODISCACEAE								
....CYCLOTELLA	13	3	100#	80	26	14	64#	71
..FRAGILARIALES								
...FRAGILARIACEAE								
....SYNEDRA	--	-	--	-	--	-	--	-
..NAVICULALES								
...GOMPHONEMACEAE								
....GOMPHONEMA	--	-	--	-	--	-	--	-
...NAVICULACEAE								
....NAVICULA	--	-	--	-	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....TETRAEDRON	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	13	7	--	-
....OOCYSTIS	51	13	--	-	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	130#	33	--	-	--	-	26#	29
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	13	3	--	-	26	14	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	13	3	13	10	--	-	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	13	7	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	90#	23	--	-	--	-	--	-
....COCCOCHLORIS	--	-	--	-	--	-	--	-
..OSCILLATORIALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	--	-	--	-

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

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	JUL 13,81	AUG 17,81	SEP 21,81
TIME	1145	1100	1145
TOTAL CELLS/ML	190	3300	300
DIVERSITY: DIVISION	1.4	1.0	0.9
.CLASS	1.4	1.0	0.9
..ORDER	1.7	1.8	1.3
...FAMILY	2.0	2.0	1.3
....GENUS	2.0	2.2	1.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..ACHNANTHALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	*	0	--	-
....COCCONEIS	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-
..BACILLARIALES						
...NITZSCHIACEAE						
....NITZSCHIA	--	-	*	0	--	-
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	*	0	72#	24
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	--	-	27	1	14	5
..NAVICULALES						
...GOMPHONEMACEAE						
....GOMPHONEMA	--	-	*	0	14	5
...NAVICULACEAE						
....NAVICULA	39#	20	*	0	--	-
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....TETRAEDRON	13	7	82	2	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	55	2	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	27	1	--	-
....OOCYSTIS	--	-	*	0	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	100#	53	55	2	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	200#	67
....CHLAMYDOMONAS	13	7	150	5	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	13	7	150	5	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	13	7	1900#	57	--	-
....COCCOCHLORIS	--	-	110	3	--	-
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	660#	20	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	27	1	--	-

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

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	15056	517	282	11500	45	1840	33	1320	200
NOV.	1980	12043	524	286	9300	46	1490	33	1080	210
DEC.	1980	18329	525	286	14200	46	2280	33	1640	210
JAN.	1981	20591	525	286	15900	46	2560	33	1840	210
FEB.	1981	10927	520	284	8370	45	1340	33	966	200
MAR.	1981	76713	508	278	57500	44	9160	32	6610	200
APR.	1981	60540	510	279	45500	44	7260	32	5240	200
MAY	1981	76722	485	265	55000	42	8660	30	6270	190
JUNE	1981	298060	482	263	212000	41	33400	30	24200	190
JULY	1981	95320	489	267	68800	42	10900	31	7860	190
AUG.	1981	82054	468	256	56800	40	8860	29	6430	180
SEPT	1981	53424	436	239	34400	37	5290	27	3850	170
TOTAL		819779	**	**	589000	**	93000	**	67300	**
WTD. AVG.		2246	487	266	**	42	**	30	**	190

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	522	522	498	509	537	535	517	508	362	507	472	436
2	534	521	529	530	513	545	513	506	509	498	469	438
3	531	516	520	543	499	543	516	499	507	497	471	438
4	533	540	517	544	520	518	490	506	506	495	464	420
5	530	550	518	535	513	490	515	519	498	495	476	431
6	524	540	525	529	516	488	506	521	507	492	470	435
7	522	524	524	528	512	494	513	508	509	491	462	430
8	523	513	528	522	516	512	508	502	513	493	430	426
9	525	517	522	513	527	510	510	511	510	491	467	432
10	531	566	520	518	532	509	506	510	510	490	460	429
11	536	514	519	519	505	516	508	520	478	489	467	436
12	482	531	525	511	548	507	510	510	447	485	458	428
13	511	537	526	523	511	506	515	512	449	476	472	455
14	493	534	527	526	534	506	511	510	448	483	455	462
15	528	553	524	527	529	509	508	511	495	481	472	446
16	451	539	519	536	531	511	512	505	504	485	449	430
17	300	511	513	537	513	512	510	508	354	486	479	434
18	397	517	515	543	535	508	503	505	450	499	482	432
19	423	519	517	549	530	513	505	508	509	486	474	434
20	437	529	519	512	526	519	509	515	514	485	449	396
21	506	539	524	523	514	512	508	506	515	482	476	436
22	468	540	531	527	518	507	513	510	514	489	477	441
23	511	553	543	532	520	508	503	513	517	483	477	438
24	540	543	553	521	519	512	510	490	518	495	466	441
25	545	530	552	527	505	507	512	450	515	514	470	434
26	502	501	551	523	520	505	511	425	506	504	482	449
27	546	516	543	535	523	507	513	400	502	467	481	441
28	531	535	555	538	529	504	509	425	499	473	471	435
29	526	551	558	515	---	509	515	448	503	469	474	440
30	524	544	535	536	---	508	519	477	501	470	480	446
31	522	---	523	524	---	512	---	460	---	485	474	---

WTR YR 1981 MEAN 500 MAX 566 MIN 300

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	18.0	13.5	11.5	13.0	15.0	15.5	17.0	21.0	23.0	25.5	25.5
2	24.0	---	13.0	11.5	12.0	16.5	16.0	18.0	---	22.0	26.0	25.0
3	23.5	---	---	11.5	12.0	14.5	16.0	18.0	19.0	23.0	26.0	25.5
4	23.5	19.0	13.0	12.0	11.5	15.5	16.0	16.5	18.5	23.0	26.0	25.0
5	23.5	19.0	13.5	13.5	11.5	15.5	16.5	17.0	19.5	23.5	25.5	25.5
6	24.0	18.5	13.5	12.0	11.5	15.5	16.0	17.0	19.0	23.0	26.0	26.0
7	24.0	18.5	14.0	12.0	11.5	15.5	16.0	17.0	18.5	23.0	26.0	26.5
8	24.0	19.0	15.0	11.5	13.0	14.5	16.5	17.0	18.5	---	26.0	26.0
9	23.5	19.5	15.5	11.5	12.0	14.5	16.5	17.0	18.0	23.5	26.0	26.5
10	23.5	19.5	14.5	11.5	13.0	13.5	16.5	18.0	18.5	23.5	26.0	26.0
11	23.5	19.5	14.0	11.5	---	14.0	16.0	18.0	21.0	24.0	26.0	25.5
12	23.0	19.5	14.0	11.5	10.5	13.5	16.5	18.5	21.5	24.0	25.5	25.5
13	23.5	19.0	14.0	11.5	10.5	14.0	16.5	---	20.5	24.0	25.0	26.0
14	23.5	19.0	14.5	11.5	10.5	13.5	16.5	18.5	20.5	24.5	25.5	25.5
15	23.0	18.5	14.5	11.5	11.0	14.5	17.0	18.5	20.5	25.0	26.0	25.5
16	23.0	18.0	14.5	11.5	12.0	14.5	20.5	18.5	21.0	24.5	26.0	25.5
17	23.0	15.5	14.5	11.5	11.5	14.0	17.0	18.5	20.5	24.5	25.5	25.5
18	22.0	---	14.5	11.5	11.5	14.0	16.5	18.5	20.5	24.5	25.5	24.5
19	21.5	15.0	14.5	11.5	13.5	14.0	16.5	19.0	19.5	24.5	25.5	24.5
20	20.5	14.0	13.5	11.5	14.0	13.5	16.5	19.0	19.5	25.0	25.5	23.5
21	21.0	14.5	12.0	11.5	14.0	13.5	17.0	18.5	19.5	25.5	25.5	24.0
22	21.0	14.5	---	11.5	14.0	13.5	16.5	18.5	20.0	25.5	25.0	24.0
23	20.5	14.5	13.0	11.5	14.0	14.0	18.0	18.5	20.5	26.0	25.0	24.0
24	19.5	14.5	13.0	11.0	13.5	14.0	17.0	18.5	20.5	26.0	25.0	24.0
25	21.0	14.5	13.0	11.0	16.0	14.0	16.5	18.5	21.0	26.0	25.5	25.0
26	19.5	13.0	14.0	11.5	14.5	14.0	16.5	18.5	21.5	25.5	25.5	24.0
27	20.5	14.5	11.5	12.0	14.5	14.5	16.5	18.5	21.5	26.0	25.0	24.5
28	19.0	14.5	11.5	12.0	15.5	15.5	16.5	18.5	22.0	25.5	25.0	24.5
29	19.0	13.0	12.0	12.0	---	15.5	17.0	18.5	22.0	26.0	25.5	24.5
30	---	13.5	11.0	13.5	---	15.5	16.5	21.0	23.0	26.0	25.0	24.5
31	18.0	---	11.0	13.0	---	15.5	---	19.5	---	25.5	25.5	---

WTR YR 1981 MEAN 18.5 MAX 26.5 MIN 10.5

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX

LOCATION.--Lat 30°15'47", long 97°40'20", Travis County, Hydrologic Unit 12090205, on U.S. Highway 183, 1.6 mi (2.6 km) south of the intersection of Webberville Road and U.S. Highway 183, and 4.1 mi (6.6 km) east of the State Capitol Building in Austin.

DRAINAGE AREA.--13.1 mi² (33.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January to July 1975 (periodic discharge measurements only), August 1975 to June 1977 (operated as a flood-hydrograph partial-record station only), June 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 411.29 ft (125.361 m) National Geodetic Vertical Datum of 1929 (levels from city of Austin bench mark).

REMARKS.-- Water-discharge records fair. No known regulation or diversions. There is a recording rain gage in the watershed. The station is part of a hydrologic research project to study the rainfall-runoff relationship for the Austin urban area.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,100 ft³/s (173 m³/s) May 23, 1975, gage height, 17.03 ft (5.191 m), from floodmark, from rating curve extended above 500 ft³/s (14.2 m³/s) on basis of slope-area measurement of peak flow; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 939 ft³/s (26.6 m³/s) May 24 at 0215 hours, gage height, 9.12 ft (2.780 m), no peak above base of 1,500 ft³/s (42.5 m³/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.00	.35	.21	1.4	7.3	.15	11	33	1.9	1.1	1.5
2	.03	.00	.12	.23	.36	.51	.11	1.8	8.5	1.9	1.1	1.9
3	.00	.00	.11	.16	.22	65	.11	1.2	21	1.5	.93	73
4	.00	.00	.25	.15	1.5	40	.11	.38	5.3	1.5	.77	4.9
5	.00	.00	.30	.15	3.8	1.2	.11	.10	8.6	97	1.3	3.3
6	.00	.00	.09	.24	.86	.93	.11	.05	2.0	9.4	1.3	2.5
7	.00	.00	16	.33	.48	2.6	.11	.04	2.1	13	1.2	1.5
8	.00	.00	1.7	.33	.38	.73	.11	.04	1.1	15	1.1	1.0
9	.00	.00	.51	.90	.38	.60	.11	.03	.92	11	1.1	.80
10	.00	.00	.37	.28	5.7	.55	.11	.00	.87	5.0	.89	.60
11	.00	.00	.35	.16	.40	1.2	.13	.00	360	2.9	.71	.45
12	.00	.00	.34	.08	.37	3.2	.20	.00	86	3.4	2.2	.35
13	.00	.00	.34	.06	.36	1.3	.27	.00	242	3.8	2.4	.30
14	.09	.00	2.7	.06	.31	.66	.36	.00	229	3.0	1.3	8.9
15	.15	.00	.51	.13	.18	.58	.41	.00	34	2.3	2.2	39
16	1.7	29	.38	.27	.21	.51	.59	67	200	1.7	1.9	2.0
17	.02	1.3	.25	.08	.21	.51	1.0	.55	38	1.9	.98	1.5
18	17	.42	.25	.14	.26	.40	.87	.16	51	1.7	2.0	1.0
19	.11	.34	.24	18	.33	.40	.37	.08	296	1.5	.93	.80
20	.02	.24	.20	1.8	.21	.40	.23	.05	5.7	1.2	.82	.60
21	.00	.16	.15	.51	.21	.40	.18	.05	4.5	1.2	.48	.40
22	.02	.30	.15	.43	.21	.32	.17	.05	3.9	1.3	.49	.20
23	.00	.41	.15	.38	.21	.31	4.5	.05	3.8	1.4	.40	.10
24	.00	.18	.15	.26	.21	.31	.50	128	3.8	1.4	.42	.06
25	.00	20	.15	.33	.23	.31	.12	232	3.0	1.4	.56	.04
26	.00	2.2	.15	.34	.25	.31	.11	7.9	2.8	4.1	.24	.02
27	.02	.55	.15	.36	.25	.31	.09	5.8	2.6	6.7	.11	.01
28	.00	.43	.15	.34	.24	.21	.08	4.2	2.3	1.6	.03	.00
29	.00	.40	.15	.34	---	1.4	.08	5.5	2.4	1.5	.47	.00
30	.00	.40	.15	.28	---	.45	.07	85	2.5	1.4	7.2	.00
31	.00	---	.15	.22	---	.23	---	7.8	---	1.8	6.0	---
TOTAL	19.21	56.33	27.01	27.55	19.73	133.14	11.47	558.83	1656.69	204.4	42.63	146.73
MEAN	.62	1.88	.87	.89	.70	4.29	.38	18.0	55.2	6.59	1.38	4.89
MAX	17	29	16	18	5.7	65	4.5	232	360	97	7.2	73
MIN	.00	.00	.09	.06	.18	.21	.07	.00	.87	1.2	.03	.00
CFSM	.05	.14	.07	.07	.05	.33	.03	1.37	4.21	.50	.11	.37
IN.	.05	.16	.08	.08	.06	.38	.03	1.59	4.70	.58	.12	.42
AC-FT	38	112	54	55	39	264	23	1110	3290	405	85	291
(††)	.96	3.25	1.21	1.62	1.15	3.03	.80	8.92	14.85	3.42	.96	2.66

CAL YR 1980 TOTAL 975.27 MEAN 2.66 MAX 207 MIN .00 CFSM .20 IN 2.77 AC-FT 1930 †† 27.82
WTR YR 1981 TOTAL 2903.72 MEAN 7.96 MAX 360 MIN .00 CFSM .61 IN 8.25 AC-FT 5760 †† 42.83

†† Rainfall on watershed, in inches, based on one rain gage.

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1975 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT												
18...	1425	380	188	--	--	--	--	--	--	16	--	--
18...	1430	357	198	--	--	--	--	--	--	35	--	--
18...	1445	304	225	7.9	--	--	--	--	--	--	--	--
18...	1500	223	195	--	--	80	31	--	--	19	--	--
18...	1830	3.0	187	7.8	20.0	--	--	--	--	10	--	--
JAN												
27...	1145	.36	655	8.4	14.0	0	.40	14.4	138	.3	1300	30
MAR												
03...	2145	373	232	--	--	150	1400	--	--	19	--	--
03...	2200	409	264	--	--	--	--	--	--	25	--	--
03...	2215	348	281	--	--	--	--	--	--	29	--	--
MAY												
16...	0300	263	276	--	--	--	--	--	--	23	--	--
16...	0315	406	265	--	--	--	--	--	--	22	--	--
16...	0330	563	251	--	--	60	370	--	--	17	--	--
16...	0345	734	206	--	--	120	650	--	--	26	--	--
16...	0400	919	174	--	--	--	--	--	--	17	--	--
16...	0415	745	158	--	--	--	--	--	--	15	--	--
16...	0430	583	142	--	--	--	--	--	--	15	--	--
JUN												
16...	1005	730	274	7.9	23.0	30	1000	3.2	37	2.5	240000	78000
AUG												
24...	1045	1.9	550	7.9	27.5	5	1.3	12.0	154	.7	5900	1500

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT												
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	88	16	30	3.1	12	.6	2.9	72	21	14	.3
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
27...	84	250	30	82	11	36	1.0	2.5	220	59	45	.3
MAR												
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
16...	210000	110	19	39	3.0	7.0	.3	4.5	91	25	6.4	.1
AUG												
24...	620	230	37	71	12	32	1.0	2.8	190	43	44	.0

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT												
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	.38	.030	.41	.020	5.0	5.0	2.100	60
18...	7.8	134	--	--	.35	.030	.38	.030	5.8	5.8	1.100	73
18...	--	--	143	115	--	--	--	--	--	--	--	--
18...	--	--	--	--	.38	.030	.41	.140	1.4	1.5	.560	20
JAN												
27...	8.2	376	0	0	.06	.000	.06	.030	.35	.38	.050	13
MAR												
03...	--	--	2380	23	.35	.050	.40	.040	6.1	6.1	1.800	99
03...	--	--	--	--	.34	.030	.37	.040	7.5	7.5	2.000	150
03...	--	--	--	--	--	--	--	--	--	--	--	110
MAY												
16...	--	--	--	--	.88	.090	.97	.430	3.0	3.4	2.300	32
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	2890	310	.85	.090	.94	.440	2.7	3.1	2.100	37
16...	--	--	2580	250	--	--	--	--	--	--	--	25
16...	--	--	--	--	.72	.090	.81	.480	1.8	2.3	.690	22
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	.53	.060	.59	.380	2.5	2.9	2.600	2.8
JUN												
16...	11	151	1670	148	.57	.050	.62	.080	1.5	1.6	.390	28
AUG												
24...	13	332	98	28	--	.020	<.10	.120	.49	.61	.080	5.1

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT							
18...	1430	2	0	10	0	20	20
18...	1445	2	40	<1	0	<10	40
18...	1830	3	0	0	0	0	10
MAR							
03...	2200	3	50	<1	0	<10	130
AUG							
24...	1045	3	83	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT						
18...	0	0	.0	0	0	0
18...	<10	<1	.0	0	0	<3
18...	0	0	.0	0	0	0
MAR						
03...	<10	6	.0	0	0	10
AUG						
24...	<10	22	.0	0	0	<3

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)
OCT									
18...	1830	.00	.0	.00	.1	.04	.03	.09	.19
AUG									
24...	1045	.00	.0	.00	.0	.00	.01	.00	.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
OCT									
18...	.02	.00	.00	.00	.00	.00	.00	.10	.00
AUG									
24...	.01	.00	.00	.00	.00	.00	.00	.00	.00

08158200 WALNUT CREEK AT DESSAU ROAD, AUSTIN, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°22'30", long 97°39'37", Travis County, Hydrologic Unit 12090205, on downstream side of bridge on Dessau Road and 8.4 mi (13.5 km) northeast of the State Capitol Building in Austin.

DRAINAGE AREA.--26.2 mi^2 (67.9 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Digital water-stage recorder and crest-stage gage. Datum of gage is 553.44 ft (168.689 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Additional storm rainfall-runoff data for this site can be obtained from the report "Hydrologic Data for Urban Studies in the Austin, Texas Metropolitan Area, 1980". Two recording rain gages are located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft^3/s (612 m^3/s) May 25, 1981, gage height, 26.20 ft (7.986 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,600 ft^3/s (612 m^3/s) May 25, gage height, 26.20 ft (7.986 m).

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 27...	1010	2.2	628	8.3	12.0	0	1.4	15.6	143	.7	100	96
JUN 17...	1340	60	634	7.6	22.0	5	8.0	9.1	105	.3	8800	2700
AUG 24...	0930	2.0	543	7.5	23.5	0	.90	5.1	61	.3	2500	660

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN 27...	K72	270	40	100	4.8	31	.8	2.0	230	54	44	.3
JUN 17...	2000	320	55	120	6.1	14	.3	3.0	270	52	23	.2
AUG 24...	2400	220	54	80	5.8	25	.7	2.1	170	45	41	.0

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 27...	3.5	378	--	--	1.4	.010	1.4	.050	.57	.62	.080	9.2
JUN 17...	13	394	18	6	2.6	.010	2.6	.050	1.1	1.1	.080	2.8
AUG 24...	7.0	308	157	33	.57	.030	.60	.110	.60	.71	.050	3.1

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
AUG 24...	0930	1	63	<1	0	<10	<10

08158200 WALNUT CREEK AT DESSAU ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)
AUG 24...	<10	7	.0	0	0	7

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)
AUG 24...	0930	.00	.0	.00	.0	.00	.00	.00	.04

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
AUG 24...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG 24...	.00	.00	.00	.00	0	.00	.00	.00	.00

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX

LOCATION.--Lat 30°16'59", long 97°39'17", Travis County, Hydrologic Unit 12090205, on left bank 190 ft (58 m) downstream from bridge on Farm Road 969, 0.8 mi (1.3 km) downstream from Little Walnut Creek, 2.8 mi (4.5 km) upstream from Colorado River, and 5.2 mi (8.4 km) east of the State Capitol Building in Austin.

DRAINAGE AREA.--51.3 mi² (132.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 425.96 ft (129.833 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. No known regulation or diversion. Station is part of hydrologic research project to study rainfall-runoff relation for urban areas. Five recording rain gages are located in the watershed above this station.

AVERAGE DISCHARGE.--15 years, 25.2 ft³/s (0.714 m³/s), 6.67 in/yr (169 mm/yr), 18,260 acre-ft/yr (22.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,300 ft³/s (405 m³/s) May 25, 1981, gage height, 27.24 ft (8.303 m); no flow at times in 1967 and 1971.
Maximum stage since at least 1891, that of May 25, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 15, 1935, reached a stage of 24 ft (7.3 m), backwater from Colorado River. A flood in 1919 reached a stage of 22 ft (6.7 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 4	0045	3,140	88.9	15.40	4.694	June 13	2100	13,400	379	26.65	8.123
May 25	0415	*14,300	405	27.24	8.303	June 16	0800	6,080	172	20.53	6.258
May 30	1715	1,560	44.2	11.62	3.542	July 5	1200	2,460	69.7	13 91	4,240
June 11	1415	11,700	331	25.87	7.885						

Minimum daily discharge, 1.4 ft³/s (0.040 m³/s) Oct. 15, Nov. 13-15.

REVISIONS.--The maximum discharges for some water years have been revised as shown in the the following table. They supersede figures published in the reports for 1974-75 and 1979.

Water year	Date	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
1974	Oct. 13, 1973	10,400	295	25.56	7.791
1975	Nov. 23, 1974	12,600	357	26.16	7.974
1979	May 21, 1979	12,400	351	26.02	7.931

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	2.1	7.2	7.0	18	32	13	31	201	29	11	8.2
2	4.6	2.0	5.9	6.5	8.1	14	12	13	82	28	11	7.1
3	3.4	1.7	7.1	6.4	7.0	223	12	12	188	25	10	75
4	2.9	1.7	5.9	6.4	17	672	11	6.9	329	25	9.5	10
5	2.5	1.7	5.7	6.4	34	52	10	5.9	213	476	9.1	6.8
6	2.4	1.7	5.4	7.3	19	38	9.4	4.8	86	46	8.1	5.5
7	2.1	1.7	4.9	7.4	13	62	9.4	4.4	61	54	7.9	5.1
8	2.0	1.7	54	8.3	11	35	9.1	4.2	51	57	7.2	4.7
9	2.0	1.7	26	12	11	29	8.9	4.1	43	33	7.0	3.8
10	1.7	1.7	14	7.7	34	27	7.8	3.5	41	34	6.4	3.8
11	1.7	1.7	10	7.3	13	29	7.5	3.5	3350	27	5.9	3.8
12	1.7	1.7	9.5	7.2	12	54	6.8	3.8	488	25	8.4	3.6
13	1.7	1.4	9.0	7.2	12	44	6.7	3.8	3080	24	8.9	3.5
14	1.5	1.4	8.5	7.2	11	31	6.0	3.7	1830	23	5.6	6.0
15	1.4	1.4	15	6.9	11	28	5.1	3.2	285	22	5.0	71
16	31	96	10	6.8	11	24	5.5	147	1820	21	4.4	9.0
17	7.2	30	8.7	6.8	10	23	17	13	222	20	11	5.9
18	24	8.0	8.7	6.8	9.3	23	9.6	10	123	19	9.2	4.7
19	6.9	5.5	8.7	62	9.2	21	6.5	7.4	87	19	7.0	3.9
20	4.2	4.5	8.0	31	9.8	21	5.5	6.4	67	18	5.4	3.8
21	3.4	4.0	8.0	12	9.1	20	5.1	6.8	56	18	4.3	3.5
22	3.0	5.0	7.9	9.3	9.1	19	5.1	6.7	49	17	3.8	3.2
23	3.0	4.9	7.4	8.3	8.7	18	21	6.4	44	16	3.5	3.0
24	2.7	3.0	11	8.0	8.7	18	10	291	40	15	3.1	2.7
25	2.5	45	7.5	8.0	10	18	6.8	4100	41	15	3.0	2.7
26	2.5	52	7.2	8.0	9.8	17	5.4	94	36	14	2.7	2.7
27	2.5	16	7.2	7.3	8.5	17	5.1	60	33	16	2.5	2.7
28	3.7	11	7.2	7.2	8.3	16	5.1	47	38	14	2.4	2.5
29	3.5	8.9	7.2	6.8	---	25	4.8	47	31	13	7.2	2.3
30	2.5	7.9	6.9	6.5	---	15	4.8	254	30	13	12	2.3
31	2.5	---	7.6	6.5	---	14	---	61	---	12	11	---
TOTAL	143.8	327.0	317.3	312.5	352.6	1679	252.0	5265.5	13045	1188	213.5	272.8
MEAN	4.64	10.9	10.2	10.1	12.6	54.2	8.40	170	435	38.3	6.89	9.09
MAX	31	96	54	62	34	672	21	4100	3350	476	12	75
MIN	1.4	1.4	4.9	6.4	7.0	14	4.8	3.2	30	12	2.4	2.3
CFSM	.09	.21	.20	.20	.25	1.06	.16	3.31	8.48	.75	.13	.18
IN.	.10	.24	.23	.23	.26	1.22	.18	3.82	9.46	.86	.15	.20
AC-FT	285	649	629	620	699	3330	500	10440	25870	2360	423	541
(††)	1.71	3.50	1.14	1.57	1.35	4.41	1.07	11.02	16.16	3.36	1.31	2.24

CAL YR 1980 TOTAL 6728.06 MEAN 18.4 MAX 673 MIN .02 CFSM .36 IN 4.88 AC-FT 13350 †† 34.45
WTR YR 1981 TOTAL 23369.00 MEAN 64.0 MAX 4100 MIN 1.4 CFSM 1.25 IN 16.95 AC-FT 46350 †† 48.84

†† Weighted-mean rainfall on watershed, in inches, based on five rain gages.

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1975 to current year. Sediment records: October 1977 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 27...	1205	7.3	594	8.3	13.5	0	.60	12.7	121	1.0	760	96
JUN 16...	1110	4320	246	8.0	22.5	40	930	3.2	37	2.7	130000	58000
AUG 24...	1015	3.5	653	7.8	25.0	0	2.6	7.0	85	.3	2500	240

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JAN 27...	96	240	69	86	5.8	28	.8	2.0	170	65	45	.3
JUN 16...	170000	110	9	40	2.3	4.5	.2	3.6	100	21	5.7	.1
AUG 24...	1300	280	88	98	8.0	29	.8	3.0	190	80	49	.5

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 27...	.9	335	0	0	.28	.000	.28	.050	.46	.51	.030	8.9
JUN 16...	11	148	1590	132	.49	.040	.53	.080	1.6	1.70	.320	27
AUG 24...	9.9	392	12	9	.47	.030	.50	.140	.34	.48	.020	3.4

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)
AUG 24...	1015	1	76	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
AUG 24...	<10	22	.0	0	0	<3

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)
AUG 24...	1015	.00	.00	.00	.00	.00	.00	.00	.02

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
AUG 24...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG 24...	.00	.00	.00	.00	0	.00	.00	.00	.00

08158640 WALNUT CREEK AT SOUTHERN PACIFIC RAILROAD BRIDGE, AUSTIN, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 30°15'58", long 97°39'24", Travis County, Hydrologic Unit 12090205, at Southern Pacific Railroad bridge, 1.2 mi (1.9 km) south of Webberville Road, and 5.0 mi (8.0 km) east of the State Capitol in Austin.

DRAINAGE AREA.--53.5 mi² (138.6 km²).

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1975 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 27...	1245	10	769	7.1	19.5	5	4.1	9.2	99	1.8	1700	43
JUN 16...	1330	1900	373	7.9	21.0	100	900	8.1	91	3.8	290000	42000
AUG 24...	1400	28	689	7.1	30.0	0	2.1	7.6	103	1.0	2100	350

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN 27...	29	180	81	47	15	76	2.5	8.3	98	91	81	2.6
JUN 16...	38000	160	22	59	3.5	9.1	.3	4.0	140	30	11	.2
AUG 24...	1300	150	64	38	13	74	2.9	9.4	84	67	99	1.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 27...	9.1	389	9	2	13	.010	13	.130	1.3	1.4	4.500	10
JUN 16...	12	213	2640	196	1.1	.060	1.2	.220	2.4	2.6	.950	34
AUG 24...	12	364	20	9	13	.030	13	.140	2.0	2.1	6.400	7.1

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
AUG 24...	1400	2	19	<1	10	10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
AUG 24...	<10	13	.0	0	0	12

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)
AUG 24...	1400	.00	.0	.00	.1	.00	.00	.00	.00

08158640 WALNUT CREEK AT SOUTHERN PACIFIC RAILROAD BRIDGE, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
AUG 24...	.01	.00	.00	.00	.01	.06	.07	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG 24...	.00	.00	.00	.00	0	.00	.01	.00	.00

08158650 COLORADO RIVER BELOW AUSTIN, TX
(Low-flow partial-record station)

LOCATION.--Lat 30°12'28", long 97°38'15", Travis County, Hydrologic Unit 12090205, at bridge on Farm Road 973, 0.3 mi (0.5 km) northeast of intersection of State Highway 71 and Farm Road 973, 8.8 mi (14.2 km) downstream from Govalle Sewage Treatment Plant outfall, and 9.6 mi (15.4 km) downstream from gaging station at Austin.

PERIOD OF RECORD.--Periodic chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: October 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT 20...	1145	1000	560	7.4	21.0	5	1.8	6.8	76	1.2	100	84
NOV 17...	1445	1800	520	7.1	15.0	10	--	7.8	77	1.6	2500	220
JAN 12...	1350	1500	552	7.7	10.5	5	.50	12.1	108	1.0	580	52
FEB 26...	1330	50	592	7.3	18.0	--	--	8.4	89	2.9	K29	K1
MAR 16...	1320	3800	514	7.2	15.0	5	8.0	11.1	110	1.3	160	57
MAY 11...	1350	3000	523	8.0	21.0	10	.70	13.2	148	.9	80	K10
JUN 08...	1130	6000	515	7.9	20.0	5	15	9.0	100	1.0	K11000	3200
JUL 13...	1350	3800	498	7.4	27.5	5	7.0	8.0	101	1.2	130	120
SEP 21...	1330	3000	484	7.2	24.0	10	3.1	9.5	112	1.5	2400	520

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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 20...	K18	--	--	--	--	--	--	--	140	--	--	--
NOV 17...	100	200	37	48	19	28	.9	3.8	161	34	46	.3
JAN 12...	K3	190	61	42	21	35	1.1	3.4	140	39	55	.3
FEB 26...	22	--	--	--	--	--	--	--	--	--	--	--
MAR 16...	K17	190	41	45	19	29	.9	3.3	150	36	51	.2
MAY 11...	70	200	50	47	20	32	1.0	4.0	150	38	58	.3
JUN 08...	330	--	--	--	--	--	--	--	150	--	--	--
JUL 13...	64	200	41	49	19	26	.8	3.3	160	42	48	.2
SEP 21...	92	180	35	46	17	24	.8	3.7	150	30	45	.3

08158650 COLORADO RIVER BELOW AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 20...	--	--	14	27	2.5	.400	2.9	.230	1.2	1.4	2.000	16
NOV 17...	10	276	15	10	.55	.070	.62	.200	.79	.99	.310	5.5
JAN 12...	7.8	282	4	8	1.1	.030	1.1	.170	.72	.89	.380	17
FEB 26...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 16...	7.3	281	10	3	.42	.020	.44	.270	.59	.86	.190	4.1
MAY 11...	6.1	296	0	0	.75	.100	.85	.210	.58	.79	.410	3.6
JUN 08...	--	--	45	28	.35	.010	.36	.100	.85	.95	.060	20
JUL 13...	8.0	292	24	13	.34	.010	.35	.140	.40	.54	.110	3.3
SEP 21...	11	267	0	0	.55	.040	.59	.390	.59	.98	.060	4.1

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 17...	1445	1	70	<1	0	<10	<10
MAR 16...	1320	1	70	<1	10	<10	<10
MAY 11...	1350	2	80	<1	0	<10	20
JUL 13...	1350	2	70	<1	0	<10	10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 17...	19	4	.0	0	0	5
MAR 16...	<10	6	.1	0	0	4
MAY 11...	22	8	.0	0	0	9
JUL 13...	<10	7	.0	0	0	4

DATE	TIME	PCB TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN 12...	1350	.00	.0	.00	.0	.00	.00	.00	.01
JUL 13...	1350	.00	.0	.00	.0	.00	.00	.00	.00

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JAN 12...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL 13...	.00	.00	.00	.00	.00	.00	.00	.00	.00

08158650 COLORADO RIVER BELOW AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN									
12...	.00	.00	.00	.00	0	.00	.04	.01	.00
JUL									
13...	.00	.00	.00	.00	0	.00	--	--	--

08158700 ONION CREEK NEAR DRIFTWOOD, TX

LOCATION.--Lat 30°04'59", long 98°00'29", Hays County, Hydrologic Unit 12090205, on left bank at upstream side of low-water crossing on Farm Road 150, 3.2 mi (5.1 km) southeast of Driftwood, and 10 mi (16 km) west of Buda.

DRAINAGE AREA.--124 mi² (321 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958, November 1961 to June 1979 (periodic discharge measurements only), July to September 1979.

GAGE.--Water-stage recorder. Datum of gage is 878.13 ft (267.654 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. Station is part of hydrologic research project to sutdy rainfall-runoff relationship in the Austin urban-rural areas. There is a recording rain gage located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,010 ft³/s (227 m³/s) June 11, 1981, gage height, 15.24 ft (4.645 m); minimum daily, 0.27 ft³/s (0.008 m³/s) Sept. 5, 1980.
Flood of Mar. 20, 1979, reached a stage of 11.48 ft (3.499 m), discharge, 4,980 ft³/s (141 m³/s), on basis of peak flow over dam, 1.5 mi (2.4 km) downstream. Flood of June 11, 1981, peaked at a depth of 5 ft (1.5 m) over this dam.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 16	0830	1,680	47.6	6.90	2.103	June 12	1545	5,700	161	12.39	3.776
Mar. 4	0230	2,860	81.0	8.44	2.573	June 13	1930	5,520	156	12.16	3.706
May 24	0745	768	21.7	6.06	1.847	June 14	1300	2,790	79.0	8.32	2.536
June 11	1530	*8,010	22.7	15.24	4.645	June 16	1145	6,480	184	13.35	4.069

Minimum daily discharge, 1.6 ft³/s (0.045 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	15	37	23	23	38	77	28	42	173	20	12
2	37	15	37	23	23	38	74	27	46	163	19	12
3	30	15	37	23	22	57	73	28	52	154	17	14
4	26	14	37	24	22	765	69	28	93	148	15	15
5	22	13	39	25	22	139	63	27	101	154	13	13
6	14	13	38	25	23	117	61	25	72	139	11	10
7	18	12	37	26	23	116	61	23	63	123	8.4	9.8
8	18	13	39	26	24	112	60	22	59	119	7.0	12
9	17	11	45	27	24	103	58	21	55	114	6.2	12
10	15	11	41	27	39	100	57	20	53	105	6.1	12
11	15	12	39	26	38	102	50	20	1990	97	6.2	10
12	13	13	39	26	37	114	53	20	1840	91	6.7	8.7
13	12	9.8	39	26	38	142	50	19	1730	87	8.0	7.6
14	12	9.8	38	27	38	122	49	18	1390	81	6.5	6.5
15	12	9.0	38	27	38	120	48	17	225	76	6.5	31
16	198	13	37	26	39	113	47	21	1810	71	6.1	19
17	38	22	35	26	39	111	46	21	238	65	7.9	14
18	27	17	34	26	38	106	44	19	551	62	14	11
19	28	14	31	26	37	99	41	17	486	58	39	10
20	24	11	29	26	37	98	38	16	352	54	23	9.0
21	22	11	28	26	37	96	37	14	307	50	16	8.3
22	21	13	27	26	36	91	36	15	276	47	13	7.8
23	19	17	27	25	34	87	43	15	238	42	12	8.0
24	16	15	27	26	34	85	43	139	204	39	9.8	6.0
25	14	14	27	25	34	84	38	124	203	37	8.6	5.2
26	14	37	27	25	34	83	35	46	198	38	8.6	4.4
27	15	40	25	24	34	81	32	34	193	35	8.3	3.6
28	15	38	24	23	34	80	32	31	176	33	7.9	3.1
29	15	36	24	24	---	97	30	30	164	29	8.6	1.8
30	16	35	23	23	---	85	29	34	171	25	9.8	1.6
31	16	---	23	21	---	79	---	45	---	22	13	---
TOTAL	810	518.6	1028	779	901	3660	1474	964	13378	2531	362.2	298.4
MEAN	26.1	17.3	33.2	25.1	32.2	118	49.1	31.1	446	81.6	11.7	9.95
MAX	198	40	45	27	39	765	77	139	1990	173	39	31
MIN	12	9.0	23	21	22	38	29	14	42	22	6.1	1.6
CFSM	.21	.14	.27	.20	.26	.95	.40	.25	3.60	.66	.09	.08
IN.	.24	.16	.31	.23	.27	1.10	.44	.29	4.01	.76	.11	.09
AC-FT	1610	1030	2040	1550	1790	7260	2920	1910	26540	5020	718	592
(††)	1.03	3.41	.83	1.69	1.41	4.47	1.27	6.47	12.33	1.54	4.35	2.51

CAL YR 1980 TOTAL 6656.00 MEAN 18.2 MAX 255 MIN .27 CFSM .15 IN 2.00 AC-FT 13200 †† 24.78
WTR YR 1981 TOTAL 26704.20 MEAN 73.2 MAX 1990 MIN 1.6 CFSM .59 IN 8.01 AC-FT 52970 †† 41.31

†† Rainfall on watershed, in inches, based on one rain gage.

08158700 ONION CREEK NEAR DRIFTWOOD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 27...	1000	24	472	8.1	13.5	5	.80	11.4	109	.5	600	37
JUN 17...	0950	238	492	7.8	--	5	22	8.4	97	.0	2700	640
AUG 18...	1215	7.9	430	7.7	27.0	0	.50	7.0	91	.5	220	190

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN 27...	51	250	32	73	17	9.0	.2	1.0	220	31	12	.2
JUN 17...	1500	260	7	83	12	5.5	.2	2.0	250	1.0	7.7	.1
AUG 18...	160	230	31	66	16	8.5	.3	1.2	200	31	15	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 27...	6.8	282	0	0	.26	.000	.26	.050	.42	.47	.190	9.2
JUN 17...	11	273	35	11	.44	.000	.44	.070	.71	.78	.020	4.0
AUG 18...	11	269	7	3	.06	.000	.06	.030	.09	.12	<.010	.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)
AUG 18...	1215	1	30	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
AUG 18...	<10	2	.0	0	0	3

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)
AUG 18...	1215	.00	.0	.00	.0	.00	.00	.00	.00

08158700 ONION CREEK NEAR DRIFTWOOD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
AUG 18...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG 18...	.00	.00	.00	.00	0	.00	.00	.00	.00

08158800 ONION CREEK AT BUDA, TX

LOCATION.--Lat 30°05'09", long 97°50'52", Hays County, Hydrologic Unit 12090205, on left bank at downstream side of bridge on Farm Road 967 and 0.4 mi (0.6 km) northwest of Buda.

DRAINAGE AREA.--166 mi² (430 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- November 1961 to September 1973, January 1978 to July 1979 (periodic discharge measurements only), July 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 657.39 ft (200.372 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. The station is part of a hydrologic-research project to study rainfall-runoff relation for the Austin urban-rural areas. There are two recording rain gages located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft³/s (493 m³/s) June 13, 1981, gage height, 17.59 ft (5.361 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 28, 1929, reached a stage of about 36.2 ft (11.03 m), present datum, discharge, 53,200 ft³/s (1,510 m³/s), from slope-area indirect measurement of peak flow. This is probably the highest flood since that date.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 4	0730	3,740	106	8.69	2.649	June 12	1900	6,920	196	11.39	3.472
June 3	1630	2,770	78.4	7.72	2.353	June 13	2100	*17,400	493	17.59	5.361
June 11	1800	10,700	303	14.00	4.267	June 16	1500	7,640	216	11.92	3.633

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.08	.00	.00	.00	13	.00	.83	186	.00	.00
2	.00	.00	.04	.00	.00	.00	10	.00	2.3	159	.00	.00
3	.00	.00	.00	.00	.00	.00	9.9	.00	384	134	.00	.00
4	.00	.00	.00	.00	.00	941	9.3	.00	82	110	.00	.00
5	.00	.00	.00	.00	.00	271	6.3	.00	232	132	.00	.00
6	.00	.00	.00	.00	.00	162	4.2	.00	82	130	.00	.00
7	.00	.00	.00	.00	.00	129	3.7	.00	20	94	.00	.00
8	.00	.00	.04	.00	.00	122	3.5	.00	7.1	80	.00	.00
9	.00	.00	.25	.00	.00	77	2.3	.00	3.5	68	.00	.00
10	.00	.00	.25	.00	.08	58	1.7	.00	2.1	49	.00	.00
11	.00	.00	.22	.00	.00	50	1.2	.00	3910	36	.00	.00
12	.00	.00	.17	.00	.58	74	.85	.00	3040	24	.00	.00
13	.00	.00	.16	.00	.83	179	.60	.00	5400	16	.00	.00
14	.00	.00	.08	.00	.92	164	.43	.00	4180	13	.00	.00
15	.00	.00	.08	.00	.92	141	.32	.00	1620	10	.00	.00
16	69	.00	.08	.00	.50	114	.22	.00	3400	8.4	.00	.00
17	34	.07	.06	.00	.00	98	.16	.00	1670	6.6	.00	.00
18	1.2	.00	.00	.00	.00	86	.11	.00	1170	5.6	.00	.00
19	.29	.00	.00	.00	.00	63	.00	.03	895	4.8	.00	.00
20	.19	.00	.00	.16	.00	56	.00	.00	719	4.0	.00	.00
21	.13	.00	.00	.17	.00	50	.00	.00	599	3.2	.00	.00
22	.06	.00	.00	.13	.00	44	.00	.00	518	2.4	.00	.00
23	.00	.00	.00	.08	.00	32	.00	.00	456	1.8	.00	.00
24	.00	.00	.00	.08	.00	31	.00	4.3	397	1.2	.00	.00
25	.00	.00	.00	.01	.00	25	.00	262	372	.65	.00	.00
26	.00	.22	.00	.00	.00	25	.00	33	362	.37	.00	.00
27	.00	.25	.00	.00	.00	17	.00	2.8	319	.24	.00	.00
28	.00	.20	.00	.00	.00	15	.00	1.1	276	.09	.00	.00
29	.00	.17	.00	.00	---	34	.00	.23	239	.00	.00	.00
30	.00	.15	.00	.00	---	69	.00	.00	208	.00	.00	.00
31	.00	---	.00	.00	---	19	---	.00	---	.00	.00	---
TOTAL	104.87	1.06	1.51	.63	3.83	3146.00	67.79	303.46	30565.83	1280.35	.00	.00
MEAN	3.38	.035	.049	.020	.14	101	2.26	9.79	1019	41.3	.000	.000
MAX	69	.25	.25	.17	.92	941	13	262	5400	186	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.83	.00	.00	.00
CFSM	.02	.000	.000	.000	.001	.61	.01	.06	6.14	.25	.000	.000
IN.	.02	.00	.00	.00	.00	.71	.02	.07	6.85	.29	.00	.00
AC-FT	208	2.1	3.0	1.2	7.6	6240	134	602	60630	2540	.00	.00
(††)	.86	3.28	.83	1.50	1.24	3.60	1.35	5.48	16.86	1.33	3.72	2.16

CAL YR 1980 TOTAL 1678.26 MEAN 4.59 MAX 568 MIN .00 CFSM .03 IN .38 AC-FT 3330 †† 29.98
WTR YR 1981 TOTAL 35475.33 MEAN 97.2 MAX 5400 MIN .00 CFSM .59 IN 7.95 AC-FT 70370 †† 42.21

†† Weighted-mean rainfall on watershed, in inches, based on two rain gages.

08158800 ONION CREEK AT BUDA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1978 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JUN 16...	1058	4980	377	8.1	22.5	25	90	8.8	102	1.1	35000	12000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JUN 16...	56000	200	9	65	8.8	4.1	.1	2.3	190	4.8	6.2	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 16...	12	218	363	30	.28	.020	.30	.040	1.4	1.4	.060	24

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX

LOCATION.--Lat 30°09'19", long 97°56'23", Hays County, Hydrologic Unit 12090205, 0.8 mi (1.3 km) southeast of Farm Road 1826 and 5.9 mi (9.5 km) northeast of Driftwood.

DRAINAGE AREA.--12.2 mi^2 (31.6 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to July 1979 (periodic discharge measurements only), October 1978 to June 1979 (peak discharges above base only), July 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 860 ft (262.1 m), from topographic map.

REMARKS.--Water-discharge records fair. Station is part of a hydrologic research project to study rainfall-runoff relation for the Austin urban-rural areas. There is a recording rain gage located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maxumum discharge, 8,330 ft^3/s (236 m^3/s) June 11, 1981, gage height, 13.05 ft (3.978 m) from floodmarks, from slope-area measurements of peak flow; no flow Aug. 28 to Sept. 5, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 9, 1939, reached a stage of 16.2 ft (4.938 m), discharge unknown, and was the highest since at least 1924, from information by local resident. A flood in 1915 was 2 ft (0.6 m) higher than the 1939 flood; from information by local resident.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 3	2400	570	16.1	5.43	1.655	June 13	1900	6,120	173	11.81	3.600
June 10	2315	780	22.1	5.92	1.804	June 14	0900	2,710	76.7	8.82	2.688
June 11	1130	*8,330	236	13.05	3.978	June 16	0630	1,490	42.2	7.17	2.185
June 12	1130	4,090	116	10.30	3.139						

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	1.3	4.6	3.1	3.8	6.3	8.7	3.4	7.4	16	2.3	1.2
2	13	1.2	4.3	2.7	3.1	5.7	8.4	3.5	6.8	14	2.2	1.2
3	11	1.1	4.1	2.8	3.1	30	8.4	3.5	12	13	2.1	2.6
4	10	.99	4.2	2.7	3.9	66	8.0	3.5	43	12	2.0	1.3
5	9.5	.91	4.6	2.7	5.4	19	7.4	3.3	41	18	1.9	1.2
6	8.6	.91	4.3	2.7	5.7	18	7.2	2.8	27	13	1.7	1.1
7	7.6	.91	4.1	2.5	5.7	19	7.1	2.6	24	11	1.7	1.1
8	7.0	.80	5.4	2.5	5.7	18	6.9	2.5	21	11	1.5	1.8
9	6.4	.78	6.3	2.7	5.7	17	6.5	2.5	18	10	1.4	1.1
10	5.5	.80	6.3	2.4	7.1	16	6.3	2.2	55	9.3	1.4	1.0
11	5.0	.91	6.3	2.3	6.1	17	6.2	2.1	915	8.8	1.4	.91
12	4.5	.91	6.3	2.1	6.1	19	6.0	2.1	586	8.3	1.6	.88
13	4.3	.91	6.2	2.1	6.3	23	5.6	2.1	684	7.5	1.4	.84
14	4.3	.91	6.0	2.1	6.4	21	5.4	1.9	696	7.0	1.4	6.3
15	4.3	.80	5.9	2.0	6.6	20	5.2	1.8	172	6.5	1.3	4.0
16	4.6	2.3	5.9	1.9	6.6	19	5.1	3.1	350	5.9	1.3	2.2
17	4.0	3.3	5.4	1.8	6.5	18	4.8	2.2	131	5.6	1.2	1.6
18	3.5	2.1	5.4	1.7	6.5	17	6.0	1.8	98	5.2	4.3	1.4
19	3.8	1.8	5.1	4.2	6.4	15	5.4	1.5	78	4.7	2.8	1.3
20	3.9	1.7	4.8	6.1	6.0	15	4.9	1.4	64	4.0	1.6	1.3
21	3.0	1.6	4.6	4.6	6.1	14	4.8	1.2	50	3.8	1.4	1.3
22	2.7	1.7	4.6	4.1	5.7	13	4.4	1.3	41	3.7	1.3	1.3
23	2.4	1.9	4.6	4.1	5.5	13	6.8	1.3	35	3.3	1.3	1.2
24	1.9	1.7	4.4	3.9	5.4	12	5.2	6.8	30	3.0	1.3	1.2
25	1.8	2.9	4.1	3.7	5.4	11	4.8	24	27	2.9	1.3	1.1
26	1.7	5.5	4.1	3.5	5.3	11	4.5	5.4	25	3.9	1.3	1.1
27	1.7	5.3	3.8	3.5	5.4	11	3.9	4.1	22	4.2	1.1	1.1
28	1.7	4.7	3.8	3.3	5.2	10	3.8	3.4	20	3.3	1.1	1.0
29	1.6	4.6	3.7	3.3	---	10	3.8	3.4	19	2.8	1.3	1.0
30	1.5	4.6	3.3	3.3	---	9.4	3.5	8.7	18	2.6	1.7	1.0
31	1.4	---	3.3	3.4	---	9.0	---	8.5	---	2.4	1.9	---
TOTAL	157.2	59.84	149.8	93.8	156.7	522.4	175.0	117.9	4316.2	226.7	51.5	45.63
MEAN	5.07	1.99	4.83	3.03	5.60	16.9	5.83	3.80	144	7.31	1.66	1.52
MAX	15	5.5	6.3	6.1	7.1	66	8.7	24	915	18	4.3	6.3
MIN	1.4	.78	3.3	1.7	3.1	5.7	3.5	1.2	6.8	2.4	1.1	.84
CFSM	.42	.16	.40	.25	.46	1.39	.48	.31	11.8	.60	.14	.13
IN.	.48	.18	.46	.29	.48	1.59	.53	.36	13.16	.69	.16	.14
AC-FT	312	119	297	186	311	1040	347	234	8560	450	102	91
(††)	.95	3.37	.88	1.67	1.42	4.39	1.66	6.14	19.86	1.92	4.17	2.52

CAL YR 1980 TOTAL 1334.02 MEAN 3.64 MAX 73 MIN .00 CFSM .30 IN 4.07 AC-FT 2650 †† 36.53
WTR YR 1981 TOTAL 6072.67 MEAN 16.6 MAX 915 MIN .78 CFSM 1.36 IN 18.52 AC-FT 12050 †† 48.95

†† Rainfall on watershed, in inches, based on one rain gage.

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: March 1978 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 28...	0850	3.6	513	7.9	13.0	0	.50	10.6	100	.6	560	120
JUN 17...	1230	132	523	8.1	22.0	10	5.0	8.5	97	.0	2100	440
AUG 19...	0920	2.5	476	7.8	24.5	5	1.8	--	--	.6	6200	1200

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN 28...	72	260	31	78	16	9.2	.2	.7	230	28	14	.2
JUN 17...	2300	270	3	88	13	5.9	.2	1.8	270	1.0	12	.1
AUG 19...	1400	240	22	72	15	7.3	.2	1.1	220	22	18	.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 28...	6.7	291	0	0	.25	.000	.25	.050	.30	.35	.020	7.2
JUN 17...	11	295	11	11	.42	.000	.42	.060	.69	.75	.080	3.8
AUG 19...	11	279	9	6	.16	.000	.16	.050	.50	.55	.010	1.2

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
AUG 19...	0920	1	30	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
AUG 19...	<10	<1	.0	0	0	3

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)
AUG 19...	0920	.00	.0	.00	.0	.00	.00	.00	.00

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
AUG 19...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG 19...	.00	.00	.00	.00	0	.00	.00	.00	.00

08158825 LITTLE BEAR CREEK AT FARM ROAD 1626 NEAR MANCHACA, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°07'31", long 97°51'43", Hays County, Hydrologic Unit 12090205, at downstream side of culvert on Farm Road 1626 and 2.1 mi (3.4 km) southwest of Manchaca.

DRAINAGE AREA.--21.0 mi^2 (54.4 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Flood-hydrograph recorder and crest-stage gage. Datum of gage is 668.67 ft (203.811 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Additional storm rainfall-runoff data for this site can be obtained from the report "Hydrologic Data for Urban Studies in the Austin, Texas Metropolitan Area, 1980." A recording rain gage is located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,530 ft^3/s (157 m^3/s) June 11, 1981, gage height, 12.30 ft (3.749 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,530 ft^3/s (157 m^3/s) June 11, gage height, 12.30 ft (3.749 m).

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1978 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JUN 17...	1102	4.2	328	8.0	22.5	30	5.2	7.5	88	.3	9200	K590

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JUN 17...	1700	170	9	57	6.4	3.3	.1	3.2	160	10	5.1	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 17...	17	199	13	8	.11	.000	.11	.060	1.0	1.1	.040	6.1

08158840 SLAUGHTER CREEK AT FARM ROAD 1826 NEAR AUSTIN, TX

LOCATION.--Lat 30°12'32", long 97°54'11", Travis County, Hydrologic Unit 12090205, 1.7 mi (2.7 km) south of the intersection of U.S. Highway 290 and Farm Road 1826 and 11.9 mi (19.1 km) southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--8.24 mi² (21.3 km²).

PERIOD OF RECORD.--January 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.14 ft (267.047 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. No known regulation or diversion. There is a recording rain gage in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,080 ft³/s (116 m³/s) June 11, 1981, gage height, 10.79 ft (3.289 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 3	2315	997	28.2	7.00	2.134	June 13	1300	3,150	89.2	9.85	3.002
May 25	0015	679	19.2	6.38	1.945	June 14	0900	1,640	46.4	8.00	2.438
June 11	1130	*4,080	116	10.79	3.289	June 16	0645	892	25.3	6.80	2.073
June 12	0900	2,340	66.3	8.93	2.722						

Minimum daily discharge, 0.05 ft³/s (0.001 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.69	.27	1.6	1.6	2.5	2.3	3.1	1.1	3.4	5.5	.56	.09
2	.45	.27	1.4	1.6	1.7	2.0	2.9	1.1	3.3	4.8	.51	.09
3	.32	.27	1.2	1.6	1.6	79	2.9	1.1	3.7	4.6	.41	.35
4	.30	.30	1.3	1.6	2.1	57	2.9	1.2	52	4.1	.34	.21
5	.27	.30	1.6	1.6	2.5	13	2.6	1.1	75	17	.33	.20
6	.27	.30	1.6	1.6	2.6	10	2.4	.89	23	7.8	.30	.18
7	.27	.30	1.6	1.6	2.6	11	2.4	.82	13	5.8	.30	.18
8	.27	.30	2.6	1.7	2.6	9.0	2.4	.82	9.8	5.4	.25	.18
9	.26	.30	3.3	2.0	2.6	8.3	2.4	.80	7.5	4.8	.22	.15
10	.24	.30	3.1	1.6	3.1	7.9	2.4	.72	27	4.3	.21	.15
11	.24	.30	3.1	1.5	2.5	8.9	2.2	.66	901	3.6	.21	.14
12	.24	.30	3.1	1.2	2.4	15	2.2	.66	423	3.1	.21	.12
13	.24	.30	3.1	1.2	2.4	20	2.0	.66	681	2.8	.20	.10
14	.24	.27	3.1	1.2	2.4	16	2.0	.65	336	2.6	.18	.42
15	.24	.27	4.4	1.2	2.5	14	1.8	.59	61	2.3	.17	.20
16	.42	.99	3.8	1.1	2.6	12	1.8	.99	191	2.1	.15	.15
17	.33	.62	3.1	.95	2.6	12	1.8	.80	54	1.8	.13	.13
18	.30	.45	3.1	.91	2.6	11	2.0	.72	32	1.6	.25	.13
19	.30	.42	2.7	2.4	2.5	9.1	2.0	.60	25	1.6	.19	.10
20	.30	.42	2.4	3.2	2.4	9.1	1.6	.59	18	1.4	.17	.10
21	.30	.42	2.4	2.7	2.4	9.1	1.6	.59	11	1.3	.15	.10
22	.30	.42	2.4	2.4	2.0	7.2	1.5	.59	12	1.2	.15	.09
23	.30	.42	2.4	2.4	2.0	5.7	2.6	.59	11	1.1	.15	.09
24	.30	.42	2.2	2.6	2.0	5.7	1.6	12	9.5	.98	.10	.08
25	.30	.82	1.7	2.6	2.0	5.7	1.5	57	8.4	.89	.10	.08
26	.30	1.2	1.6	2.6	2.0	4.8	1.5	2.4	7.8	1.0	.10	.07
27	.30	1.5	1.6	2.4	2.0	4.8	1.3	1.6	7.8	1.4	.08	.07
28	.28	1.6	1.6	2.0	1.8	4.8	1.3	1.3	7.5	1.1	.07	.06
29	.27	1.6	1.6	2.0	---	4.8	1.2	1.1	6.5	.81	.15	.06
30	.27	1.6	1.5	1.7	---	4.1	1.1	4.4	6.1	.71	.10	.05
31	.27	---	1.6	1.6	---	3.7	---	5.1	---	.63	.11	---
TOTAL	9.38	17.25	71.8	56.36	65.0	387.0	61.0	103.24	3027.3	98.12	6.55	4.12
MEAN	.30	.58	2.32	1.82	2.32	12.5	2.03	3.33	101	3.17	.21	.14
MAX	.69	1.6	4.4	3.2	3.1	79	3.1	57	901	17	.56	.42
MIN	.24	.27	1.2	.91	1.6	2.0	1.1	.59	3.3	.63	.07	.05
CFSM	.04	.07	.28	.22	.28	1.52	.25	.40	12.3	.39	.03	.02
IN.	.04	.08	.32	.25	.29	1.75	.28	.47	13.67	.44	.03	.02
AC-FT	19	34	142	112	129	768	121	205	6000	195	13	8.2
(††)	1.40	3.75	1.16	1.82	1.42	5.26	1.57	6.50	18.02	2.28	2.73	4.16

CAL YR 1980 TOTAL 1051.13 MEAN 2.87 MAX 134 MIN .00 CFSM .35 IN 4.74 AC-FT 2080 †† 35.36
WTR YR 1981 TOTAL 3907.12 MEAN 10.7 MAX 901 MIN .05 CFSM 1.30 IN 17.64 AC-FT 7750 †† 50.07

†† Rainfall on watershed, in inches, based on one rain gage.

08158860 SLAUGHTER CREEK AT FARM ROAD 2304 NEAR AUSTIN, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°09'43", long 97°49'55", Travis County, Hydrologic Unit 12090205, at downstream side of bridge on Farm Road 2304 and 9.4 mi (15.1 km) southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--23.1 mi² (59.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to current year.

GAGE.--Flood-hydrograph recorder and crest-stage gage. Datum of gage is 654.80 ft (199.583 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Additional storm rainfall-runoff data for this site can be obtained from the report "Hydrologic Data for Urban Studies in the Austin, Texas Metropolitan Area, 1980." Two recording rain gages are located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,340 ft³/s (236 m³/s) June 11, 1981, gage height, 12.40 ft (3.780 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,340 ft³/s (236 m³/s) June 11, 1981, gage height, 12.40 ft (3.780 m).

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAR 04...	0743	84	229	7.7	15.5	60	160	--	--	4.6	76000	66000
JUN 16...	0853	734	456	8.2	23.5	25	67	8.6	102	1.0	44000	14000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
MAR 04...	100000	100	17	30	6.4	5.7	.2	2.4	84	20	11	.1
JUN 16...	41000	240	27	72	14	11	.3	2.5	210	29	17	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
MAR 04...	7.1	133	176	19	.18	.030	.21	.060	3.5	3.6	.120	14
JUN 16...	10	282	174	22	.19	.000	.19	.040	1.1	1.1	.070	6.8

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)
MAR 04...	0743	0	20	<1	0	<10	40

08158860 SLAUGHTER CREEK AT FARM ROAD 2304 NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 04...	<10	1	.0	0	0	<3

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)
MAR 04...	0743	.00	.0	.00	.1	.01	.01	.00	.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
MAR 04...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR 04...	.00	.00	.00	.00	0	.00	.02	.00	.00

08158920 WILLIAMSON CREEK AT OAK HILL, TX

LOCATION.--Lat 30°14'06", long 97°51'36", Travis County, Hydrologic Unit 12090205, on downstream side of bridge on U.S. Highway 290 in Oak Hill, 0.8 mi (1.3 km) east of the intersection of U.S. Highway 290 and State Highway 71, and 7.7 mi (12.4 km) southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--6.30 mi² (16.32 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1974 to February 1977 (periodic discharge measurements only), January 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 798.68 ft (243.438 m) National Geodetic Vertical Datum of 1929 (levels from city of Austin bench mark).

REMARKS.--Water-discharge records fair. Station is part of a hydrologic-research project to study rainfall-runoff relation for the Austin urban-rural areas. Two recording rain gages are located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,170 ft³/s (118 m³/s) June 11, 1981, gage height, 8.55 ft (2.606 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 3	2245	772	21.9	4.39	1.338	June 12	0900	1,760	49.8	5.94	1.811
May 24	2330	3,740	106	8.17	2.490	June 13	1845	2,240	63.4	6.61	2.015
June 10	2200	726	20.6	4.30	1.311	June 16	0730	516	14.6	3.86	1.177
June 11	0315	*4,170	118	8.55	2.606	July 5	1030	647	18.3	4.14	1.262

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.64	.00	.17	.57	1.2	2.9	1.2	1.3	5.8	4.2	.06	.00
2	.46	.00	.17	.57	.32	1.1	1.2	2.5	4.1	3.8	.03	.00
3	.41	.00	.17	.57	.23	80	1.0	5.2	4.0	3.4	.04	5.8
4	.20	.00	.21	.51	1.3	67	1.0	2.5	40	3.3	.01	.16
5	.17	.00	.22	.46	3.1	21	.85	2.0	65	61	.00	.00
6	.17	.00	.17	.46	2.1	14	1.1	2.1	18	16	.00	.00
7	.17	.00	.16	.46	2.0	17	1.6	2.2	9.2	11	.00	.00
8	.15	.00	2.4	.56	1.9	11	2.0	2.1	5.7	7.7	.00	.00
9	.10	.00	1.3	.51	1.7	8.3	2.3	2.2	4.0	9.3	.00	.00
10	.07	.00	.75	.37	3.7	6.3	2.3	2.0	71	5.4	.00	.00
11	.06	.00	.70	.37	1.5	8.0	2.3	1.3	977	4.0	.00	.00
12	.04	.00	.70	.37	1.5	14	2.7	1.3	299	3.7	.00	.00
13	.04	.00	.58	.37	1.5	17	2.5	1.1	489	2.6	.00	.00
14	.05	.00	.57	.37	1.5	12	2.1	.56	233	2.4	.00	4.6
15	.03	.00	3.5	.37	1.5	9.8	2.0	.53	63	2.0	.00	1.6
16	.58	3.2	1.5	.37	1.5	7.9	2.3	10	156	1.7	.00	.00
17	.11	.27	1.2	.37	1.5	6.7	2.3	.13	54	1.5	.00	.00
18	.14	.01	1.1	.35	1.7	5.1	2.4	.07	35	1.4	.27	.00
19	.14	.00	.91	4.9	2.0	4.3	2.4	.05	26	.92	.02	.00
20	.12	.00	.75	.60	2.0	3.9	1.7	.04	19	.80	.00	.00
21	.12	.00	.70	.17	1.9	3.3	2.1	.04	15	.60	.00	.00
22	.12	.00	.70	.17	1.4	2.4	2.3	.04	12	.36	.00	.00
23	.12	.00	.70	.20	1.2	2.3	7.4	.04	9.4	.26	.00	.00
24	.10	.00	.63	.20	1.3	2.1	.33	175	8.1	.18	.00	.00
25	.07	2.1	.57	.20	1.7	2.0	.34	130	8.6	.16	.00	.00
26	.07	1.0	.57	.20	1.6	1.8	.35	6.5	7.1	1.0	.00	.00
27	.04	.20	.57	.20	1.5	1.7	.37	3.7	8.0	.45	.00	.00
28	.01	.17	.57	.24	1.3	1.6	.42	2.7	6.5	.21	.00	.00
29	.01	.17	.57	.37	---	2.2	.63	2.1	5.3	.16	.00	.00
30	.01	.17	.57	.35	---	1.5	.70	33	4.4	.11	.00	.00
31	.00	---	.57	.29	---	1.2	---	13	---	.10	.00	---
TOTAL	4.52	7.29	23.95	16.07	45.65	339.4	52.19	405.30	2662.2	149.71	.43	12.16
MEAN	.15	.24	.77	.52	1.63	10.9	1.74	13.1	88.7	4.83	.014	.41
MAX	.64	3.2	3.5	4.9	3.7	80	7.4	175	977	61	.27	5.8
MIN	.00	.00	.16	.17	.23	1.1	.33	.04	4.0	.10	.00	.00
CFSM	.02	.04	.12	.08	.26	1.73	.28	2.08	14.1	.77	.002	.07
IN.	.03	.04	.14	.09	.27	2.00	.31	2.39	15.72	.88	.00	.07
AC-FT	9.0	14	48	32	91	673	104	804	5280	297	.9	24
(††)	.64	3.70	1.71	1.76	1.54	4.69	1.25	9.85	20.90	2.98	1.36	2.86

CAL YR 1980 TOTAL 844.38 MEAN 2.31 MAX 63 MIN .00 CFSM .37 IN 4.99 AC-FT 1670 †† 33.86
WTR YR 1981 TOTAL 3718.87 MEAN 10.2 MAX 977 MIN .00 CFSM 1.62 IN 21.96 AC-FT 7380 †† 53.24

†† Weighted-mean rainfall on watershed, in inches, based on two rain gages.

08158920 WILLIAMSON CREEK AT OAK HILL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Occasional discharge measurements: January 1974 to current year. Chemical, biochemical, and pesticide analyses: January 1974 to current year. Radiochemcial analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 21...	1410	.17	600	7.9	13.0	5	.40	14.8	140	.6	120	33
JUN 16...	1250	160	469	8.0	22.5	15	11	8.4	98	.4	35000	11000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN 21...	40	300	32	83	23	15	.4	1.1	270	39	22	.2
JUN 16...	16000	240	14	73	15	6.9	.2	2.0	230	20	8.9	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 21...	3.6	349	0	0	.08	.010	.09	.030	.48	.51	.110	4.0
JUN 16...	9.3	273	22	14	.47	.000	.47	.040	.82	.86	.060	4.8

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX

LOCATION.--Lat 30°11'21", long 97°43'56", Travis County, Hydrologic Unit 12090205, at Jimmy Clay Road, 0.5 mi (0.8 km) southeast of the intersection of Jimmy Clay and Nuckles Crossing Roads, and 5.9 mi (9.5 km) south of the State Capitol in Austin.

DRAINAGE AREA.--27.6 mi² (71.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1974 to September 1975 (periodic discharge measurements only), September 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 497.18 ft (151.540 m) National Geodetic Vertical Datum of 1929 (city of Austin bench mark).

REMARKS.--Water-discharge records fair. No known regulation or diversion in watershed. There are three recording rain gages located in the watershed. The station is part of a hydrologic research project to study the rainfall-runoff relationships for the Austin urban-rural areas.

AVERAGE DISCHARGE.--6 years, 10.5 ft³/s (0.297 m³/s), 5.17 in/yr (131 mm/yr), 7,610 acre-ft/yr (9.38 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft³/s (399 m³/s) June 11, 1981, gage height, 17.25 ft (5.258 m); minimum daily, 0.03 ft³/s (0.001 m³/s) Sept. 16, 24, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--The maximum flood since 1869 occurred on Sept. 9 or 10, 1921, stage and discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 4	0330	635	18.0	5.63	1.716	June 12	1245	1,380	39.1	7.45	2.271
May 25	0400	2,810	79.6	9.66	2.944	June 13	2130	11,360	322	15.89	4.843
June 1	1800	616	17.4	5.57	1.698	June 16	0730	1,450	41.1	7.59	2.313
June 11	1415	*14,100	399	17.25	5.258	July 5	1330	1,520	43.0	7.72	2.353

Minimum daily discharge, 0.08 ft³/s (0.002 m³/s) Sept. 20,21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	.72	1.8	1.7	4.3	11	2.4	1.3	63	7.0	1.3	2.7
2	1.3	.63	1.9	1.7	3.9	7.0	2.5	1.4	20	6.0	1.3	2.2
3	1.1	.72	1.9	1.7	3.4	19	2.5	2.0	25	4.8	1.3	4.4
4	1.1	.63	1.9	1.7	5.2	107	2.5	1.9	12	4.8	1.3	.99
5	.84	.63	2.2	1.7	13	12	2.2	1.5	44	147	1.3	.44
6	.82	.63	2.2	1.8	8.5	6.6	2.2	1.6	16	9.7	1.2	.23
7	.72	.56	2.2	1.9	5.3	5.6	2.2	1.8	7.8	13	1.2	.17
8	.72	.66	14	2.0	4.5	5.7	2.1	1.2	3.7	15	1.1	.15
9	.72	.63	9.2	2.9	4.2	3.2	2.1	1.0	2.9	8.3	1.0	.13
10	.88	.63	3.5	2.3	12	2.5	2.2	1.2	19	5.2	1.0	.13
11	.93	.54	2.2	2.1	5.7	4.2	2.0	1.2	3260	4.9	1.0	.13
12	.82	.54	2.0	1.9	4.5	9.2	1.7	1.4	354	4.1	1.0	.13
13	.82	.54	1.9	1.9	4.4	9.8	1.7	1.4	2800	3.3	1.1	.13
14	.82	.59	1.7	1.9	4.4	5.2	1.8	1.5	588	3.3	1.2	.23
15	.82	.66	8.1	1.9	4.2	3.3	2.0	1.6	77	3.1	1.2	6.5
16	.92	25	3.6	1.9	4.2	2.4	1.9	13	391	3.1	1.2	.99
17	1.0	11	2.2	1.9	4.5	2.3	3.9	3.1	44	2.9	1.3	.18
18	1.3	2.7	1.9	1.9	4.4	2.5	9.3	1.5	17	2.7	23	.14
19	.73	1.7	1.9	20	4.4	2.2	3.6	1.2	12	2.8	5.3	.09
20	.72	1.4	1.9	12	4.4	2.2	2.0	1.2	9.2	2.6	2.3	.08
21	.63	1.2	1.7	5.3	4.4	2.5	1.4	1.2	8.1	2.4	1.6	.08
22	.63	1.2	1.7	4.3	4.4	2.2	1.4	1.2	8.3	2.1	1.3	.09
23	.60	1.2	1.7	4.0	4.4	2.2	13	1.3	7.7	2.2	1.3	.13
24	.82	1.3	1.7	3.7	4.4	2.2	4.0	30	9.2	2.0	1.3	.24
25	.82	14	1.7	3.7	4.4	2.4	1.7	338	13	2.2	1.5	.35
26	.73	16	1.7	3.5	4.4	2.5	1.6	22	10	2.3	1.8	.53
27	.82	4.1	1.7	3.6	4.4	2.5	1.3	12	7.7	6.2	1.6	.54
28	.85	2.3	1.7	3.7	4.4	2.7	1.2	9.7	7.4	3.0	1.7	.54
29	.98	1.9	1.7	3.7	---	3.6	1.2	11	7.2	2.0	2.6	.54
30	.82	1.7	1.7	3.6	---	3.1	1.3	24	6.9	1.7	3.0	.54
31	.72	---	1.7	3.5	---	2.6	---	21	---	1.4	5.8	---
TOTAL	27.80	96.01	86.9	109.4	144.6	251.4	80.9	513.4	7851.1	281.1	74.1	23.72
MEAN	.90	3.20	2.80	3.53	5.16	8.11	2.70	16.6	262	9.07	2.39	.79
MAX	2.3	25	14	20	13	107	13	338	3260	147	23	6.5
MIN	.60	.54	1.7	1.7	3.4	2.2	1.2	1.0	2.9	1.4	1.0	.08
CFSM	.03	.12	.10	.13	.19	.29	.10	.60	9.49	.33	.09	.03
IN.	.04	.13	.12	.15	.19	.34	.11	.69	10.58	.38	.10	.03
AC-FT	55	190	172	217	287	499	160	1020	15570	558	147	47
(††)	.66	3.20	1.95	1.90	1.67	3.98	1.58	7.10	22.05	4.13	2.07	2.57

CAL YR 1980 TOTAL 1431.40 MEAN 3.91 MAX 173 MIN .13 CFSM .14 IN 1.93 AC-FT 2840 †† 33.73
WTR YR 1981 TOTAL 9540.43 MEAN 26.1 MAX 3260 MIN .08 CFSM .95 IN 12.86 AC-FT 18920 †† 52.86

†† Weighted-mean rainfall on watershed, in inches, based on three rain gages.

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1975 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 27...	1325	3.6	614	7.9	15.0	20	3.3	12.6	124	1.5	540	180
JUN 17...	1125	44	625	7.9	21.5	25	12	8.3	94	9.9	330000	63000
AUG 19...	1245	3.5	354	7.3	25.0	10	110	5.3	65	3.1	350000	170000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN 27...	120	260	31	89	9.4	29	.8	2.3	230	44	35	.3
JUN 17...	12000	300	57	99	12	20	.5	4.1	240	65	30	.2
AUG 19...	110000	160	27	55	4.8	12	.4	3.2	130	36	14	.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 27...	5.6	353	1	0	.38	.040	.42	.720	.38	1.1	.030	9.5
JUN 17...	11	386	20	9	1.3	.080	1.4	.730	1.6	2.3	.990	6.2
AUG 19...	7.6	211	94	44	.45	.030	.48	.290	.71	1.0	.130	4.4

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)
AUG 19...	1245	2	60	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
AUG 19...	<10	18	.0	0	0	<3

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)
AUG 19...	1245	.00	.0	.00	.0	.00	.00	.00	.55

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
AUG 19...	.00	.00	.00	.00	.00	.00	.00	.03	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG 19...	.00	.00	.00	.00	0	.00	.02	.01	.00

08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX

LOCATION.--Lat 30°10'40", long 97°41'18", Travis County, Hydrologic Unit 12090205, on right bank at downstream side of downstream bridge on U.S. Highway 183, 2.4 mi (3.9 km) downstream from Williamson Creek, 3.2 mi (5.1 km) southwest of Del Valle, and 7.5 mi (11.7 km) southeast of the State Capitol Building in Austin.

DRAINAGE AREA.--321 mi² (831 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to March 1930, March 1976 to current year. In 1924-30 station was published as "near Del Valle."

GAGE.--Water-stage recorder. Datum of gage is 442.85 ft (134.981 m) State Department of Highways and Public Transportation datum. May 15, 1924, to Mar. 15, 1930, nonrecording gage at highway bridge 1,700 ft (518 m) upstream at 6.42-foot (1.957 m) higher datum.

REMARKS.--Water-discharge records fair. Flow is slightly regulated by several small ponds on main channel and tributaries above station. There are eleven recording rain gages located in the watershed.

AVERAGE DISCHARGE.--10 years (water years 1925-29, 1977-81), 89.1 ft³/s (2.523 m³/s), 3.77 in/yr (96 mm/yr), 64,550 acre-ft/yr (79.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,000 ft³/s (2,150 m³/s) May 28, 1929, gage height, 30.5 ft (9.30 m), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1869 occurred about July 3, 1869, stage about 38 ft (11.6 m) from newspaper accounts, and Sept. 9, 1921, stage 38.0 ft (11.58 m) from floodmark, present site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 4	1245	3,180	90.1	11.04	3.365	June 13	2330	*46,200	1,310	31.27	9.531
May 25	0515	2,910	82.4	10.63	3.240	June 16	2015	8,580	243	18.02	5.492
June 11	1830	26,100	739	25.96	7.913	July 5	1400	2,550	72.2	10.10	3.078
June 12	1800	8,930	253	18.30	5.578						

Minimum daily discharge, 0.41 ft³/s (0.012 m³/s) Oct. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	.76	6.0	6.8	11	19	21	3.3	133	316	15	13
2	7.0	.76	5.8	6.8	28	16	17	3.4	98	285	15	10
3	4.9	.76	5.8	6.8	7.9	49	15	4.4	262	264	14	36
4	4.3	.76	5.8	7.2	8.5	916	13	5.2	395	246	14	21
5	3.3	.76	5.8	7.2	25	333	11	5.3	292	550	14	14
6	2.7	.76	6.1	7.2	19	171	9.4	4.8	208	296	13	10
7	2.3	.76	6.3	7.2	13	125	7.3	4.4	78	255	12	8.2
8	2.0	.63	27	7.2	12	111	6.6	3.9	37	261	12	7.2
9	2.0	.73	33	7.9	11	78	6.2	3.2	20	234	11	6.7
10	1.7	.93	14	8.2	22	58	5.7	2.6	15	177	10	5.8
11	1.7	.64	9.5	8.2	9.6	52	5.2	2.3	10900	156	10	5.7
12	1.4	1.1	9.1	7.8	10	65	4.5	2.0	6530	138	9.7	4.9
13	1.7	1.0	15	7.7	9.5	124	4.2	2.0	13200	124	9.3	4.4
14	1.7	.99	6.8	7.7	9.1	147	3.7	1.7	14500	113	8.4	4.4
15	1.7	1.1	14	7.7	10	115	3.3	1.5	3170	102	7.6	30
16	1.7	42	13	7.7	11	94	3.3	25	5840	90	6.9	15
17	22	38	9.6	7.7	11	74	3.3	10	3320	79	6.6	7.5
18	24	11	8.5	7.7	12	70	12	4.5	2140	68	10	5.5
19	7.4	6.7	8.7	48	12	61	6.6	2.2	1470	57	30	4.6
20	3.8	5.1	8.7	55	11	51	5.3	1.1	1070	46	17	3.7
21	2.4	4.4	8.4	20	11	48	4.3	.99	844	34	15	3.3
22	1.7	4.1	8.2	13	10	46	3.9	.99	717	31	11	3.0
23	1.4	4.1	8.1	11	9.7	39	23	.99	627	28	8.0	3.0
24	1.2	3.7	7.7	9.9	10	32	12	76	584	24	5.5	2.3
25	.90	6.8	7.7	9.2	9.4	32	6.4	508	553	21	3.5	2.3
26	.72	50	7.2	9.3	9.5	30	5.8	128	535	21	3.1	2.0
27	.56	14	7.2	8.9	9.5	28	5.3	25	467	34	2.8	1.7
28	.41	8.6	7.2	9.1	9.8	25	4.6	9.7	423	26	2.4	1.4
29	.41	6.7	7.2	8.9	---	23	4.1	6.4	372	20	2.1	1.2
30	.45	6.3	7.2	8.7	---	41	4.0	11	337	18	34	1.0
31	.57	---	7.1	8.2	---	35	---	34	---	17	36	---
TOTAL	120.02	223.94	301.7	353.9	341.5	3108	237.0	893.87	69137	4131	368.9	238.8
MEAN	3.87	7.46	9.73	11.4	12.2	100	7.90	28.8	2305	133	11.9	7.96
MAX	24	50	33	55	28	916	23	508	14500	550	36	36
MIN	.41	.63	5.8	6.8	7.9	16	3.3	.99	15	17	2.1	1.0
CFSM	.01	.02	.03	.04	.04	.31	.03	.09	7.18	.41	.04	.03
IN.	.01	.03	.03	.04	.04	.36	.03	.10	8.01	.48	.04	.03
AC-FT	238	444	598	702	677	6160	470	1770	137100	8190	732	474

CAL YR 1980	TOTAL	7558.18	MEAN	20.7	MAX	1010	MIN	.00	CFSM .06	IN .88	AC-FT 14990
WTR YR 1981	TOTAL	79455.63	MEAN	218	MAX	14500	MIN	.41	CFSM .68	IN 9.21	AC-FT 157600

08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1976 to current year. Sediment analyses: October 1976 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 28...	1100	8.7	565	8.1	12.5	0	1.0	14.4	135	.8	460	K2
JUN 17...	1225	3060	453	8.1	21.5	20	70	9.8	111	1.5	26000	9200
AUG 19...	1340	23	330	7.4	26.5	30	65	6.1	78	3.6	110000	36000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JAN 28...	K9	230	30	74	11	31	.9	2.1	200	50	34	.3
JUN 17...	14000	220	1	72	10	8.1	.2	3.0	220	2.7	11	.1
AUG 19...	16000	140	23	47	6.1	12	.5	2.5	120	24	16	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 28...	2.3	325	13	2	1.5	.010	1.5	.050	.48	.53	.040	7.6
JUN 17...	12	251	145	24	.60	.010	.61	.080	1.4	1.50	.240	5.0
AUG 19...	7.6	188	72	34	.60	.010	.61	.040	.66	.70	.090	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)
AUG 19...	1340	2	40	<1	0	<10	17

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)
AUG 19...	<10	2	.0	0	0	3

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)
AUG 19...	1340	.00	.00	.00	.00	.00	.01	.00	.24

08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
AUG 19...	.00	.00	.00	.00	.00	.00	.00	.04	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG 19...	.00	.00	.00	.00	0	.00	.02	.00	.00

08159165 BIG SANDY CREEK NEAR MCDADE, TX

LOCATION.--Lat 30°18'18", long 97°17'48", Bastrop County, Hydrologic Unit 12090301, on left bank at upstream side of left abutment of U.S. Highway 290 bridge, 3.8 mi (6.1 km) northwest of McDade, and 5.3 mi (8.5 km) southeast of Elgin.

DRAINAGE AREA.--38.7 mi² (100.2 km²).

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

GAGE.--Water-stage recorder. Altitude of gage is 422 ft (128.6 m), from topographic map.

REMARKS.--Records fair. No known regulation or diversion. Station is part of hydrologic-research project to study effects of lignite strip mining on the local water resources. Station has automatic water-quality sampler. Two recording rain gages are located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,410 ft³/s (125 m³/s) June 11, 1981, gage height, 15.74 ft (4.798 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 325 ft³/s (9.20 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 31	0245	412	11.7	7.82	2.384	June 13	1830	1,970	55.8	12.70	3.871
June 11	0645	*4,410	125	15.74	4.798	June 16	1400	1,940	54.9	12.65	3.856

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.06	.14	.09	.14	.24	.00	46	1.1	.05	.08
2	.00	.00	.06	.18	.09	.22	.22	.00	85	1.2	.02	.03
3	.00	.00	.06	.21	.09	1.3	.22	.00	6.5	1.5	.00	.05
4	.00	.00	.10	.14	.09	23	.22	.00	6.5	1.2	.00	.06
5	.00	.00	.14	.14	.09	3.4	.15	.00	68	7.4	.01	.06
6	.00	.00	.14	.14	.09	1.5	.03	.01	13	11	.03	.06
7	.00	.00	.14	.14	.09	1.0	.03	.15	3.6	3.8	.03	.06
8	.00	.00	.14	.18	.09	.63	.03	.30	1.8	2.4	.03	.06
9	.00	.00	.14	.23	.09	.30	.03	.09	1.4	1.9	.03	.03
10	.00	.00	.14	.14	.09	.22	.05	.00	1.2	1.3	.03	.03
11	.00	.00	.14	.14	.09	.22	.03	.00	1550	1.1	.04	.03
12	.00	.00	.14	.14	.09	.22	.03	.00	165	.94	.10	.00
13	.00	.00	.14	.14	.09	.36	.00	.00	605	.89	.14	.00
14	.00	.00	.14	.14	.09	.37	.00	.00	528	.89	.13	.02
15	.00	.00	.22	.14	.09	.30	.00	.00	44	.71	.06	.04
16	.00	.03	.30	.14	.09	.25	.00	1.2	866	.56	.06	.03
17	.00	.06	.50	.14	.09	.22	.00	1.2	85	.73	.06	.00
18	.00	.06	.51	.14	.09	.22	.00	.34	11	.89	.06	.00
19	.00	.06	.45	.26	.09	.10	.00	.00	5.3	1.4	.06	.00
20	.00	.06	.40	.22	.09	.06	.00	.00	3.1	1.7	.06	.00
21	.00	.06	.40	.14	.09	.06	.00	.00	2.1	1.2	.06	.00
22	.00	.06	.40	.09	.09	.06	.00	.00	1.9	.48	.05	.00
23	.00	.06	.46	.09	.09	.03	.05	.00	1.2	.23	.02	.00
24	.00	.06	.42	.09	.09	.03	.00	22	1.2	.14	.00	.00
25	.00	.14	.40	.09	.09	.13	.00	67	1.3	.08	.01	.01
26	.00	.06	.40	.09	.09	.30	.00	6.3	1.8	.06	.03	.03
27	.00	.03	.22	.09	.09	.30	.00	2.1	2.1	.10	.00	.03
28	.00	.03	.20	.09	.09	.30	.00	1.3	1.8	.19	.00	.03
29	.00	.03	.29	.09	---	4.5	.00	1.3	.90	.22	.00	.02
30	.00	.06	.14	.09	---	1.8	.00	38	.80	.22	.03	.02
31	.00	---	.14	.09	---	.60	---	129	---	.18	.06	---
TOTAL	.00	.86	7.53	4.28	2.52	42.14	1.33	270.29	4110.50	45.71	1.26	.78
MEAN	.000	.029	.24	.14	.090	1.36	.044	8.72	137	1.47	.041	.026
MAX	.00	.14	.51	.26	.09	23	.24	129	1550	11	.14	.08
MIN	.00	.00	.06	.09	.09	.03	.00	.00	.80	.06	.00	.00
CFSM	.000	.001	.006	.004	.002	.04	.001	.23	3.54	.04	.001	.001
IN.	.00	.00	.01	.00	.00	.04	.00	.26	3.95	.04	.00	.00
AC-FT	.00	1.7	15	8.5	5.0	84	2.6	536	8150	91	2.5	1.5
(††)	2.16	2.88	.84	1.88	1.03	4.01	.91	7.29	11.23	2.56	1.67	2.06

CAL YR 1980 TOTAL 1862.05 MEAN 5.09 MAX 469 MIN .00 CFSM .13 IN 1.79 AC-FT 3690 †† 27.85
WTR YR 1981 TOTAL 4487.20 MEAN 12.3 MAX 1550 MIN .00 CFSM .32 IN 4.31 AC-FT 8900 †† 38.52

†† Weighted-mean rainfall on watershed, in inches, based on two rain gages.

08159170 BIG SANDY CREEK NEAR ELGIN, TX

LOCATION.--Lat 30°15'54", long 97°19'39", Bastrop County, Hydrologic Unit 12090301, on right bank at downstream side of bridge on State Highway 95, 6.1 mi (9.8 km) south of Elgin, and 10.7 mi (17.2 km) north of Bastrop.

DRAINAGE AREA.--63.8 mi² (165.2 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Altitude of gage is 392 ft (119.5 m), from topographic map.

REMARKS.--Water-discharge records fair. No known regulation or diversion. Station is part of hydrologic-research project to study effects of lignite strip mining on local water resources. Station has automatic water-quality sampler. Three recording rain gages are located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,760 ft³/s (163 m³/s) June 11, 1981, gage height, 21.54 ft (6.565 m); no flow for several days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 11	1100	*5,760	163	21.54	6.565
June 13	2345	2,400	68.0	17.32	5.279
June 16	1900	1,940	54.9	16.36	4.987

Minimum discharge, no flow Oct. 7-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.18	.26	.38	.42	.41	.64	.24	30	1.3	.11	.09
2	.08	.18	.26	.33	.41	.44	.41	.20	125	1.2	.10	.09
3	.07	.18	.26	.30	.38	.43	.39	.23	12	1.0	.09	.09
4	.05	.20	.26	.30	.39	19	.30	.25	14	1.1	.08	.15
5	.03	.20	.26	.33	.59	8.5	.23	.19	49	8.0	.08	.10
6	.01	.20	.30	.36	.73	2.2	.25	.16	30	15	.08	.07
7	.00	.24	.30	.38	.56	1.0	.26	.14	6.6	6.1	.07	.06
8	.00	.28	.30	.38	.42	.74	.24	.13	3.2	3.2	.06	.06
9	.00	.33	.36	.44	.39	.51	.25	.12	1.9	2.1	.05	.06
10	.00	.38	.38	.38	.59	.36	.27	.12	1.4	1.7	.05	.05
11	.00	.33	.33	.36	.43	.33	.22	.10	2350	1.2	.05	.05
12	.00	.30	.28	.30	.32	.34	.19	.10	413	.91	.05	.04
13	.00	.30	.28	.28	.30	.35	.20	.11	452	.74	.05	.05
14	.00	.30	.30	.33	.28	.37	.18	.09	1060	.67	.05	.04
15	.00	.30	.36	.33	.30	.38	.15	.09	68	.59	.05	.18
16	.00	.47	.36	.30	.33	.33	.16	.37	874	.49	.04	.14
17	.00	.80	.36	.30	.34	.30	.18	.23	339	.47	.04	.07
18	.11	.55	.30	.26	.33	.27	.17	.13	22	.41	.05	.05
19	.11	.38	.30	.97	.30	.24	.15	.11	11	.38	.05	.04
20	.09	.28	.30	2.0	.30	.23	.30	.09	6.3	.57	.05	.04
21	.09	.22	.28	.80	.35	.24	.33	.09	3.9	.62	.05	.03
22	.09	.22	.28	.60	.31	.22	.12	.09	3.2	.45	.05	.03
23	.09	.20	.30	.51	.30	.21	.25	.08	2.4	.33	.05	.04
24	.18	.26	.33	.51	.28	.22	.25	18	1.9	.24	.05	.04
25	.22	.30	.36	.47	.26	.20	.20	46	5.8	.19	.05	.05
26	.24	.85	.36	.47	.26	.21	.20	16	3.2	.15	.05	.04
27	.26	.64	.36	.47	.27	.21	.18	4.1	2.6	.20	.05	.04
28	.20	.36	.36	.44	.28	.22	.18	1.5	2.8	.20	.05	.03
29	.18	.28	.38	.38	---	2.8	.20	1.3	1.4	.14	.05	.03
30	.18	.28	.41	.39	---	4.8	.17	1.7	1.1	.12	.06	.03
31	.18	---	.38	.41	---	1.4	---	117	---	.12	.07	---
TOTAL	2.56	9.99	9.91	14.46	10.42	47.46	7.22	209.06	5896.7	49.89	1.83	1.88
MEAN	.083	.33	.32	.47	.37	1.53	.24	6.74	197	1.61	.059	.063
MAX	.26	.85	.41	2.0	.73	19	.64	117	2350	15	.11	.18
MIN	.00	.18	.26	.26	.26	.20	.12	.08	1.1	.12	.04	.03
CFSM	.001	.005	.005	.007	.006	.02	.004	.11	3.09	.03	.001	.001
IN.	.00	.01	.01	.01	.01	.03	.00	.12	3.44	.03	.00	.00
AC-FT	5.1	20	20	29	21	94	14	415	11700	99	3.6	3.7
(††)	2.21	2.80	.87	1.94	1.02	4.00	.99	7.07	12.47	2.29	2.00	1.72

CAL YR 1980 TOTAL 2926.89 MEAN 8.00 MAX 1000 MIN .00 CFSM .13 IN 1.71 AC-FT 5810 †† 27.95
WTR YR 1981 TOTAL 6261.38 MEAN 17.2 MAX 2350 MIN .00 CFSM .27 IN 3.65 AC-FT 12420 †† 39.44

†† Weighted-mean rainfall on watershed, in inches, based on three rain gages.

08159170 BIG SANDY CREEK NEAR ELGIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: May 1979 to September 1981 (discontinued). Radiochemical analyses: May to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	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
MAY										
24...	1200	28	--	--	--	--	--	--	--	--
24...	1300	32	--	--	--	--	--	--	--	--
24...	1330	32	--	--	--	--	--	--	--	--
24...	1430	32	--	--	--	--	--	--	--	--
24...	1445	28	330	8.0	84	28	24	5.9	25	1.2
24...	1600	34	--	--	--	--	--	--	--	--
24...	1700	32	--	--	--	--	--	--	--	--

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 CONSTI-TUENTS, DIS-SOLVED (MG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAY										
24...	--	--	--	--	--	--	--	978	74	96
24...	--	--	--	--	--	--	--	1140	98	88
24...	--	--	--	--	--	--	--	686	59	97
24...	--	--	--	--	--	--	--	647	56	90
24...	2.7	56	16	47	.3	18	173	--	--	--
24...	--	--	--	--	--	--	--	583	54	98
24...	--	--	--	--	--	--	--	540	47	97

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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	SED. SUSP. FALL DIAM. % FINER THAN .008 MM
MAY							
24...	1200	28	978	74	86	86	87
24...	1300	32	1140	98	72	72	75
24...	1330	32	686	59	90	92	93
24...	1430	32	647	56	78	79	82
24...	1600	34	583	54	87	88	88
24...	1700	32	540	47	93	96	96

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
MAY						
24...	87	93	96	97	98	100
24...	78	80	88	92	97	100
24...	94	96	97	98	99	100
24...	82	85	90	92	97	100
24...	88	95	98	99	100	--
24...	96	96	97	98	99	100

08159200 COLORADO RIVER AT BASTROP, TX

LOCATION.--Lat 30°06'20", long 97°19'08", Bastrop County, Hydrologic Unit 12090301, on left bank in city park at Bastrop, 400 ft (122 m) upstream from bridge on State Highway 71, 0.3 mi (0.5 km) upstream from Gills Creek, 1.1 mi (1.8 km) downstream from Piney Creek, and at mile 236.7 (380.9 km), revised.

DRAINAGE AREA (revised).--39,979 mi² (103,546 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 307.38 ft (93.689 m) National Geodletic Vertical Datum of 1929. Prior to May 10, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. There are many diversions above stations for irrigation and municipal supply. Regulation is the same as that for Colorado River at Austin (station 08158000). During the water year, 1,390 acre-ft (1.71 hm³) was diverted above this station by pumping into Decker Lake by the city of Austin. During the year, the Lower Colorado River Authority diverted 2,740 acre-ft (3.38 hm³) above this station into Lake Bastrop. Gage-height telemeter at station.

AVERAGE DISCHARGE.--21 years, 2,177 ft³/s (61.65 m³/s), 1,577,000 acre-ft yr (1.94 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,600 ft³/s (2,250 m³/s) Oct. 29, 1960, gage height, 34.45 ft (10.500 m); minimum daily, 75 ft³/s (2.12 m³/s) Apr. 1, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 60.3 ft (18.38 m) July 7 or 8, 1869. Flood of June 16, 1935, reached a stage of 57.0 ft (17.37 m), and flood of Dec. 4, 1913, reached a stage of 53.3 ft (16.25 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 58,400 ft³/s (1,650 m³/s) June 14 at 2300 hours, gage height, 30.70 ft (9.357 m); minimum daily, 215 ft³/s (6.09 m³/s) Nov. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1290	993	290	1320	695	265	2330	2470	3070	7260	2180	1570
2	918	799	508	489	510	287	2100	2910	4280	5930	2370	2020
3	852	689	956	409	607	344	1770	2650	3120	4630	2220	1440
4	852	662	1090	415	484	2800	1890	1870	4230	4480	2260	2070
5	833	367	943	282	1250	6060	1530	2340	5200	4520	2190	1710
6	817	279	529	587	1170	4320	1460	1770	6910	8550	2380	2100
7	802	252	404	804	900	3890	1450	1530	7080	4940	2220	1890
8	787	233	309	1050	463	3690	1970	1520	6560	4760	2660	1730
9	835	217	339	1750	342	3420	2260	1630	6580	4590	2910	1790
10	767	215	1720	2050	334	2540	2310	1940	6410	4550	2460	2020
11	392	306	1570	1380	884	1160	1940	1290	18500	4310	2400	2060
12	287	642	871	1460	1590	2130	2290	1460	47300	4190	2780	2300
13	249	315	777	1230	1010	2590	2300	1830	28500	3950	2620	2520
14	225	235	485	1170	451	3120	2300	1910	40800	4100	2700	2440
15	246	219	355	933	336	3860	2220	1880	42000	4090	2690	2470
16	235	247	585	918	309	3860	2260	2110	24900	4090	2930	2350
17	222	429	830	675	303	3840	2110	2850	38600	3760	2800	1960
18	473	1620	775	428	316	3800	2160	2300	30600	2930	2930	2050
19	444	1010	1110	333	283	3410	2140	2280	29100	2120	2960	1910
20	367	801	937	666	471	3060	2030	2230	28200	1910	2950	1680
21	302	478	652	968	729	2590	2620	2270	21900	1890	2880	1730
22	315	500	386	720	589	2510	3190	2390	21200	2160	2830	1770
23	267	508	309	735	594	2490	2340	2420	18600	2150	2760	1560
24	235	305	300	864	493	2130	3000	2970	12300	2070	2770	1520
25	247	288	298	1070	825	2490	2480	9920	8790	2330	2770	1460
26	247	515	270	468	377	2490	2240	11600	8490	2430	2750	1270
27	216	1900	251	374	288	2570	2250	3260	8080	2210	2740	1110
28	638	934	250	601	264	2060	2270	3260	7770	2210	2710	1170
29	1070	413	246	753	---	1800	2270	2930	7560	2250	2730	1150
30	1010	320	686	488	---	1640	2360	2840	7420	2090	2780	1130
31	911	---	1570	365	---	1860	---	4260	---	2040	2930	---
TOTAL	17351	16691	20601	25755	16867	83076	65840	88890	504050	113490	82260	53950
MEAN	560	556	665	831	602	2680	2195	2867	16800	3661	2654	1798
MAX	1290	1900	1720	2050	1590	6060	3190	11600	47300	8550	2960	2520
MIN	216	215	246	282	264	265	1450	1290	3070	1890	2180	1110
AC-FT	34420	33110	40860	51090	33460	164800	130600	176300	999800	225100	163200	107000

CAL YR 1980 TOTAL 496888 MEAN 1358 MAX 12000 MIN 174 AC-FT 985600
WTR YR 1981 TOTAL 1088821 MEAN 2983 MAX 47300 MIN 215 AC-FT 2160000

08159200 COLORADO RIVER AT BASTROP, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to September 1973, October 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 21...	0950	492	528	7.7	11.0	10.5	95	.3	190	33
JAN 15...	1330	917	547	7.9	11.0	12.5	113	.3	190	44
MAR 19...	1320	3710	516	7.5	15.0	10.4	103	.9	200	47
MAY 14...	1410	2390	526	7.9	22.5	9.8	113	.3	200	45
JUL 16...	1320	4060	511	7.6	28.0	7.5	96	.8	200	41
SEP 24...	1225	2190	480	7.4	26.0	7.7	94	1.1	180	35

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 (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 21...	47	18	30	.9	4.0	160	35	45	.4
JAN 15...	43	21	35	1.1	3.3	150	41	54	.3
MAR 19...	46	20	31	1.0	3.4	150	37	51	.3
MAY 14...	49	20	31	.9	3.9	160	37	53	.3
JUL 16...	49	19	28	.9	3.5	160	44	47	.2
SEP 24...	46	17	24	.8	3.8	150	35	40	.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
NOV 21...	8.5	283	1.2	.040	1.2	.060	.84	.90	.380
JAN 15...	5.5	293	.89	.040	.93	.040	2.2	2.20	.290
MAR 19...	7.6	286	.49	.020	.51	.080	.64	.72	.160
MAY 14...	6.1	297	.47	.010	.48	.110	1.2	1.30	.240
JUL 16...	8.7	296	.45	.010	.46	.090	.57	.66	.160
SEP 24...	9.2	265	.59	.020	.61	.060	.50	.56	.010

08160800 REDGATE CREEK NEAR COLUMBUS, TX

LOCATION.--Lat 29°47'56", long 96°31'55", Colorado County, Hydrologic Unit 12090301, on left bank 68 ft (21 m) downstream from bridge on Farm Road 109, 1.9 mi (3.1 km), revised, upstream from Cummins Creek, and 7.0 mi (11.3 km) north of Columbus.

DRAINAGE AREA.--17.3 mi² (44.8 km²).

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

REVISED RECORDS.--WSP 2122: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 200.82 ft (61.210 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1975, at datum 10.00 ft (3.048 m) higher.

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

AVERAGE DISCHARGE.--19 years, 6.02 ft³/s (0.170 m³/s), 4.73 in/yr (120 mm/yr), 4,360 acre-ft/yr (5.38 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,360 ft³/s (152 m³/s) May 22, 1979, gage height, 27.19 ft (8.288 m), from rating curve extended above 2,170 ft³/s (61.5 m³/s) on basis of slope-area measurement of peak flow of Jan. 22, 1965; no flow for many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, about 33.4 ft (10.18 m) in late June or early July 1940, from information by State Department of Highways and Public Transportation and local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 23	0900	1,740	49.3	18.57	5.660
June 12	0645	*2,060	58.3	19.39	5.910

Minimum discharge, 0.36 ft³/s (0.010 m³/s) Aug. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.97	.52	.77	.68	.90	.92	.84	5.6	3.0	1.7	.58	4.8
2	.92	.51	.75	.68	.85	1.0	.76	14	2.9	1.5	.57	1.5
3	.87	.48	.72	.68	.82	.82	.82	46	2.7	1.5	.54	1.1
4	.82	.48	.72	.68	.97	.92	.76	12	3.1	1.4	.54	1.0
5	.77	.48	.73	.68	1.2	.87	.85	8.1	3.4	5.3	.54	.81
6	.72	.48	.77	.79	1.1	.82	.83	6.1	2.7	16	.51	.77
7	.68	.47	.77	.77	.97	.90	.72	5.2	2.4	9.0	.55	.77
8	.68	.45	.94	.68	.87	.88	.77	4.9	2.2	3.5	.99	.77
9	.68	.45	1.0	.71	.82	.82	.78	6.3	2.2	2.1	.50	.75
10	.68	.45	.74	.69	.77	.82	.65	7.4	2.1	2.0	.50	.70
11	.68	.45	.68	.68	.72	.95	.65	4.7	4.9	5.2	.48	.68
12	.63	.45	.70	.65	.68	1.1	.68	4.5	729	1.6	.66	.68
13	.59	.42	.72	.63	.68	1.6	.66	4.1	22	1.3	.61	.68
14	.63	.42	.72	.75	.68	.97	.60	4.9	13	1.1	.54	1.1
15	.77	.42	.73	.68	.68	.90	.58	3.6	4.6	1.0	.51	.95
16	.82	.79	.75	.66	.68	.86	.60	3.8	3.9	.93	.46	.72
17	.97	.83	.68	.63	.68	.80	.55	3.8	3.3	.90	.40	.66
18	27	.52	.70	.63	.68	.79	1.4	4.0	2.5	.86	.43	.63
19	1.4	.48	.69	6.9	.68	.77	1.0	3.8	2.0	.79	4.6	.63
20	.82	.48	.68	5.2	.68	.81	.73	3.7	1.7	.77	.89	.63
21	.77	.48	.68	1.2	.68	.84	.67	3.8	1.7	.73	.59	.63
22	.72	.56	.68	1.0	.77	.76	.71	4.1	1.7	.70	.51	.63
23	.68	.62	.70	1.0	.77	.72	146	3.7	1.6	.67	.50	.63
24	.68	.52	.71	.97	.77	.76	7.9	49	1.5	.61	.50	.63
25	.63	1.5	.64	.97	.97	.78	6.7	7.0	5.5	.62	.47	.60
26	.63	2.9	.65	.97	.97	.87	6.0	4.5	3.5	1.2	.50	.59
27	.60	.97	.68	.97	.87	.84	4.9	3.9	2.3	1.7	.47	.59
28	.86	.85	.68	.93	.77	.80	4.6	3.5	1.9	1.1	.47	.59
29	.60	.77	.68	.92	---	.94	4.5	5.5	1.7	.76	.62	.55
30	.53	.77	.68	.91	---	.84	4.1	4.0	1.8	.72	.88	.54
31	.52	---	.68	.87	---	.77	---	3.1	---	.68	147	---
TOTAL	49.32	19.97	22.42	35.16	22.68	27.24	201.31	248.6	836.8	67.94	167.91	26.31
MEAN	1.59	.67	.72	1.13	.81	.88	6.71	8.02	27.9	2.19	5.42	.88
MAX	27	2.9	1.0	6.9	1.2	1.6	146	49	729	16	147	4.8
MIN	.52	.42	.64	.63	.68	.72	.55	3.1	1.5	.61	.40	.54
CFSM	.09	.04	.04	.07	.05	.05	.39	.46	1.61	.13	.31	.05
IN.	.11	.04	.05	.08	.05	.06	.43	.53	1.80	.15	.36	.06
AC-FT	98	40	44	70	45	54	399	493	1660	135	333	52

CAL YR 1980 TOTAL 1042.14 MEAN 2.85 MAX 285 MIN .36 CFSM .17 IN 2.24 AC-FT 2070
WTR YR 1981 TOTAL 1725.66 MEAN 4.73 MAX 729 MIN .40 CFSM .27 IN 3.71 AC-FT 3420

08161000 COLORADO RIVER AT COLUMBUS, TX

LOCATION.--Lat 29°42'22", long 96°32'12", Colorado County, Hydrologic Unit 12090302, near right bank at downstream side of pier of bridge on U.S. Highway 90 at eastern edge of Columbus, 340 ft (104 m) downstream from Texas and New Orleans Railroad Co. bridge, 2.6 mi (4.2 km) downstream from Cummins Creek, and at mile 135.1 (217.4 km).

DRAINAGE AREA (revised).--41,640 mi² (107,848 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing; 41,170 mi² (106,630 km²), approximately, at site "near Eagle Lake".

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1903 to December 1911 (gage heights only), May 1916 to current year. Discharge records for 1902-11, published in WSP 84, 99, 132, 174, 210, 288, and 308, have been found to be unreliable and should not be used. Records collected at site 23 mi (37 km) downstream October 1930 to May 1939, published as "near Eagle Lake". Gage-height records collected in this vicinity since 1903 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1342: Drainage area. WSP 1562: 1920-21(M), 1922. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 155.52 ft (47.402 m) National Geodetic Vertical Datum of 1929. Prior to May 1, 1919, various nonrecording gages at sites in the immediate vicinity at datum 3.00-foot (0.914 m) lower. May 1, 1919, to Nov. 23, 1930, water-stage recorder at site about 300 ft (91 m) downstream at datum 3.00-foot (0.914 m) lower. Sept. 17, 1930, to June 12, 1939 (Oct. 1, 1930, to May 31, 1939, used herein), water-stage recorder at site 23 mi (37 km) downstream at different datum. May 17 to Nov. 14, 1939, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. At times, low-flow releases from Lake Travis (station 08154500) are made for generation of electric power and (or) to fulfill downstream water contracts. The Lower Colorado River Authority reported that 16,770 acre-ft (20.7 hm³) was diverted from the river to Cedar Creek Reservoir during the current year. This reservoir is located 10 mi (16 km) north of the river and 3.5 mi (5.6 km) west of Fayetteville. Flow is also affected at times by discharge from flood-detention pools of 20 floodwater-retarding structures with a combined detention capacity of 25,570 acre-ft (31.5 hm³). These structures control runoff from 73.1 mi² (189.3 km²) in the Cummins Creek watershed. Many other diversions above station for irrigation and municipal supply.

AVERAGE DISCHARGE.--20 years (water years 1917-36) unregulated, 3,809 ft³/s (107.9 m³/s), 2,760,000 acre-ft/yr (3.40 km³/yr); 45 years (water years 1937-81) regulated, 2,939 ft³/s (83.23 m³/s), 2,129,000 acre-ft/yr (2.63 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 190,000 ft³/s (5,380 m³/s) June 18, 1935, gage height, 38.5 ft (11.73 m), present site and datum, computed on basis of records for station near Eagle Lake; minimum, 93 ft³/s (2.63 m³/s) Sept. 1, 1918.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 41.6 ft (12.68 m), present datum, in July 1869 and Dec. 6, 1913, from information by local resident. River divided each time and left Columbus on an island.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 47,300 ft³/s (1,340 m³/s) June 16 at 1900 hours, gage height, 25.25 ft (7.696 m); minimum daily, 147 ft³/s (4.16 m³/s) Nov. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1390	875	710	209	683	570	1490	2580	3300	7880	2060	38300
2	1380	805	543	1230	543	450	1610	4540	3710	7830	2010	36300
3	1210	873	423	1140	469	401	2100	3290	3590	7330	2220	7290
4	1010	805	359	801	639	366	1650	4110	3980	5810	2360	3830
5	888	750	640	638	625	330	1520	2990	3770	5430	2200	2890
6	833	688	936	597	611	1740	1510	2180	4990	5660	2250	2650
7	814	592	931	542	821	5120	1280	2180	5910	7820	2240	2410
8	803	418	784	432	1010	4080	1230	1670	6950	6930	2200	2450
9	790	303	651	722	882	3700	1400	1450	6500	5500	2160	2170
10	777	233	560	893	720	3430	1790	1430	6390	5300	2660	2020
11	772	194	460	1550	563	3080	2000	1670	6480	5810	2420	2010
12	788	167	1240	1680	469	2040	1970	1720	21000	5280	1980	2210
13	652	147	1290	1220	516	1260	1780	1190	35100	4850	2260	2270
14	527	271	916	1320	1250	1980	2030	1320	40600	4880	2350	2600
15	446	474	836	1070	1070	2400	2060	1580	41000	4690	2350	2710
16	377	318	758	981	789	3330	2080	1640	45800	4490	2300	2950
17	315	295	620	861	611	3600	2090	1750	39700	4410	2490	2770
18	394	249	551	857	495	3600	2050	2340	34200	4310	2460	2260
19	505	212	807	790	425	3580	1940	2280	34600	3580	2630	2050
20	401	936	773	858	383	3490	1950	2230	28000	2950	2860	2110
21	561	950	993	674	366	2790	1880	2060	26600	2320	2720	1830
22	501	810	939	549	371	2700	1880	2050	22600	2160	2540	1710
23	423	727	847	814	413	2200	4620	2040	19300	2090	2500	1750
24	337	575	670	716	675	2280	5230	2720	18200	2280	2390	1700
25	300	648	559	684	654	2180	3310	3000	14500	2160	2350	1500
26	277	665	474	716	646	1980	2910	3760	10400	2200	2330	1450
27	241	551	432	880	604	2200	2500	11300	9180	2570	2360	1390
28	241	460	417	697	727	2270	2200	5270	8940	2420	2350	1210
29	233	1330	375	557	---	2270	2140	3670	8390	2180	2320	1060
30	197	981	333	489	---	1740	2120	3290	8060	2340	2360	1060
31	797	---	284	618	---	1610	---	2880	---	2170	5270	---
TOTAL	19180	17302	21111	25785	18030	72767	64320	86180	521740	135630	75950	138910
MEAN	619	577	681	832	644	2347	2144	2780	17390	4375	2450	4630
MAX	1390	1330	1290	1680	1250	5120	5230	11300	45800	7880	5270	38300
MIN	197	147	284	209	366	330	1230	1190	3300	2090	1980	1060
AC-FT	38040	34320	41870	51140	35760	144300	127600	170900	1035000	269000	150600	275500

CAL YR 1980 TOTAL 534040 MEAN 1459 MAX 11900 MIN 147 AC-FT 1059000
WTR YR 1981 TOTAL 1196905 MEAN 3279 MAX 45800 MIN 147 AC-FT 2374000

08161000 COLORADO RIVER AT COLUMBUS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1971. Chemical and biochemical analyses: February 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 25...	0930	654	560	8.2	12.0	92.0	84	.8	200	35
JAN 14...	1610	1370	530	8.6	12.0	12.0	110	.4	200	47
MAR 25...	1620	2000	530	8.2	18.0	10.4	109	1.1	200	38
MAY 15...	1020	1750	540	8.6	23.5	8.3	98	1.7	210	47
JUL 07...	1215	8280	500	8.2	25.5	8.9	109	2.1	190	35
SEP 08...	1525	2280	465	8.2	30.0	8.3	109	2.1	190	33

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 (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 25...	50	18	31	1.0	4.5	200	39	48	.3
JAN 14...	46	20	30	.9	3.5	150	40	51	.3
MAR 25...	48	19	30	.9	3.5	160	39	47	.4
MAY 15...	50	20	32	1.0	3.8	160	41	52	.1
JUL 07...	50	17	26	.8	3.7	160	47	41	.2
SEP 08...	51	16	21	.7	3.9	160	31	39	.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
NOV 25...	8.9	320	.92	.010	.93	.000	.71	.71	.350
JAN 14...	5.3	286	.85	.020	.87	.020	1.3	1.3	.170
MAR 25...	7.4	291	.76	.030	.79	.070	1.0	1.1	.290
MAY 15...	4.6	300	.30	.010	.31	.030	.46	.49	.320
JUL 07...	10	291	.47	.040	.51	.160	.94	1.1	.210
SEP 08...	11	269	.54	.010	.55	.060	1.1	1.2	.190

08162000 COLORADO RIVER AT WHARTON, TX
(National stream-quality accounting and radiochemical networks)

LOCATION.--Lat 29°18'32", long 96°06'13", Wharton County, Hydrologic Unit 12090302, near left bank at downstream side of downstream bridge on U.S. Highway 59 in Wharton, 1,100 ft (335 m) downstream from Texas and New Orleans Railroad Co. bridge, 12 mi (19 km) upstream from Jones Creek, and at mile 66.6 (107.2 km).

DRAINAGE AREA (revised).--42,003 mi² (108,788 km²), approximately, of which 11,403 mi² (29.534 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1916 to August 1918 (intermittent periods), March 1919 to September 1925, July and August 1938 (flood discharge measurements only), October 1938 to current year. June to November 1901 and May to September 1902, daily records published in U.S. Department of Agriculture, Office of Experiment Stations, Bulletin Nos. 119 and 133. Gage-height records collected in this vicinity since 1935 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 878: 1938(M). WSP 1342: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 62.42 ft (19.026 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1938, various types of recording and nonrecording gages 800 ft (244 m) upstream at different datum. Oct. 1, 1938, to June 1, 1966, nonrecording gage 100 ft (30 m) upstream at datum 3.00-foot (0.914 m) higher. June 1, 1966, to Sept. 30, 1975, water-stage recorder at present site at datum 3.00-foot (0.914 m) higher.

REMARKS.--Water-discharge records good. Many diversions above station for irrigation, municipal supply, cooling water for thermal-electric powerplant, and oilfield operations. For statement regarding upstream regulation, see station 08161000. Gage-height telemeter at station.

AVERAGE DISCHARGE.--5 years (water years 1920-25) unregulated, 3,680 ft³/s (104.2 m³/s), 2,666,000 acre-ft/yr (3.29 km³/yr); 43 years (water years 1939-81) regulated, 2,714 ft³/s (76.86 m³/s), 1,966,000 acre-ft/yr (2.42 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 100,000 ft³/s (2,830 m³/s) July 3, 1940, gage height, 38.99 ft (11.884 m); no flow Aug. 6, 1925 (result of pumping).
Flood of July 30, 1938, reached a stage of 40.4 ft (12.31 m), present datum, observed by Geological Survey engineers, discharge, 145,000 ft³/s (4,110 m³/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1869, 41.9 ft (12.77 m) Dec. 8, 1913, present datum, from information by local residents; below Wharton floodwater combined with that of the Brazos River. Flood of about July 12, 1869, reached about same height. Flood of June 20, 1935, reached a stage of 41.2 ft (12.56 m), present datum, furnished by National Weather Service, discharge, 159,000 ft³/s (4,500 m³/s) from rating curve defined by current-meter measurements below 145,000 ft³/s (4,110 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43,300 ft³/s (1,230 m³/s) June 17 at 2400 hours, gage height, 28.50 ft (8.687 m); minimum daily, 360 ft³/s (10.2 m³/s) Nov. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1900	519	1390	388	521	718	1580	2050	2530	7470	1530	12200
2	1650	893	963	368	652	621	1470	2450	2390	7170	1390	35000
3	1600	873	749	507	641	508	1680	4460	2950	7000	1310	33600
4	1490	934	625	1320	549	466	2070	4440	2750	6450	1290	10600
5	1250	948	554	982	563	442	2020	4470	3830	5230	1400	5480
6	1040	848	516	722	657	399	1580	3560	3600	5170	1340	3830
7	839	774	900	601	652	2100	1580	2170	4570	6200	1280	3390
8	742	723	1130	568	625	4380	1280	1990	5250	8310	1230	2910
9	716	623	1050	526	1100	3760	1170	1260	5850	7070	1280	2610
10	658	536	799	498	1050	3580	1170	1210	5280	5580	1190	2040
11	635	479	657	694	860	3300	1550	1280	5260	5170	1390	1630
12	615	436	587	1290	657	3160	1840	1190	6900	5700	1470	1400
13	625	397	678	1790	547	2410	1860	1090	26300	5100	1250	1420
14	593	378	1520	1390	507	1630	1460	760	36200	4350	1200	1450
15	488	360	1190	1380	931	1870	1620	573	39000	4190	1360	1740
16	509	467	919	1310	1220	2430	1600	668	39900	4180	1310	1860
17	511	537	843	1160	906	3160	1570	760	42500	3870	1320	2030
18	570	480	711	1030	684	3520	1510	919	41500	3790	1380	2020
19	857	453	596	995	552	3550	1450	1100	36200	3680	1470	1860
20	696	425	596	1090	476	3580	1330	1630	34200	3210	1500	1630
21	601	584	738	1050	430	3520	1230	1310	28600	2730	1770	1670
22	566	1170	799	853	401	2970	1090	1190	25700	2090	1700	1600
23	606	961	1010	657	410	2810	995	1060	21300	1750	1540	1420
24	566	856	919	662	397	2370	3750	1110	18300	1690	1470	1440
25	526	733	771	788	569	2260	5040	2650	17000	1760	1490	1440
26	476	721	620	711	671	2190	3580	2910	13400	1690	1460	1360
27	465	786	549	826	666	1940	3180	3300	10100	1540	1450	1320
28	447	725	502	908	588	2190	2580	8830	9650	1750	1420	1250
29	434	620	470	860	---	2230	2250	4760	8780	1830	1400	1160
30	430	615	451	620	---	2310	2130	2930	8060	1670	1400	1070
31	408	---	419	533	---	1710	---	2600	---	1600	2050	---
TOTAL	23509	19854	24221	27077	18482	72084	57215	70680	507850	128990	44040	142430
MEAN	758	662	781	873	660	2325	1907	2280	16930	4161	1421	4748
MAX	1900	1170	1520	1790	1220	4380	5040	8830	42500	8310	2050	35000
MIN	408	360	419	368	397	399	995	573	2390	1540	1190	1070
AC-FT	46630	39380	48040	53710	36660	143000	113500	140200	1007000	255900	87350	282500

CAL YR 1980 TOTAL 457240 MEAN 1249 MAX 11700 MIN 284 AC-FT 906900
WTR YR 1981 TOTAL 1136432 MEAN 3114 MAX 42500 MIN 360 AC-FT 2254000

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1944 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: February 1968 to current year. Sediment analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1944 to current year.
WATER TEMPERATURES: October 1945 to September 1948, March 1950 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 904 micromhos Oct. 29, 1963; minimum daily, 146 micromhos Sept. 27, 1957.
WATER TEMPERATURES: Maximum daily, 35.0°C July 26, 1954; minimum daily, 2.0°C Dec. 23, 1963, Jan. 14, 1964.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 656 micromhos Nov. 1; minimum daily, 164 micromhos Sept. 2.
WATER TEMPERATURES: Maximum daily, 31.0°C on several days during July and August; minimum daily, 5.0°C Dec. 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
28...	1445	456	620	8.3	17.0	--	.70	9.6	99	.3	300
NOV											
25...	1430	711	600	8.3	12.0	5	16	10.6	97	.5	64
DEC											
15...	1445	1130	570	8.3	14.5	5	32	10.6	103	.5	84
JAN											
14...	1245	1320	580	8.4	12.0	5	1.1	11.8	108	.6	32
FEB											
05...	1455	573	570	8.5	11.0	5	4.1	10.5	94	.5	K8
MAR											
25...	1305	2320	540	8.4	18.0	--	64	8.6	90	1.2	52
APR											
14...	1130	1410	530	8.3	24.0	--	52	8.3	98	.9	84
MAY											
14...	1555	711	520	8.3	25.0	5	54	8.1	98	2.0	700
JUN											
16...	1015	39600	260	7.6	25.0	--	250	5.8	69	1.3	230
JUL											
07...	1600	6220	430	8.2	26.0	--	160	6.8	83	2.6	2000
AUG											
06...	1050	1390	490	7.5	29.5	--	14	7.0	91	2.7	150
SEP											
09...	1020	2710	480	8.2	28.0	--	54	--	--	2.4	--

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT											
28...	230	230	18	60	19	35	1.0	3.8	208	34	51
NOV											
25...	40	160	24	36	18	37	1.3	4.7	190	29	56
DEC											
15...	K16	220	36	55	19	33	1.0	3.5	180	43	53
JAN											
14...	K1	200	32	51	18	35	1.1	3.9	170	43	48
FEB											
05...	32	230	26	59	19	37	1.1	4.1	200	41	53
MAR											
25...	44	200	28	48	19	31	1.0	3.5	170	39	48
APR											
14...	120	210	47	50	20	32	1.0	4.0	160	39	52
MAY											
14...	700	200	45	50	17	31	1.0	4.0	150	43	49
JUN											
16...	5100	110	21	35	6.3	10	.4	4.1	92	22	17
JUL											
07...	7800	170	30	45	14	20	.7	3.5	140	19	35
AUG											
06...	3200	180	29	42	18	27	1.0	4.0	150	34	41
SEP											
09...	--	200	25	55	14	20	.7	4.1	170	16	37

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)
OCT 28...	.3	6.2	333	334	--	--	.14	.12	.000	.020	.56
NOV 25...	.4	8.0	344	331	22	22	1.6	1.6	.010	.010	1.7
DEC 15...	.3	7.2	334	323	69	25	.76	.76	.050	.040	.88
JAN 14...	.4	1.3	321	309	40	6	1.4	1.4	.020	.040	.98
FEB 05...	.4	1.0	331	335	5	5	.46	.48	.000	.010	.82
MAR 25...	.4	8.0	307	300	--	--	.77	.73	.060	.000	.94
APR 14...	.4	5.5	330	300	--	--	.71	.72	.090	.040	.79
MAY 14...	.2	7.7	302	295	--	--	.71	.63	.020	.050	1.1
JUN 16...	.1	9.7	167	160	--	--	.33	.36	.110	.040	1.3
JUL 07...	.2	11	250	232	--	--	.30	.29	.170	.090	.93
AUG 06...	.3	7.6	267	264	--	--	<.10	.10	.110	.150	.83
SEP 09...	.2	13	270	263	--	--	.30	.30	.100	.100	.90

DATE	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 28...	.43	.56	.45	.240	.190	4.9	--	--	19	23	91
NOV 25...	.54	1.70	.55	.490	.490	--	4.0	--	30	58	92
DEC 15...	.80	.93	.84	.340	.280	11	--	--	75	229	92
JAN 14...	.69	1.00	.73	.330	.360	--	12	.5	73	260	75
FEB 05...	.55	.82	.56	.320	.290	10	--	--	19	29	49
MAR 25...	.95	1.00	.95	.290	.190	4.4	--	--	145	908	79
APR 14...	.60	.88	.64	.300	.200	6.5	--	--	110	419	91
MAY 14...	.54	1.10	.59	.270	.210	--	6.9	1.5	103	198	99
JUN 16...	.86	1.40	.90	.160	.070	12	--	--	523	55900	93
JUL 07...	.63	1.10	.72	.250	.090	--	3.8	2.2	496	8330	81
AUG 06...	.55	.94	.70	.110	.020	3.7	--	--	58	218	87
SEP 09...	.69	1.00	.79	.180	.090	6.5	--	--	116	849	99

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
NOV 25...	1430	3	1	2	100	0	100	1	0	2	0
JAN 14...	1245	2	1	1	100	20	80	0	0	2	0
MAY 14...	1555	4	1	3	100	10	90	1	--	<1	10
JUL 07...	1600	3	0	3	100	20	80	1	--	<1	20

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
NOV 25...	0	0	0	<3	6	3	3	510	--	<10	18
JAN 14...	0	0	0	<3	6	5	1	1200	--	<10	19
MAY 14...	10	0	1	<3	6	0	7	2700	--	<10	4
JUL 07...	10	10	3	<3	13	11	2	6600	6500	90	5

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV 25...	15	3	40	40	3	.2	.2	.0	6	6
JAN 14...	19	0	60	--	<1	.1	.0	.1	0	0
MAY 14...	2	2	60	60	2	.4	.3	.1	2	1
JUL 07...	5	0	220	220	1	.4	.2	.2	11	9

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 25...	0	0	0	0	0	0	0	30	20	10
JAN 14...	3	0	0	0	0	0	0	20	20	5
MAY 14...	1	0	0	0	0	0	0	40	--	<3
JUL 07...	2	0	0	0	0	0	0	60	50	10

DATE	TIME	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DISSOLVED (UG/L AS U)	URANIUM DISSOLVED, EXTRACTION (UG/L)
OCT 28...	1445	<4.4	.3	<6.4	.5	3.8	.8	3.7	.8	.09	1.5	--
AUG 06...	1050	--	.8	<8.3	1.2	<3.9	1.4	<3.8	1.4	.18	--	.69

08162000 COLORADO RIVER AT WHARTON, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE TIME	NOV 25,80 1430		MAR 25,81 1305		MAY 14,81 1555		JUN 16,81 1015	
TOTAL CELLS/ML	490		320		760		1900	
DIVERSITY: DIVISION	0.9		0.8		1.5		1.0	
.CLASS	0.9		0.8		1.5		1.0	
..ORDER	1.0		1.2		2.2		2.1	
...FAMILY	2.0		2.6		2.9		2.3	
....GENUS	2.1		3.1		2.9		2.5	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....SCHROEDERIA	--	-	--	-	42	6	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	14	2	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	84	11	28	1
....CHODATELLA	--	-	--	-	--	-	--	-
....FRANCEIA	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	14	3	--	-	--	-	28	1
....OOCYSTIS	--	-	--	-	--	-	14	1
....SELENASTRUM	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	--	-
....COELASTRUM	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	110	6
....SCENEDESMUS	--	-	56#	17	--	-	140	7
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	14	3	--	-	--	-	--	-
....CHLAMYDOMONAS	110#	22	14	4	28	4	14	1
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	14	4	84	11	14	1
....MELOSIRA	--	-	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	28	9	70	9	--	-
....COCCONEIS	14	3	42	13	--	-	14	1
....RHOICOSPHENIA	--	-	14	4	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	14	3	--	-	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	--	-	14	1
...NAVICULACEAE								
....NAVICULA	140#	28	28	9	14	2	14	1
...NITZSCHIACEAE								
....NITZSCHIA	190#	39	70#	22	270#	35	--	-
...SURIRELLACEAE								
....CYMATOPLEURA	--	-	42	13	--	-	--	-
....SURIRELLA	--	-	14	4	--	-	14	1
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	56	7	520#	27
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-
..NOSTOCALES								
...HAMMATOIDEACEAE								
....RAPHIDIOPSIS	--	-	--	-	--	-	210	11
...NOSTOCACEAE								
....APHANIZOMENON	--	-	--	-	--	-	--	-
..OSCILLATORIALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	84	11	770#	40
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	14	2	28	1

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

08162000 COLORADO RIVER AT WHARTON, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	JUL 7,81		AUG 6,81		SEP 9,81	
TIME	1600		1050		1020	
TOTAL CELLS/ML	3000		57000		9400	
DIVERSITY: DIVISION	0.7		1.2		1.1	
.CLASS	0.7		1.2		1.1	
..ORDER	1.8		1.3		2.0	
...FAMILY	1.8		1.7		2.1	
....GENUS	1.9		2.8		2.2	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	--	-	620	1	--	-
....TETRAEDRON	--	-	*	0	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	820	1	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	28	1	1400	3	--	-
....CHODATELLA	*	0	--	-	--	-
....FRANCEIA	--	-	620	1	--	-
....KIRCHNERIELLA	--	-	--	-	--	-
....OOCYSTIS	--	-	1000	2	--	-
....SELENASTRUM	*	0	--	-	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	11000#	19	--	-
....COELASTRUM	--	-	12000#	20	--	-
....CRUCIGENIA	--	-	--	-	820	9
....SCENEDESMUS	--	-	12000#	20	390	4
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	--	-
....CHLAMYDOMONAS	96	3	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	69	2	8400	15	--	-
....MELOSIRA	28	1	--	-	390	4
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	--	-
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	390	4
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
....NAVICULA	*	0	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	140	5	*	0	700	7
...SURIRELLACEAE						
....CYMATOPLEURA	--	-	--	-	--	-
....SURIRELLA	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	9900#	17	--	-
....GOMPHOSPHAERIA	1700#	56	--	-	--	-
..NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	83	3	--	-	--	-
...NOSTOCACEAE						
....APHANIZOMENON	--	-	--	-	3900#	42
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	830#	28	--	-	2800#	30
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	*	0	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-

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

08162000 COLORADO RIVER AT WHARTON, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	23509	545	297	18900	45	2840	37	2350	210
NOV.	1980	19854	607	332	17800	50	2700	41	2180	230
DEC.	1980	24221	579	316	20700	48	3130	39	2560	220
JAN.	1981	27077	568	310	22700	47	3420	38	2810	210
FEB.	1981	18482	592	323	16100	49	2440	40	1990	220
MAR.	1981	72084	517	282	55000	42	8210	35	6890	200
APR.	1981	57215	508	277	42800	41	6390	35	5380	190
MAY	1981	70680	442	241	46100	36	6790	31	5860	170
JUNE	1981	507850	381	208	285000	30	41700	27	36700	140
JULY	1981	128990	487	266	92600	40	13800	34	11700	180
AUG.	1981	44040	481	263	31200	39	4630	33	3950	180
SEPT	1981	142430	299	163	62800	24	9110	21	8160	110
TOTAL		1136432	**	**	712000	**	105000	**	90500	**
WTD. AVG.		3114	425	232	**	34	**	29	**	160

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	510	656	563	600	570	580	534	424	425	498	491	384
2	517	641	561	593	577	607	541	429	424	506	502	164
3	481	645	583	605	569	634	540	385	436	509	498	195
4	474	627	597	602	601	624	537	374	439	500	490	231
5	525	624	604	588	595	617	548	381	405	496	499	272
6	543	614	610	630	580	629	543	448	409	511	488	350
7	544	565	580	630	586	550	545	443	437	460	474	415
8	560	569	571	635	555	505	540	435	432	467	466	457
9	566	579	554	610	587	448	550	495	441	461	467	475
10	577	588	558	602	594	456	557	487	484	402	463	489
11	577	599	576	591	599	489	554	467	496	443	463	472
12	581	610	582	588	604	500	551	516	491	486	476	497
13	592	616	602	575	595	495	541	534	326	490	504	506
14	596	626	525	574	604	506	541	527	257	486	500	513
15	610	636	577	560	603	514	541	534	267	500	495	481
16	603	629	584	546	587	521	539	531	285	512	500	499
17	603	622	601	548	572	527	541	544	260	497	510	490
18	586	635	576	549	588	530	536	543	305	507	504	495
19	422	651	565	550	603	520	535	546	382	502	500	504
20	496	645	567	514	625	524	533	528	389	512	490	474
21	515	642	571	530	627	522	524	523	480	515	479	497
22	539	620	584	511	608	522	540	518	506	515	464	501
23	547	632	577	533	606	516	547	478	508	505	475	501
24	566	616	591	551	611	523	515	494	515	497	483	508
25	602	601	596	547	598	534	414	455	515	494	472	516
26	605	588	616	560	592	532	432	444	510	503	476	520
27	603	537	602	562	595	534	400	470	500	502	481	523
28	602	540	599	525	592	536	487	503	447	490	483	520
29	622	544	611	577	---	534	496	324	479	490	479	517
30	633	558	616	592	---	531	485	335	491	467	472	518
31	646	---	620	580	---	525	---	390	---	464	408	---
MEAN	563	609	584	573	594	535	523	468	425	490	482	449

08162000 COLORADO RIVER AT WHARTON, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	15.0	13.0	---	15.0	19.0	20.0	26.0	27.0	27.0	31.0	27.0
2	24.5	16.0	15.0	10.0	11.0	17.0	20.0	26.0	28.0	28.0	30.0	25.0
3	23.0	18.0	11.0	12.0	9.0	16.0	21.0	25.0	27.0	27.0	30.0	25.0
4	23.0	16.0	15.0	12.0	11.0	19.0	22.0	23.0	28.0	---	30.0	26.0
5	23.0	15.0	17.0	10.0	11.0	17.0	20.0	24.0	26.0	28.0	30.0	27.0
6	22.5	17.0	18.0	13.0	9.0	18.0	19.0	24.0	27.0	27.0	29.0	28.0
7	21.0	18.0	19.0	11.0	9.0	16.0	20.0	24.0	28.0	25.0	---	28.0
8	22.0	20.0	20.0	11.0	11.0	---	20.0	25.0	28.0	26.0	30.0	28.0
9	23.0	20.5	16.0	13.0	12.0	15.0	---	25.0	29.0	27.0	30.0	28.0
10	22.0	20.0	12.5	13.0	15.0	15.0	23.0	20.0	28.0	27.0	29.0	27.0
11	24.0	20.0	10.0	12.0	---	15.0	23.0	21.0	26.0	27.0	29.0	27.0
12	23.0	18.0	11.0	11.0	15.0	15.0	23.0	23.0	26.0	28.0	30.0	28.0
13	22.0	17.0	13.0	10.0	18.0	14.0	24.0	23.0	26.0	---	28.0	28.0
14	22.0	20.0	---	---	15.0	15.0	23.0	23.0	26.0	28.0	---	28.0
15	23.0	18.0	14.0	10.0	19.0	18.0	23.0	23.0	26.0	---	27.0	26.0
16	24.0	15.0	14.0	10.0	11.0	16.0	23.0	23.0	27.0	29.0	---	27.0
17	25.0	17.0	14.0	---	12.0	16.0	24.0	26.0	29.0	30.0	30.0	25.0
18	26.0	---	14.0	---	15.0	16.0	24.0	26.0	25.0	30.0	29.0	---
19	21.0	10.0	15.0	8.0	16.0	15.0	23.0	25.0	25.0	30.0	29.0	22.0
20	---	11.0	---	8.0	17.0	15.0	---	23.0	24.0	30.0	28.0	22.0
21	---	12.0	5.0	8.0	15.0	17.0	25.0	---	24.0	31.0	27.0	23.0
22	20.0	12.0	9.0	9.0	16.0	16.0	24.0	24.0	23.0	31.0	28.0	24.0
23	19.0	12.0	---	8.0	14.0	16.0	23.0	25.0	24.0	31.0	---	25.0
24	18.0	12.0	12.0	10.0	15.0	16.0	21.0	24.0	24.0	30.0	28.0	25.0
25	18.0	---	8.0	17.0	13.0	17.0	21.0	---	25.0	31.0	28.0	25.0
26	18.0	8.0	7.0	12.0	17.0	---	21.0	25.0	25.0	31.0	28.0	26.0
27	21.0	8.0	11.0	15.0	18.0	18.0	27.0	27.0	26.0	29.0	28.0	26.0
28	18.0	8.0	10.0	15.0	19.0	19.0	23.0	27.0	27.0	29.0	28.0	26.0
29	13.0	10.0	10.0	12.0	---	19.0	24.0	25.0	26.0	29.0	28.0	25.0
30	12.0	11.5	10.0	16.0	---	18.0	25.0	25.0	27.0	30.0	27.0	26.0
31	12.0	---	10.0	15.0	---	20.0	---	---	---	30.0	28.0	---
MEAN	21.0	15.0	12.5	11.5	14.0	16.5	22.5	24.5	26.0	29.0	29.0	26.0

08162500 COLORADO RIVER NEAR BAY CITY, TX

LOCATION.--Lat 28°58'26", long 96°00'44", Matagorda County, Hydrologic Unit 12090302, on right bank 6,300 ft (1,920 m) downstream from bridge on State Highway 35, 7,100 ft (2,160 m) downstream from Texas and New Orleans Railroad Co. bridge, 2.8 mi (4.5 km) west of Bay City, and at mile 32.5 (52.3 km).

DRAINAGE AREA (revised).--42,240 mi² (109,402 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing.

PERIOD OF RECORD.--July 1940 (in WSP 1046), April 1948 to current year. Records of elevation collected in this vicinity since 1946 are contained in reports of the National Weather Service.
Water-quality records: Chemical and biochemical analyses: October 1974 to September 1975.

REVISED RECORDS.--WSP 1342: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. July 2-6, 1940, nonrecording gage at highway bridge, 6,300 ft (1,920 m) upstream at datum 30.60 ft (9.327 m) lower.

REMARKS.--Records fair. Diversions above station for irrigation and municipal supply. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08161000. Gage-height telemeter at station.

AVERAGE DISCHARGE.--33 years (water years 1949-81), 2,416 ft³/s (68.42 m³/s), 1,750,000 acre-ft/yr (2.16 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 84,100 ft³/s (2,380 m³/s) June 26, 1960; maximum elevation, 48.2 ft (14.69 m), present datum, July 4, 1940, at site 6,300 ft (1,920 m) upstream at bridge on State Highway 35, observed by Corps of Engineers, elevation 46.6 ft (14.20 m), adjusted to present site; no flow at times in 1951-53 and 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation since 1869, 56.1 ft (17.10 m) Dec. 10, 1913. Flood in July 1869 probably reached about same elevation. Elevation of other floods are as follows: May 8, 1922, 55.4 ft (16.89 m); June 1929, 55.0 ft (16.76 m); June 22, 1935, 54.6 ft (16.64 m); Oct. 5, 1936, 52.2 ft (15.91 m); Aug. 2, 1938, 53.4 ft (16.28 m); Nov. 27, 1940, 47.6 ft (14.51 m). All above flood data from information by Texas and New Orleans Railroad Co. and adjusted to present site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42,100 ft³/s (1,190 m³/s) June 18 at 1100 hours, elevation, 30.95 ft (9.434 m); minimum daily, 15 ft³/s (0.42 m³/s) May 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1990	501	1360	569	657	688	1060	1700	1480	7300	1150	12700
2	1650	695	1190	552	639	782	1040	1900	1370	6930	997	29500
3	1390	918	904	535	743	688	1070	4590	2120	6670	873	35900
4	1300	878	746	919	696	612	1230	7990	1970	6320	422	15900
5	1080	946	665	1290	644	370	1590	5680	4680	5270	608	7240
6	869	905	634	1000	695	550	1250	4410	4390	5280	735	4480
7	722	830	702	806	736	2000	1080	2680	3660	10500	643	3600
8	606	784	1040	708	722	4500	1010	1710	4010	12600	584	2860
9	568	733	1100	683	789	4200	766	1310	4580	10500	583	2370
10	539	770	821	635	1120	3900	675	892	4390	7120	532	1810
11	522	949	852	659	995	3600	751	916	5520	6090	462	1220
12	500	545	736	897	841	3160	985	738	6970	5900	692	955
13	489	515	699	1600	681	2890	1180	586	20700	5490	577	791
14	496	497	1010	1760	623	2130	1100	426	35300	4640	406	814
15	467	479	1530	1430	604	1660	903	149	38200	4250	648	896
16	537	476	1220	1450	1140	2190	1030	17	39100	4230	673	1060
17	575	560	1030	1290	1120	2570	1050	15	40900	3950	687	1120
18	599	557	934	1190	869	3300	997	155	41600	3830	726	1240
19	963	531	791	1070	701	3370	929	352	37200	3730	830	1180
20	1560	506	711	1160	605	3290	864	606	34400	3480	783	935
21	1020	492	797	1130	578	3330	788	585	30000	2910	998	900
22	750	881	844	1090	552	3250	728	413	26100	2260	964	935
23	696	1140	1020	883	534	2700	739	266	22500	1860	844	768
24	681	950	1080	737	534	2390	1700	210	18600	1620	681	719
25	625	847	1010	861	538	2010	5220	1010	17300	1530	670	773
26	588	760	850	864	692	1990	4180	2780	14400	1530	634	732
27	565	816	734	703	737	1840	3220	2270	10400	1350	570	654
28	552	823	674	955	723	1690	2430	5450	9260	1390	565	593
29	510	739	613	1120	---	1750	2190	6390	8540	1610	656	605
30	502	682	591	933	---	1800	1960	2420	7680	1420	815	632
31	499	---	573	718	---	1650	---	1910	---	1220	5020	---
TOTAL	24410	21705	27461	30197	20508	70850	43715	60526	497320	142780	26028	133882
MEAN	787	724	886	974	732	2285	1457	1952	16580	4606	840	4463
MAX	1990	1140	1530	1760	1140	4500	5220	7990	41600	12600	5020	35900
MIN	467	476	573	535	534	370	675	15	1370	1220	406	593
AC-FT	48420	43050	54470	59900	40680	140500	86710	120100	986400	283200	51630	265600

CAL YR 1980	TOTAL	366380.90	MEAN	1001	MAX	13100	MIN .90	AC-FT	726700
WTR YR 1981	TOTAL	1099382.00	MEAN	3012	MAX	41600	MIN 15	AC-FT	2181000

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX

LOCATION.--Lat 28°55'40", long 96°10'15", Matagorda County, Hydrologic Unit 12100401, at left downstream end of bridge on Farm Road 456, 1.0 mi (1.6 km) downstream from Juanita Creek, and 2.4 mi (3.9 km) southeast of Midfield.

DRAINAGE AREA.--145 mi² (376 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1970 to current year. Prior to October 1973, published as Tres Palacios Creek near Midfield.

GAGE.--Water-stage recorder. Datum of gage is 5.38 ft (1.640 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Ten known diversions above stations (amounts unknown). An undetermined amount of water from irrigated ricefields enters stream upstream at various points. Recording rain gage at station was discontinued Apr. 21, 1981.

AVERAGE DISCHARGE.--11 years (water years 1971-81), 153 ft³/s (4.333 m³/s), 110,800 acre-ft/yr (137 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,810 ft³/s (249 m³/s) Sept. 20, 1979, gage height, 31.73 ft (9.671 m), from floodmarks; minimum daily, 1.0 ft³/s (0.028 m³/s) Nov. 3-5, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1885, 37 ft (11.3 m) in June 1960 and 35 ft (10.7 m) in August 1945, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s (45.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 4	0900	3,150	89.2	27.00	8.230	July 7	2000	*4,980	141	29.36	8.949
June 13	0900	2,440	69.1	25.13	7.660	Sept. 1	1100	3,670	104	27.81	8.476

Minimum daily discharge, 4.5 ft³/s (0.13 m³/s) Mar. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1320	15	9.0	5.3	24	9.1	9.5	156	29	128	44	3520
2	721	13	7.8	5.3	25	8.8	9.9	521	24	98	85	2810
3	326	15	7.5	5.5	11	7.8	22	1670	111	71	65	1880
4	173	13	7.4	5.8	8.6	9.5	23	2970	335	162	39	842
5	117	12	8.1	5.6	31	9.3	25	1640	855	386	50	375
6	90	11	8.0	6.0	91	8.1	21	411	913	1740	48	191
7	76	12	8.0	6.6	46	10	9.3	104	462	4090	48	129
8	54	10	7.9	5.4	30	7.8	16	42	190	3750	38	77
9	45	9.2	8.5	7.2	19	6.8	14	22	76	2800	31	55
10	37	8.6	7.9	6.6	13	7.0	18	65	40	2310	25	43
11	31	8.1	11	5.8	9.0	7.3	21	116	543	1180	28	35
12	27	8.2	9.8	5.7	8.0	8.8	27	34	2040	606	31	31
13	24	8.0	9.3	5.1	7.1	11	31	19	2310	562	32	27
14	22	8.6	8.8	5.9	6.5	13	32	19	1530	411	51	28
15	28	8.5	8.8	5.5	6.4	17	25	33	716	177	68	38
16	28	8.9	8.3	5.6	6.5	13	18	34	305	111	64	45
17	23	10	7.8	8.1	5.7	8.9	23	22	149	80	42	39
18	28	9.9	7.8	6.4	5.4	6.6	16	20	75	69	39	42
19	92	9.8	7.8	17	5.7	5.1	15	16	47	47	48	35
20	228	9.0	7.3	118	6.8	5.5	15	14	37	41	41	35
21	102	7.9	7.8	135	7.0	6.2	16	14	33	36	31	38
22	57	8.9	7.4	50	6.9	6.7	15	15	30	35	27	41
23	41	9.5	6.8	24	6.3	6.3	80	16	26	34	27	36
24	35	14	6.4	16	6.3	5.0	248	28	34	27	29	37
25	31	12	5.6	13	6.9	5.0	183	668	86	21	27	33
26	24	9.7	5.9	10	7.0	4.5	85	1050	152	20	22	35
27	23	14	6.1	9.3	6.8	6.6	44	543	900	44	21	43
28	24	23	6.2	23	10	5.4	30	169	691	89	42	40
29	23	13	6.1	35	---	8.3	14	69	382	76	135	41
30	21	10	6.0	20	---	6.4	8.4	43	193	56	390	39
31	19	---	5.7	12	---	10	---	33	---	44	1880	---
TOTAL	3890	329.8	236.8	589.7	422.9	250.8	1114.1	10576	13314	19301	3548	10660
MEAN	125	11.0	7.64	19.0	15.1	8.09	37.1	341	444	623	114	355
MAX	1320	23	11	135	91	17	248	2970	2310	4090	1880	3520
MIN	19	7.9	5.6	5.1	5.4	4.5	8.4	14	24	20	21	27
AC-FT	7720	654	470	1170	839	497	2210	20980	26410	38280	7040	21140

CAL YR 1980 TOTAL 39044.5 MEAN 107 MAX 5010 MIN 5.4 AC-FT 77440
WTR YR 1981 TOTAL 64233.1 MEAN 176 MAX 4090 MIN 4.5 AC-FT 127400

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 09...	1440	45	577	7.7	22.0	8.1	7.5	85	2.9	170	5
NOV 20...	1455	9.1	1260	8.1	12.5	3.3	11.5	106	.7	320	24
JAN 08...	1500	5.7	1420	8.2	12.0	2.7	13.6	130	2.3	350	61
FEB 11...	1456	8.9	931	7.9	10.0	--	11.6	100	2.1	240	43
MAR 18...	1505	7.0	1090	7.5	21.5	23	10.6	120	1.7	280	28
APR 21...	1120	17	1100	8.2	24.5	44	6.8	81	2.3	320	82
JUN 02...	1515	23	710	7.9	28.0	29	6.2	79	2.1	210	18
JUL 14...	1115	325	256	7.7	28.0	--	5.7	72	2.0	77	2
AUG 25...	1022	27	872	7.9	26.0	17	6.1	75	1.8	240	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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 09...	43	14	52	1.8	6.8	160	10	75	.3	37
NOV 20...	90	24	140	3.4	7.0	300	43	220	.5	17
JAN 08...	96	27	180	4.2	4.6	290	54	300	1.1	9.3
FEB 11...	66	19	93	2.6	5.4	200	44	150	.4	16
MAR 18...	75	22	130	3.4	5.2	250	52	200	.7	12
APR 21...	86	26	110	2.7	7.0	240	69	200	.6	18
JUN 02...	57	16	64	1.9	3.9	190	37	96	.4	21
JUL 14...	22	5.4	18	.9	3.4	75	12	23	.1	19
AUG 25...	63	20	87	2.6	8.1	240	--	130	.0	44

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, 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 09...	334	37	.69	.030	.72	.420	1.4	1.8	.420	12
NOV 20...	722	11	.04	.000	.04	.000	.62	.62	.750	8.9
JAN 08...	847	3	1.4	.030	1.4	.000	.82	.82	.950	8.0
FEB 11...	514	--	2.4	.120	2.5	.090	1.2	1.3	.550	13
MAR 18...	647	25	2.5	.100	2.6	.060	1.0	1.1	1.400	8.8
APR 21...	661	86	--	--	1.8	.240	1.1	1.3	.370	12
JUN 02...	410	40	1.6	.060	1.7	.020	2.0	2.0	.360	12
JUL 14...	148	68	.86	.140	1.0	.290	1.1	1.4	.250	8.6
AUG 25...	--	40	.16	.020	.18	.130	.97	1.1	.260	8.7

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 20...	1455	5	200	<1	0	<10	10
JAN 08...	1500	4	300	2	0	<10	20
FEB 11...	1456	3	200	<1	0	<10	30
APR 21...	1120	4	300	<1	0	<10	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 20...	19	30	.2	0	0	<3
JAN 08...	48	40	.1	0	0	10
FEB 11...	<10	50	.2	0	0	4
APR 21...	16	30	.2	0	0	6

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)
FEB 11...	1456	<.10	<1	<.1	<.01	<.1	<.1	4	<.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)
FEB 11...	2.3	<.01	<.1	.01	<.01	.8	<.01	<.01	<.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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 11...	<.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)
FEB 11...	<.01	<.01	<.1	<.01	<0	<1	<.01	.24	.02	<.01

08162700 EAST CARANCAHUA CREEK NEAR BLESSING, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 28°51'48", long 96°17'05", Matagorda County, Hydrologic Unit 12100401, at bridge on Farm Road 616, 100 ft (30 m) downstream from Missouri Pacific Railroad bridge, and 4.2 mi (6.8 km) west of Blessing.

DRAINAGE AREA.--81.2 mi² (210.3 km²).

PERIOD OF RECORD.--Periodic discharge measurements: September 1967 to July 1968, February 1970 to current year. Periodic water-quality data: February 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 09...	1130	18	548	7.7	25.5	9.2	7.9	96	1.4	140	0
NOV 20...	1115	2.0	1980	7.8	13.0	4.0	8.6	80	1.4	460	100
JAN 08...	1105	1.5	2070	7.9	12.0	3.5	9.3	85	2.3	530	150
FEB 11...	1115	3.0	755	7.8	8.5	--	11.8	98	1.7	190	43
MAR 18...	1142	.26	1680	8.0	21.0	20	9.1	102	1.7	410	86
APR 21...	1320	1.3	1100	8.2	26.0	40	6.9	84	2.5	250	0
JUN 03...	0850	13	752	8.2	27.0	52	5.2	65	2.9	170	0
JUL 14...	1340	322	201	7.6	29.5	--	--	--	1.8	66	2
AUG 25...	1130	6.1	889	7.7	26.5	17	4.1	51	2.7	210	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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 09...	34	13	53	2.0	7.1	140	4.5	72	.3	41
NOV 20...	100	52	220	4.4	6.1	360	67	380	.9	23
JAN 08...	110	61	240	4.6	3.0	380	91	430	.4	9.0
FEB 11...	46	19	77	2.4	4.4	150	46	120	.3	14
MAR 18...	85	47	200	4.3	3.3	320	84	340	.9	9.8
APR 21...	57	25	140	3.9	7.1	250	49	200	.8	21
JUN 03...	42	16	92	3.1	3.6	180	20	130	.4	21
JUL 14...	18	5.0	15	.8	3.0	64	5.0	20	.1	17
AUG 25...	51	20	100	3.0	12	230	30	140	.0	51

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, 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 09...	309	41	.00	.000	.00	.050	1.1	1.1	.310	14
NOV 20...	1070	11	.00	.000	.00	.000	.74	.74	.110	7.7
JAN 08...	1170	7	.00	.010	.00	.010	.54	.55	.070	34
FEB 11...	417	--	1.6	.060	1.7	.020	1.3	1.3	.100	12
MAR 18...	962	20	.00	.010	.00	.040	.68	.72	.060	13
APR 21...	650	44	.11	.020	.13	.100	2.9	3.0	.170	9.6
JUN 03...	433	68	1.3	.190	1.5	.050	1.7	1.7	.430	18
JUL 14...	122	52	.04	.030	.07	.150	.95	1.1	.210	8.0
AUG 25...	542	37	.14	.030	.17	.130	1.4	1.5	.280	14

08162700 EAST CARANCAHUA CREEK NEAR BLESSING, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 20...	1115	2	300	<1	0	<10	20
FEB 11...	1115	2	100	1	0	14	70
APR 21...	1320	6	200	<1	0	<10	20
JUL 14...	1340	4	50	<1	0	<10	80

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 20...	<10	30	.2	0	0	9
FEB 11...	<10	20	.1	0	0	5
APR 21...	<10	20	.2	0	0	4
JUL 14...	<10	10	.1	0	0	20

DATE	TIME	PCB TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL 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)
FEB 11...	1115	<.10	<1	<.1	<.01	<.1	<.1	2	<.01	<.1	<.01
JUL 14...	1340	.00	0	.0	.00	.0	.0	0	.00	.0	.00

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)
FEB 11...	.3	<.01	<.1	<.01	<.01	.1	<.01	<.01	<.1	<.01
JUL 14...	.2	.00	.0	.00	.00	.0	.00	.00	.0	.00

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 11...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01
JUL 14...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.15

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)
FEB 11...	<.01	<.01	<.1	<.01	<0	<1	<.01	<.01	<.01	<.01
JUL 14...	.00	.00	.0	.01	0	0	.00	.01	.00	.00

08163500 LAVACA RIVER AT HALLETTSVILLE, TX

LOCATION.--Lat 29°26'35", long 96°56'39", Lavaca County, Hydrologic Unit 12100101, on left bank 75 ft (23 m) downstream from bridge on U.S. Highway 77 in Hallettsville and 0.7 mi (1.1 km) downstream from Campbell Branch.

DRAINAGE AREA.--108 mi^2 (280 km^2).

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

REVISED RECORDS.--WSP 1312: 1942(M), 1944(M). WSP 1732: 1952(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 186.72 ft (56.912 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 19, 1960, water-stage recorder for high stages and movable nonrecording gage for stages below about 6.2 ft (1.89 m). Apr. 20, 1960, to June 2, 1961, movable nonrecording gage. All gages at same site and datum.

REMARKS.--Records good. No diversion above station. The Corps of Engineers began channel rectification 1.6 mi (2.6 km) downstream from gage in April 1959. This rectification reached the gage Sept. 21, 1959, and was completed in February 1960. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--42 years, 52.2 ft^3/s (1.478 m^3/s), 6.56 in/yr (167 mm/yr), 37,820 acre-ft/yr (46.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 99,500 ft^3/s (2,820 m^3/s) Aug. 31, 1981, gage height, 41.1 ft (12.53 m), from floodmark, from rating curve extended above 23,000 ft^3/s (651 m^3/s) on basis of slope-area measurement of peak flow; no flow at times in 1953 and 1956.
Maximum stage since at least 1840, that of Aug. 31, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage from about 1870 to 1940, 32.8 ft (10.00 m) July 16, 1936, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,300 ft^3/s (65.1 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 23	1230	3,420	96.9	19.00	5.791	June 14	2230	3,020	85.5	18.42	5.614
June 12	1630	2,540	71.9	17.64	5.377	June 27	1000	3,810	108	19.53	5.953
June 13	2400	3,000	85.0	18.39	5.605	Aug. 31	0800	*99,500	2,820	a14.1	12.53

a From floodmark.

Minimum daily discharge, 1.5 ft^3/s (0.042 m^3/s) Oct. 12-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	2.4	4.4	2.9	4.1	5.7	3.7	16	6.0	134	2.2	5760
2	4.5	2.3	4.0	2.9	3.7	5.1	3.6	54	6.6	33	1.9	372
3	3.1	2.2	3.7	2.9	3.5	4.9	3.5	48	5.0	21	1.9	147
4	2.5	2.2	3.4	3.0	4.2	5.2	3.4	100	6.1	14	1.9	141
5	2.1	2.0	3.4	3.0	4.8	4.7	3.1	59	8.6	25	1.9	43
6	1.9	2.0	3.4	3.5	5.2	4.3	3.1	25	13	410	1.9	28
7	1.9	2.0	3.3	3.6	5.5	4.1	3.0	15	7.0	50	1.9	23
8	2.0	2.1	4.1	3.6	5.4	4.0	2.9	12	4.8	22	1.9	20
9	1.9	2.1	4.1	3.6	5.1	4.0	2.8	10	3.6	15	1.9	18
10	1.6	2.1	4.0	3.4	4.9	3.8	2.5	11	2.8	34	1.9	16
11	1.6	2.1	3.6	3.3	3.3	4.2	2.5	9.7	10	21	1.9	15
12	1.5	2.1	3.4	3.2	3.2	5.0	2.5	8.5	1210	13	1.9	14
13	1.5	2.1	3.3	3.1	3.6	9.8	2.5	7.6	1010	10	1.9	13
14	1.5	2.1	3.1	3.5	3.6	18	2.4	7.3	1610	8.8	1.8	14
15	1.8	2.1	3.5	3.6	3.4	8.8	2.2	6.5	951	7.8	1.8	90
16	2.3	3.1	4.0	3.5	3.5	6.3	2.1	6.5	85	7.3	1.8	26
17	2.1	3.5	4.0	3.3	3.6	5.3	2.0	6.4	92	6.9	1.8	17
18	2.3	3.6	3.7	3.2	3.7	4.7	137	6.5	37	6.6	1.8	15
19	2.1	3.5	3.5	9.4	3.8	3.3	28	6.4	25	6.0	1.8	13
20	2.2	3.1	3.2	33	3.9	3.4	8.3	5.3	19	5.5	1.8	13
21	2.2	3.0	3.1	18	4.3	3.8	6.3	5.1	15	5.0	1.8	12
22	2.2	3.4	3.1	8.8	4.6	3.6	5.4	4.9	13	4.4	5.6	12
23	2.0	3.1	3.0	6.3	4.3	3.6	1230	4.8	12	3.9	4.8	12
24	2.0	3.1	3.0	5.3	4.1	3.5	146	38	12	3.5	3.3	12
25	1.8	7.8	3.0	5.0	5.1	3.4	417	68	80	3.3	2.4	12
26	1.8	29	3.8	4.6	5.0	3.4	72	12	86	3.1	2.0	12
27	1.9	22	2.8	4.5	5.5	3.4	30	7.7	1700	3.9	1.9	11
28	2.6	9.0	2.8	4.4	5.3	3.5	22	5.9	125	3.9	1.8	11
29	2.8	6.2	2.9	4.4	---	3.8	18	5.8	42	3.5	2.3	11
30	2.8	5.0	2.9	4.2	---	3.7	15	8.7	51	2.9	806	11
31	2.6	---	2.9	4.0	---	3.7	---	6.3	---	2.4	55400	---
TOTAL	73.6	140.3	106.4	171.0	120.2	154.0	2182.8	587.9	7248.5	890.7	56269.5	6914
MEAN	2.37	4.68	3.43	5.52	4.29	4.97	72.8	19.0	242	28.7	1815	230
MAX	8.5	29	4.4	33	5.5	18	1230	100	1700	410	55400	5760
MIN	1.5	2.0	2.8	2.9	3.2	3.3	2.0	4.8	2.8	2.4	1.8	11
CFSM	.02	.04	.03	.05	.04	.05	.67	.18	2.24	.27	16.8	2.13
IN.	.03	.05	.04	.06	.04	.05	.75	.20	2.50	.31	19.38	2.38
AC-FT	146	278	211	339	238	305	4330	1170	14380	1770	111600	13710

CAL YR 1980	TOTAL	8936.74	MEAN	24.4	MAX	2640	MIN	.52	CFSM	.23	IN 3.08	AC-FT	17730
WTR YR 1981	TOTAL	74858.90	MEAN	205	MAX	55400	MIN	1.5	CFSM	1.90	IN 25.78	AC-FT	148500

08164000 LAVACA RIVER NEAR EDNA, TX
(National stream-quality accounting network)

LOCATION.--Lat 28°57'35", long 96°41'10", Jackson County, Hydrologic Unit 12100101, at downstream side near center of upstream bridge of two bridges on U.S. Highway 59, 660 ft (201 m) upstream from Texas and New Orleans Railroad Co. bridge, and 2.8 mi (4.5 km) southwest of Edna.

DRAINAGE AREA.--817 mi² (2,116 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 1923: 1955. WRD TX-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 13.88 ft (4.231 m) National Geodetic Vertical Datum of 1929. Prior to June 6, 1939, nonrecording gage (property of Corps of Engineers); June 6, 1939, to Apr. 3, 1957, nonrecording gage at site 110 ft (34 m) downstream; Apr. 4, 1957, to Mar. 21, 1961, nonrecording gage; all at same datum.

REMARKS.--Water-discharge records good. Small diversions above station for irrigation.

AVERAGE DISCHARGE.--43 years, 327 ft³/s (9.261 m³/s), 5.44 in/yr (138 mm/yr), 236,900 acre-ft/yr (292 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft³/s (2,070 m³/s) July 1, 1940, gage height, 32.51 ft (9.909 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 33.8 ft (10.30 m) May 25, 1936, discharge, 83,400 ft³/s (2,360 m³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,100 ft³/s (116 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 13	1800	22,400	634	26.45	8.062
Sept. 2	1200	*37,300	1,060	28.57	8.708

Minimum daily discharge, 16 ft³/s (0.45 m³/s) Oct. 30, Nov. 7-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	239	18	36	27	30	33	31	68	189	875	43	4530
2	108	18	31	27	29	33	29	60	121	926	41	30800
3	64	18	29	27	28	32	29	90	128	391	40	20400
4	42	18	27	27	28	32	31	628	1170	284	40	8200
5	32	17	27	27	31	33	29	359	2220	257	39	2050
6	27	17	27	28	32	32	29	214	1320	1730	37	736
7	27	16	26	28	33	32	28	154	511	1890	35	505
8	24	16	26	28	33	31	28	87	254	1080	32	397
9	22	16	30	28	33	30	29	81	157	461	31	327
10	21	16	32	29	33	30	28	85	109	596	31	283
11	20	17	30	30	31	30	27	51	712	990	29	247
12	20	17	28	30	29	32	27	44	4170	335	28	219
13	19	17	28	30	28	33	25	39	18000	230	28	199
14	18	17	28	30	27	59	25	36	14300	196	29	195
15	18	17	27	31	27	57	25	33	9360	155	34	310
16	18	17	27	30	27	57	24	31	5050	126	31	253
17	18	19	27	30	27	49	24	30	2150	111	30	273
18	24	19	26	30	27	40	23	28	2390	100	29	174
19	36	19	26	36	27	35	25	27	679	93	27	141
20	24	20	26	74	28	34	247	26	379	85	26	124
21	20	22	26	79	28	32	115	25	272	78	361	113
22	19	26	26	96	28	31	59	23	218	72	423	105
23	19	27	26	74	28	29	50	22	181	67	101	98
24	19	25	26	52	28	28	790	52	350	63	71	92
25	18	26	25	42	29	28	1850	1340	934	59	60	87
26	17	35	25	37	31	29	350	1220	968	79	54	85
27	17	36	25	44	31	29	584	422	756	59	49	77
28	17	44	25	53	31	29	187	145	1000	58	48	74
29	17	65	25	38	---	30	111	331	1070	53	51	70
30	16	45	27	33	---	30	84	1100	415	50	63	65
31	17	---	27	30	---	30	---	408	---	46	372	---
TOTAL	1017	700	847	1205	822	1069	4943	7259	69533	11595	2313	71229
MEAN	32.8	23.3	27.3	38.9	29.4	34.5	165	234	2318	374	74.6	2374
MAX	239	65	36	96	33	59	1850	1340	18000	1890	423	30800
MIN	16	16	25	27	27	28	23	22	109	46	26	65
CFSM	.04	.03	.03	.05	.04	.04	.20	.29	2.84	.46	.09	2.91
IN.	.05	.03	.04	.05	.04	.05	.23	.33	3.17	.53	.11	3.24
AC-FT	2020	1390	1680	2390	1630	2120	9800	14400	137900	23000	4590	141300

CAL YR 1980	TOTAL	61242	MEAN 167	MAX 7700	MIN 16	CFSM .20	IN 2.79	AC-FT	121500	
WTR YR 1981	TOTAL	172532	MEAN 473	MAX 30800	MIN 16	CFSM .58	IN 7.86	AC-FT	342200	

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1960 to September 1977. Chemical and biochemical analyses: October 1977 to current year. Pesticide analyses: January 1968 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1977 to current year.
WATER TEMPERATURES: November 1977 to current year.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression 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, 899 micromhos April 22, 1978; minimum daily, 100 micromhos May 5, 1979, and May 20, 1980.
WATER TEMPERATURES: Maximum daily, 33.0°C July 16, 1978; minimum daily, 5.0°C January 22, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 894 micromhos Apr. 10; minimum daily, 120 micromhos June 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
15...	0840	18	732	8.0	22.5	13	7.2	83	2.2	150	220
NOV											
13...	1135	17	765	7.9	18.0	4.0	8.4	88	2.0	K52	K58
DEC											
08...	1530	26	700	8.0	21.0	12	6.9	77	1.7	67	74
JAN											
07...	1038	28	769	8.3	14.0	7.0	10.4	99	2.4	100	96
FEB											
03...	1615	28	772	8.3	10.5	12	11.2	98	1.5	120	40
MAR											
04...	1110	33	755	8.3	20.0	32	8.6	94	1.8	500	140
APR											
09...	1125	29	850	8.3	23.0	34	8.4	96	1.5	K210	96
24...	1600	1260	308	--	20.0	--	--	--	--	--	--
27...	1630	611	259	--	23.5	--	--	--	--	--	--
28...	1230	293	297	--	24.0	--	--	--	--	--	--
MAY											
14...	1420	36	621	8.1	25.0	18	8.4	99	2.6	--	K300
JUN											
23...	0845	180	597	7.9	28.0	--	--	--	--	--	--
JUL											
17...	1022	112	707	7.9	28.0	28	6.9	85	1.7	330	350
AUG											
20...	1600	25	760	8.1	26.5	6.9	7.2	89	1.3	150	500
SEP											
03...	1330	19500	140	--	--	--	--	--	--	--	--
17...	1400	252	785	--	--	27	7.6	88	1.2	K1500	640

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT										
15...	250	0	89	6.3	55	1.5	3.3	270	20	62
NOV										
13...	260	0	96	5.6	59	1.6	4.7	290	17	70
DEC										
08...	250	0	91	5.5	55	1.5	4.8	260	26	70
JAN										
07...	250	0	92	5.5	69	1.9	2.5	260	32	78
FEB										
03...	260	0	93	5.6	62	1.7	2.7	260	32	75
MAR										
04...	250	0	89	5.5	67	1.9	2.7	250	30	87
APR										
09...	280	0	100	7.1	77	2.0	3.4	290	25	97
24...	--	--	--	--	--	--	--	--	1.4	20
27...	--	--	--	--	--	--	--	--	1.7	15
28...	--	--	--	--	--	--	--	--	1.9	20
MAY										
14...	230	8	83	4.9	43	1.2	4.2	220	15	60
JUN										
23...	240	16	85	5.8	37	1.0	3.5	220	5.0	58
JUL										
17...	280	16	100	6.4	41	1.1	3.5	260	28	57
AUG										
20...	280	0	103	6.3	51	1.3	3.1	290	20	64
SEP										
03...	62	0	23	1.2	3.3	.2	3.4	64	5.0	4.6
17...	300	--	110	6.1	52	1.3	9.0	290	23	81

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)
OCT										
15...	.4	23	412	421	.00	.00	.000	.020	1.2	.98
NOV										
13...	.4	20	446	447	.00	.00	.020	.040	.67	.45
DEC										
08...	.4	22	437	432	.13	.12	.010	.020	.52	.36
JAN										
07...	.5	11	446	447	.00	.00	.030	.010	1.3	.62
FEB										
03...	.3	13	439	440	.10	.13	.040	.060	.87	.80
MAR										
04...	.3	15	437	447	.17	.14	.040	.030	.65	.46
APR										
09...	.4	15	502	499	.06	.06	.050	.080	1.3	.53
24...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
MAY										
14...	.2	23	390	367	.29	.33	.130	.120	2.2	.58
JUN										
23...	.2	27	370	344	.21	.21	.060	.050	.91	.94
JUL										
17...	.2	28	430	420	.28	.21	.150	.120	.72	.68
AUG										
20...	.3	27	450	449	<.09	.12	<.060	.090	--	.71
SEP										
03...	.1	9.9	--	--	--	--	--	--	--	--
17...	.4	27	497	483	.23	.24	.060	.080	.86	.78

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
15...	1.20	1.0	.150	.140	4.4	--	--	64	3.1	50
NOV										
13...	.69	.49	.120	.090	--	3.7	.4	58	2.7	46
DEC										
08...	.53	.38	.200	.120	11	--	--	30	2.1	81
JAN										
07...	1.30	.63	.130	.040	16	--	--	81	6.1	49
FEB										
03...	.91	.86	.130	.110	--	3.1	.3	--	--	--
MAR										
04...	.69	.49	.210	.150	10	--	--	90	8.0	74
APR										
09...	1.30	.61	.270	.150	6.8	--	--	213	17	45
24...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
MAY										
14...	2.30	.70	.250	.240	--	13	--	52	5.1	95
JUN										
23...	.97	.99	.190	.120	9.6	--	--	102	50	61
JUL										
17...	.87	.80	.170	.110	--	4.1	.3	187	57	32
AUG										
20...	.61	.80	.100	.070	3.5	--	--	106	7.2	25
SEP										
03...	--	--	--	--	--	--	--	--	--	--
17...	.92	.86	.140	.060	7.0	--	--	181	123	53

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
NOV											
13...	1135	4	1	3	300	0	300	3	--	<1	0
FEB											
03...	1615	4	2	2	300	0	300	0	--	<1	0
MAY											
14...	1420	8	1	7	300	0	300	1	--	<1	10
JUL											
17...	1022	6	0	6	400	40	360	1	0	1	10

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
NOV											
13...	0	0	1	<3	2	1	1	210	190	20	3
FEB											
03...	0	0	3	<3	4	3	1	330	--	<10	4
MAY											
14...	0	10	1	<3	3	1	2	930	--	<10	1
JUL											
17...	0	10	0	<3	4	1	3	820	800	19	42

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV										
13...	0	5	70	30	40	.3	.1	.2	8	4
FEB										
03...	2	2	80	40	40	.3	.3	.0	8	8
MAY										
14...	1	0	90	80	10	.1	.1	.0	3	0
JUL										
17...	41	1	110	90	17	.2	.0	.4	1	0

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV										
13...	4	0	0	0	0	0	0	10	--	<3
FEB										
03...	0	0	0	0	0	0	1	10	3	7
MAY										
14...	5	1	1	0	0	0	0	0	--	<3
JUL										
17...	3	0	0	0	0	0	0	20	1	19

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
FEB										
03...	1615	--	0	--	--	.0	--	.0	--	.0
AUG										
20...	1600	.00	0	.00	.00	.0	.00	.0	.00	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
FEB										
03...	--	.0	--	.0	--	--	.0	--	--	.0
AUG										
20...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
FEB									
03...	--	--	.0	--	.0	--	.0	--	--
AUG									
20...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)	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)
FEB									
03...	.0	--	--	--	.0	--	--	.0	--
AUG									
20...	.0	.00	.00	.00	.0	.00	.00	.0	.00

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 13,80		MAR 4,81		MAY 14,81		JUN 23,81	
TIME	1135		1110		1420		0845	
TOTAL CELLS/ML	310		1200		7200		8700	
DIVERSITY: DIVISION	1.7		1.8		1.9		1.7	
.CLASS	1.7		1.8		1.9		1.7	
..ORDER	2.3		2.2		2.3		2.2	
...FAMILY	2.5		3.0		2.7		2.8	
....GENUS	2.5		3.1		3.4		3.6	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....SCHROEDERIA	--	-	--	-	*	0	*	0
....TETRAEDRON	13	4	--	-	*	0	*	0
...DICTYOSPHAERIACEAE								
....DICTYOSPHAERIUM	--	-	26	2	67	1	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	67	1	290	3
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	26	2	170	2	1400#	17
....FRANCEIA	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	210	2
....OOCYSTIS	--	-	--	-	--	-	170	2
....SELENASTRUM	--	-	26	2	100	1	830	10
....TREUBARIA	--	-	--	-	--	-	170	2
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....COELASTRUM	--	-	--	-	--	-	330	4
....CRUCIGENIA	--	-	--	-	130	2	--	-
....SCENEDESMUS	77#	25	260#	22	340	5	410	5
....TETRASTRUM	--	-	--	-	270	4	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	39	13	100	9	840	12	250	3
....CHLOROGONIUM	--	-	--	-	--	-	--	-
....HAEMATOCOCCUS	--	-	--	-	--	-	--	-
...PHACOTACEAE								
....PHACOTUS	--	-	--	-	--	-	--	-
....PTEROMONAS	--	-	--	-	*	0	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	13	4	39	3	300	4	450	5
....MELOSIRA	--	-	--	-	67	1	--	-
....STEPHANODISCUS	--	-	--	-	130	2	--	-
..PENNALES								
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	39	3	*	0	*	0
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	--	-	*	0
...NAVICULACEAE								
....GYROSIGMA	--	-	13	1	--	-	--	-
....NAVICULA	--	-	77	7	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	120#	38	330#	29	1000	14	290	3
.XANTHOPHYCEAE								
..MISCHOCOCCALES								
...SCIADACEAE								
....CENTRITRACTUS	--	-	--	-	--	-	--	-
....OPHIOCYTIUM	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	120	1
...CRYPTOMONADACEAE								
....CRYPTOMONAS	13	4	26	2	170	2	120	1

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

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE TIME	NOV 13,80 1135		MAR 4,81 1110		MAY 14,81 1420		JUN 23,81 0845	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	1600#	22	660	8
....ANACYSTIS	--	-	130	11	1400#	20	210	2
..OSCILLATORIALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	2400#	27
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	13	4	77	7	230	3	--	-
....TRACHELOMONAS	--	-	--	-	*	0	170	2
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..DINOKONTAE								
...GLENODINIACEAE								
....GLENODINIUM	26	8	--	-	*	0	--	-
...PERIDINIACEAE								
....PERIDINIUM	--	-	--	-	--	-	*	0

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

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	JUL 17,81		AUG 20,81		SEP 17,81	
TIME	1022		1600		1400	
TOTAL CELLS/ML	12000		2500		6400	
DIVERSITY: DIVISION	1.2		1.7		1.5	
.CLASS	1.2		1.7		1.6	
..ORDER	1.6		2.1		2.2	
...FAMILY	1.9		2.7		2.5	
....GENUS	2.4		3.0		2.6	

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	76	1	--	-	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	500	4	550#	22	210	3
....FRANCEIA	--	-	--	-	52	1
....KIRCHNERIELLA	150	1	63	2	--	-
....OOCYSTIS	130	1	--	-	52	1
....SELENASTRUM	*	0	16	1	--	-
....TREUBARIA	*	0	--	-	--	-
...PALMELLACEAE						
....SPHAEROCYSTIS	--	-	--	-	160	2
...SCENEDESMACEAE						
....COELASTRUM	400	3	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-
....SCENEDESMUS	980	8	690#	27	630	10
....TETRASTRUM	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	160	6	210	3
....CHLAMYDOMONAS	500	4	140	6	--	-
....CHLOROGONIUM	*	0	--	-	--	-
....HAEMATOCOCCUS	--	-	--	-	310	5
...PHACOTACEAE						
....PHACOTUS	--	-	16	1	--	-
....PTEROMONAS	*	0	--	-	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....CLOSTERIUM	--	-	--	-	52	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	150	1	--	-	--	-
....MELOSIRA	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-
..PENNALES						
...CYMBELLACEAE						
....CYMBELLA	--	-	16	1	--	-
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
....GYROSIGMA	--	-	--	-	--	-
....NAVICULA	--	-	16	1	100	2
...NITZSCHIACEAE						
....NITZSCHIA	500	4	79	3	780	12
.XANTHOPHYCEAE						
..MISCHOCOCCALES						
...SCIADACEAE						
....CENTRITRACTUS	--	-	16	1	--	-
....OPHIOCYTIUM	--	-	--	-	100	2
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	*	0	--	-	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	76	1	250	10	--	-

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

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	JUL 17,81		AUG 20,81		SEP 17,81	
TIME	1022		1600		1400	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	7100#	60	380	15	--	-
....ANACYSTIS	550	5	--	-	520	8
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	400	3	--	-	3100#	49
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	76	1	47	2	52	1
....TRACHELOMONAS	--	-	32	1	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..DINOKONTAE						
...GLENODINIACEAE						
....GLENODINIUM	*	0	63	2	52	1
...PERIDINIACEAE						
....PERIDINIUM	--	-	--	-	--	-

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	1017	506	298	817	46	127	17	48	180
NOV.	1980	700	721	423	800	69	131	24	45	260
DEC.	1980	847	758	445	1020	73	168	25	57	270
JAN.	1981	1205	685	403	1310	65	212	23	74	250
FEB.	1981	822	761	447	992	74	164	25	56	280
MAR.	1981	1069	774	454	1310	75	217	25	73	280
APR.	1981	4943	342	202	2690	30	401	12	162	120
MAY	1981	7259	296	174	3420	25	492	11	211	110
JUNE	1981	69533	202	119	22400	16	3080	7.6	1420	71
JULY	1981	11595	350	206	6460	30	951	13	393	120
AUG.	1981	2313	533	313	1960	49	305	18	114	190
SEPT	1981	71229	197	116	22300	16	3140	7.3	1400	70
TOTAL		172532	**	**	65500	**	9390	**	4050	**
WTD. AVG.		473	238	141	**	20	**	8.7	**	85

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	245	780	720	780	769	743	828	463	234	251	732	164
2	366	790	728	785	764	745	820	461	328	278	740	135
3	418	800	750	780	772	744	813	432	390	381	766	147
4	450	790	760	790	757	766	820	250	226	422	764	255
5	500	770	760	780	746	768	835	290	173	438	714	321
6	550	780	750	770	710	768	855	480	240	272	731	460
7	577	790	740	769	730	769	791	488	272	205	763	589
8	600	780	733	775	750	768	812	495	293	257	731	659
9	656	770	700	773	767	767	850	540	321	324	709	693
10	685	790	690	770	778	782	894	575	384	477	696	700
11	690	780	686	760	804	820	870	592	357	302	749	728
12	700	800	724	769	799	840	850	593	312	414	717	700
13	707	790	771	760	779	785	826	627	120	504	670	600
14	721	800	775	750	753	675	818	621	150	528	718	565
15	690	810	771	730	742	650	821	655	186	628	697	571
16	731	800	766	778	731	660	807	670	225	684	720	687
17	729	790	770	775	753	731	810	700	265	712	761	784
18	600	780	777	770	767	807	800	724	227	725	760	713
19	500	790	772	660	765	828	780	738	350	735	757	700
20	550	780	780	470	778	842	590	741	413	749	760	650
21	579	790	790	422	776	835	600	758	496	756	371	618
22	601	700	803	600	774	825	496	748	549	743	315	700
23	700	675	790	700	772	815	525	755	544	740	409	747
24	751	750	785	770	775	818	308	612	401	769	485	713
25	760	700	787	775	781	821	200	278	360	785	498	758
26	770	690	780	777	757	822	284	230	350	675	559	775
27	774	680	777	700	737	824	259	276	400	710	614	687
28	772	620	776	550	741	826	297	313	352	720	660	765
29	790	550	776	600	---	823	359	225	373	743	680	773
30	774	600	775	656	---	819	420	167	391	765	641	721
31	775	---	783	700	---	821	---	221	---	751	560	---
MEAN	636	751	760	718	762	784	668	507	323	563	660	603

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	16.0	---	24.0	26.5	28.0	28.0	30.0	26.0
2				---	16.0	19.0	---	26.0	27.5	29.0	---	27.5
3				---	---	19.0	21.0	---	---	29.0	31.0	27.0
4				---	13.5	21.0	---	24.5	24.0	---	29.5	---
5				---	12.0	19.5	---	24.5	26.5	---	28.5	27.0
6				---	11.5	20.0	23.0	26.0	---	25.5	29.0	---
7				---	---	---	23.0	25.0	---	27.0	30.0	27.0
8				---	---	---	23.5	---	27.5	28.5	---	27.5
9				---	15.0	18.0	24.0	---	30.0	29.0	---	26.5
10				---	16.0	20.0	24.5	---	---	29.0	28.5	28.0
11				---	10.0	---	---	24.0	25.5	---	29.0	27.5
12				---	9.0	15.0	---	24.0	---	---	29.0	---
13				---	---	16.0	25.0	25.0	---	27.5	28.5	---
14				---	---	16.0	24.0	---	---	29.5	28.5	27.0
15				13.0	---	---	25.0	23.0	28.0	29.5	---	26.5
16				11.0	14.0	18.5	25.5	---	28.0	29.5	---	26.5
17				---	16.0	17.0	---	---	28.0	30.5	31.0	25.0
18				---	16.0	20.0	---	28.0	28.5	---	32.0	23.0
19				11.0	15.0	18.0	---	25.0	28.5	---	29.0	---
20				11.5	16.0	18.0	24.0	26.0	---	31.0	---	---
21				12.0	---	---	25.0	25.0	---	31.0	27.5	25.0
22				11.0	---	---	24.0	25.0	29.5	28.0	---	---
23				---	16.0	19.5	21.0	---	30.0	28.0	---	---
24				11.0	---	20.0	20.0	---	28.0	28.0	---	28.0
25				---	16.0	19.5	---	23.0	27.0	---	27.0	28.0
26				16.5	19.0	19.5	---	25.0	---	---	28.0	---
27				17.5	20.0	---	23.5	27.0	---	---	29.0	26.0
28				16.0	---	22.0	24.0	27.5	---	---	26.5	27.0
29				16.0	---	---	26.5	---	28.0	30.0	---	27.0
30				16.5	---	22.0	---	25.0	28.0	31.0	---	27.0
31				---	---	22.0	---	---	---	---	27.5	---
MEAN				13.5	15.0	19.0	23.5	25.5	28.0	29.0	29.0	26.5

08164300 NAVIDAD RIVER NEAR HALLETTSVILLE, TX

LOCATION.--Lat 29°28'00", long 96°48'45", Lavaca County, Hydrologic Unit 12100102, on right bank 28 ft (9 m) downstream from bridge on U.S. Highway 90-A, 0.8 mi (1.3 km) downstream from Mixons Creek, 1.2 mi (1.9 km) southwest of Sublime, and 8 mi (13 km) northeast of Hallettsville.

DRAINAGE AREA.--332 mi² (860 km²).

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

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 159.28 ft (48.549 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--20 years, 161 ft³/s (4.560 m³/s), 6.59 in/yr (167 mm/yr), 116,600 acre-ft/yr (144 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,500 ft³/s (1,520 m³/s) Sept. 13, 1974, gage height, 36.05 ft (10.988 m); no flow Aug. 5-7, 22, Sept. 2-16, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, 40 ft (12.2 m) in June 1940; flood in July 1936 reached a stage of 39 ft (11.9 m), from information by local residents and Southern Pacific Railroad Co.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 12	1900	6,400	181	24.28	7.401
Sept. 1	1300	*36,700	1,040	33.67	10.263

Minimum daily discharge, 2.7 ft³/s (0.076 m³/s) Oct. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	6.1	12	14	19	22	17	35	8.2	45	11	30000
2	10	6.1	11	14	18	22	16	169	7.4	43	9.9	8050
3	7.3	6.1	11	13	16	23	16	138	10	32	9.0	1880
4	6.0	5.8	10	13	17	23	16	151	10	28	8.4	444
5	5.2	5.3	11	14	21	22	15	336	20	69	8.3	220
6	4.7	5.1	11	13	24	19	14	92	17	502	8.1	167
7	4.3	5.0	12	15	23	19	13	39	11	239	7.5	133
8	3.8	4.6	12	14	21	19	13	26	7.6	140	7.1	112
9	3.7	4.8	14	14	20	18	13	22	5.5	59	9.9	97
10	3.7	5.1	16	14	19	18	13	26	4.7	45	7.8	85
11	3.5	5.3	14	14	17	19	13	25	97	114	6.5	75
12	3.0	5.3	12	13	15	22	12	16	3970	78	5.8	68
13	2.7	5.3	12	13	15	29	12	13	3320	40	5.8	62
14	2.9	5.3	12	14	16	42	11	13	537	32	5.8	59
15	3.5	5.2	13	15	17	33	11	13	774	29	5.8	180
16	3.2	6.1	14	15	17	25	10	11	231	26	5.5	112
17	3.7	9.9	14	14	18	22	10	13	163	24	5.0	62
18	5.4	12	13	13	18	20	102	10	87	23	5.0	47
19	6.1	12	13	18	18	19	150	10	64	21	4.5	41
20	9.2	9.4	12	104	18	18	30	8.0	51	20	30	39
21	7.3	8.8	12	70	18	18	19	6.8	42	17	27	37
22	6.1	9.4	12	35	28	18	16	6.4	36	16	12	35
23	5.5	10	12	27	35	17	721	6.4	32	15	8.2	34
24	4.9	11	13	23	23	16	710	188	43	14	6.4	32
25	4.5	12	13	22	21	16	203	72	275	13	5.4	30
26	4.2	37	13	21	28	17	116	25	258	19	4.7	29
27	4.2	40	13	20	26	17	50	14	438	46	4.2	28
28	5.1	19	13	20	23	17	30	9.5	146	26	3.8	27
29	8.6	14	14	19	---	18	24	16	66	17	4.2	26
30	9.4	12	14	19	---	19	20	31	46	13	6.1	24
31	6.7	---	14	19	---	18	---	12	---	12	6800	---
TOTAL	171.4	303.0	392	666	569	645	2416	1553.1	10777.4	1817	7048.7	42235
MEAN	5.53	10.1	12.6	21.5	20.3	20.8	80.5	50.1	359	58.6	227	1408
MAX	13	40	16	104	35	42	721	336	3970	502	6800	30000
MIN	2.7	4.6	10	13	15	16	10	6.4	4.7	12	3.8	24
CFSM	.02	.03	.04	.07	.06	.06	.24	.15	1.08	.18	.68	4.24
IN.	.02	.03	.04	.07	.06	.07	.27	.17	1.21	.20	.79	4.73
AC-FT	340	601	778	1320	1130	1280	4790	3080	21380	3600	13980	83770

CAL YR 1980	TOTAL	25782.3	MEAN	70.4	MAX	2810	MIN 2.1	CFSM .21	IN 2.89	AC-FT	51140	
WTR YR 1981	TOTAL	68593.6	MEAN	188	MAX	30000	MIN 2.7	CFSM .57	IN 7.69	AC-FT	136100	

08164450 SANDY CREEK NEAR LOUISE, TX

LOCATION.--Lat 29°09'36", long 96°32'46", Jackson County, Hydrologic Unit 12100102, on left bank at downstream end of bridge on Farm Road 710, 0.9 mi (1.4 km) upstream from Goldenrod Creek, and 9.1 mi (14.6 km) northwest of Louise.

DRAINAGE AREA.--289 mi² (749 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 59.72 ft (18.203 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Much of the low flow during the irrigation season (April to September) comes from drainage from ricefields irrigated by water originally diverted from the Colorado River. No known diversion above station. Recording rain gage located at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s (396 m³/s) Sept. 14, 1978, gage height, 23.03 ft (7.020 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 13	2100	*9,110	258	20.26	6.175
July 8	1100	2,010	56.9	12.47	3.801
Sept. 2	0500	4,650	132	16.77	5.111

Minimum discharge, no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	338	.49	6.8	.06	8.3	.26	.00	.13	323	382	26	3590
2	318	.29	3.8	.06	12	.00	.00	47	148	365	18	4060
3	225	.14	2.3	.06	6.7	.01	.00	392	93	377	23	2320
4	146	.08	1.4	.06	3.8	.14	.00	953	319	304	15	1720
5	99	.06	.59	.06	7.1	.00	.00	1090	1160	298	16	1080
6	60	.07	.06	.09	35	.00	4.5	701	1140	483	13	655
7	43	.07	.00	.08	27	.00	9.0	257	756	954	4.6	375
8	43	.10	.10	.08	15	.00	5.5	66	407	1770	3.2	215
9	35	.13	2.1	.06	8.2	.00	5.2	17	211	1390	1.7	130
10	29	.15	25	.00	4.6	.02	4.9	13	114	978	1.5	80
11	20	.15	28	.00	2.7	.28	.49	129	247	660	1.4	49
12	16	.11	14	.00	1.3	.03	.56	79	2150	499	1.5	32
13	12	.11	6.1	.00	.31	.28	.98	24	7430	253	1.4	25
14	9.4	.10	2.6	.02	.07	11	3.0	7.4	6040	160	4.5	36
15	11	.06	1.3	.00	.03	19	4.1	6.9	3500	157	15	83
16	14	.12	.61	.00	.02	9.5	4.9	9.6	2250	102	25	158
17	12	.06	.09	.00	.01	5.1	.23	5.2	1830	55	26	213
18	412	.03	.03	.00	.00	1.7	.82	2.8	1090	16	18	184
19	777	.03	.02	.29	.00	.03	.53	1.3	798	6.4	14	173
20	638	.04	.01	29	.00	.00	.52	.00	517	2.9	17	135
21	353	.09	.01	126	.00	.00	5.2	.00	221	.16	30	119
22	164	.09	.01	81	.00	.00	6.0	.00	117	1.2	33	133
23	91	.06	.02	34	.00	.00	21	.00	72	1.8	29	170
24	50	.03	.03	23	.00	.00	318	2.7	62	1.2	20	163
25	29	.55	.03	14	.18	.00	506	391	221	3.3	122	127
26	18	.25	.03	7.0	.01	.00	242	544	302	7.4	151	126
27	11	47	.03	14	.01	.00	133	432	254	56	123	130
28	5.6	53	.03	130	.00	.00	50	181	440	134	102	110
29	3.8	27	.03	44	---	.03	17	91	299	75	115	111
30	1.8	14	.03	19	---	.00	2.1	808	325	63	176	139
31	.94	---	.04	9.9	---	.00	---	657	---	49	900	---
TOTAL	3985.54	144.46	95.20	531.82	132.34	47.38	1345.53	6908.03	32836	9604.36	2046.8	16641
MEAN	129	4.82	3.07	17.2	4.73	1.53	44.9	223	1095	310	66.0	555
MAX	777	53	28	130	35	19	506	1090	7430	1770	900	4060
MIN	.94	.03	.00	.00	.00	.00	.00	.00	62	.16	1.4	25
CFSM	.45	.02	.01	.06	.02	.005	.16	.77	3.79	1.07	.23	1.92
IN.	.51	.02	.01	.07	.02	.01	.17	.89	4.23	1.24	.26	2.14
AC-FT	7910	287	189	1050	262	94	2670	13700	65130	19050	4060	33010

CAL YR 1980 TOTAL 43577.83 MEAN 119 MAX 7930 MIN .00 CFSM .41 IN 5.61 AC-FT 86440
WTR YR 1981 TOTAL 74318.46 MEAN 204 MAX 7430 MIN .00 CFSM .71 IN 9.57 AC-FT 147400

08164450 SANDY CREEK NEAR LOUISE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV											
04...	0930	.09	408	7.2	19.0	7.1	6.2	66	2.4	120	5
FEB											
03...	1005	7.0	210	7.7	6.0	--	11.6	91	3.6	59	16
03...	1010	7.0	--	--	6.0	--	--	--	--	--	--
03...	1015	7.0	--	--	6.0	--	--	--	--	--	--
APR											
22...	1038	7.4	695	8.2	23.5	7.5	9.4	109	4.5	200	48
JUN											
02...	1010	156	273	7.7	27.0	34	6.3	79	2.9	85	21
JUL											
15...	1030	162	293	7.8	28.5	--	6.7	86	1.4	91	26
AUG											
26...	0955	158	496	7.8	26.0	30	5.5	67	4.6	140	13

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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...	34	9.6	29	1.1	6.2	120	10	50	.3	27
FEB										
03...	16	4.7	17	1.0	5.3	43	34	20	.2	10
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
APR										
22...	56	14	58	1.8	2.2	150	17	100	.5	13
JUN										
02...	23	6.7	16	.8	2.7	64	18	26	.2	11
JUL										
15...	25	7.0	20	.9	1.5	65	16	41	.2	16
AUG										
26...	36	13	37	1.5	11	130	5.0	67	.5	50

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, 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...	238	11	.11	.010	.12	.320	.78	1.1	.230	12
FEB										
03...	134	--	.26	.070	.33	.220	1.9	2.1	.240	21
03...	--	--	.00	.040	.02	.320	2.0	2.3	.180	--
03...	--	--	.05	.110	.16	.360	2.3	2.7	.180	--
APR										
22...	351	11	.31	.100	.41	.110	1.6	1.7	.130	11
JUN										
02...	142	70	.85	.130	.98	.050	1.4	1.4	.350	10
JUL										
15...	166	55	.08	.020	.10	.110	.99	1.1	.110	6.8
AUG										
26...	298	90	.25	.050	.30	.160	1.7	1.9	.400	17

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							
04...	0930	3	100	<1	0	<10	1900
FEB							
03...	1005	1	60	<1	10	<10	400
APR							
22...	1038	2	200	<1	0	<10	30
JUL							
15...	1030	2	80	<1	10	<10	70

08164450 SANDY CREEK NEAR LOUISE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 04...	<10	700	.4	0	0	10
FEB 03...	24	20	.1	0	0	10
APR 22...	12	4	.2	0	0	10
JUL 15...	<10	2	.3	0	0	20

DATE	TIME	PCB TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL 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)
FEB 03...	1005	.00	0	.0	.00	.0	.0	0	.00	.0	.00
JUL 15...	1030	.00	0	.0	.00	.0	.0	0	.00	.0	.00

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)
FEB 03...	.0	.00	.0	.00	.00	.0	.00	.00	.0	.00
JUL 15...	.0	.00	.0	.00	.00	.0	.00	.00	.0	.00

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 03...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00
JUL 15...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.03

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)
FEB 03...	.00	.00	.0	.00	0	0	.00	.00	.00	.00
JUL 15...	.00	.00	.0	.00	0	0	.00	.00	.00	.00

08164503 WEST MUSTANG CREEK NEAR GANADO, TX

LOCATION.--Lat 29°04'17", long 96°28'01", Jackson County, Hydrologic Unit 12100102, on right bank at downstream end of downstream bridge on U.S. Highway 59, 2.1 mi (3.4 km) upstream from Middle Mustang Creek, and 3.6 mi (5.8 km) east of Ganado.

DRAINAGE AREA.--178 mi^2 (461 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 39.67 ft (12.091 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation, formerly Water and Power Resources Services).

REMARKS.--Water-discharge records good except for Jan. 1 to Feb. 3, which are fair. Much of low flow during irrigation season (April to September) comes from drainage from ricefields irrigated by water originally diverted from the Colorado River.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft^3/s (379 m^3/s) Jan. 21, 1980, gage height, 24.49 ft (7.465 m), from floodmark; minimum, 0.15 ft^3/s (0.004 m^3/s) Jan. 11, 1978.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 26	0900	2,180	61.7	14.57	4.441
June 5	1700	2,070	58.6	14.40	4.389
June 13	2200	*4,120	117	16.90	5.151

Minimum daily discharge, 0.03 ft^3/s (0.001 m^3/s) Jan. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	539	5.4	27	.10	10	.14	3.1	7.2	85	241	63	1250
2	376	4.4	16	.10	14	.16	2.0	153	66	238	60	1290
3	246	3.6	10	.10	10	.15	.60	663	69	213	55	996
4	151	3.1	7.0	.10	8.6	.15	.90	1320	414	222	51	753
5	111	2.8	4.7	.10	6.4	.44	2.9	1310	1900	650	53	391
6	85	2.2	3.0	.10	8.8	.39	2.9	654	1660	625	51	140
7	65	2.0	2.0	.10	39	.39	12	298	704	892	46	89
8	52	1.4	1.9	.10	37	.62	18	83	226	1220	44	73
9	50	1.1	11	.10	17	.56	17	55	109	933	54	65
10	39	.90	104	.10	7.7	.48	21	50	71	643	45	62
11	44	.73	117	.09	3.4	.43	18	111	499	515	40	59
12	43	.56	59	.07	2.2	.42	10	86	2210	238	41	55
13	34	.52	35	.04	1.5	.42	13	46	3660	190	43	60
14	24	1.7	15	.04	1.1	12	9.8	47	3420	180	42	57
15	15	1.2	8.5	.04	.72	47	11	53	2150	146	43	89
16	13	.61	5.6	.04	.50	20	15	63	1180	103	48	135
17	9.3	.50	3.9	.04	.41	6.9	25	51	940	82	51	131
18	39	.45	2.1	.03	.33	4.0	26	43	607	79	44	121
19	668	.47	1.4	.03	.28	2.0	44	20	244	75	43	102
20	781	.81	1.2	4.0	.25	1.1	41	18	168	76	42	82
21	326	.70	.98	120	.21	.77	36	13	124	73	44	65
22	153	.63	.76	70	.18	.43	32	9.7	86	77	47	60
23	90	.59	.53	40	.12	.27	42	7.9	79	73	39	58
24	70	.56	.46	25	.09	.20	306	34	73	76	37	56
25	55	.56	.30	14	.11	.15	421	1260	103	90	31	57
26	42	1.2	.28	8.0	.15	.14	210	2080	277	96	41	68
27	30	5.9	.26	5.0	.14	.13	109	1130	400	98	50	70
28	32	68	.21	30	.13	.08	65	241	376	134	48	68
29	22	61	.17	130	---	.08	42	145	249	129	64	64
30	12	45	.14	50	---	.09	18	214	210	103	106	64
31	7.8	---	.11	20	---	1.2	---	145	---	74	401	---
TOTAL	4224.1	218.59	439.50	517.42	170.32	101.29	1574.20	10410.8	22359	8584	1867	6630
MEAN	136	7.29	14.2	16.7	6.08	3.27	52.5	336	745	277	60.2	221
MAX	781	68	117	130	39	47	421	2080	3660	1220	401	1290
MIN	7.8	.45	.11	.03	.09	.08	.60	7.2	66	73	31	55
CFSM	.76	.04	.08	.09	.03	.02	.30	1.89	4.19	1.56	.34	1.24
IN.	.88	.05	.09	.11	.04	.02	.33	2.18	4.67	1.79	.39	1.39
AC-FT	8380	434	872	1030	338	201	3120	20650	44350	17030	3700	13150

CAL YR 1980	TOTAL	50670.69	MEAN	138	MAX	11100	MIN	.11	CFSM	.78	IN	10.59	AC-FT	100500
WTR YR 1981	TOTAL	57096.22	MEAN	156	MAX	3660	MIN	.03	CFSM	.88	IN	11.93	AC-FT	113300

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 04...	1250	2.9	514	7.9	20.5	17	8.0	88	1.8	150	33
DEC 08...	1300	1.2	512	7.4	21.0	24	5.8	64	3.0	140	45
FEB 03...	1425	9.9	298	7.6	10.5	--	10.0	88	2.8	86	28
MAR 10...	1120	.51	963	8.1	14.5	20	7.6	74	2.5	290	83
APR 22...	1305	21	1120	7.9	24.0	28	6.1	72	3.8	320	150
JUN 02...	1240	66	371	7.6	27.0	40	5.6	70	3.5	110	36
JUL 15...	1345	144	367	7.7	29.5	--	6.3	82	1.2	110	32
AUG 26...	1150	45	759	--	27.0	21	5.8	72	2.6	230	57

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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...	45	9.8	42	1.5	7.3	120	22	80	.3	26
DEC 08...	43	9.1	42	1.5	9.0	100	54	72	.2	14
FEB 03...	26	5.2	22	1.0	7.4	58	37	30	.2	13
MAR 10...	91	16	89	2.3	6.9	210	66	150	.3	15
APR 22...	100	17	91	2.2	7.5	170	58	230	.5	24
JUN 02...	34	6.4	26	1.1	3.0	75	30	45	.2	18
JUL 15...	35	6.1	27	1.1	1.5	81	--	58	.1	22
AUG 26...	66	15	58	1.8	11	170	--	140	.5	54

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, 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...	304	11	.11	.010	.12	.050	1.1	1.1	.140	11
DEC 08...	303	15	.23	.030	.26	.020	1.1	1.1	.150	15
FEB 03...	176	--	.92	.060	.98	.160	1.6	1.8	.370	14
MAR 10...	560	26	.00	.000	.00	.010	1.2	1.2	.190	10
APR 22...	630	45	.71	.090	.80	.080	1.7	1.8	.220	11
JUN 02...	208	70	.00	.000	.00	.080	1.2	1.3	.350	8.5
JUL 15...	--	82	.07	.020	.09	.110	.84	.95	.140	6.0
AUG 26...	--	46	.36	.030	.39	.130	1.3	1.4	.220	15

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 04...	1250	3	100	<1	0	<10	50
FEB 03...	1425	2	80	1	0	<10	230
APR 22...	1305	4	200	<1	10	<10	10
JUL 15...	1345	4	90	<1	0	<10	60

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 04...	<10	20	.4	0	0	4
FEB 03...	39	10	.0	0	1	5
APR 22...	16	10	.1	1	0	9
JUL 15...	<10	3	.2	0	0	20

DATE	TIME	PCB TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL 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)
FEB 03...	1425	.00	0	.0	.00	.0	.0	0	.00	.8	.00
JUL 15...	1345	.00	0	.0	.00	.0	.0	0	.00	.0	.00

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)
FEB 03...	3.4	.00	.0	.00	.00	.1	.00	.00	.0	.00
JUL 15...	1.4	.00	.0	.00	.00	.7	.01	.00	.0	.00

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 03...	.00	.1	.00	.0	.00	.0	.00	.00	.0	.00
JUL 15...	.00	.0	.00	.0	.00	.0	.20	.00	.0	.18

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)
FEB 03...	.00	.00	.0	.00	0	0	.00	.06	.00	.00
JUL 15...	.00	.00	.2	.00	0	25	.00	.01	.00	.00

08164600 GARCITAS CREEK NEAR INEZ, TX

LOCATION.--Lat 28°53'28", long 96°49'08", Victoria County, Hydrologic Unit 12100402, at right downstream end of bridge on U.S. Highway 59 access road, 0.3 mi (0.5 km) upstream from Southern Pacific Railroad bridge, 2.0 mi (3.2 km) southwest of Inez, and 3.6 mi (5.8 km) upstream from Casa Blanca Creek.

DRAINAGE AREA.--91.7 mi^2 (238 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 29.16 ft (8.888 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No known diversion above station. An undetermined amount of return water from irrigation enters stream above station. Recording rain gage at station.

AVERAGE DISCHARGE.--11 years (water years 1971-81), 58.5 ft^3/s (1.657 m^3/s), 8.66 in/yr (220 mm/yr), 42,380 acre-ft/yr (52.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,700 ft^3/s (558 m^3/s) June 12, 1981, gage height, 29.00 ft (8.839 m); no flow May 22, 23, May 26 to June 17, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage during period 1903-70, 24.5 ft (7.47 m) Oct. 26, 1960. In 1929, a flood nearly as high as the 1960 flood occurred, and a flood in September 1967 reached a stage of 23.4 ft (7.13 m), from information by local resident.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 5	1600	1,680	47.6	15.37	4.685
June 12	2300	*19,700	558	29.00	8.839

Minimum discharge, 0.09 ft^3/s (0.003 m^3/s) May 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	1.0	1.0	.62	1.5	1.5	1.2	.76	108	32	3.9	6.0
2	35	1.0	.92	.60	1.4	1.6	1.1	6.5	61	24	3.7	4.4
3	24	1.0	.83	.60	1.3	1.5	2.9	39	92	19	3.8	3.6
4	18	.93	.75	.60	1.6	1.6	2.3	47	343	16	3.6	3.0
5	12	.83	.75	.60	2.1	1.4	2.1	26	1320	15	3.5	2.7
6	9.7	.75	.92	.60	2.1	1.3	1.2	12	574	49	3.5	2.4
7	7.7	.75	.92	.53	1.8	1.2	.99	6.1	147	161	3.3	2.1
8	5.9	.78	1.1	.53	1.6	1.2	.84	3.1	79	124	3.2	2.0
9	4.6	.92	1.6	.53	1.5	1.2	.83	2.2	49	88	2.8	1.9
10	4.2	.92	1.3	.55	1.5	1.2	.88	1.8	33	164	2.9	1.8
11	3.8	.92	1.1	.56	1.2	1.7	.92	1.2	119	77	2.7	1.8
12	3.1	.92	.86	.53	1.1	2.4	.91	.72	6180	42	2.7	1.8
13	2.5	.86	.83	.53	1.1	2.0	.83	.53	9040	23	2.8	1.8
14	2.3	.83	.83	.64	1.1	1.7	.82	.45	2270	17	4.3	3.2
15	2.3	.79	.96	.63	1.1	1.4	.74	.40	470	14	3.7	3.3
16	2.0	.79	1.0	.60	1.2	1.3	2.1	.40	221	11	3.2	2.6
17	1.9	1.2	.92	.57	1.3	1.3	2.3	.39	547	9.0	3.1	3.7
18	2.0	1.0	.85	.53	1.3	1.3	1.8	.33	171	8.2	2.9	2.5
19	2.2	1.0	.77	4.7	1.3	1.1	1.6	.26	86	7.4	2.8	2.0
20	1.8	.92	.67	13	1.3	1.1	1.3	.15	52	6.7	2.2	2.2
21	1.6	1.0	.60	11	1.3	1.2	.96	.11	37	6.1	2.2	2.3
22	1.4	1.6	.60	6.5	1.3	1.2	.83	.09	30	5.8	2.2	2.3
23	1.3	1.8	.60	4.4	1.2	1.1	1.6	.09	25	5.4	1.9	2.1
24	1.2	1.8	.63	3.2	1.1	1.1	1.4	9.9	23	5.2	2.0	2.8
25	.92	2.6	.67	2.5	1.3	1.0	2.6	154	41	4.8	1.8	3.1
26	.92	4.2	.67	2.1	1.5	1.1	3.0	118	51	5.0	4.4	2.6
27	.92	2.2	.67	2.0	1.5	1.2	2.4	52	43	5.6	4.6	2.2
28	1.0	1.5	.67	1.8	1.5	1.2	1.7	24	31	5.1	3.1	1.9
29	1.1	1.4	.63	1.7	---	1.4	1.3	130	46	4.5	6.1	1.6
30	1.0	1.2	.67	1.5	---	1.4	.95	922	60	4.2	7.8	1.5
31	1.0	---	.67	1.4	---	1.2	---	259	---	4.0	7.3	---
TOTAL	238.36	37.41	25.96	66.15	39.1	42.1	44.40	1818.48	22349	963.0	108.0	77.2
MEAN	7.69	1.25	.84	2.13	1.40	1.36	1.48	58.7	745	31.1	3.48	2.57
MAX	81	4.2	1.6	13	2.1	2.4	3.0	922	9040	164	7.8	6.0
MIN	.92	.75	.60	.53	1.1	1.0	.74	.09	23	4.0	1.8	1.5
CFSM	.08	.01	.009	.02	.02	.02	.02	.64	8.12	.34	.04	.03
IN.	.10	.02	.01	.03	.02	.02	.02	.74	9.07	.39	.04	.03
AC-FT	473	74	51	131	78	84	88	3610	44330	1910	214	153

CAL YR 1980 TOTAL 14975.01 MEAN 40.9 MAX 6400 MIN .28 CFSM .45 IN 6.07 AC-FT 29700
WTR YR 1981 TOTAL 25809.16 MEAN 70.7 MAX 9040 MIN .09 CFSM .77 IN 10.47 AC-FT 51190

08164600 GARCITAS CREEK NEAR INEZ, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV											
04...	1530	1.0	658	8.3	23.0	4.0	10.0	115	1.4	230	18
DEC											
09...	0950	1.9	646	8.2	16.0	3.5	7.9	79	1.9	250	18
FEB											
04...	0816	1.5	555	8.1	11.5	--	9.9	89	1.6	200	6
MAR											
10...	1430	1.1	651	8.4	17.0	4.4	10.8	110	1.4	240	36
APR											
22...	1530	.88	672	8.3	26.0	4.0	10.2	124	2.3	180	21
JUN											
03...	1218	92	211	7.9	27.0	32	5.8	72	2.8	75	4
JUL											
14...	1605	16	348	7.8	33.0	--	8.3	114	1.7	140	15
AUG											
20...	1628	2.3	571	8.3	30.5	--	8.5	112	1.4	220	28

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 (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...	73	11	51	1.5	2.5	210	39	69	.3	33
DEC										
09...	81	11	48	1.3	2.3	230	46	57	.3	29
FEB										
04...	64	8.7	39	1.2	2.1	190	40	44	.3	19
MAR										
10...	73	13	50	1.4	1.4	200	52	59	.3	20
APR										
22...	51	13	68	2.2	3.0	160	51	82	.3	23
JUN										
03...	24	3.6	11	.6	3.2	71	7.1	13	.1	21
JUL										
14...	45	5.5	20	.8	1.4	120	21	26	.1	24
AUG										
20...	71	9.9	36	1.1	1.5	190	48	43	.2	31

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, 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...	405	18	.00	.010	.01	.040	.51	.55	.030	5.7
DEC										
09...	413	4	.10	.010	.11	.020	1.2	1.2	.040	5.9
FEB										
04...	332	--	.00	.000	.00	.020	.55	.57	.050	5.6
MAR										
10...	389	5	.00	.000	.00	.020	.57	.59	.030	6.6
APR										
22...	388	2	.01	.000	.01	.010	.83	.84	.020	8.8
JUN										
03...	126	36	.00	.010	.00	.050	1.4	1.4	.190	11
JUL										
14...	215	21	.00	.020	.02	.140	.96	1.1	.060	11
AUG										
20...	355	--	--	<.020	<.09	1.200	7.2	8.4	.020	4.9

08164600 GARCITAS CREEK NEAR INEZ, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 04...	1530	3	300	<1	0	<10	10
FEB 04...	0816	2	200	<1	0	<10	30
APR 22...	1530	3	200	<1	10	<10	<10
JUL 14...	1605	3	200	<1	0	<10	120

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 04...	<10	9	.3	0	0	<3
FEB 04...	38	20	.1	0	2	4
APR 22...	<10	10	.1	0	0	<3
JUL 14...	<10	60	.1	0	0	20

DATE	TIME	PCB TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL 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)
FEB 04...	0816	.00	--	.0	.00	--	.0	--	.00	--	.00
JUL 14...	1605	.00	0	.0	.00	.0	.0	0	.00	.0	.00

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)
FEB 04...	--	.00	--	.00	.00	--	.00	.00	--	.00
JUL 14...	.0	.00	.0	.00	.00	.0	.00	.00	.0	.00

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 04...	.00	--	.00	--	.00	--	.00	.00	--	.00
JUL 14...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00

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)
FEB 04...	.00	.00	--	.00	0	--	.00	.00	.00	.00
JUL 14...	.00	.00	.0	.00	0	0	.00	.01	.00	.00

08164800 PLACEDO CREEK NEAR PLACEDO, TX

LOCATION.--Lat 28°43'30", long 96°46'07", Victoria County, Hydrologic Unit 12100401, on right bank at downstream end of bridge on Farm Road 616, 0.1 mi (0.2 km) downstream from confluence of Lone Tree Creek and Arroyo Palo Alto, 1.2 mi (1.9 km) upstream from Ninemile Creek, and 4.4 mi (7.1 km) northeast of Placedo.

DRAINAGE AREA.--68.3 mi^2 (177 km^2).

PERIOD OF RECORD.--June 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5.58 ft (1.701 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--11 years, 68.2 ft^3/s (1.931 m^3/s), 49,410 acre-ft/yr (60.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,100 ft^3/s (428 m^3/s) Sept. 14, 1978, gage height, 29.64 ft (9.034 m); no flow Sept. 8, 9, 1971, and Aug. 12, 13, 22-24, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1930, 31.9 ft (9.72 m) in September 1967 and 30.4 ft (9.27 m) in 1960 (probably October), from information by local resident.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 3	1700	4,360	123	23.01	7.013	June 12	2300	3,640	103	22.22	6.773
June 5	0400	*5,220	148	23.84	7.266	July 1	2200	2,820	79.9	21.15	6.447

Minimum discharge, no flow Aug. 12, 13, 22-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	.79	.71	1.4	.50	.20	.33	.77	43	1280	29	118
2	150	.67	.73	1.4	.49	.20	.33	391	13	1290	6.2	31
3	50	.60	.90	1.4	.45	.20	.33	3780	4.1	131	2.3	29
4	18	.60	1.2	1.3	.47	.27	.36	1750	1160	48	.63	32
5	8.7	.60	1.6	1.3	.95	.33	.36	190	3840	57	.11	12
6	5.0	.60	2.0	1.2	3.3	.18	.37	43	663	873	.06	6.2
7	3.0	.60	2.1	1.2	6.0	.18	.49	15	105	1180	.07	3.5
8	1.6	.71	2.0	1.1	2.3	.18	.44	7.9	30	403	.02	2.4
9	3.8	.71	2.1	1.0	.87	.19	.96	3.7	8.8	92	.01	2.4
10	4.5	.71	2.2	1.1	.53	.16	.42	27	2.5	30	.01	2.4
11	1.9	.76	2.0	1.1	.34	.16	1.2	22	994	37	.01	2.5
12	1.0	1.0	1.7	.97	.29	.36	.31	5.9	1850	19	.00	3.3
13	.88	1.1	1.7	.90	.27	.36	.09	2.1	2640	38	.00	3.9
14	.90	1.2	1.7	.90	.25	2.0	.05	1.3	766	17	2.6	4.8
15	.89	1.3	1.9	.90	.24	1.1	.04	.86	188	6.7	1.1	485
16	.84	1.3	2.1	.90	.23	.36	.03	1.2	57	3.8	.10	170
17	.90	1.3	2.0	.90	.22	.21	.03	3.2	23	1.7	.04	40
18	3.0	1.5	2.0	.89	.21	.16	.35	1.1	9.0	.87	.43	12
19	4.9	1.5	2.0	4.8	.20	.17	.26	.71	3.6	1.6	4.2	4.3
20	13	1.5	1.9	72	.20	.15	.50	.55	1.3	1.3	.24	2.4
21	5.8	1.4	1.8	44	.20	.13	4.7	.47	.46	.70	.02	1.6
22	2.0	1.6	1.8	10	.19	.13	1.4	.32	.20	.42	.00	3.2
23	1.0	1.7	1.8	3.3	.18	.13	.97	.29	.10	.40	.00	9.7
24	.71	1.7	1.6	1.4	.18	.13	2.7	15	.04	.30	.00	4.0
25	.65	1.9	1.6	.83	.19	.14	.60	806	83	.18	.20	2.1
26	.65	3.2	1.6	.59	.26	.17	3.1	325	121	3.7	.87	1.4
27	.66	12	1.5	.83	.24	.20	5.2	49	231	9.6	.20	.89
28	.77	6.0	1.5	1.7	.21	.24	1.3	11	193	14	3.3	.77
29	.77	1.9	1.5	1.2	---	.36	.24	51	116	5.0	173	.71
30	.77	.97	1.5	.64	---	.36	.07	577	178	4.2	574	.72
31	.83	---	1.4	.50	---	.36	---	163	---	4.2	522	---
TOTAL	1297.42	51.42	52.14	161.65	19.96	9.47	27.53	8245.37	13324.10	5553.67	1320.72	992.19
MEAN	41.9	1.71	1.68	5.21	.71	.31	.92	266	444	179	42.6	33.1
MAX	1010	12	2.2	72	6.0	2.0	5.2	3780	3840	1290	574	485
MIN	.65	.60	.71	.50	.18	.13	.03	.29	.04	.18	.00	.71
AC-FT	2570	102	103	321	40	19	55	16350	26430	11020	2620	1970

CAL YR 1980 TOTAL 12015.72 MEAN 32.8 MAX 2930 MIN .11 AC-FT 23830
WTR YR 1981 TOTAL 31055.64 MEAN 85.1 MAX 3840 MIN .00 AC-FT 61600

08164850 CHOCOLATE BAYOU NEAR PORT LAVACA, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 28°35'40", long 96°41'48", Calhoun County, Hydrologic Unit 12100402, at bridge on Sweetwater Road, 2.3 mi (3.7 km) upstream from State Highway 35, and 4.5 mi (7.2 km) southwest of Port Lavaca.

DRAINAGE AREA.--53.7 mi² (139.1 km²).

PERIOD OF RECORD.--Periodic discharge measurements: September 1967 to July 1968, February 1970 to current year. Periodic water-quality data: June 1970 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
FEB 12...	1030	1.0	1670	7.3	7.0	--	8.1	65	4.1	340	200
MAR 19...	1115	.56	5290	7.5	16.0	24	10.8	108	5.4	1200	910
MAY 06...	1315	273	146	7.0	26.0	44	4.2	52	2.6	47	0
JUL 29...	0930	.00	--	--	--	--	--	--	--	--	--
SEP 16...	1047	121	160	--	27.0	380	5.2	65	3.8	54	6

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
FEB 12...	100	23	190	4.5	5.7	140	110	360	.4	20
MAR 19...	320	88	740	9.5	3.8	250	380	1500	.6	15
MAY 06...	15	2.3	9.9	.6	4.8	49	2.9	14	.1	24
JUL 29...	--	--	--	--	--	--	--	--	--	--
SEP 16...	17	2.7	10	.6	6.1	48	6.0	17	.2	22

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, 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)
FEB 12...	894	--	13	.160	13	.410	1.6	2.0	.160	33
MAR 19...	3200	35	.48	.080	.56	.070	1.4	1.5	.540	14
MAY 06...	103	49	2.1	.090	2.2	.110	1.1	1.2	.240	14
JUL 29...	--	--	--	--	--	--	--	--	--	--
SEP 16...	110	262	.26	.200	.46	.380	1.5	1.9	.520	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)
FEB 12...	1030	4	200	1	0	20	40
MAY 06...	1315	8	40	1	0	<10	130

08164850 CHOCOLATE BAYOU NEAR PORT LAVACA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
FEB 12...	<10	80	.1	--	0	0	5
MAY 06...	<10	10	.0	0	0	0	30

DATE	TIME	PCB TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDE, TOTAL (UG/L)
FEB 12...	1030	<.10	1	<.1	<.01	<.1	<.1	2	<.01	1.2	<.01

DATE	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHION, TOTAL (UG/L)
FEB 12...	1.8	<.01	9.0	<.01	<.01	<.1	<.01	<.01	<.1	<.01

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)
FEB 12...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
FEB 12...	<.01	<.01	<.1	<.01	<0	<1	<.01	.07	<.01	<.01

08165300 NORTH FORK GUADALUPE RIVER NEAR HUNT, TX

LOCATION.--Lat 30°03'36", long 99°23'40", Kerr County, Hydrologic Unit 12100201, on right bank 410 ft (125 m) downstream from Ranch Road 1340, 1.3 mi (2.1 km) downstream from Bear Creek, 3.7 mi (6.0 km) west of Hunt, and 4.1 mi (6.6 km) upstream from Honey Creek.

DRAINAGE AREA.--168 mi^2 (435 km^2).

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

REVISED RECORDS.--WRD TX-74-1: 1971(P).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,800.10 ft (548.670 m) National Geodetic Vertical Datum of 1929.

REMARKS--Records good. There is a permit issued by the Texas Department of Water Resources to impound and use 20.33 acre-ft (25,100 m^3) of water on a game preserve upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years, 39.7 ft^3/s (1.124 m^3/s), 3.21 in/yr (82 mm/yr), 28,760 acre-ft/yr (35.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,300 ft^3/s (1,110 m^3/s) Aug. 3, 1978, gage height, 26.80 ft (8.169 m), from high-water mark and from rating curve extended above 170 ft^3/s (4.81 m^3/s) on basis of slope-area measurements of 7,460 and 38,400 ft^3/s (211 and 1,090 m^3/s); minimum, 0.68 ft^3/s (0.019 m^3/s) May 30, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900 occurred July 1, 1932, gage height, 37.3 ft (11.37 m), discharge 140,000 ft^3/s (3,960 m^3/s), by slope-area measurements, combined flow of North Fork Guadalupe River 5 mi (8 km) upstream and Bear Creek 2 mi (3 km) upstream from mouth, and adjusted for difference in drainage area.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 18	0700	8,070	229	14.10	4.298	June 16	0715	*21,000	595	21.21	6.465
Apr. 23	1045	7,600	215	13.75	4.191	June 17	0830	6,950	197	13.25	4.039

Minimum daily discharge, 21 ft^3/s (0.59 m^3/s) Feb. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	26	26	24	22	28	28	61	33	69	46	36
2	81	26	26	23	21	27	27	60	35	73	45	37
3	69	26	26	23	21	30	28	62	34	78	44	37
4	61	25	26	23	22	31	29	58	76	76	43	37
5	55	25	26	23	22	28	28	54	55	75	43	36
6	51	25	26	24	22	27	27	52	47	78	42	35
7	53	25	26	24	23	28	27	50	42	77	42	34
8	51	25	27	23	23	27	27	49	40	74	42	35
9	48	26	28	24	23	27	27	48	41	69	42	35
10	44	26	28	23	26	26	26	45	50	67	43	35
11	43	25	26	23	25	26	26	43	49	65	42	34
12	41	24	26	22	23	30	26	43	104	63	40	34
13	39	24	26	23	23	32	26	42	79	59	40	37
14	38	24	26	23	24	30	27	41	87	59	40	40
15	37	25	25	23	24	29	26	40	81	57	39	41
16	37	31	25	23	24	29	26	41	4640	56	39	37
17	34	32	24	22	24	28	26	40	1480	56	44	35
18	34	29	23	22	25	27	1550	38	215	54	60	34
19	35	28	25	26	25	26	108	36	148	52	52	33
20	33	27	25	27	24	26	72	36	127	52	46	33
21	32	28	24	24	25	27	62	33	112	51	43	33
22	31	29	24	24	24	27	58	34	103	50	42	33
23	30	29	25	24	23	26	1780	36	96	49	41	33
24	29	27	25	24	24	26	173	35	91	48	39	33
25	28	27	24	23	24	26	106	36	87	48	39	33
26	28	29	23	23	25	26	89	34	86	51	38	33
27	28	28	24	23	25	26	80	33	85	51	38	32
28	27	26	25	22	26	26	75	33	79	52	37	32
29	27	26	25	22	---	34	70	32	76	50	36	33
30	26	26	24	22	---	31	65	34	73	49	36	33
31	25	---	23	22	---	29	---	39	---	48	36	---
TOTAL	1292	799	782	721	662	866	4745	1318	8351	1856	1299	1043
MEAN	41.7	26.6	25.2	23.3	23.6	27.9	158	42.5	278	59.9	41.9	34.8
MAX	97	32	28	27	26	34	1780	62	4640	78	60	41
MIN	25	24	23	22	21	26	26	32	33	48	36	32
CFSM	.25	.16	.15	.14	.14	.17	.94	.25	1.66	.36	.25	.21
IN.	.29	.18	.17	.16	.15	.19	1.05	.29	1.85	.41	.29	.23
AC-FT	2560	1580	1550	1430	1310	1720	9410	2610	16560	3680	2580	2070

CAL YR 1980	TOTAL	12206	MEAN 33.3	MAX 2930	MIN 11	CFSM .20	IN 2.70	AC-FT	24210	
WTR YR 1981	TOTAL	23734	MEAN 65.0	MAX 4640	MIN 21	CFSM .39	IN 5.26	AC-FT	47080	

08165500 GUADALUPE RIVER AT HUNT, TX

LOCATION.--Lat 30°04'08", long 99°19'23", Kerr County, Hydrologic Unit 12100201, on right bank 56 ft (17 m) upstream and 137 ft (42 m) right of right end of bridge on State Highway 39, 0.6 mi (1.0 km) downstream from confluence of North and South Forks, 0.8 mi (1.3 km) east of Hunt, and at mile 430.9 (693.3 km).

DRAINAGE AREA.--288 mi² (746 km²).

PERIOD OF RECORD.--October 1941 to September 1949, discharge not computed above 600 ft³/s (17.0 m³/s), and April 1965 to current year. Occasional discharge measurements made 1950-64.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,722.7 ft (525.08 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Numerous diversions for irrigation above station, amounts unknown. Gage-height telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years, 74.7 ft³/s (2.116 m³/s), 3.52 in/yr (89 mm/yr), 54,120 acre-ft/yr (66.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,900 ft³/s (1,780 m³/s) Aug. 2, 1978, gage height, 23.5 ft (7.16 m), from floodmark, from rating curve extended above 3,700 ft³/s (105 m³/s) on basis of channel geometry and flow-over-dam measurement of peak flow; minimum, 6.9 ft³/s (0.20 m³/s) June 17, 1948.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 36.6 ft (11.16 m) July 2, 1932, from information by local resident, discharge 206,000 ft³/s (5,830 m³/s), determined by slope-area measurement 4.5 mi (7.2 km) downstream from gage.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 18	0900	4,980	141	10.94	3.335	June 16	0815	*10,700	303	13.99	4.264
Apr. 23	0815	10,100	286	13.77	4.197	June 17	1045	4,550	129	10.58	3.225

Minimum discharge, 43 ft³/s (1.22 m³/s) Feb. 23, Apr. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	282	63	62	57	51	56	65	135	79	172	86	73
2	207	63	59	56	48	55	64	143	79	166	84	78
3	166	62	57	56	47	68	75	148	81	159	83	77
4	152	62	60	56	48	138	68	142	116	150	83	75
5	138	59	62	56	53	99	61	128	132	150	83	73
6	125	59	62	58	52	78	58	126	101	148	81	70
7	116	58	61	58	50	73	49	118	92	149	80	68
8	110	55	68	56	48	68	57	125	86	145	82	68
9	104	57	75	58	48	64	59	113	81	145	81	66
10	97	57	71	57	63	61	59	113	76	132	84	66
11	93	56	67	56	53	66	59	113	74	110	82	68
12	88	55	65	54	48	83	59	99	136	123	79	67
13	86	54	65	55	48	93	58	100	132	116	76	68
14	84	54	67	56	49	84	58	91	138	116	77	81
15	86	54	68	55	49	80	58	70	142	111	76	79
16	265	78	65	55	47	76	58	93	4550	110	73	73
17	130	69	63	54	47	75	60	97	1530	108	83	68
18	105	59	61	53	47	73	1400	94	542	106	106	64
19	97	56	62	65	48	68	284	87	392	103	105	63
20	89	56	60	68	47	68	181	86	303	101	91	63
21	84	56	59	57	47	68	148	70	282	99	84	63
22	80	60	59	56	46	65	136	82	248	97	79	63
23	78	62	60	56	45	62	2560	88	235	96	78	63
24	73	58	60	56	45	62	449	91	221	92	77	63
25	69	66	57	55	45	62	248	93	214	89	76	62
26	69	82	56	55	47	62	199	86	189	91	76	62
27	71	70	57	55	47	62	174	75	204	96	76	62
28	67	65	59	53	47	66	176	69	201	96	73	60
29	65	63	59	53	---	90	152	70	190	93	73	59
30	63	63	58	52	---	77	144	81	178	91	73	59
31	62	---	57	50	---	69	---	95	---	89	73	---
TOTAL	3401	1831	1921	1737	1360	2271	7276	3121	11024	3649	2513	2024
MEAN	110	61.0	62.0	56.0	48.6	73.3	243	101	367	118	81.1	67.5
MAX	282	82	75	68	63	138	2560	148	4550	172	106	81
MIN	62	54	56	50	45	55	49	69	74	89	73	59
CFSM	.38	.21	.22	.19	.17	.26	.84	.35	1.27	.41	.28	.23
IN.	.44	.24	.25	.22	.18	.29	.94	.40	1.42	.47	.32	.26
AC-FT	6750	3630	3810	3450	2700	4500	14430	6190	21870	7240	4980	4010

CAL YR 1980	TOTAL	26436	MEAN	72.2	MAX	3280	MIN 20	CFSM .25	IN 3.41	AC-FT 52440
WTR YR 1981	TOTAL	42128	MEAN	115	MAX	4550	MIN 45	CFSM .40	IN 5.44	AC-FT 83560

08166000 JOHNSON CREEK NEAR INGRAM, TX

LOCATION.--Lat 30°06'00", long 99°16'58", Kerr County, Hydrologic Unit 12100201, on right bank 1.6 mi (2.6 km) upstream from Henderson Branch, 3.4 mi (5.5 km) northwest of Ingram, 3.8 mi (6.1 km) upstream from mouth, and 9.2 mi (14.8 km) northwest of Kerrville.

DRAINAGE AREA.--114 mi^2 (295 km^2).

PERIOD OF RECORD.--September 1941 to November 1959, October 1961 to current year.

REVISED RECORDS.--WSP 1058: 1942-45. WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,721.30 ft (524.652 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Numerous small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years (water years 1942-59, 1962-81), 19.8 ft^3/s (0.561 m^3/s), 2.36 in/yr (60 mm/yr), 14,350 acre-ft/yr (17.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,900 ft^3/s (2,720 m^3/s) Oct. 4, 1959, gage height, 24.25 ft (7.391 m), from rating curve extended above 4,400 ft^3/s (125 m^3/s) on basis of slope-area measurements of 9,100 and 16,000 ft^3/s (258 and 453 m^3/s) and conveyance study; minimum daily, 0.4 ft^3/s (0.011 m^3/s) July 26, 27, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 35 ft (10.7 m) July 2, 1932, from information by local resident; discharge, 138,000 ft^3/s (3,910 m^3/s), by slope-area measurement at point 0.5 mi (0.8 km) downstream from State fish hatchery and 6 or 7 mi (10 or 11 km) upstream from gage. Flood of June 14, 1935, reached a stage of 31 or 32 ft (9.4 or 9.8 m), from information by local resident.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 18	0515	*7,320	207	8.89	2.710
June 16	0800	2,420	68.5	5.82	1.774
June 17	0845	870	24.6	3.81	1.161

Minimum discharge, 0.60 ft^3/s (0.017 m^3/s) Feb. 19, Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	11	13	8.9	6.7	11	27	37	33	82	38	34
2	14	12	17	6.7	6.1	9.2	26	34	34	79	36	34
3	11	12	13	7.9	7.0	24	28	47	26	76	39	33
4	12	15	13	8.9	7.2	16	30	41	43	71	34	31
5	11	10	14	9.2	7.1	10	25	35	66	76	36	31
6	11	13	15	9.2	5.8	13	26	35	36	75	34	29
7	10	11	16	9.2	5.7	16	25	32	31	77	33	30
8	11	9.3	24	12	6.6	12	25	31	29	72	33	32
9	8.7	10	26	11	7.7	11	29	26	29	69	33	29
10	7.5	9.4	20	11	12	11	32	24	25	64	35	27
11	9.2	11	18	10	7.6	15	27	25	24	58	34	26
12	8.0	9.0	17	9.2	7.4	22	26	28	140	59	33	24
13	8.1	8.7	16	8.6	7.2	20	26	23	103	59	35	28
14	11	9.4	17	9.4	6.6	15	21	21	227	54	35	37
15	12	8.0	16	12	7.8	18	23	22	114	59	32	37
16	13	21	14	10	6.7	18	31	23	1010	55	34	26
17	10	15	14	11	7.4	23	35	24	358	51	44	23
18	11	14	14	9.7	7.4	22	1040	24	163	50	47	23
19	12	13	12	14	4.2	25	92	21	134	54	40	23
20	9.8	14	11	13	5.5	21	54	19	123	47	37	23
21	10	9.8	11	19	6.6	16	43	21	118	49	34	24
22	10	14	10	22	3.5	18	38	19	111	41	33	24
23	9.1	13	10	15	3.3	21	156	20	104	37	33	23
24	7.7	11	9.4	11	4.0	21	105	18	101	39	33	22
25	7.6	19	9.1	4.8	5.8	21	71	24	98	37	35	22
26	9.6	25	9.2	6.4	9.6	20	61	20	94	39	34	21
27	9.4	17	9.2	12	13	23	55	22	93	42	33	18
28	9.5	14	9.9	26	9.6	24	49	19	88	41	32	16
29	11	14	9.7	26	---	42	46	15	85	38	31	15
30	10	14	8.5	12	---	27	42	30	79	39	32	21
31	10	---	7.9	7.5	---	26	---	33	---	39	33	---
TOTAL	321.2	386.6	423.9	362.6	195.1	591.2	2314	813	3719	1728	1085	786
MEAN	10.4	12.9	13.7	11.7	6.97	19.1	77.1	26.2	124	55.7	35.0	26.2
MAX	17	25	26	26	13	42	1040	47	1010	82	47	37
MIN	7.5	8.0	7.9	4.8	3.3	9.2	21	15	24	37	31	15
AC-FT	637	767	841	719	387	1170	4590	1610	7380	3430	2150	1560

CAL YR 1980	TOTAL	5794.4	MEAN 15.8	MAX 442	MIN 3.1	AC-FT	11490	
WTR YR 1981	TOTAL	12725.6	MEAN 34.9	MAX 1040	MIN 3.3	AC-FT	25240	

08166140 GUADALUPE RIVER ABOVE BEAR CREEK AT KERRVILLE, TX

LOCATION.--Lat 30°04'10", long 99°11'42", Kerr County, Hydrologic Unit 12100201, on left bank 600 ft (180 m) downstream from Goat Creek, 900 ft (274 m) upstream from Bear Creek and Bear Creek Crossing, and 2.4 mi (3.9 km) east of intersection of State Highways 27 and 39 in Ingram.

DRAINAGE AREA.--494 mi^2 (1,280 km^2).

PERIOD OF RECORD.--April 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,623.20 ft (494.751 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Discharge not computed above 400 ft^3/s (11.3 m^3/s). Numerous diversions for irrigation above station, amounts unknown. Several observations of water temperature were made during the period.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 32.79 ft (9.994 m) Aug. 3, 1978 (discharge not known); minimum daily discharge, 23 ft^3/s (0.65 m^3/s) July 22, 1978.

EXTREMES OUTSIDE PERIOD OR RECORD.--Maximum stage since 1900, 34.1 ft (10.39 m) July 2, 1932, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maxumum stage, 13.46 ft (4.103 m) June 16 at 1000 hours (maximum discharge not determined); minimum daily discharge, 93 ft^3/s (2.63 m^3/s) Feb. 23-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	314	107	123	110	103	109	145	224	142	305	160	131
2	269	108	120	109	100	110	156	219	137	303	149	135
3	238	109	117	107	100	136	157	229	134	300	139	130
4	217	108	115	107	100	154	152	228	197	287	126	125
5	207	107	118	106	101	154	150	212	273	296	112	122
6	196	105	119	107	101	154	153	204	205	297	99	118
7	180	106	118	108	101	155	149	188	179	293	102	120
8	156	105	128	110	103	148	144	195	158	282	102	118
9	146	100	138	111	103	143	143	181	150	280	106	118
10	140	101	135	111	115	140	142	166	137	271	114	114
11	134	103	132	109	112	143	141	183	134	246	109	114
12	128	103	128	108	110	155	138	164	270	245	102	116
13	124	101	127	107	107	163	136	160	273	243	104	117
14	123	101	128	109	106	164	133	160	---	240	104	153
15	128	102	127	109	105	162	137	136	281	238	104	179
16	246	137	126	110	103	158	137	137	---	238	107	134
17	198	140	120	107	103	160	145	150	---	218	146	123
18	165	122	119	106	103	152	---	143	---	218	187	117
19	157	111	132	114	102	150	---	152	---	218	170	115
20	146	109	148	117	98	150	313	131	---	218	140	116
21	138	106	144	119	100	140	290	109	370	216	127	116
22	131	110	139	120	95	132	275	120	355	207	121	118
23	126	117	134	118	93	133	---	128	347	201	120	117
24	120	112	132	111	93	134	---	126	339	198	118	115
25	113	125	127	107	93	132	359	133	338	192	119	113
26	113	157	123	104	95	130	334	127	330	192	118	113
27	117	147	119	106	101	128	312	116	335	197	116	110
28	115	133	115	110	101	142	307	115	334	201	116	108
29	115	126	114	115	---	234	295	113	319	194	116	105
30	112	123	112	111	---	190	255	133	313	192	120	104
31	110	---	111	104	---	173	---	178	---	177	120	---
TOTAL	4922	3441	3888	3407	2847	4628	---	4960	---	7403	3793	3634
MEAN	159	115	125	110	102	149	---	160	---	239	122	121
MAX	314	157	148	120	115	234	---	229	---	305	187	179
MIN	110	100	111	104	93	109	---	109	---	177	99	104
AC-FT	9760	6830	7710	6760	5650	9180	---	9840	---	14680	7520	7210

CAL YR 1980 TOTAL - MEAN - MAX - MIN - AC-FT -
WTR YR 1981 TOTAL - MEAN - MAX - MIN - AC-FT -

08167000 GUADALUPE RIVER AT COMFORT, TX

LOCATION.--Lat 29°58'10", long 98°53'33", Kendall County, Hydrologic Unit 12100201, on right bank at downstream side of southbound bridge on Interstate Highway 10, at Comfort, 0.5 mi (0.8 km) downstream from Cypress Creek, and at mile 396.2 (637.5 km).

DRAINAGE AREA.--839 mi^2 (2,173 km^2).

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

REVISED RECORDS.--WSP 1632: 1958. WSP 1732: 1939(M). WSP 2123: Drainage area, 1944(M), 1952(M), 1957(M), 1960(M).

GAGE.--Water-stage recorder. Datum of gage is 1,371.83 ft (418.134 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 27, 1939, nonrecording gage. Nov. 27, 1939, to June 2, 1980 recording at gage site 0.4 mi (0.6 km) upstream at datum 0.22 ft (0.067 m) lower.

REMARKS.--Records good. Many small diversions above station for irrigation. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--42 years (water years 1940-81), 186 ft^3/s (5.268 m^3/s), 134,800 acre-ft/yr (166 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 240,000 ft^3/s (6,800 m^3/s) Aug. 2, 1978, gage height, 40.90 ft (12.466 m), from high-water mark in well, from rating curve extended above 74,000 ft^3/s (2,100 m^3/s) on basis of current-meter measurement of 124,000 ft^3/s (3,510 m^3/s) at gage height 32.47 ft (9.897 m) and slope-area measurement of 182,000 ft^3/s (5,150 m^3/s) at gage height 38.4 ft (11.70 m), made at former gaging station "near Comfort" 5 mi (8 km) upstream; no flow at times in 1952-57, 1963-64. All stages are at site and datum then in use.
Maximum stage since at least 1848, that of Aug. 2, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1869 reached a stage of 40.3 ft (12.28 m), from report by Corps of Engineers. Flood of July 1, 1932, reached a stage of 38.4 ft (11.70 m), from floodmark, and from information by State Department of Highways and Public Transportation. Flood of July 16, 1900, reached about the same stage as that of July 1, 1932, from information by local residents. All stages are at site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,600 ft^3/s (73.6 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 16	0230	19,600	555	15.40	4.694	June 4	2030	5,700	161	8.51	2.594
Mar. 4	0200	4,090	116	7.18	2.188	June 12	1730	7,700	218	9.87	3.008
Mar. 29	0130	16,700	473	14.30	4.359	June 14	1200	4,150	118	7.23	2.204
Apr. 18	1830	5,750	163	8.55	2.606	June 16	1700	*24,200	685	16.92	5.157
Apr. 23	1900	9,150	259	10.74	2.274						

Minimum discharge, 126 ft^3/s (3.57 m^3/s) Feb. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	479	181	194	161	153	168	503	524	328	595	253	197
2	335	180	190	156	144	187	460	533	312	570	249	559
3	278	179	185	156	141	698	473	592	317	563	245	284
4	244	175	190	156	146	1810	454	587	1490	564	242	237
5	225	168	192	152	161	586	409	525	1650	647	234	220
6	208	165	195	155	160	457	402	490	685	693	222	211
7	195	166	190	158	153	412	396	460	503	625	228	209
8	185	167	198	158	149	372	382	444	430	600	232	207
9	175	162	208	156	147	355	375	446	386	570	226	197
10	166	158	204	156	171	335	371	403	353	540	238	194
11	160	158	192	154	153	352	368	393	339	515	243	189
12	154	157	188	151	152	499	362	393	1880	490	222	187
13	148	156	186	151	155	503	351	378	1320	470	210	256
14	143	154	184	155	155	440	338	372	2020	450	209	236
15	143	154	194	152	151	413	334	360	1290	435	213	400
16	4750	217	194	151	148	383	338	347	12900	420	206	260
17	435	223	189	150	145	378	335	349	4410	405	220	217
18	801	189	187	144	144	369	2350	344	2370	390	313	201
19	504	172	187	166	145	342	1310	321	1470	380	298	192
20	317	167	187	186	146	347	661	323	1180	365	263	190
21	274	168	189	170	145	348	537	305	1040	352	236	188
22	251	169	187	166	144	332	491	288	931	340	223	187
23	235	179	187	168	134	315	3710	301	842	330	214	186
24	220	173	184	165	132	316	2010	302	791	320	212	184
25	206	181	179	157	135	316	929	396	752	311	204	182
26	202	279	177	156	139	313	740	324	724	300	203	176
27	206	243	175	154	143	309	659	296	769	334	194	174
28	203	218	170	155	151	515	609	275	729	319	193	170
29	200	204	168	158	---	4040	594	268	693	296	191	163
30	188	195	163	163	---	740	548	278	645	287	198	174
31	184	---	163	157	---	572	---	372	---	270	200	---
TOTAL	12414	5457	5776	4893	4142	17522	21799	11989	43549	13746	7034	6627
MEAN	400	182	186	158	148	565	727	387	1452	443	227	221
MAX	4750	279	208	186	171	4040	3710	592	12900	693	313	559
MIN	143	154	163	144	132	168	334	268	312	270	191	163
AC-FT	24620	10820	11460	9710	8220	34750	43240	23780	86380	27270	13950	13140

CAL YR 1980	TOTAL	61391	MEAN 168	MAX 4750	MIN 12	AC-FT	121800	
WTR YR 1981	TOTAL	154948	MEAN 425	MAX 12900	MIN 132	AC-FT	307300	

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX

LOCATION (revised).--Lat 29°23'00", long 98°23'00", Comal County, Hydrologic Unit 12100201, on downstream side of bridge on Ranch Road 311, 1.9 mi (3.1 km) southeast of Spring Branch Post Office, 7.5 mi (12.1 km) downstream from Curry Creek, and at mile 334.4 (538.0 km). Gage moved 220 ft (67 m) upstream to downstream side of bridge Jan. 14, 1981.

DRAINAGE AREA.--1,315 mi² (3,406 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1922 to current year.

REVISED RECORDS.--WSP 1562: 1923-24, 1926, 1927-28(M), 1929, 1930(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 948.10 ft (288.981 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Several small diversions above station for irrigation. Several observations of water temperature were made during the year. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--59 years, 312 ft³/s (8.836 m³/s), 226,000 acre-ft (279 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 160,000 ft³/s (4,530 m³/s) Aug. 3, 1978, gage height, 45.25 ft (13.792 m), from floodmark, from rating curve extended above 55,600 ft³/s (1,570 m³/s) on basis of slope-area measurement of peak flow; no flow at times in 1951-52, 1954-56, and 1963-64.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, about 53 ft (16.2 m) in 1869; flood in July 1900 reached a stage of about 49 ft (14.9 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 16	2200	12,400	351	15.55	4.740	June 5	1500	10,400	295	13.99	4.264
Mar. 4	1900	5,010	142	9.04	2.755	June 13	1200	5,380	152	9.44	2.877
Mar. 29	2000	8,840	250	12.72	3.877	June 14	--	15,600	442	--	--
Apr. 19	1100	5,280	150	9.34	2.847	June 16	--	16,000	453	--	--
Apr. 24	1400	7,510	213	11.55	3.520	June 17	1200	*24,500	694	23.03	7.020

Minimum discharge, 135 ft³/s (3.82 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1470	215	291	203	193	184	802	698	415	1260	405	268
2	748	208	287	199	182	194	688	673	351	1200	383	263
3	528	208	266	195	172	245	639	736	326	1130	373	659
4	403	201	262	194	176	2910	630	794	373	1080	363	380
5	336	196	267	190	189	2020	573	717	5920	1230	352	310
6	309	186	270	192	206	973	517	624	2330	1410	348	284
7	261	182	270	192	210	740	505	572	1240	1280	334	264
8	241	175	270	192	198	646	494	531	974	1110	337	259
9	223	176	266	192	192	554	474	510	843	1050	323	243
10	207	173	270	192	196	515	455	493	742	987	333	229
11	194	163	270	192	206	478	448	432	835	956	339	221
12	183	158	255	189	227	552	438	424	921	895	341	209
13	175	153	247	185	201	950	419	420	3170	834	321	207
14	171	151	243	195	198	832	400	401	7440	795	301	709
15	170	151	247	192	198	739	381	385	8230	756	303	605
16	3940	178	251	188	195	662	378	378	9660	716	291	547
17	2630	218	249	183	191	614	379	363	17400	693	282	330
18	864	275	243	180	187	598	417	348	7280	658	314	258
19	1310	232	240	200	183	550	3110	328	3880	622	449	229
20	843	201	229	213	180	506	1350	299	2980	599	425	214
21	554	186	225	247	179	513	877	293	2540	569	366	206
22	432	187	240	227	174	491	644	280	2250	550	326	199
23	367	190	240	215	168	455	1690	266	2020	532	306	194
24	326	194	243	215	166	427	4970	292	1840	504	298	188
25	287	201	240	214	158	416	2130	747	1690	484	290	180
26	266	268	236	205	161	411	1310	487	1700	472	272	170
27	263	419	232	200	163	405	1030	349	1650	474	263	161
28	247	364	223	190	166	403	906	300	1580	487	254	151
29	243	317	218	187	---	3050	852	274	1450	475	251	148
30	236	292	213	186	---	2300	759	265	1340	454	251	139
31	222	---	208	187	---	1080	---	444	---	435	265	---
TOTAL	18649	6418	7711	6131	5215	25413	28665	14123	93370	24697	10059	8424
MEAN	602	214	249	198	186	820	956	456	3112	797	324	281
MAX	3940	419	291	247	227	3050	4970	794	17400	1410	449	709
MIN	170	151	208	180	158	184	378	265	326	435	251	139
AC-FT	36990	12730	15290	12160	10340	50410	56860	28010	185200	48990	19950	16710

CAL YR 1980 TOTAL 82385 MEAN 225 MAX 3940 MIN 26 AC-FT 163400
WTR YR 1981 TOTAL 248875 MEAN 682 MAX 17400 MIN 139 AC-FT 493600

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 13...	1824	153	507	8.2	17.5	10	.60	8.4	90	1.4	230	15
JAN 09...	1115	229	508	8.3	11.0	0	2.0	10.6	98	1.4	240	14
MAY 05...	1631	229	497	8.2	23.5	5	12	8.3	101	1.3	250	22
JUN 17...	1220	23400	306	8.0	22.0	30	560	6.9	81	4.4	150	13
JUL 28...	1108	478	497	7.8	27.0	0	8.2	7.5	96	.6	240	30
SEP 09...	1445	247	474	--	26.5	0	13	8.0	103	.8	230	31

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 (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV 13...	61	20	12	.3	2.0	220	15	21	.2	10	--
JAN 09...	63	21	12	.3	1.3	230	27	18	.3	8.2	--
MAY 05...	68	20	10	.3	1.6	230	25	14	.2	12	--
JUN 17...	46	9.3	4.0	.1	2.5	140	2.9	4.6	.1	13	--
JUL 28...	60	22	12	.4	1.6	210	23	14	.2	14	277
SEP 09...	58	21	12	.3	1.9	200	23	17	.2	11	--

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	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 13...	273	0	1	.85	.000	.85	.030	.41	.44	.040	7.6
JAN 09...	289	2	8	.82	.000	.82	.030	.56	.59	.080	9.3
MAY 05...	289	16	10	.30	.000	.30	.060	.62	.68	.010	2.9
JUN 17...	167	1200	82	.37	.020	.39	.100	3.0	3.1	.230	48
JUL 28...	273	11	7	.95	.010	.96	.160	.94	1.1	.020	2.6
SEP 09...	264	22	0	--	<.020	.65	.060	.60	.66	.020	2.4

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 13...	1824	1	40	<1	0	<10	10
JAN 09...	1115	0	40	3	0	<10	<10
JUN 17...	1220	1	80	<1	0	<10	100
SEP 09...	1445	1	0	0	0	1	10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 13...	<10	1	.2	0	0	5
JAN 09...	46	<1	.2	0	0	4
JUN 17...	<10	6	.3	0	0	40
SEP 09...	2	0	.3	0	0	10

08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX

LOCATION.--Lat 29°52'07", long 98°11'55", Comal County, Hydrologic Unit 12100201, in intake structure of Canyon Dam on Guadalupe River, 12 mi (19 km) northwest of New Braunfels, and at mile 303.0 (487.5 km).

DRAINAGE AREA.--1,432 mi² (3,709 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1962 to current year. Prior to October 1970, published as Canyon Reservoir.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Sept. 24, 1964, nonrecording gage at present site and datum. Corps of Engineers gage-height telemeter at station.

REMARKS.--The lake is formed by a rolled earthfill dam 6,830 ft (2,082 m) long, consisting of the main dam 4,410 ft (1,344 m) long, an earthen dike 210 ft (64 m) long, a 1,260-foot-long (384 m) uncontrolled broad-crested-type spillway, and a 950-foot (290 m) concrete and earthen nonoverflow section. Deliberate impoundment began June 16, 1964, and main part of dam was completed in August 1964. The flood-control outlet works consist of a 10.0-foot-diameter (3.0 m) conduit controlled by two 5.7 by 10.0-foot (1.7 by 3.0 m) hydraulically operated slide gates. The lake was built for water conservation and flood control. Capacity table beginning Oct. 1, 1974, is based on a sedimentation survey of August 1972. Small diversions above the lake for irrigation. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	974.0	-
Crest of spillway	943.0	736,700
Top of conservation pool	909.0	382,000
Lowest gated outlet (invert)	775.0	240

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 588,400 acre-ft (725 hm³) Aug. 4, 1978, elevation, 930.61 ft (283.650 m); minimum observed since conservation pool first reached in April 1968, 338,600 acre-ft (417 hm³) Sept. 5, 1980, elevation, 903.54 ft (275.399 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 472,000 acre-ft (582 hm³) June 18 at 0300 hours, elevation, 919.20 ft (280.172 m); minimum, 349,300 acre-ft (431 hm³) Sept. 14 at 0800 hours, elevation, 904.92 ft (275.820 m).

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

904.0	342,200	908.0	373,800	916.0	442,400
905.0	349,900	910.0	390,300	918.0	460,800
906.0	357,800	912.0	407,300	920.0	479,600
907.0	365,800	914.0	424,600		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	356000	357700	357200	359200	360100	357700	373800	381500	367400	418500	388600	356300
2	356600	357500	357200	359200	359900	357600	373900	381000	367000	419300	387700	355000
3	356600	357300	357200	359200	359800	357800	374000	380800	367000	420000	386800	354800
4	356800	357000	357500	359000	360300	361500	373700	380400	367000	420700	385800	353900
5	356500	356700	357600	359100	360500	364000	373400	380000	375000	422300	384900	352700
6	356200	356300	357900	359100	360700	365400	373000	379500	377400	423600	384100	351600
7	355900	356100	358200	359000	360700	366300	372800	378700	378300	420700	383100	350600
8	355600	355800	358800	359200	360700	367000	372400	378000	378700	413300	382200	349900
9	355200	355600	358700	359200	360900	367400	372200	377300	378900	406000	381300	349700
10	354800	355400	358700	359200	361000	367500	371800	376100	378900	402100	380200	349600
11	354300	355400	358800	359200	360200	367800	371500	375000	380000	402400	379000	349500
12	353900	355100	358800	359100	360100	368400	371200	374200	383700	402700	377800	349500
13	353400	355000	358900	359200	359900	369200	370700	373900	391300	402700	376700	349400
14	353100	354900	359200	359200	359800	369900	370200	373400	405100	400700	375600	350600
15	352900	355000	359300	359100	359700	370400	369700	372900	422300	398500	374500	351300
16	358600	356000	359400	358900	359500	370700	369300	372800	440500	398300	373300	351700
17	363600	355700	359400	358800	359400	371100	368700	372400	467800	398100	372200	351500
18	364800	355700	359500	358700	359300	370800	368300	372100	471900	397700	371200	351300
19	365800	355600	359500	359500	359200	370400	370900	371500	470200	397100	370400	351200
20	366200	355600	359300	359800	359100	370200	372500	370900	466800	396800	369100	351100
21	365500	355500	359200	359900	359000	370000	372400	370200	462200	398200	368200	351000
22	364700	355500	359100	359900	358600	369500	372000	369700	457000	394800	366900	350900
23	363900	355500	359200	359900	358300	369100	374000	369100	451500	395100	365800	350800
24	362800	355400	359400	359900	358100	368700	380200	369600	445600	394300	365200	350800
25	361800	356100	359200	360000	358000	368300	382000	369900	439900	393600	364200	350600
26	360800	356100	359200	360100	357900	367900	382400	369700	434200	393200	363000	350500
27	360200	356400	359200	360200	357600	367500	382500	369200	427800	392500	361900	350400
28	359000	356500	359200	360200	357600	367200	382400	368700	421500	391900	360600	350200
29	358600	356700	359400	360300	---	369400	382200	368300	416500	391100	359500	350000
30	358400	356900	359300	360100	---	373000	381800	367800	417100	390100	358400	349900
31	358000	---	359200	360300	---	373700	---	367400	---	389600	357600	---
MAX	366200	357700	359500	360300	361000	373700	382500	381500	471900	423600	388600	356300
MIN	352900	354900	357200	358700	357600	357600	368300	367400	367000	389600	357600	349400
(†)	906.03	905.89	906.18	906.31	905.97	907.98	908.98	907.21	913.14	909.91	905.97	905.00
(‡)	+3900	-1100	+2300	+1100	-2700	+16100	+8100	-14400	+49700	-27500	-32000	-7700

CAL YR 1980 MAX 369000 MIN 338600 ‡ +3500
WTR YR 1981 MAX 471900 MIN 349400 ‡ -4200

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

08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

WATER-QUALITY RECORDS

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

295148098115201 CANYON LAKE SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
AUG							
11...	1536	1.00	348	7.9	30.0	8.6	116
11...	1538	10.0	350	7.9	29.5	8.5	113
11...	1540	20.0	361	7.8	29.0	7.4	97
11...	1542	30.0	361	7.7	29.0	6.7	88
11...	1544	40.0	377	7.4	28.5	4.4	58
11...	1546	50.0	414	7.1	27.5	.5	6
11...	1548	60.0	407	7.1	26.0	.7	9
11...	1550	70.0	397	7.1	26.0	.5	6
11...	1552	80.0	380	7.1	25.5	.4	5
11...	1555	90.0	370	7.1	25.5	.4	5

295206098115501 CANYON LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)
FEB										
23...	1146	1.00	387	7.9	13.5	3.1	9.2	90	<1	<1
23...	1149	10.0	387	7.8	13.0	--	9.2	88	--	--
23...	1151	20.0	387	7.8	13.0	--	9.2	88	--	--
23...	1153	30.0	387	7.8	13.0	--	9.2	88	--	--
23...	1155	40.0	387	7.8	13.0	--	9.2	88	--	--
23...	1157	50.0	387	7.8	12.5	--	9.1	87	--	--
23...	1159	60.0	387	7.7	12.0	--	9.1	86	--	--
23...	1201	70.0	388	7.7	11.5	--	9.1	85	--	--
23...	1203	80.0	388	7.7	11.5	--	9.0	84	--	--
23...	1205	90.0	389	7.7	11.5	--	9.0	84	--	--
23...	1207	100	389	7.7	11.0	--	9.0	83	--	--
23...	1209	110	389	7.7	11.0	--	9.3	86	--	--
23...	1211	124	395	7.7	11.0	--	8.9	82	--	--
MAY										
06...	1123	6.30	--	--	--	--	--	--	--	--
06...	1124	1.00	392	7.9	23.5	3.8	6.4	75	<1	<1
06...	1126	10.0	392	7.8	23.0	--	6.5	76	--	--
06...	1127	20.0	392	7.8	22.5	--	6.6	77	--	--
06...	1130	30.0	392	7.8	21.5	--	6.7	76	--	--
06...	1133	40.0	392	7.7	18.5	--	6.0	64	--	--
06...	1135	50.0	392	7.6	18.5	--	6.0	64	--	--
06...	1139	60.0	393	7.8	18.5	--	6.3	67	--	--
06...	1142	70.0	393	7.6	17.5	--	6.1	64	--	--
06...	1145	80.0	393	7.5	16.5	--	5.8	59	--	--
06...	1148	90.0	393	7.5	16.5	--	5.4	55	--	--
06...	1150	100	394	7.4	15.5	--	4.6	46	--	--
06...	1153	110	395	7.3	15.0	--	4.0	40	--	--
06...	1156	120	396	7.2	14.5	--	3.6	34	--	--
06...	1158	130	397	7.2	14.0	--	3.6	35	--	--
06...	1200	140	398	7.2	14.0	--	3.6	36	--	--
06...	1202	148	399	7.2	14.0	--	3.3	32	--	--
AUG										
11...	1430	1.00	345	8.0	31.5	2.20	8.6	119	<1	260
11...	1433	10.0	346	7.9	30.0	--	8.6	116	--	--
11...	1436	20.0	354	7.8	29.5	--	7.4	99	--	--
11...	1439	30.0	356	7.7	29.0	--	6.9	91	--	--
11...	1442	40.0	384	7.3	28.5	--	3.0	39	--	--
11...	1445	50.0	416	7.1	27.0	--	.2	2	--	--
11...	1448	60.0	415	7.1	26.5	--	.4	5	--	--
11...	1451	70.0	392	7.1	25.0	--	.3	4	--	--
11...	1454	80.0	373	7.1	25.0	--	.2	2	--	--
11...	1457	90.0	373	7.0	24.5	--	.2	2	--	--
11...	1500	100	376	7.0	24.0	--	.2	2	--	--
11...	1503	110	389	6.9	23.5	--	.2	2	--	--
11...	1506	120	388	6.9	22.5	--	.2	2	--	--
11...	1509	130	399	6.9	21.0	--	.2	2	--	--
11...	1512	3.60	--	--	--	--	--	--	--	--
11...	1513	140	408	7.0	17.5	--	.2	2	--	--
11...	1515	150	408	7.0	16.5	--	.2	2	--	--

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295206098115501 CANYON LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)
FEB										
23...	190	26	43	19	11	.4	1.9	160	21	15
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	190	28	44	19	11	.3	1.9	160	26	16
MAY										
06...	--	--	--	--	--	--	--	--	--	--
06...	190	27	45	18	10	.3	1.8	160	24	15
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	190	27	45	18	11	.4	1.8	160	25	19
AUG										
11...	160	10	36	17	9.2	.3	2.0	150	19	16
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	190	13	46	19	11	.4	1.8	180	6.0	17

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295206098115501 CANYON LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
FEB									
23...	.2	10	217	.36	.46	.82	.070	<10	<1
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	.33	.47	.80	.080	10	0
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	10	224	.43	.67	1.1	.070	<10	2
MAY									
06...	--	--	--	--	--	--	--	--	--
06...	.1	9.3	219	.32	.67	.99	.030	<10	<1
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	.33	.53	.86	.040	10	0
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	11	227	.34	.54	.88	.030	30	40
AUG									
11...	.2	9.4	199	.11	.57	.68	.010	<10	<1
11...	--	--	--	.12	.68	.80	.010	0	0
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	.54	.62	1.2	.010	0	10
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	14	224	.11	.80	.91	.020	430	330

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295210098142001 CANYON LAKE SITE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
AUG							
11...	1047	1.00	350	7.9	30.0	8.1	109
11...	1049	10.0	350	7.9	29.5	8.1	108
11...	1051	20.0	350	7.9	29.0	8.0	105
11...	1053	30.0	362	7.6	29.0	5.8	76
11...	1055	40.0	392	7.3	28.0	2.2	29
11...	1057	50.0	420	7.1	25.5	.4	5
11...	1105	64.0	408	7.1	25.0	.4	5

295241098132101 CANYON LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
23...	1232	1.00	368	7.9	14.0	9.1	90
23...	1234	10.0	367	7.9	13.5	9.2	90
23...	1235	20.0	366	7.9	13.0	9.2	88
23...	1237	30.0	366	7.8	12.5	9.1	87
23...	1238	40.0	365	7.8	12.0	9.1	86
23...	1240	50.0	365	7.8	12.0	9.2	87
23...	1241	60.0	365	7.8	11.5	9.1	85
23...	1243	70.0	364	7.8	11.5	9.2	86
23...	1244	80.0	364	7.8	11.0	9.2	85
23...	1246	90.0	364	7.7	11.0	9.1	84
23...	1247	100	364	7.8	11.0	9.1	84
23...	1248	100	367	7.7	11.0	9.1	84
23...	1249	118	368	7.7	11.0	8.6	80
MAY							
06...	1320	1.00	394	7.8	23.5	8.6	101
06...	1322	10.0	394	7.9	23.5	8.6	101
06...	1324	20.0	394	7.8	23.0	8.6	100
06...	1326	30.0	400	7.8	19.0	7.9	85
06...	1327	40.0	400	7.6	18.5	6.9	73
06...	1328	50.0	400	7.6	18.0	6.9	73
06...	1329	60.0	402	7.6	17.0	7.0	72
06...	1330	70.0	402	7.6	17.0	6.8	70
06...	1331	80.0	402	7.6	16.5	6.3	64
06...	1332	90.0	402	7.5	16.0	5.3	54
06...	1333	100	405	7.4	16.0	5.2	53
06...	1334	110	405	7.2	14.5	3.1	30
06...	1335	120	405	7.1	14.0	2.6	25
06...	1337	130	405	7.1	14.0	.0	0
AUG							
11...	1018	1.00	345	7.9	30.0	8.4	114
11...	1019	10.0	345	7.9	29.5	8.3	111
11...	1020	20.0	346	7.9	29.0	8.0	105
11...	1022	30.0	361	7.6	28.5	5.3	70
11...	1024	40.0	405	7.1	27.5	.8	10
11...	1025	50.0	422	7.1	26.0	.3	4
11...	1027	60.0	417	7.1	25.5	.3	4
11...	1028	70.0	416	7.0	25.0	.3	4
11...	1030	80.0	406	7.0	24.5	.3	4
11...	1032	90.0	406	7.0	24.0	.4	5
11...	1034	100	482	6.8	23.5	.4	5
11...	1036	110	485	6.8	23.0	.4	5
11...	1038	120	485	6.8	22.5	.4	5
11...	1040	131	466	6.8	19.5	.4	4

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295240098152001 CANYON LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
23...	1302	1.00	388	7.9	13.5	10.1	99
23...	1304	10.0	387	7.9	13.0	10.1	97
23...	1306	20.0	387	7.9	13.0	10.1	97
23...	1309	30.0	385	7.8	12.0	9.9	93
23...	1311	40.0	385	7.8	11.5	9.8	92
23...	1314	50.0	385	7.8	11.5	9.7	91
23...	1316	60.0	385	7.8	11.5	9.5	89
23...	1318	70.0	385	7.8	11.0	9.4	87
23...	1320	83.0	385	7.8	11.0	9.3	86
MAY							
06...	1400	1.00	393	7.8	25.0	8.4	101
06...	1402	10.0	395	7.8	24.0	8.4	100
06...	1403	20.0	398	7.7	21.5	8.0	91
06...	1405	30.0	404	7.7	20.5	7.1	79
06...	1406	40.0	406	7.6	19.5	6.5	71
06...	1408	50.0	408	7.5	18.5	5.6	60
06...	1409	60.0	408	7.5	18.5	5.5	59
06...	1410	70.0	408	7.5	17.5	4.7	49
06...	1411	85.0	408	7.4	17.0	4.0	41
AUG							
11...	1114	1.00	350	7.9	30.0	8.1	109
11...	1116	10.0	352	7.9	29.5	7.8	104
11...	1118	20.0	353	7.9	29.5	7.6	101
11...	1120	30.0	366	7.6	26.0	5.7	71
11...	1122	40.0	391	7.3	28.0	2.5	32
11...	1124	50.0	441	7.1	26.5	.3	4
11...	1125	60.0	448	7.1	26.0	.4	5
11...	1126	75.0	442	7.1	25.5	.4	5

295349098143101 CANYON LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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							
23...	1358	1.00	388	7.9	13.0	10.0	96
23...	1359	10.0	388	7.9	12.5	10.0	95
23...	1400	20.0	388	7.8	12.0	9.8	92
23...	1402	30.0	388	7.8	11.5	9.8	92
23...	1403	40.0	388	7.8	11.5	9.8	92
23...	1405	50.0	388	7.8	11.5	9.7	91
23...	1406	60.0	388	7.8	11.0	9.7	90
23...	1408	70.0	388	7.8	11.0	9.6	89
23...	1409	80.0	388	7.8	11.0	9.6	89
23...	1410	91.0	394	7.8	11.0	9.3	86
MAY							
06...	1435	1.00	395	7.8	25.0	8.2	99
06...	1436	10.0	398	7.8	24.0	8.3	99
06...	1437	20.0	400	7.8	22.5	8.2	95
06...	1438	30.0	405	7.7	21.5	7.4	84
06...	1440	40.0	409	7.5	20.0	6.6	73
06...	1441	50.0	409	7.6	19.0	6.2	67
06...	1442	60.0	409	7.4	17.0	5.3	55
06...	1443	70.0	409	7.4	17.0	5.2	54
06...	1444	80.0	409	7.4	17.0	5.0	52
AUG							
11...	1136	1.00	352	7.9	30.5	7.9	107
11...	1137	10.0	352	7.9	30.0	7.9	107
11...	1139	20.0	352	7.9	29.5	7.9	105
11...	1141	30.0	365	7.6	29.0	7.6	100
11...	1143	40.0	404	7.2	28.0	.8	10
11...	1145	50.0	458	7.1	26.5	.3	4
11...	1147	60.0	472	7.0	26.0	.3	4
11...	1148	70.0	462	7.0	25.5	.3	4
11...	1149	80.0	462	7.0	25.0	.3	4
11...	1150	87.0	462	7.0	25.0	.4	5

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295329098151001 CANYON LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)
FEB										
23...	1328	1.00	392	7.9	13.5	2.40	10.0	98	<1	<1
23...	1330	10.0	391	7.9	13.5	--	10.1	99	--	--
23...	1332	20.0	390	7.9	13.0	--	10.1	97	--	--
23...	1335	30.0	388	7.8	12.5	--	10.0	95	--	--
23...	1337	40.0	386	7.8	12.0	--	9.8	92	--	--
23...	1340	50.0	386	7.8	11.5	--	9.7	91	--	--
23...	1342	60.0	386	7.8	11.5	--	9.6	90	--	--
23...	1345	70.0	386	7.8	11.0	--	9.6	89	--	--
23...	1347	80.0	386	7.8	11.0	--	9.6	89	--	--
23...	1349	92.0	414	7.7	11.0	--	9.1	84	--	--
MAY										
06...	1453	1.00	405	7.8	25.0	2.19	8.4	101	<1	<1
06...	1455	10.0	405	7.8	24.5	--	8.4	100	--	--
06...	1457	20.0	405	7.6	22.5	--	6.9	80	--	--
06...	1459	30.0	405	7.6	20.5	--	7.0	78	--	--
06...	1501	40.0	406	7.5	20.0	--	6.5	71	--	--
06...	1503	50.0	406	7.6	19.0	--	6.6	71	--	--
06...	1505	60.0	410	7.3	17.5	--	4.5	47	--	--
06...	1507	70.0	418	7.4	17.0	--	4.7	48	--	--
06...	1509	80.0	418	7.4	16.0	--	4.0	40	--	--
06...	1511	90.0	419	7.3	15.5	--	.0	0	--	--
06...	1512	99.0	419	7.3	15.5	--	.0	0	--	--
AUG										
11...	1338	1.00	352	7.9	30.5	1.80	8.3	112	<1	K13
11...	1341	10.0	353	7.9	30.0	--	8.2	110	--	--
11...	1343	20.0	365	7.7	29.5	--	5.9	79	--	--
11...	1346	30.0	370	7.6	28.5	--	5.2	68	--	--
11...	1348	40.0	392	7.3	28.5	--	2.9	38	--	--
11...	1351	50.0	470	7.1	26.5	--	.2	2	--	--
11...	1354	60.0	487	7.1	26.0	--	.2	2	--	--
11...	1357	70.0	487	7.1	26.0	--	.2	2	--	--
11...	1400	80.0	487	6.9	25.0	--	.3	4	--	--
11...	1403	90.0	528	6.8	24.5	--	.3	4	--	--
11...	1406	101	549	6.7	24.5	--	.3	4	--	--

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)
FEB									
23...	180	22	43	18	11	.4	1.9	160	23
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	200	16	47	19	11	.3	1.8	180	24
MAY									
06...	200	18	48	19	10	.3	1.8	180	24
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	200	21	49	19	11	.3	1.8	180	25
AUG									
11...	160	10	36	17	9.4	.4	1.8	150	19
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	270	0	81	16	8.4	.2	1.4	270	11

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295329098151001 CANYON LAKE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB									
23...	15	9.6	218	.39	.46	.85	.060	<10	<1
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	.34	.42	.76	.070	0	10
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	16	9.3	236	.60	.49	1.1	.060	<10	2
MAY									
06...	14	9.5	235	.40	1.10	1.5	.030	10	2
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	.37	.66	1.0	.050	70	10
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	.38	.86	1.2	.030	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	15	11	240	.39	.67	1.1	.050	50	40
AUG									
11...	13	9.5	196	.10	.62	.72	.010	<10	2
11...	--	--	--	.12	.65	.77	.010	10	0
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	.24	.75	.99	.010	530	90
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	12	14	292	.19	1.20	1.4	.030	28	220

295349098173701 CANYON LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
FEB										
23...	1421	1.00	407	7.9	15.0	.90	10.2	103	<1	<1
23...	1424	10.0	407	7.9	14.5	--	10.1	101	--	--
23...	1427	20.0	412	7.8	12.5	--	9.7	92	--	--
23...	1430	30.0	416	7.7	12.0	--	9.5	90	--	--
23...	1433	40.0	420	7.7	12.0	--	9.4	89	--	--
23...	1436	50.0	455	7.6	11.5	--	8.9	83	--	--
23...	1438	60.0	482	7.6	11.0	--	8.6	80	--	--
23...	1441	65.0	485	7.6	11.0	--	8.4	78	--	--
MAY										
06...	1546	1.00	426	7.8	25.5	.98	8.0	98	<1	<1
06...	1547	1.60	--	--	--	--	--	--	--	--
06...	1549	10.0	426	7.7	25.0	--	7.5	90	--	--
06...	1552	20.0	450	7.4	23.0	--	4.4	51	--	--
06...	1555	30.0	386	7.2	20.5	--	4.0	44	--	--
06...	1558	40.0	410	7.3	19.5	--	4.3	47	--	--
06...	1601	50.0	439	7.2	19.0	--	4.0	43	--	--
06...	1603	60.0	467	7.0	18.5	--	.0	0	--	--
06...	1606	66.0	467	7.0	18.0	--	.0	0	--	--
AUG										
11...	1203	1.00	354	8.0	31.5	1.20	8.3	115	<1	K2
11...	1208	10.0	356	7.9	30.5	--	7.9	107	--	--
11...	1213	20.0	403	7.3	30.0	--	2.0	27	--	--
11...	1218	30.0	444	7.1	29.5	--	.2	3	--	--
11...	1223	40.0	421	7.2	28.5	--	.6	8	--	--
11...	1228	50.0	471	7.1	27.0	--	.2	3	--	--
11...	1233	60.0	507	6.9	26.5	--	.2	3	--	--
11...	1235	1.90	--	--	--	--	--	--	--	--
11...	1238	68.0	517	6.9	26.0	--	.3	4	--	--

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295349098173701 CANYON LAKE SITE FC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)
FEB									
23...	190	23	46	19	11	.3	1.8	170	23
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	240	28	59	22	13	.4	1.5	210	26
MAY									
06...	210	19	54	18	9.6	.3	1.8	190	25
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	230	23	62	19	10	.3	1.7	210	25
AUG									
11...	160	14	36	18	9.7	.4	1.9	150	20
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	250	13	70	19	9.9	.3	1.7	240	7.0

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB									
23...	17	8.9	229	.39	.41	.80	.070	<10	<1
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	.49	.51	1.0	.080	20	0
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	17	8.1	273	.89	.55	1.4	.060	<10	2
MAY									
06...	12	10	245	.53	1.10	1.6	.040	<10	1
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	.54	1.10	1.6	.070	10	0
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	.68	.67	1.4	.040	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	.52	.68	1.2	.110	30	10
06...	--	--	--	--	--	--	--	--	--
06...	14	11	269	.56	1.60	2.2	.040	10	130
AUG									
11...	14	9.8	200	.11	.59	.70	.010	<10	<1
11...	--	--	--	.12	.56	.68	.020	0	0
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	.50	.72	1.2	--	20	30
11...	--	--	--	.36	.66	1.0	.010	0	20
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	15	15	282	.39	.92	1.3	.020	93	180

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295206098115501 CANYON LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	MAY 6,81	AUG 11,81
TIME	1123	1512
TOTAL CELLS/ML	220	3400
DIVERSITY: DIVISION	1.1	1.4
.CLASS	1.1	1.4
..ORDER	1.1	1.4
...FAMILY	1.1	1.8
....GENUS	1.1	1.8

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)				
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...COELASTRACEAE				
....COELASTRUM	--	-	330	10
..ZYGNEMATALES				
...DESMIDIACEAE				
....COSMARIUM	--	-	21	1
CHRYSOPHYTA				
.BACILLARIOPHYCEAE				
..PENNALES				
...FRAGILARIACEAE				
....SYNEDRA	--	-	520#	15
...NAVICULACEAE				
....NAVICULA	--	-	1300#	38
CRYPTOPHYTA (CRYPTOMONADS)				
.CRYPTOPHYCEAE				
..CRYPTOMONADALES				
...CRYPTOMONADACEAE				
....CRYPTOMONAS	51#	24	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)				
.CYANOPHYCEAE				
..CHROOCOCCALES				
...CHROOCOCCACEAE				
....ANACYSTIS	150#	71	--	-
..HORMOGONALES				
...NOSTOCACEAE				
....APHANIZOMENON	--	-	1200#	37
PYRRHOPHYTA (FIRE ALGAE)				
.DINOPHYCEAE				
..PERIDINIALES				
...GLENODINIACEAE				
....GLENODINIUM	13	6	--	-

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

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295349098173701 CANYON LAKE SITE FC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	MAY 6,81	AUG 11,81
TIME	1547	1235
TOTAL CELLS/ML	610	2200
DIVERSITY: DIVISION	1.7	1.1
.CLASS	1.7	1.1
..ORDER	2.0	1.1
...FAMILY	2.4	1.8
....GENUS	2.6	2.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)				
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...CHARACIACEAE				
....SCHROEDERIA	13	2	--	-
...COELASTRACEAE				
....COELASTRUM	--	-	450#	20
...OOCYSTACEAE				
....ANKISTRODESMUS	--	-	1200#	55
....TETRAEDRON	13	2	14	1
...SCENEDESMACEAE				
....CRUCIGENIA	26	4	--	-
....SCENEDESMUS	150#	26	--	-
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS	39	6	--	-
CHRYSOPHYTA				
.BACILLARIOPHYCEAE				
..CENTRALES				
...COSCINODISCACEAE				
....CYCLOTELLA	13	2	--	-
..PENNALES				
...FRAGILARIACEAE				
....SYNEDRA	--	-	56	2
...NAVICULACEAE				
....NAVICULA	--	-	98	4
...NITZSCHIACEAE				
....NITZSCHIA	13	2	--	-
CRYPTOPHYTA (CRYPTOMONADS)				
.CRYPTOPHYCEAE				
..CRYPTOMONADALES				
...CRYPTOCHRYSIDACEAE				
....CHROOMONAS	100#	17	--	-
...CRYPTOMONADACEAE				
....CRYPTOMONAS	26	4	42	2
CYANOPHYTA (BLUE-GREEN ALGAE)				
.CYANOPHYCEAE				
..CHROOCOCCALES				
...CHROOCOCCACEAE				
....ANACYSTIS	210#	34	--	-
..HORMOGONALES				
...OSCILLATORIACEAE				
....LYNGBYA	--	-	200	9
....OSCILLATORIA	--	-	140	6
PYRRHOPHYTA (FIRE ALGAE)				
.DINOPHYCEAE				
..PERIDINIALES				
...PERIDINIACEAE				
....PERIDINIUM	--	-	14	1

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

08167800 GUADALUPE RIVER AT SATTLER, TX

LOCATION.--Lat 29°51'32", long 98°10'47", Comal County, Hydrologic Unit 12100202, on right bank 200 ft (61 m) upstream from Horseshoe Falls, 0.8 mi (1.3 km) north of Sattler, 1.8 mi (2.9 km) downstream from Canyon Dam, 2.3 mi (3.7 km) upstream from Heiser Hollow, 11.2 mi (18.0 km) north of New Braunfels, and at mile 301.2 (484.6 km).

DRAINAGE AREA.--1,436 mi^2 (3,719 km^2), of which 1,432 mi^2 (3,709 km^2) is above Canyon Dam.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 742.24 ft (226.235 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Water-discharge records good. Flow completely regulated since July 21, 1962, by Canyon Lake (station 08167700) 1.8 mi (2.9 km) upstream. Small diversions above station for irrigation. Gage-height telemeter located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years (water years 1962-81) since regulation began at Canyon Lake, 407 ft^3/s (11.53 m^3/s), 294,900 acre-ft/yr (364 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft^3/s (589 m^3/s) Oct. 29, 1960, gage height, 12.20 ft (3.719 m). Maximum discharge since closure of Canyon Dam on July 21, 1962, 5,850 ft^3/s (166 m^3/s) Aug. 5, 1978, gage height, 8.31 ft (2.533 m); no flow July 31 to Aug. 6, 1962 (result of closure of Canyon Dam), and part of Jan. 29, 30, Feb. 1, 1965 (result of closure while constructing present control).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1869 (stage unknown) has not been exceeded since that date; flood in July 1900 (stage unknown) exceeded 39 ft (11.9 m); maximum stage since at least 1904, 39 ft (11.9 m) in July 1932 and June 1935, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,490 ft^3/s (155 m^3/s) June 18 at 1200 hours, gage height, 8.21 ft (2.502 m); minimum, 35 ft^3/s (0.99 m^3/s) June 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	309	197	197	197	309	685	908	646	515	772	809
2	197	309	197	197	197	309	685	916	649	769	772	809
3	269	309	197	197	200	309	685	916	649	776	772	809
4	355	309	197	197	200	305	685	916	649	749	772	809
5	355	309	197	197	200	304	685	916	649	786	772	809
6	355	309	197	197	200	304	685	916	649	791	772	809
7	355	309	197	197	200	304	685	916	649	2770	772	809
8	355	309	197	197	200	304	685	916	649	5290	764	602
9	355	309	197	197	228	375	685	916	649	5250	756	237
10	355	244	197	195	304	509	685	916	649	2960	769	237
11	355	197	197	195	304	512	685	908	653	782	807	237
12	355	197	197	195	304	512	685	818	441	781	818	237
13	355	197	197	195	304	519	685	664	237	781	818	237
14	275	197	197	195	304	528	685	638	141	1820	818	237
15	200	197	197	195	304	523	685	621	139	1780	822	237
16	200	197	197	197	304	518	685	616	245	782	828	237
17	200	197	197	197	304	596	685	614	1930	781	828	237
18	201	197	197	197	304	685	685	614	4980	781	828	237
19	200	197	197	197	304	685	685	614	5420	781	828	237
20	364	197	197	197	304	685	784	569	5390	781	828	241
21	677	197	197	197	304	685	876	635	5360	781	828	241
22	677	197	197	197	304	685	896	635	5360	781	828	241
23	677	197	197	197	306	685	914	635	5340	781	828	241
24	677	197	197	197	309	685	906	642	5320	781	829	241
25	677	197	197	197	309	685	906	642	5270	781	828	241
26	677	197	197	197	309	678	906	636	5250	774	828	241
27	677	197	197	197	309	677	906	635	5290	772	828	241
28	588	197	197	197	309	677	906	635	5340	772	828	241
29	304	197	197	197	---	677	906	635	4510	772	821	241
30	304	197	197	197	---	681	906	642	1170	772	809	241
31	309	---	197	197	---	685	---	642	---	772	809	---
TOTAL	12097	6965	6107	6095	7625	16595	22827	22842	74273	39045	24980	11523
MEAN	390	232	197	197	272	535	761	737	2476	1260	806	384
MAX	677	309	197	197	309	685	914	916	5420	5290	829	809
MIN	197	197	197	195	197	304	685	569	139	515	756	237
AC-FT	23990	13820	12110	12090	15120	32920	45280	45310	147300	77450	49550	22860

CAL YR 1980 TOTAL 70443 MEAN 192 MAX 677 MIN 48 AC-FT 139700
WTR YR 1981 TOTAL 250974 MEAN 688 MAX 5420 MIN 139 AC-FT 497800

08167800 GUADALUPE RIVER AT SATTLER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
FEB 23...	1551	296	389	7.9	11.5	0	1.1	10.7	100	.4	190
MAY 06...	1735	916	413	7.6	14.5	5	1.7	10.8	106	.6	190
AUG 11...	1637	818	385	7.3	23.5	5	2.5	9.2	110	.7	200

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 (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
FEB 23...	26	43	19	11	.4	1.9	160	24	18	.2	10
MAY 06...	23	46	19	11	.3	2.0	170	22	16	.2	10
AUG 11...	15	55	14	6.5	.2	2.2	180	20	12	.6	13

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
FEB 23...	223	7	2	.26	.010	.27	.060	.21	.27	.040	9.3
MAY 06...	228	0	0	.51	.020	.53	.070	.62	.69	.030	6.6
AUG 11...	231	36	12	.27	.030	.30	.160	.45	.61	.020	3.5

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)
FEB 23...	1551	1	30	<1	0	<10	30
MAY 06...	1735	1	30	<1	0	<10	10
AUG 11...	1637	2	31	<1	0	<10	38

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 23...	<10	<1	.1	0	0	<3
MAY 06...	<10	2	.1	0	1	<3
AUG 11...	<10	85	.0	0	0	4

08168500 GUADALUPE RIVER ABOVE COMAL RIVER AT NEW BRAUNFELS, TX

LOCATION.--Lat 29°42'53", long 98°06'35", Comal County, Hydrologic Unit 12100202, on right bank at New Braunfels, 1.1 mi (1.8 km) upstream from Comal River, 21.9 mi (35.2 km) downstream from Canyon Lake, and at mile 281.1 (452.3 km).

DRAINAGE AREA.--1,518 mi² (3,932 km²).

PERIOD OF RECORD.--December 1927 to current year.

REVISED RECORDS.--WSP 898: 1935. WSP 1562: 1932. WSP 2123: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 586.65 ft (178.811 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Small diversions for irrigation below station 08167800 and above this station. Since July 21, 1962, flow is largely regulated by Canyon Lake (station 08167700) 21.9 mi (35.2 km) upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--34 years (water years 1929-62) prior to regulation by Canyon Lake, 372 ft³/s (10.54 m³/s), 269,500 acre-ft/yr (332 hm³/yr); 19 years (water year 1963-81) regulated, 501 ft³/s (14.19 m³/s), 363,000 acre-ft/yr (448 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 101,000 ft³/s (2,860 m³/s) June 15, 1935, gage height, 32.95 ft (10.043 m); no flow July 8, 9, July 17 to Aug. 20, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 38 ft (11.6 m) July 8, 1869, and in December 1913, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,060 ft³/s (200 m³/s) June 13 at 2200 hours, gage height, 7.57 ft (2.307 m); minimum, 223 ft³/s (6.32 m³/s) Jan. 12-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	251	338	287	238	243	341	749	1030	722	563	918	974
2	251	338	283	230	237	333	750	1070	720	988	915	966
3	251	337	275	229	234	336	759	1080	726	987	911	968
4	369	334	271	229	247	340	751	1070	774	976	911	966
5	373	333	275	229	256	338	749	1070	807	992	907	954
6	373	336	269	231	257	338	749	1060	767	1020	906	953
7	373	338	269	229	257	339	749	1060	760	1990	906	942
8	373	338	280	230	257	337	749	1060	756	5580	905	907
9	373	335	289	230	258	334	749	1050	752	5560	905	346
10	373	318	287	229	341	548	749	1040	749	4060	909	325
11	373	242	281	229	351	563	749	1040	828	999	956	325
12	373	240	281	224	348	579	749	1010	1180	974	983	325
13	368	240	276	225	346	621	749	751	1590	966	989	318
14	356	241	275	227	345	631	746	729	1110	1540	991	318
15	382	243	275	223	345	631	743	688	601	2310	991	319
16	277	280	271	223	345	631	747	688	856	969	989	318
17	273	271	269	223	345	667	742	679	1560	961	979	318
18	296	267	269	223	345	817	743	674	5250	963	989	316
19	279	262	259	255	345	814	739	669	5920	955	983	316
20	280	259	253	264	339	814	797	614	5860	953	979	312
21	722	257	251	258	341	810	940	697	5820	951	979	312
22	729	260	251	253	338	803	991	698	5780	951	978	305
23	729	257	251	251	338	799	1080	694	5740	947	975	305
24	721	257	251	249	338	792	1060	711	5700	942	968	305
25	718	273	245	248	338	794	1060	719	5680	941	970	305
26	718	306	242	245	338	794	1050	718	5690	943	966	305
27	718	308	241	245	337	792	1040	718	5680	936	966	305
28	716	302	240	245	331	793	1040	722	5640	932	966	303
29	368	295	240	245	---	792	1030	738	5320	930	968	303
30	338	293	240	241	---	792	1030	729	1860	926	1000	302
31	338	---	240	240	---	784	---	722	---	923	1030	---
TOTAL	13432	8698	8186	7340	8740	19097	25328	25998	85198	44628	29688	14536
MEAN	433	290	264	237	312	616	844	839	2840	1440	958	485
MAX	729	338	289	264	351	817	1080	1080	5920	5580	1030	974
MIN	251	240	240	223	234	333	739	614	601	563	905	302
CFSM	.29	.19	.17	.16	.21	.41	.56	.55	1.87	.95	.63	.32
IN.	.33	.21	.20	.18	.21	.47	.62	.64	2.09	1.09	.73	.36
AC-FT	26640	17250	16240	14560	17340	37880	50240	51570	169000	88520	58890	28830

CAL YR 1980	TOTAL 89452	MEAN 244	MAX 731	MIN 75	CFSM .16	IN 2.19	AC-FT 177400		
WTR YR 1981	TOTAL 290869	MEAN 797	MAX 5920	MIN 223	CFSM .53	IN 7.13	AC-FT 576900		

08169000 COMAL RIVER AT NEW BRAUNFELS, TX

LOCATION.--Lat 29°42'21", long 98°07'20", Comal County, Hydrologic Unit 12100202, on right bank 200 ft (61 m) upstream from San Antonio Street viaduct in New Braunfels and 1.1 mi (1.8 km) upstream from mouth.

DRAINAGE AREA.--130 mi² (337 km²). Normal flow of river comes from springs; drainage area not applicable.

PERIOD OF RECORD.--1882 to current year (1882 to November 1927, discharge measurements only).

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Concrete control since Oct. 1, 1955. Datum of gage is 582.80 ft (177.637 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. The flow from Comal Springs emerges from the Edwards and associated limestones in the Balcones Fault Zone. Except during periods of rainfall, flow of river is primarily from Comal Springs about 1.0 mi (1.6 km) upstream. Diurnal fluctuations from steam powerplant 0.5 mi (0.8 km) upstream. Flow is affected at times by discharge from flood-detention pools of five floodwater-retarding structures with combined detention capacity of 17,580 acre-ft (21.7 hm³). These structures control runoff from 74.6 mi² (193 km²). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--49 years (water years 1933-81), 299 ft³/s (8.468 m³/s), 216,600 acre-ft/yr (267 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,800 ft³/s (1,720 m³/s) May 11, 1972, gage height, 36.55 ft (11.140 m), from floodmark, from rating curve extended above 13,000 ft³/s (368 m³/s) on basis of contracted-opening measurements on Blieders and Dry Comal Creeks and unit rainfall-runoff studies; no flow from Comal Springs from June 13 to Nov. 3, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood information begins with flood of July 8, 1869, which reached a stage of 36.91 ft (11.250 m), from painted and dated marks in old Remmert Brewery 0.5 mi (0.8 km) downstream; the flood of Oct. 17, 1870, reached a stage of 37.65 ft (11.476 m) at same site (probably some backwater from Guadalupe River).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft³/s (31.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 2	0700	1,190	33.7	5.83	1.777
June 13	2100	2,520	71.4	8.00	2.438
June 16	1100	*3,810	108	9.88	3.011

Minimum daily discharge, 250 ft³/s (7.08 m³/s) Oct. 10, 14-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	264	270	286	304	299	299	286	290	301	353	317	322
2	258	266	286	299	292	294	286	538	304	360	312	317
3	254	266	282	299	294	294	286	350	344	350	312	322
4	258	270	282	299	304	294	278	322	439	350	304	322
5	258	266	286	299	304	290	282	308	335	391	308	322
6	254	270	286	299	299	290	282	304	312	360	304	322
7	254	270	286	299	299	294	278	299	317	350	304	317
8	254	270	299	299	299	294	278	294	304	345	304	322
9	254	266	294	299	299	294	278	294	304	345	304	317
10	250	270	290	294	304	290	278	294	304	345	308	317
11	254	266	290	294	299	294	282	294	343	350	304	317
12	254	266	290	294	299	308	278	290	423	350	299	317
13	254	266	290	299	299	317	278	290	934	345	304	317
14	250	266	290	299	299	304	278	294	664	345	304	322
15	250	270	294	299	299	299	278	290	380	345	304	322
16	250	299	290	294	299	294	274	294	1510	335	308	317
17	254	299	294	299	299	294	274	290	503	335	308	308
18	352	295	294	299	299	294	274	286	434	335	308	312
19	351	274	294	345	299	290	278	278	412	330	322	312
20	270	274	294	350	299	294	282	282	402	330	312	312
21	270	274	294	312	294	294	270	278	390	335	312	312
22	270	274	308	304	294	290	274	270	385	330	317	308
23	262	274	299	299	290	294	369	278	380	330	312	312
24	266	274	304	299	290	290	308	304	375	322	317	317
25	266	286	299	294	290	290	304	286	370	322	312	308
26	270	317	299	294	290	290	312	282	365	322	312	312
27	270	290	304	299	290	290	294	274	365	326	312	308
28	270	286	304	294	294	294	290	278	360	317	308	308
29	266	286	304	299	---	290	282	484	355	317	312	304
30	270	286	304	294	---	290	288	366	360	322	346	304
31	270	---	304	299	---	290	---	326	---	315	344	---
TOTAL	8247	8306	9120	9349	8315	9123	8579	9607	12974	10507	9654	9449
MEAN	266	277	294	302	297	294	286	310	432	339	311	315
MAX	352	317	308	350	304	317	369	538	1510	391	346	322
MIN	250	266	282	294	290	290	270	270	301	315	299	304
CFSM	2.05	2.13	2.26	2.32	2.29	2.26	2.20	2.39	3.32	2.61	2.39	2.42
IN.	2.36	2.38	2.61	2.68	2.38	2.61	2.45	2.75	3.71	3.01	2.76	2.70
AC-FT	16360	16470	18090	18540	16490	18100	17020	19060	25730	20840	19150	18740

CAL YR 1980 TOTAL 104474 MEAN 285 MAX 398 MIN 184 CFSM 2.19 IN 29.90 AC-FT 207200
WTR YR 1981 TOTAL 113230 MEAN 310 MAX 1510 MIN 250 CFSM 2.39 IN 32.40 AC-FT 224600

08169580 GUADALUPE RIVER BELOW NEW BRAUNFELS, TX

LOCATION.--Lat 29°40'00", long 98°04'14", Comal County, Hydrologic Unit 12100202, in Lake Dunlap, 8 mi (13 km) southeast of New Braunfels, and 15 mi (24 km) downstream from Interstate Highway 35 bridge.

PERIOD OF RECORD.--Periodic chemical and biochemical analyses: January 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH FIELD (UNITS)	TEMPERATURE, WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)
OCT 09...	0857	490	7.8	21.0	7.0	80	1.3	230	16
JAN 09...	1255	500	7.9	17.0	9.7	100	2.4	230	14
MAY 04...	1517	450	8.2	22.0	8.3	96	1.4	210	17
JUN 25...	0830	424	8.2	21.0	8.2	91	.5	200	20
JUL 29...	1350	472	7.6	27.0	8.0	101	2.6	220	24
SEP 10...	1245	504	7.7	26.0	7.1	89	1.2	240	8

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT 09...	61	18	15	.4	1.9	210	21	20	.2
JAN 09...	64	18	16	.5	1.7	220	28	24	.3
MAY 04...	55	17	12	.4	2.1	190	25	14	.2
JUN 25...	52	17	11	.3	1.8	180	27	17	.2
JUL 29...	65	15	11	.3	1.7	200	12	19	.2
SEP 10...	69	16	12	.4	2.0	230	13	18	.2

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)
OCT 09...	10	273	.72	.010	.73	.070	.57	.64	.120
JAN 09...	11	295	1.2	.010	1.2	.140	1.2	1.3	.130
MAY 04...	11	251	.74	.020	.76	.110	.46	.57	.050
JUN 25...	11	245	.49	.020	.51	.100	.89	.99	.050
JUL 29...	13	257	.64	.020	.66	.130	.97	1.1	.040
SEP 10...	13	294	--	<.020	.74	.140	.53	.67	.060

08170000 SAN MARCOS RIVER SPRING FLOW AT SAN MARCOS, TX

LOCATION.--Lat 29°52'06", long 97°55'38", Hays County, Hydrologic Unit 12100203, on left bank 0.7 mi (1.1 km) downstream from bridge on Interstate Highway 35 and U.S. Highway 81, 1.2 mi (1.9 km) southeast of courthouse in San Marcos, and 2.1 mi (3.4 km) upstream from Blanco River.

DRAINAGE AREA.--93.0 mi² (240.9 km²). Normal flow of river comes from springs, drainage area of stream not applicable.

PERIOD OF RECORD.--May 1956 to current year. June 1915 to January 1916, March 1916 to September 1921, and May to September 1956, published as San Marcos River at San Marcos; records include some surface runoff. Periodic measurements of spring flow were made at this location outside periods of records since Nov. 14, 1894, and are published as miscellaneous measurements.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 536.82 ft (163.623 m) National Geodetic Vertical Datum of 1929. June 10, 1915, to Jan. 19, 1916, nonrecording gage at site 1.2 mi (1.9 km) upstream, and Mar. 13, 1916, to Sept. 7, 1921, water-stage recorder near present site, datum relations unknown.

REMARKS.--Records good. Flow slightly regulated by utilities dam about 1.5 mi (2.4 km) upstream. Entire flow of river is from San Marcos Springs, about 1.8 mi (2.9 km) upstream, except during period of local runoff. Springs emerge from the Edwards and associated limestones in the Balcones Fault Zone. Small diversion for operation of State fish hatchery, some of which is returned above gage. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1957-81), 168 ft³/s (4.758 m³/s), 121,700 acre-ft/yr (150 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily spring discharge (estimated), 350 ft³/s (9.91 m³/s) June 20, 1981; maximum discharge, 76,600 ft³/s (2,170 m³/s) May 15, 1970, gage height, 35.12 ft (10.705 m); minimum daily spring discharge, 46 ft³/s (1.30 m³/s) Aug. 15, 16, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1913, 38.6 ft (11.77 m) Sept. 10, 1921 (from floodmark, backwater from Blanco River), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum daily spring discharge (estimated) 350 ft³/s (9.91 m³/s) June 20; maximum gage height, 31.76 ft (9.680 m) June 13 at 2100 hours (flood runoff), from floodmark; minimum daily spring discharge, 117 ft³/s (3.31 m³/s) Mar. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	126	122	127	132	121	132	140	142	316	258	223
2	136	128	125	124	130	120	134	140	144	312	258	221
3	137	127	131	123	129	120	134	140	144	308	256	223
4	137	127	135	124	127	120	132	140	145	306	254	222
5	138	128	133	122	126	121	131	140	147	306	252	219
6	136	127	131	123	126	121	131	140	145	306	250	218
7	134	127	130	121	127	121	131	139	145	304	250	217
8	132	129	130	121	126	119	129	140	145	303	248	216
9	131	129	129	121	125	117	129	140	145	302	247	216
10	130	128	125	123	124	117	130	140	144	298	245	216
11	130	128	125	123	121	119	131	140	154	294	240	218
12	129	126	127	122	122	124	131	139	181	294	240	218
13	130	125	126	121	123	127	131	139	208	294	241	216
14	130	124	129	121	125	130	130	137	235	292	238	216
15	132	124	129	122	127	131	132	140	262	289	239	213
16	133	125	131	120	128	130	134	140	289	285	238	209
17	133	126	131	120	127	131	135	140	316	284	236	208
18	135	125	132	120	125	131	136	140	325	281	235	209
19	135	124	133	129	126	131	137	138	345	280	233	210
20	135	124	132	130	126	134	136	137	350	279	231	208
21	133	122	131	130	124	135	136	137	345	273	230	210
22	134	125	131	131	123	134	135	138	340	271	229	208
23	136	125	132	130	124	132	135	140	335	271	230	206
24	133	124	129	130	123	132	138	140	330	268	232	206
25	131	122	128	130	123	132	140	141	328	267	231	206
26	131	124	127	130	123	133	141	143	326	266	230	205
27	131	125	129	130	121	133	140	141	324	268	228	204
28	128	125	130	134	122	134	140	141	322	266	229	202
29	129	123	130	133	---	132	140	141	320	263	229	201
30	127	124	128	133	---	132	140	143	318	262	224	200
31	128	---	129	134	---	131	---	144	---	258	224	---
TOTAL	4111	3766	4010	3902	3505	3945	4031	4338	7399	8866	7405	6364
MEAN	133	126	129	126	125	127	134	140	247	286	239	212
MAX	138	129	135	134	132	135	141	144	350	316	258	223
MIN	127	122	122	120	121	117	129	137	142	258	224	200
AC-FT	8150	7470	7950	7740	6950	7820	8000	8600	14680	17590	14690	12620

CAL YR 1980 TOTAL 48380 MEAN 132 MAX 162 MIN 111 AC-FT 95960
WTR YR 1981 TOTAL 61642 MEAN 169 MAX 350 MIN 117 AC-FT 122300

08171000 BLANCO RIVER AT WIMBERLEY, TX

LOCATION.--Lat 29°59'39", long 98°05'19", Hays County, Hydrologic Unit 12100203, on left bank at downstream side of highway, near left end of bridge on Ranch Road 12, 0.3 mi (0.5 km) southeast of Wimberley, 2,200 ft (671 m) downstream from Cypress Creek, and at mile 29.0 (46.7 km).

DRAINAGE AREA.--355 mi^2 (919 km^2).

PERIOD OF RECORD.--August 1924 to September 1926, June 1928 to current year.

REVISED RECORDS.--WSP 1562: 1929, 1930-31(M), 1935-36(M), 1938(M), 1941-42(M), 1947(M), 1949(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 797.23 ft (242.996 m) National Geodetic Vertical Datum of 1929. Aug. 6, 1924, to Sept. 30, 1926, nonrecording gage at site 1,030 ft (314 m) upstream at datum 5.00 ft (1.524 m) higher. Recording gage June 6, 1928, to June 12, 1975, at site 1,000 ft (305 m) upstream at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records good. Numerous small diversions above station. Flow is affected at times by discharge from flood-detention pool of a floodwater-retarding structure with a detention capacity of 185 acre-ft (228,000 m^3). This structure controls runoff from 0.61 mi^2 (1.58 km^2) in the Town Creek drainage basin. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--55 years (water years 1925-26, 1929-81), 124 ft^3/s (3.512 m^3/s), 4.74 in/yr (120 mm/yr), 89,840 acre-ft/yr (111 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 113,000 ft^3/s (3,200 m^3/s) May 28, 1929, gage height, 33.9 ft (10.33 m), present site and datum, from floodmarks, from rating curve extended above 30,000 ft^3/s (850 m^3/s) on basis of slope-area measurements of 95,000 and 113,000 ft^3/s (2,690 and 3,200 m^3/s); minimum, 0.6 ft^3/s (0.017 m^3/s) Aug. 16, 1956.
Maximum stage since at least 1869, that of May 28, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1869 reached a stage of 26 ft (7.9 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft^3/s (51.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 16	1215	5,700	161	9.53	2.905	June 13	1845	10,000	283	12.07	3.679
Mar. 4	0930	2,530	71.6	7.19	2.192	June 14	2015	9,440	267	11.75	3.581
June 11	1430	7,260	206	10.49	3.197	June 16	1130	*17,900	507	15.62	4.761
June 12	1215	7,320	207	10.53	3.210						

Minimum daily discharge, 25 ft^3/s (0.71 m^3/s) Oct. 12-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	41	58	40	46	66	139	98	66	362	91	68
2	34	39	55	38	39	57	127	87	68	331	89	67
3	32	37	52	38	39	61	121	87	72	300	86	68
4	30	35	52	38	45	760	110	86	70	280	86	68
5	31	33	52	37	51	315	100	86	535	370	83	66
6	30	35	49	38	52	197	90	87	243	313	83	61
7	28	35	49	38	54	173	90	84	155	296	86	54
8	28	35	58	38	54	165	90	81	123	272	83	56
9	27	36	60	41	54	146	89	77	104	249	83	51
10	27	34	58	39	59	148	88	73	98	231	83	50
11	26	32	55	37	52	157	83	67	1300	214	83	50
12	25	34	53	37	54	154	81	68	2290	201	83	49
13	25	33	50	36	56	231	80	68	2410	187	81	50
14	25	33	49	40	57	238	78	66	3040	181	78	50
15	32	34	47	36	57	220	75	66	1760	170	75	53
16	922	58	46	36	57	207	73	69	5490	163	75	55
17	231	56	46	35	57	202	72	62	1980	153	75	54
18	100	49	46	35	58	191	75	57	1410	146	75	52
19	65	52	44	53	58	188	79	54	1130	143	78	51
20	61	52	40	58	58	181	82	52	942	133	77	51
21	58	47	39	54	60	181	80	52	812	130	77	50
22	54	47	39	52	58	176	78	52	709	126	75	49
23	52	47	40	51	52	158	102	52	628	120	74	52
24	49	43	42	50	52	148	102	66	560	117	73	52
25	47	55	39	49	52	153	113	73	519	114	71	50
26	45	73	41	49	51	149	100	61	615	114	71	48
27	45	67	42	48	50	149	97	61	542	108	69	48
28	43	63	40	46	49	144	95	58	456	105	71	47
29	43	62	41	45	---	146	96	57	408	105	71	47
30	41	61	40	44	---	199	101	55	390	100	73	46
31	41	---	40	43	---	156	---	55	---	94	76	---
TOTAL	2333	1358	1462	1319	1481	5816	2786	2117	28925	5928	2434	1613
MEAN	75.3	45.3	47.2	42.5	52.9	188	92.9	68.3	964	191	78.5	53.8
MAX	922	73	60	58	60	760	139	98	5490	370	91	68
MIN	25	32	39	35	39	57	72	52	66	94	69	46
CFSM	.21	.13	.13	.12	.15	.53	.26	.19	2.72	.54	.22	.15
IN.	.24	.14	.15	.14	.16	.61	.29	.22	3.03	.62	.26	.17
AC-FT	4630	2690	2900	2620	2940	11540	5530	4200	57370	11760	4830	3200

CAL YR 1980	TOTAL	20529	MEAN	56.1	MAX	922	MIN 18	CFSM .16	IN 2.15	AC-FT	40720
WTR YR 1981	TOTAL	57572	MEAN	158	MAX	5490	MIN 25	CFSM .45	IN 6.03	AC-FT	114200

08171300 BLANCO RIVER NEAR KYLE, TX

LOCATION.--Lat 29°58'45", long 97°54'35", Hays County, Hydrologic Unit 12100203, on left bank 800 ft (240 m) downstream from Tarbutton Ranch House (Hatchett Ranch), 2.2 mi (3.5 km) southwest of Kyle, 4.2 mi (6.8 km) downstream from Halifax Creek, and 6.3 mi (10.1 km) upstream from bridge on U.S. Highway 81.

DRAINAGE AREA.--412 mi^2 (1,067 km^2).

PERIOD OF RECORD.--May 1956 to current year.

REVISED RECORDS.--WSP 1923: 1957-58, 1960(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 620.12 ft (189.013 m) Corps of Engineers datum.

REMARKS.--Records good. Small diversions above station for irrigation. Most of the low flow of the Blanco River enters the Edwards and associated limestones in the Balcones Fault Zone which crosses the basin upstream from this station and below the station at Wimberley. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08171000. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1957-81), 153 ft^3/s (4.333 m^3/s), 5.04 in/yr (128 mm/yr), 110,800 acre-ft/yr (137 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,000 ft^3/s (2,780 m^3/s) May 2, 1958, gage height, 36.3 ft (11.06 m); from floodmark, from rating curve extended above 37,000 ft^3/s (1,050 m^3/s) on basis of slope-area measurement of 139,000 ft^3/s (3,940 m^3/s) and slope-conveyance study; no flow at times in 1956-57, 1963-65, 1967, 1971, and 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 40 ft (12.2 m) in May 1929, from information by local residents, discharge, 139,000 ft^3/s (3,940 m^3/s). Flood of Sept. 11, 1952, reached a stage of 38.0 ft (11.58 m), discharge, 115,000 ft^3/s (3,260 m^3/s).

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 16	1900	3,050	86.4	a11.38	3.469	June 13	2045	*29,000	821	23.96	7.303
June 11	1445	8,910	252	16.00	4.877	June 14	2330	10,300	292	16.77	5.111
June 12	1530	9,050	256	16.08	4.901	June 16	1500	22,400	634	21.88	6.669

a From floodmark.

Minimum discharge, 12 ft^3/s (0.34 m^3/s) Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	20	40	32	37	48	109	65	44	441	96	52
2	27	19	38	32	36	54	102	63	70	404	92	48
3	24	19	36	31	34	47	100	61	201	369	90	56
4	21	19	36	30	37	536	98	59	123	342	87	49
5	19	18	38	30	49	365	92	56	402	427	84	46
6	18	18	37	31	49	187	86	54	308	419	81	45
7	16	18	36	31	49	155	84	52	167	359	78	43
8	16	18	40	30	48	142	84	50	121	335	76	45
9	15	19	55	32	48	130	82	50	96	305	74	42
10	14	19	51	30	51	118	81	45	85	280	72	39
11	14	18	47	29	50	129	79	43	2410	260	70	39
12	13	17	44	28	47	128	76	43	2890	243	68	39
13	13	17	43	28	50	173	74	44	7150	230	66	38
14	13	17	43	30	51	216	72	43	3900	215	64	40
15	13	17	43	29	50	188	70	42	2920	204	63	44
16	664	28	41	28	49	175	69	48	7010	192	61	44
17	336	38	40	27	49	164	66	44	2690	181	60	43
18	96	29	40	26	48	159	72	40	1820	172	67	41
19	56	26	39	38	47	150	68	36	1410	164	70	40
20	41	26	37	58	45	140	64	33	1170	155	63	39
21	39	26	35	50	44	139	63	33	992	148	63	39
22	36	25	35	46	47	134	61	34	863	141	60	38
23	33	27	35	44	43	125	90	35	758	134	58	36
24	30	26	35	43	42	113	77	52	678	127	57	35
25	27	28	33	43	42	115	96	52	619	123	56	33
26	26	45	33	42	43	116	82	46	673	118	54	32
27	26	42	34	40	41	112	72	42	654	115	52	31
28	24	42	34	39	40	111	68	40	549	109	50	30
29	22	42	33	38	---	110	64	42	493	107	51	29
30	22	41	33	37	---	144	65	44	462	103	60	29
31	21	---	32	35	---	126	---	43	---	98	72	---
TOTAL	1769	764	1196	1087	1266	4749	2366	1434	41728	7020	2115	1204
MEAN	57.1	25.5	38.6	35.1	45.2	153	78.9	46.3	1391	226	68.2	40.1
MAX	664	45	55	58	51	536	109	65	7150	441	96	56
MIN	13	17	32	26	34	47	61	33	44	98	50	29
CFSM	.14	.06	.09	.09	.11	.37	.19	.11	3.38	.55	.17	.10
IN.	.16	.07	.11	.10	.11	.43	.21	.13	3.77	.63	.19	.11
AC-FT	3510	1520	2370	2160	2510	9420	4690	2840	82770	13920	4200	2390

CAL YR 1980 TOTAL 14415.0 MEAN 39.4 MAX 664 MIN 3.0 CFSM .10 IN 1.30 AC-FT 28590
WTR YR 1981 TOTAL 66698.0 MEAN 183 MAX 7150 MIN 13 CFSM .44 IN 6.02 AC-FT 132300

08172000 SAN MARCOS RIVER AT LULING, TX

LOCATION.--Lat 29°39'54", long 97°38'59", Caldwell-Guadalupe County line, Hydrologic Unit 12100203, on left bank 390 ft (119 m) downstream from bridge on State Highway 80, 1.0 mi (1.6 km) south of U.S. Post Office at Luling, and 9.4 mi (15.1 km) upstream from Plum Creek.

DRAINAGE AREA.--838 mi² (2,170 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 958: 1940. WSP 1312: 1940(M), 1945(M), 1947(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 322.05 ft (98.161 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is affected at times by discharge from flood-detention pools of 17 floodwater-retarding structures with a combined detention capacity of 18,250 acre-ft (22.5 hm³). These structures control runoff from 71.3 mi² (184.7 km²) in the Town and York Creeks drainage basins. Rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--42 years, 373 ft³/s (10.56 m³/s), 270,200 acre-ft/yr (333 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft³/s (1,610 m³/s) Sept. 12, 1952, gage height, 34.95 ft (10.653 m); minimum daily, 43 ft³/s (1.22 m³/s) Aug. 12, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, 40.4 ft (12.31 m) in 1869 or 1870, from information by State Department of Highways and Public Transportation. Flood of May 29, 1929, reached a stage of 37.1 ft (11.31 m) and is the second highest known.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 12	1700	5,780	164	24.64	7.510	July 5	2400	4,160	118	20.74	6.322
June 14	0800	*54,800	1,550	34.82	10.613	Aug. 31	1300	8,870	251	28.16	8.583
June 17	1100	9,750	276	28.68	8.742						

Minimum discharge, 140 ft³/s (3.96 m³/s) Oct. 12-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166	160	202	180	186	198	280	214	179	1500	439	1180
2	170	157	197	181	183	198	261	463	225	1010	437	800
3	166	158	195	177	178	197	253	333	254	931	431	820
4	161	160	199	177	179	202	248	328	451	878	425	894
5	158	158	200	175	199	472	241	246	569	1580	417	581
6	155	155	198	175	243	560	233	218	793	2120	411	521
7	154	156	191	175	225	398	229	204	647	986	404	481
8	151	157	195	171	213	314	222	195	488	1250	397	454
9	147	159	199	174	207	289	222	194	408	1200	373	438
10	145	161	199	175	201	276	218	192	323	902	367	419
11	145	159	200	177	198	265	217	182	342	805	354	400
12	142	159	195	175	194	288	217	178	4050	737	341	380
13	141	158	195	172	194	519	213	174	3970	694	339	352
14	143	161	198	173	193	413	209	173	32600	662	334	319
15	146	153	194	176	195	402	205	172	7220	635	325	309
16	146	181	191	175	197	369	203	176	5590	610	319	304
17	383	227	193	171	197	347	205	177	7830	588	313	287
18	551	217	193	167	198	331	209	181	4640	573	306	277
19	754	192	191	186	195	318	205	173	3150	556	338	274
20	271	181	187	432	194	310	211	165	2600	543	334	273
21	214	174	184	320	200	305	206	161	2280	531	305	269
22	196	175	183	243	201	298	205	160	2020	516	297	269
23	188	179	182	218	194	290	543	161	1820	506	295	264
24	185	178	181	206	189	281	458	182	1730	496	295	260
25	178	190	179	202	186	271	286	212	1670	487	291	258
26	173	360	179	200	186	268	265	203	1550	485	288	257
27	171	338	182	197	187	268	254	194	1570	487	280	253
28	169	237	185	190	187	266	234	182	1330	476	274	245
29	167	216	184	190	---	280	223	722	1170	463	275	241
30	163	206	182	190	---	262	218	331	1200	456	402	237
31	159	---	180	189	---	267	---	189	---	448	5450	---
TOTAL	6358	5622	5913	6109	5499	9722	7393	7035	92669	24111	15856	12316
MEAN	205	187	191	197	196	314	246	227	3089	778	511	411
MAX	754	360	202	432	243	560	543	722	32600	2120	5450	1180
MIN	141	153	179	167	178	197	203	160	179	448	274	237
AC-FT	12610	11150	11730	12120	10910	19280	14660	13950	183800	47820	31450	24430

CAL YR 1980 TOTAL 72475 MEAN 198 MAX 3040 MIN 115 AC-FT 143800
WTR YR 1981 TOTAL 198603 MEAN 544 MAX 32600 MIN 141 AC-FT 393900

08172000 SAN MARCOS RIVER AT LULING, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1961 to April 1966, October 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 03...	1055	156	612	17.0	260	12	77	17	20
JAN 26...	1420	197	589	14.0	270	39	78	18	21
APR 20...	1245	211	570	24.0	270	26	77	18	18
MAY 26...	1200	200	597	25.5	280	52	80	20	25
JUL 13...	1515	692	617	27.0	280	39	82	18	22

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 03...	.5	2.0	250	32	36	.2	11	346
JAN 26...	.6	1.9	230	34	31	.2	6.6	329
APR 20...	.5	1.7	240	30	28	.3	11	328
MAY 26...	.6	2.1	230	31	43	.2	11	351
JUL 13...	.6	2.3	240	24	39	.2	13	345

08172400 PLUM CREEK AT LOCKHART, TX

LOCATION.--Lat 29°55'22", long 97°40'44", Caldwell County, Hydrologic Unit 12100203, on right bank 548 ft (167 m) upstream from bridge on U.S. Highway 183, 2.7 mi (4.3 km) north of Lockhart, 3.7 mi (6.0 km) upstream from Town Creek, 5.0 mi (8.0 km) downstream from Brushy Creek, and 30.4 mi (48.9 km) upstream from mouth.

DRAINAGE AREA.--112 mi^2 (290 km^2).

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

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 431.19 ft (131.427 m) National Geodetic Vertical Datum of 1929. Apr. 30, 1959, to July 25, 1968, at site 548 ft (167 m) downstream at present datum.

REMARKS.--Records good. No known diversion above station. Flow at times is affected by discharge from the flood-detention pools of 17 floodwater-retarding structures with combined detention capacity of 24,850 acre-ft (30.6 hm^3). These structures control runoff from 67.8 mi^2 (175.6 km^2) above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years, 49.1 ft^3/s (1.391 m^3/s), 35,570 acre-ft/yr (43.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft^3/s (753 m^3/s) Oct. 29, 1960, gage height, 20.62 ft (6.285 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1905, 22 ft (6.7 m) in June 1936 at present site; flood in 1951 reached a stage of 20 ft (6.1 m) at present site, from information by local resident.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 11	2000	3,950	112	15.68	4.779
June 13	2330	*18,000	510	19.26	5.870
June 16	1830	3,250	92.0	15.42	4.700

Minimum dishcarge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.23	.50	.00	.00	.00	211	2.2	.00
2	.00	.00	.00	.00	.19	2.3	.00	.00	.00	167	1.6	.00
3	.00	.00	.00	.00	.12	6.8	.00	.00	57	141	1.3	.00
4	.00	.00	.00	.00	.35	8.2	.00	.00	301	124	1.1	3.9
5	.00	.00	.00	.00	2.8	16	.00	.00	129	124	.96	3.9
6	.00	.00	.00	.00	24	12	.00	.00	35	125	.79	2.9
7	.00	.00	.00	.00	25	8.0	.00	.00	9.6	100	.61	1.9
8	.00	.00	.00	.00	19	6.0	.00	.00	1.9	113	.43	1.5
9	.00	.00	.00	.00	14	5.1	.00	.00	.15	100	.23	1.2
10	.00	.00	.00	.00	11	4.5	.00	.00	.00	83	.13	1.1
11	.00	.00	.00	.00	11	3.8	.00	.00	958	73	.08	.93
12	.00	.00	.00	.00	9.4	8.3	.00	.00	1100	66	.05	.78
13	.00	.00	.00	.00	4.8	30	.00	.00	3010	59	.03	.64
14	.00	.00	.00	.00	2.3	25	.00	.00	7340	46	.00	.54
15	.00	.00	.00	.00	1.8	18	.00	.00	1800	33	.00	.70
16	.00	.00	.00	.00	1.7	13	.00	.00	2120	25	.00	.78
17	.00	.00	.00	.00	1.6	8.5	.00	.00	1520	20	.00	.58
18	.00	.00	.00	.00	1.4	5.2	.00	.00	1150	16	.00	.39
19	.00	.00	.00	1.1	.99	2.8	.00	.00	1070	13	.00	.27
20	.00	.00	.00	65	.67	1.1	.00	.00	1000	11	.00	.19
21	.00	.00	.00	25	.82	.28	.00	.00	896	9.1	.00	.13
22	.00	.00	.00	14	.62	.07	.00	.00	781	7.6	.00	.09
23	.00	.00	.00	9.0	.10	.09	.00	.00	713	6.4	.00	.07
24	.00	.00	.00	6.6	.38	.04	.01	.00	631	5.5	.00	.05
25	.00	.00	.00	4.4	.09	.00	.17	.00	562	4.7	.00	.03
26	.00	.00	.00	2.5	.00	.00	.00	.00	500	4.3	.00	.00
27	.00	.00	.00	1.6	.00	.00	.00	.00	448	4.7	.00	.00
28	.00	.00	.00	.81	.00	.00	.00	.00	402	4.9	.00	.00
29	.00	.00	.00	.65	---	.02	.00	.00	336	5.0	.00	.00
30	.00	.00	.00	.46	---	.02	.00	.00	271	4.4	.00	.00
31	.00	---	.00	.26	---	.00	---	.00	---	3.4	.00	---
TOTAL	.00	.00	.00	131.38	134.36	185.62	.18	.00	27141.65	1710.0	9.51	22.57
MEAN	.000	.000	.000	4.24	4.80	5.99	.006	.000	905	55.2	.31	.75
MAX	.00	.00	.00	65	25	30	.17	.00	7340	211	2.2	3.9
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.4	.00	.00
AC-FT	.00	.00	.00	261	267	368	.4	.00	53840	3390	19	45

CAL YR 1980	TOTAL	4784.66	MEAN 13.1	MAX 1430	MIN .00	AC-FT	9490	
WTR YR 1981	TOTAL	29335.27	MEAN 80.4	MAX 7340	MIN .00	AC-FT	58190	

08173000 PLUM CREEK NEAR LULING, TX

LOCATION.--Lat 29°41'58", long 97°36'12", Caldwell County, Hydrologic Unit 12100203, near left bank on downstream side of pier of bridge on county road, 1.2 mi (1.9 km) upstream from West Fork, 1.9 mi (3.1 km) upstream from Southern Pacific Railroad Co. bridge, 2.2 mi (3.5 km) upstream from McNeil Creek, 2.9 mi (4.7 km) northeast of Luling, and at mile 7.5 (12.1 km).

DRAINAGE AREA.--309 mi^2 (800 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1923: 1933. WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 321.57 ft (98.015 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 18, 1976, at datum 5 ft (1.5 m) higher.

REMARKS.--Water-discharge records fair. Low flow is slightly regulated by oilfield operation above station. At end of year, flow from 119 mi^2 (308 km^2) above this station was partly controlled by 27 floodwater-retarding structures with a combined detention capacity of 41,840 acre-ft (51.6 hm^3). No known diversion above station.

AVERAGE DISCHARGE.--51 years (water years 1931-81), 104 ft^3/s (2.945 m^3/s), 75,350 acre-ft/yr (92.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,500 ft^3/s (2,220 m^3/s) July 1, 1936, gage height, 30.7 ft (9.36 m), from floodmarks, present datum, from rating curve extended above 37,500 ft^3/s (1,060 m^3/s); no flow at times.
Maximum stage since at least 1868, that of July 1, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1913 reached about same stage, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,300 ft^3/s (65.1 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 14	2000	*12,500	345	23.37	7.123
June 17	1700	3,570	101	20.26	6.175

Minimum daily discharge, 2.1 ft^3/s (0.059 m^3/s) Aug. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.1	4.9	8.7	6.5	8.7	12	12	10	11	271	5.4	60
2	6.8	4.7	7.4	6.5	8.7	20	11	195	9.8	216	5.0	16
3	5.3	4.9	7.0	5.3	7.8	14	9.7	87	40	182	4.5	11
4	4.9	4.6	6.9	6.5	8.7	15	9.2	70	268	165	4.4	28
5	4.5	4.3	7.3	6.9	14	18	8.7	27	257	389	4.2	20
6	4.2	4.4	7.8	5.7	21	20	7.8	17	161	413	4.1	8.5
7	4.1	4.4	8.0	6.1	24	18	7.7	15	95	182	4.0	6.0
8	4.2	4.4	8.2	6.1	28	15	7.7	13	58	152	2.1	4.9
9	4.3	4.6	7.9	6.5	22	13	7.8	12	36	146	5.4	4.6
10	4.1	4.9	9.4	6.9	20	11	7.8	11	24	131	3.3	4.5
11	3.9	4.5	7.4	6.9	18	11	7.7	9.8	26	115	3.9	4.7
12	3.6	4.9	6.8	6.5	14	14	7.4	8.5	859	104	3.2	4.4
13	3.4	5.2	7.0	6.5	15	141	7.3	8.4	1130	92	3.4	4.3
14	3.5	5.3	7.8	6.9	14	66	6.8	8.2	5200	79	3.5	4.2
15	4.5	5.3	7.4	7.8	12	39	6.4	7.8	6480	61	4.1	4.1
16	4.0	10	8.2	7.4	11	29	5.9	7.8	3070	46	4.6	4.3
17	3.8	28	8.1	6.1	11	22	5.9	8.9	3430	37	4.2	4.4
18	44	18	7.8	6.1	10	19	6.2	8.8	1940	30	3.7	3.9
19	299	9.4	7.4	8.7	11	16	6.7	7.4	1140	24	5.2	3.4
20	51	7.3	6.7	76	11	14	6.2	6.3	1020	21	4.8	3.4
21	19	6.5	6.2	82	12	13	5.3	5.8	937	18	5.4	3.7
22	10	6.5	6.1	36	12	12	5.1	6.0	841	16	4.4	4.0
23	6.5	6.7	6.7	23	15	10	164	6.6	769	14	4.0	3.9
24	4.9	6.8	6.7	18	12	9.7	121	9.2	725	12	3.6	3.9
25	6.4	7.1	6.9	15	11	10	37	19	711	11	3.6	3.6
26	6.0	38	6.5	13	12	10	30	20	621	9.2	3.3	2.8
27	6.2	48	6.5	12	12	10	17	9.8	588	11	3.5	2.8
28	4.6	23	6.9	11	11	9.9	11	8.1	495	12	3.9	2.8
29	4.4	15	6.9	10	---	77	8.9	46	427	9.3	3.8	2.5
30	5.3	11	6.9	9.7	---	63	8.2	58	334	7.0	6.7	3.3
31	4.7	---	6.5	9.2	---	19	---	17	---	5.9	193	---
TOTAL	550.2	312.6	226.0	440.8	386.9	770.6	563.4	744.4	31702.8	2981.4	318.2	237.9
MEAN	17.7	10.4	7.29	14.2	13.8	24.9	18.8	24.0	1057	96.2	10.3	7.93
MAX	299	48	9.4	82	28	141	164	195	6480	413	193	60
MIN	3.4	4.3	6.1	5.3	7.8	9.7	5.1	5.8	9.8	5.9	2.1	2.5
AC-FT	1090	620	448	874	767	1530	1120	1480	62880	5910	631	472

CAL YR 1980 TOTAL 13841.60 MEAN 37.8 MAX 2230 MIN .32 AC-FT 27450
WTR YR 1981 TOTAL 39235.20 MEAN 107 MAX 6480 MIN 2.1 AC-FT 77820

08173000 PLUM CREEK NEAR LULING, TX--Continued

WATER-QUALITY RECORDS

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

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

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

REMARKS.--Specific conductance and water temperature from October 1980 through February 1981 are measured once daily. 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, 6,210 micromhos Feb. 27, 1977; minimum daily, 148 micromhos Dec. 1, 1968.
WATER TEMPERATURES: Maximum daily, 35.0°C July 24, 1969; minimum daily, 4.0°C Jan. 4, 1968.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,500 micromhos Jan. 19; minimum daily, 240 micromhos May 2, 26.
WATER TEMPERATURES: Maximum daily, 28.5°C July 2, 3, Aug. 8; minimum daily, 13.0°C Mar. 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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...	1400	59	1420	20.0	400	120	140	13	150
JAN 26...	1155	13	1170	12.0	350	120	120	12	110
MAR 31...	1500	11	802	19.0	210	85	72	8.5	77
APR 20...	0950	6.4	1660	22.5	420	130	140	16	170
JUL 13...	1130	88	580	27.0	190	34	68	5.8	42
AUG 17...	0910	4.5	2010	27.0	520	190	180	18	210

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...	3.3	5.7	280	130	240	.4	22	869
JAN 26...	2.6	4.5	230	120	180	.5	12	697
MAR 31...	2.3	6.3	130	63	150	.3	13	468
APR 20...	3.6	4.6	290	100	280	.6	16	901
JUL 13...	1.3	5.3	160	22	72	.3	19	331
AUG 17...	4.0	5.5	330	110	370	.6	18	1110

08173000 PLUM CREEK NEAR LULING, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	550.2	966	557	827	140	210	85	126	280
NOV.	1980	312.6	1220	701	592	190	159	100	87	350
DEC.	1980	226.0	1520	881	537	260	159	120	75	410
JAN.	1981	440.8	1230	708	843	190	231	100	123	350
FEB.	1981	386.9	1310	758	792	210	218	110	115	370
MAR.	1981	770.6	1210	697	1450	190	389	100	214	340
APR.	1981	563.4	897	517	786	130	193	80	121	270
MAY	1981	744.4	874	504	1010	130	257	76	154	260
JUNE	1981	31702.8	378	216	18500	41	3510	37	3150	120
JULY	1981	2981.4	568	326	2630	69	554	53	430	180
AUG.	1981	318.2	1200	693	595	200	172	98	84	330
SEPT	1981	237.9	1110	638	410	170	110	94	61	320
TOTAL		39235.2	**	**	29000	**	6160	**	4740	**
WTD. AVG.		107	477	274	**	58	**	45	**	150

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1			1250			1470			1500			1900
2			1270			1580			1300			1820
3			1290			1460			1280			1530
4			1280			1270			1230			1690
5			1660			1530			1550			1520
6			1630			1540			1590			1300
7			2020			1640			1100			1560
8			1810			1550			1390			1870
9			1390			1280			1510			1780
10			1500			1580			1550			1540
11			1880			1630			1530			1500
12			1560			1590			1550			1470
13			1700			1600			1580			1520
14			1380			1610			1800			1510
15			2020			1600			1590			1520
16			1900			1300			1630			1250
17			1560			1000			1500			1460
18			1300			900			1530			1690
19			800			1100			1280			2500
20			538			1200			1580			1000
21			700			1300			1590			900
22			1000			1420			1590			1030
23			1060			1450			1600			1080
24			1160			1480			1400			1100
25			1200			1300			1590			1140
26			1250			1100			1560			1170
27			1300			1000			1560			1280
28			1390			1100			1570			1300
29			1400			1310			1550			1350
30			1420			1180			1770			1440
31			1440						1940			1390
MONTH			1390			1370			1530			1460

08173000 PLUM CREEK NEAR LULING, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	1330	1440	1400	1410	1010	960	985	1360	1180	1310
2	---	---	1380	1520	1330	1430	1070	1010	1040	1070	240	444
3	---	---	1400	1800	1460	1580	1130	1070	1110	730	370	540
4	---	---	1350	1470	1400	1420	1200	1130	1170	790	380	595
5	---	---	1540	1430	1220	1310	1220	1200	1210	990	810	920
6	---	---	1450	1300	1210	1260	1250	1190	1220	1210	1000	1120
7	---	---	1390	1210	1140	1180	1280	1250	1260	1330	1220	1290
8	---	---	1250	1150	1120	1130	1300	1260	1290	1380	1310	1350
9	---	---	1050	1240	1130	1180	1340	1290	1320	1440	1350	1400
10	---	---	1240	1270	1230	1240	1380	1320	1350	1580	1430	1520
11	---	---	1110	1410	1270	1370	1410	1350	1380	1530	1460	1510
12	---	---	1190	1390	1180	1260	1390	1360	1370	1500	1450	1480
13	---	---	1180	1910	920	1110	1380	1350	1370	1600	1490	1560
14	---	---	1170	920	810	856	1380	1350	1360	1610	1560	1590
15	---	---	1190	970	810	870	1380	1350	1370	1590	1570	1580
16	---	---	1250	1520	980	1320	1400	1340	1380	1580	1530	1560
17	---	---	1350	1630	1530	1590	1400	1350	1370	1550	1530	1550
18	---	---	1400	1670	1610	1640	1370	1340	1350	1760	1520	1700
19	---	---	1420	1630	1520	1580	1360	1320	1340	1750	1570	1710
20	---	---	1450	1520	1440	1480	1660	1300	1490	1540	1470	1500
21	---	---	1250	1420	1370	1400	1650	1620	1630	1490	1460	1470
22	---	---	1420	1370	1280	1340	1630	1610	1620	1490	1450	1470
23	---	---	1430	1360	1330	1350	1620	490	780	1520	1470	1500
24	1410	1380	1390	1370	1340	1360	670	470	601	1770	1470	1590
25	1410	1390	1400	1360	1350	1350	720	560	608	1720	1460	1590
26	1420	1390	1400	1360	1340	1350	820	690	746	1630	240	1420
27	1410	1360	1380	1380	1340	1360	900	830	857	1330	1270	1290
28	1410	1370	1400	1380	1340	1370	1070	910	1010	1270	1220	1250
29	---	---	---	1420	1130	1310	1220	1070	1150	1750	380	796
30	---	---	---	1090	940	979	1310	1170	1240	1260	460	722
31	---	---	---	950	930	943	---	---	---	1190	920	1010
MONTH	1420	1360	1330	1910	810	1300	1660	470	1200	1770	240	1300

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1460	1090	1280	480	450	466	1780	1580	1670	790	540	707
2	1500	1420	1460	490	470	481	1850	1760	1800	790	750	767
3	1600	1010	1350	520	470	493	1850	1780	1810	860	790	830
4	1570	340	705	520	490	504	1950	1830	1870	930	840	873
5	450	340	421	650	460	525	1960	1930	1950	1070	960	1030
6	490	440	461	490	440	470	1970	1850	1910	1060	1040	1050
7	550	490	517	540	480	511	1870	1790	1810	1100	1050	1080
8	620	550	588	570	540	555	1860	1790	1820	1160	1090	1130
9	680	610	639	560	530	543	1890	1830	1860	1210	1150	1180
10	760	680	713	570	530	552	1930	1830	1870	1290	1210	1240
11	860	760	783	600	550	575	2020	1930	1960	1410	1300	1370
12	850	380	472	610	590	595	2030	2000	2010	1480	1410	1450
13	410	380	393	600	580	593	2000	1970	1980	1530	1490	1510
14	430	320	363	630	560	597	2060	1960	2000	1630	1530	1590
15	360	320	341	700	620	658	2080	2060	2070	1650	1620	1630
16	360	350	355	810	700	753	2070	2010	2030	1740	1650	1680
17	350	330	344	890	790	833	2040	1980	1990	1770	1740	1750
18	380	350	365	940	890	909	2000	1960	1980	1750	1730	1740
19	380	350	366	1000	940	971	1990	1930	1960	1730	1670	1700
20	380	360	367	1140	990	1030	1950	1920	1940	1670	1640	1660
21	380	360	372	1080	1050	1070	1990	1920	1950	1680	1640	1650
22	410	390	398	---	---	1100	1990	1950	1970	1720	1680	1710
23	400	380	391	---	---	1150	1990	1940	1970	1700	1670	1680
24	410	390	400	---	---	1200	2020	1970	2000	1670	1650	1660
25	450	390	408	1260	1220	1250	2010	1970	1990	1670	1650	1660
26	450	420	431	1340	1250	1300	1970	1930	1960	1680	1660	1670
27	470	420	443	1350	1310	1330	1940	1900	1920	1670	1640	1660
28	460	430	451	1450	1300	1380	1910	1860	1880	1730	1680	1710
29	470	430	447	1370	1290	1330	1870	1830	1850	1760	1720	1750
30	460	440	455	1460	1380	1420	1850	1350	1790	1870	1760	1810
31	---	---	---	1590	1460	1510	1910	500	735	---	---	---
MONTH	1600	320	549	1590	440	860	2080	500	1880	1870	540	1430

08173000 PLUM CREEK NEAR LULING, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1			22.0			22.0			19.0			20.0
2			20.0			20.0			18.0			20.0
3			24.0			22.0			18.0			20.0
4			20.0			20.0			19.0			20.0
5			20.0			20.0			16.0			18.0
6			25.0			22.0			19.0			20.0
7			25.0			24.0			16.0			20.0
8			26.0			20.0			18.0			18.0
9			26.0			19.0			16.0			20.0
10			26.0			24.0			16.0			20.0
11			22.0			19.0			18.0			19.0
12			18.0			22.0			17.0			18.0
13			22.0			22.0			19.0			18.0
14			22.0			23.0			16.0			15.0
15			20.0			19.0			20.0			18.0
16			20.0			18.0			20.0			16.0
17			24.0			17.0			16.0			15.0
18			18.0			20.0			20.0			15.0
19			20.0			20.0			15.0			---
20			22.0			21.0			14.0			17.0
21			24.0			22.0			16.0			18.0
22			24.0			19.0			16.0			18.0
23			25.0			20.0			15.0			18.0
24			20.0			18.0			16.0			16.0
25			19.0			---			18.0			16.0
26			18.0			16.0			20.0			16.0
27			24.0			18.0			16.0			18.0
28			18.0			18.0			16.0			18.0
29			18.0			18.0			18.0			19.0
30			18.0			16.0			18.0			16.0
31			20.0						19.0			16.0
MONTH			21.5			20.0			17.5			18.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1			16.0	---	---	---	19.5	18.5	19.0	24.0	23.5	23.5
2			18.0	---	---	---	19.0	18.5	19.0	23.5	22.0	22.5
3			---	---	---	---	20.5	19.0	19.5	22.5	21.5	22.0
4			16.0	---	---	---	20.5	20.0	20.5	22.5	22.0	22.0
5			16.0	---	---	---	19.5	18.0	19.0	22.5	22.0	22.0
6			18.0	---	---	---	18.0	17.0	17.5	22.5	21.5	22.0
7			18.0	---	---	---	18.5	17.5	18.0	22.5	21.5	22.0
8			14.0	---	---	---	19.5	18.5	19.0	22.5	22.0	22.5
9			17.0	15.5	15.5	15.5	20.5	19.5	20.0	23.0	22.0	22.5
10			14.0	15.5	14.5	15.0	21.0	20.5	21.0	22.0	20.0	21.0
11			15.0	15.5	15.0	15.0	21.5	21.0	21.0	20.0	19.0	19.5
12			17.0	15.0	14.0	14.5	21.5	21.0	21.5	20.0	18.5	19.5
13			16.0	15.0	13.0	14.0	22.0	21.5	21.5	21.5	19.5	20.5
14			16.0	15.5	14.0	14.5	22.5	21.5	22.0	22.5	21.0	21.5
15			14.0	17.5	15.5	16.5	22.0	21.5	21.5	21.0	20.5	20.5
16			17.0	17.0	16.5	16.5	21.5	21.0	21.5	21.5	20.0	21.0
17			18.0	17.0	15.5	16.5	22.0	21.0	21.5	23.5	21.5	22.5
18			18.0	17.5	16.5	17.0	21.5	21.5	21.5	25.0	23.0	24.0
19			17.0	16.5	14.5	15.5	22.0	21.5	21.5	24.5	22.0	23.5
20			18.0	15.5	14.0	15.0	22.5	22.0	22.5	22.5	21.0	21.5
21			15.0	17.0	15.5	16.0	23.0	22.5	22.5	21.0	20.0	20.5
22			15.0	17.0	16.0	16.5	22.5	22.0	22.0	22.0	20.5	21.0
23			18.0	16.0	15.0	16.0	22.0	19.5	20.5	23.5	21.5	22.5
24			---	16.0	15.0	15.5	19.5	19.0	19.5	24.0	22.5	23.0
25			---	16.0	15.5	16.0	19.5	19.0	19.0	23.5	22.5	23.0
26			---	17.5	16.0	16.5	20.5	19.0	20.0	24.0	---	---
27			---	18.5	17.5	18.0	21.5	20.5	21.0	25.0	24.0	24.5
28			---	19.0	18.5	18.5	22.0	21.5	22.0	26.0	24.5	25.0
29				19.0	17.0	18.5	23.0	22.0	22.5	25.0	22.0	24.0
30				19.0	16.5	17.5	23.5	22.5	23.0	23.0	22.0	22.5
31				19.0	18.5	19.0	---	---	---	23.0	22.0	22.5
MONTH			16.5	19.0	13.0	16.0	23.5	17.0	20.5	26.0	18.5	22.0

GUADALUPE RIVER BASIN

08173000 PLUM CREEK NEAR LULING, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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

08175000 SANDIES CREEK NEAR WESTHOFF, TX

LOCATION.--Lat 29°12'54", long 97°26'57", De Witt County, Hydrologic Unit 12100202, on left bank 100 ft (30 m) downstream from bridge on county highway, 1.9 mi (3.1 km) upstream from Birds Creek, 2.0 mi (3.2 km) northeast of Westhoff, and 20.4 mi (32.8 km) upstream from mouth.

DRAINAGE AREA.--549 mi^2 (1,422 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1930 to November 1934, August 1959 to current year.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 178.27 ft (54.337 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 9, 1934, water-stage recorder at site 150 ft (46 m) upstream at datum 0.86 ft (0.262 m) higher. Aug. 10, 1959, to Feb. 2, 1960, nonrecording gage at present site and datum.

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

AVERAGE DISCHARGE.--26 years (water years 1931-34, 1960-81), 138 ft^3/s (3.908 m^3/s), 3.41 in/yr (87 mm/yr), 99,980 acre-ft/yr (123 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,700 ft^3/s (2,260 m^3/s) Sept. 22, 1967, gage height, 32.34 ft (9.857 m), from rating curve extended above 21,000 ft^3/s (595 m^3/s) on basis of slope-area measurement of 92,700 ft^3/s (2,630 m^3/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1864, 92,700 ft^3/s (2,630 m^3/s) July 2, 1936, gage height, 33.1 ft (10.09 m), from floodmarks, on basis of computation of peak flow, at present site and datum. Flood in October 1913 reached a stage of 26.0 ft (7.92 m), present site and datum, from information by local residents.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 14	0900	4,400	125	21.93	6.684
Sept. 1	1000	*78,600	2,230	a32.28	9.839

a From floodmark.

Minimum daily, 2.4 ft^3/s (0.068 m^3/s) Aug. 12, 13, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	6.3	20	9.7	9.4	9.9	9.8	22	16	25	6.0	61900
2	25	5.9	13	9.9	8.8	11	9.0	22	26	24	5.5	9790
3	20	6.1	11	10	8.5	10	9.2	451	24	17	5.1	3040
4	18	5.8	10	9.8	11	9.5	9.2	1200	29	14	4.8	1400
5	14	5.6	9.4	9.1	21	9.5	8.8	1280	22	13	4.6	740
6	11	4.9	8.4	10	32	10	8.4	963	15	105	4.2	175
7	9.2	4.7	7.6	11	50	9.8	8.2	206	14	197	3.5	76
8	8.3	4.7	7.4	9.7	54	9.2	8.1	67	20	86	3.3	51
9	7.4	5.0	8.0	9.6	38	8.4	7.8	41	14	98	3.6	42
10	6.8	4.2	20	9.8	26	7.8	7.6	28	20	396	3.4	37
11	6.6	4.2	28	9.7	19	7.9	7.6	21	14	180	3.0	33
12	6.6	3.8	16	9.6	15	11	7.6	16	15	50	2.4	30
13	6.4	3.5	20	9.4	13	39	7.3	13	1740	24	2.4	27
14	6.1	3.5	16	9.4	12	38	6.9	13	3870	16	2.5	23
15	5.8	2.9	14	9.0	10	39	6.8	11	2220	12	2.7	19
16	5.8	3.7	12	9.0	10	41	6.7	10	1220	9.4	2.7	16
17	5.6	8.2	11	9.0	9.3	32	6.4	9.4	648	8.3	2.7	15
18	5.6	27	11	9.0	9.2	23	62	9.6	302	7.7	2.4	14
19	6.3	23	11	22	9.7	18	123	9.3	118	6.6	2.7	14
20	9.8	18	10	53	9.6	14	23	8.3	54	6.2	32	13
21	8.3	13	10	75	8.9	13	14	7.8	34	6.0	32	13
22	7.3	10	9.6	82	9.0	11	18	7.6	24	5.5	19	13
23	6.9	8.1	9.9	59	9.0	9.9	466	7.4	18	5.2	14	12
24	7.4	6.4	9.6	35	8.6	9.3	619	8.4	14	4.9	11	12
25	7.4	17	9.6	24	8.1	9.1	273	40	13	4.7	8.2	12
26	6.7	99	9.6	19	8.2	8.8	275	85	106	4.7	5.9	11
27	5.1	135	9.6	15	8.9	8.8	221	30	254	4.8	4.5	11
28	9.4	108	9.9	13	9.3	9.3	148	31	117	5.3	3.7	11
29	6.3	68	10	12	---	9.8	65	21	88	6.9	3.6	10
30	8.0	33	10	10	---	9.9	34	16	45	7.0	5.2	10
31	8.4	---	9.9	9.7	---	9.9	---	14	---	6.4	4550	---
TOTAL	285.5	648.5	371.5	601.4	445.5	466.8	2476.4	4668.8	11114	1356.6	4756.6	77570
MEAN	9.21	21.6	12.0	19.4	15.9	15.1	82.5	151	370	43.8	153	2586
MAX	25	135	28	82	54	41	619	1280	3870	396	4550	61900
MIN	5.1	2.9	7.4	9.0	8.1	7.8	6.4	7.4	13	4.7	2.4	10
CFSM	.02	.04	.02	.04	.03	.03	.15	.28	.67	.08	.28	4.71
IN.	.02	.04	.03	.04	.03	.03	.17	.32	.75	.09	.32	5.26
AC-FT	566	1290	737	1190	884	926	4910	9260	22040	2690	9430	153900

CAL YR 1980	TOTAL	12984.93	MEAN	35.5	MAX	1550	MIN .69	CFSM .07	IN .88	AC-FT	25760
WTR YR 1981	TOTAL	104761.60	MEAN	287	MAX	61900	MIN 2.4	CFSM .52	IN 7.10	AC-FT	207800

08175000 SANDIES CREEK NEAR WESTHOFF, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1962 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 08...	1238	8.3	905	7.9	20.5	6.8	75	170	0	48
NOV 19...	1209	22	1370	--	11.0	--	--	160	0	44
DEC 31...	1048	10	1150	--	9.0	--	--	230	26	64
FEB 10...	1645	25	1320	--	16.0	--	--	160	0	46
MAR 24...	1729	9.4	--	--	--	--	--	--	--	--
MAY 01...	1245	23	588	--	16.5	--	--	100	0	30
JUN 11...	1427	14	892	--	27.5	--	--	160	23	47
JUL 23...	1800	5.2	1040	--	29.5	--	--	160	0	48
SEP 02...	1315	5820	84	--	28.0	--	--	25	0	7.7

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 08...	11	120	4.1	10	170	85	130	.3	20	526
NOV 19...	11	230	8.0	10	290	70	230	.6	17	787
DEC 31...	16	160	4.6	1.9	200	130	170	.4	18	680
FEB 10...	12	210	7.1	9.7	230	110	230	.4	14	770
MAR 24...	--	--	--	--	--	--	--	--	--	--
MAY 01...	6.6	77	3.3	9.2	110	71	72	.3	19	351
JUN 11...	11	120	4.1	11	140	110	140	.2	20	543
JUL 23...	9.9	150	5.4	10	170	61	200	.2	23	604
SEP 02...	1.5	4.4	.4	5.4	28	5.0	4.5	.1	9.6	55

08175800 GUADALUPE RIVER AT CUERO, TX

LOCATION.--Lat 29°03'57", long 97°19'16", De Witt County, Hydrologic Unit 12100204, on left bank at downstream side of bridge on U.S. Highways 77-A, 87, and 183, 2.1 mi (3.4 km) upstream from Gohlke Creek, 2.4 mi (3.9 km) southwest of Cuero, 4.2 mi (6.8 km) downstream from Sandies Creek, and at mile 100.6 (161.9 km).

DRAINAGE AREA.--4,934 mi² (12,779 km²), of which 1,432 mi² (3,709 km²) is above Canyon Dam.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1902 to December 1906, August 1916 to December 1935, January 1964 to current year. Published as "near Cuero" 1902-6, and as "below Cuero" 1916-35. Gage-height records collected at site 7.1 mi (11.4 km) upstream from Sandies Creek from 1941 to 1966 (published in reports of the National Weather Service) and at present site since June 12, 1968.

REVISED RECORDS.--WRD TX-68-1, TX-69-1: Drainage areas at all sites.

GAGE.--Water-stage recorder. Datum of gage is 128.64 ft (39.209 m) National Geodetic Vertical Datum of 1929. Dec. 26, 1902, to June 1903, nonrecording gage at site 7.1 mi (11.4 km) upstream at different datum, gage heights moved to site 3.3 mi (5.3 km) upstream from present site before computation; July 1903 to December 1906 nonrecording gage 3.3 mi (5.3 km) upstream at different datum; Aug. 19, 1916, to Dec. 16, 1935, water-stage recorder at site 5.0 mi (8.0 km) downstream at datum 3.19 ft (0.972 m) lower.

REMARKS.--Water-discharge records good. Since July 21, 1962, flow is regulated by Canyon Lake (station 08167700) 202.4 mi (325.7 km) upstream. Flow below New Braunfels is partly regulated by a series of small power dams, combined capacity of six largest dams 33,550 acre-ft (41.4 hm³). Flow is affected at times by discharge from the flood-detention pools of 52 floodwater-retarding structures with combined detention capacity of 78,620 acre-ft (96.9 hm³). These structures control runoff from 269 mi² (697 km²) in the Comal, San Marcos, and Plum Creek drainage basins. Many small diversions above station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--20 years (water years 1904-6, 1917-18, 1921-35) prior to regulation by Canyon Lake, 1,303 ft³/s (36.90 m³/s), 944,000 acre-ft/yr (1.16 km³/yr); 17 years (water years 1965-81) regulated, 2,154 ft³/s (61.00 m³/s), 1,561,000 acre-ft/yr (1.92 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 132,000 ft³/s (3,740 m³/s) Sept. 1, 1981, gage height, 41.83 ft (12.750 m); minimum daily, 79 ft³/s (2.24 m³/s) Aug. 13, 14, 1967.
Floods at this station since at least 1900 occurred Mar. 1, 1903, 43.0 ft (13.11 m), at different site and datum; Oct. 20, 1919, 32.2 ft (9.81 m), site and datum then in use; May 30, 1929, 35.2 ft (10.73 m), site and datum then in use; all from information by local residents.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, probably occurred July 2, 1936, 44.33 ft (13.512 m), present site and datum, from information by State Department of Highways and Public Transportation. Other floods at this station occurred Oct. 4, 1913, 37.57 ft (11.451 m), at different site and datum; Dec. 6, 1913, 34.57 ft (10.537 m), at different site and datum; June 21, 1961, 37.0 ft (11.28 m), present site and datum; all from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 132,000 ft³/s (3,740 m³/s) Sept. 1 at 1900 hours, gage height, 41.83 ft (12.750 m); minimum daily, 580 ft³/s (16.4 m³/s) Nov. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	810	830	908	764	834	940	1470	1610	2290	7220	1930	112000
2	853	810	852	774	820	959	1400	1680	1550	6090	1890	97800
3	832	800	825	800	804	1040	1290	2460	1520	3930	1920	46700
4	780	780	814	788	834	1150	1240	4970	1730	3190	1910	25600
5	765	800	817	785	844	1030	1430	4120	2430	3000	1900	12300
6	821	790	830	811	914	939	1510	3660	2240	3180	1890	4180
7	819	760	818	918	963	1140	1290	2590	2690	5090	1850	2940
8	805	770	864	728	968	1240	1330	1940	2380	4990	1800	2570
9	822	730	821	720	932	1090	1270	1780	2000	3760	1810	2380
10	809	780	859	772	921	1050	1380	1640	1670	6510	1820	2240
11	802	810	841	775	946	1060	1280	1600	1480	7070	1810	2100
12	823	770	837	762	957	1140	1350	1550	1550	6170	1780	1540
13	813	680	851	798	893	1250	1290	1580	4680	3600	1760	1520
14	806	580	806	780	888	1380	1350	1520	13400	2860	1770	1510
15	808	640	854	805	923	1610	1300	1380	15300	2640	1780	1480
16	832	670	840	790	894	1540	1290	1290	19300	2600	1780	1490
17	854	800	856	798	954	1430	1260	1230	32600	3410	1800	1790
18	781	893	851	769	1040	1390	1490	1270	27400	2680	1780	1530
19	856	888	828	807	908	1350	1460	1180	21300	2370	1830	1330
20	1440	843	822	839	941	1370	1460	1260	18000	2280	2120	1290
21	1580	816	794	1020	948	1410	1340	1160	16000	2180	2490	1280
22	920	790	786	1310	972	1400	1350	1120	14400	2250	2110	1270
23	1120	776	820	1170	950	1410	1770	1140	12000	2080	1870	1230
24	1170	776	797	961	937	1410	3560	1240	9840	2000	1840	1260
25	1160	799	779	926	944	1380	3470	1350	9050	2000	1790	1310
26	1100	816	801	876	968	1430	2910	1470	8870	2010	1810	1200
27	1100	1010	799	867	912	1330	2580	1370	9190	2000	1810	1090
28	1140	1330	807	859	926	1410	2230	1250	8960	2000	1800	1180
29	1150	1260	816	871	---	1400	1840	1260	8340	1990	1790	1140
30	1120	958	844	829	---	1390	1690	1290	7660	1980	1800	1110
31	920	---	803	834	---	1430	---	2910	---	1960	20400	---
TOTAL	29411	24755	25640	26306	25735	39498	49880	55870	279820	105090	76440	336360
MEAN	949	825	827	849	919	1274	1663	1802	9327	3390	2466	11210
MAX	1580	1330	908	1310	1040	1610	3560	4970	32600	7220	20400	112000
MIN	765	580	779	720	804	939	1240	1120	1480	1960	1760	1090
AC-FT	58340	49100	50860	52180	51050	78340	98940	110800	555000	208400	151600	667200

CAL YR 1980 TOTAL 360371 MEAN 985 MAX 8050 MIN 409 AC-FT 714800
WTR YR 1981 TOTAL 1074805 MEAN 2945 MAX 112000 MIN 580 AC-FT 2132000

08175800 GUADALUPE RIVER AT CUERO, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 07...	1452	808	599	8.4	25.0	9.0	108	230	32	65
NOV 18...	1454	892	570	--	15.5	--	--	240	19	66
DEC 30...	1235	840	575	8.2	11.5	--	--	260	43	74
FEB 10...	1219	920	590	--	14.5	--	--	260	39	74
MAR 24...	1219	1440	--	--	--	--	--	--	--	--
APR 30...	1940	1630	434	--	17.5	--	--	180	18	50
JUN 11...	1625	1480	478	--	--	--	--	200	33	60
JUL 23...	1415	2090	556	--	30.0	--	--	250	27	71
SEP 04...	1122	25400	176	--	29.0	--	--	79	5	27

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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...	17	29	.8	2.5	200	31	46	.2	13	324
NOV 18...	18	25	.7	2.4	220	29	35	.3	11	319
DEC 30...	19	27	.7	2.1	220	35	38	.3	9.1	336
FEB 10...	18	33	.9	2.4	220	38	45	.3	8.7	352
MAR 24...	--	--	--	--	--	--	--	--	--	--
APR 30...	13	18	.6	3.1	160	34	16	.3	11	242
JUN 11...	13	20	.6	4.1	170	44	32	.2	15	290
JUL 23...	17	21	.6	2.3	220	21	33	.2	14	312
SEP 04...	2.7	6.9	.3	4.8	74	6.0	7.5	.1	11	111

08176500 GUADALUPE RIVER AT VICTORIA, TX
(National stream-quality accounting network)

LOCATION.--Lat 28°47'34", long 97°00'46", Victoria County, Hydrologic Unit 12100204, on left bank just upstream from pier of upstream bridge of two bridges on U.S. Highway 59 in Victoria, 1,300 ft (396 m) upstream from Southern Pacific Railroad Co. bridge, 15 mi (24 km) upstream from Coleto Creek, and at mile 50.7 (81.6 km).

DRAINAGE AREA.--5,198 mi² (13,463 km²), of which 1,432 mi² (3,709 km²) is above Canyon Dam.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1934 to current year. Gage-height records collected in this vicinity since 1904 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 29.15 ft (8.885 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Since July 21, 1962, flow is regulated by Canyon Lake (station 08167700) 252.3 mi (406.1 km) upstream. Many diversions above station. Records furnished by the city of Victoria show a discharge of about 7,600 acre-ft (9.37 hm³) of sewage effluent below station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08175800.

AVERAGE DISCHARGE.--27 years (water years 1936-62) prior to regulation by Canyon Lake, 1,626 ft³/s (46.05 m³/s), 1,178,000 acre-ft/yr (1.45 km³/yr); 19 years (water years 1963-81) regulated, 2,088 ft³/s (59.13 m³/s), 1,513,000 acre-ft/yr (1.87 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 179,000 ft³/s (5,070 m³/s) July 3, 1936, gage height, 31.22 ft (9.516 m); minimum daily, 14 ft³/s (0.40 m³/s) Aug. 20, 1956.
Maximum stage since at least 1833, that of July 3, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1929, reached a stage of 30.2 ft (9.21 m), present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 105,000 ft³/s (2,970 m³/s) Sept. 2 at 2000 hours, gage height, 31.10 ft (9.479 m); minimum, 552 ft³/s (15.6 m³/s) Nov. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	907	941	789	845	939	1450	1670	3620	8120	1920	14100
2	888	828	886	759	819	957	1410	1810	2280	7710	1860	77600
3	883	810	842	775	811	995	1440	3290	1800	6000	1860	86900
4	817	806	832	800	820	1090	1160	4820	2560	4240	1860	61400
5	772	786	804	787	851	1080	1260	5230	6140	3690	1850	35300
6	754	809	825	791	848	1030	1470	4450	3590	3800	1830	14500
7	825	789	832	844	929	951	1410	3610	2870	4510	1820	5360
8	805	765	837	906	954	1200	1260	2470	3130	6250	1770	3860
9	808	776	864	717	951	1190	1280	2090	2520	4950	1730	3320
10	816	731	825	732	917	1080	1270	1850	2140	5020	1750	3010
11	796	782	861	770	900	1100	1310	1720	1730	7350	1740	2770
12	791	810	839	768	953	1110	1260	1670	10600	7340	1770	2420
13	812	777	829	772	932	1180	1280	1650	11300	5880	1710	1980
14	799	681	858	796	898	1270	1270	1650	10100	3680	1710	2000
15	794	584	817	769	892	1460	1290	1540	13200	3100	1720	1970
16	800	653	869	796	922	1620	1250	1430	14400	2810	1700	1840
17	825	678	842	774	898	1480	1240	1320	17200	3030	1720	1870
18	856	802	849	785	950	1440	1220	1280	23400	3540	1720	2030
19	766	877	833	859	1020	1370	1530	1280	27100	2650	1710	1730
20	952	903	832	931	904	1360	1440	1230	22600	2420	1770	1620
21	1520	819	806	858	939	1380	1360	1270	19000	2300	2260	1570
22	1300	839	788	1080	936	1410	1270	1190	16700	2210	2260	1550
23	918	765	780	1270	955	1400	1340	1140	14600	2240	1920	1530
24	1120	761	815	1060	939	1410	2820	1400	12000	2070	1790	1490
25	1170	784	782	941	946	1390	3580	1690	10200	2010	1790	1490
26	1160	879	784	902	967	1390	3650	1660	9400	2050	1740	1540
27	1100	844	791	869	960	1380	2940	1620	9280	2020	1750	1360
28	1100	1070	789	857	922	1350	2580	1390	9330	1990	1740	1360
29	1140	1320	799	852	---	1390	2150	2430	9140	1980	1810	1370
30	1150	1130	811	860	---	1390	1790	4370	8680	1950	2170	1340
31	1120	---	835	817	---	1370	---	2300	---	1920	3370	---
TOTAL	29417	24765	25697	26286	25578	39162	49980	66520	300610	118830	58120	340180
MEAN	949	826	829	848	914	1263	1666	2146	10020	3833	1875	11340
MAX	1520	1320	941	1270	1020	1620	3650	5230	27100	8120	3370	86900
MIN	754	584	780	717	811	939	1160	1140	1730	1920	1700	1340
AC-FT	58350	49120	50970	52140	50730	77680	99140	131900	596300	235700	115300	674700

CAL YR 1980 TOTAL 373306 MEAN 1020 MAX 10100 MIN 395 AC-FT 740500
WTR YR 1981 TOTAL 1105145 MEAN 3028 MAX 86900 MIN 584 AC-FT 2192000

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1945 to September 1946, October 1948 to current year. Sediment records: October 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1945 to current year.
WATER TEMPERATURES: November 1950 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,950 micromhos on several days during January 1946; minimum daily, 135 micromhos Sept. 3, 1981.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 4, 27, 1952; minimum daily, 2.0°C Jan. 11, 12, 1962, Jan. 24, 1963.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 703 micromhos Jan. 30; minimum daily, 135 micromhos Sept. 3.
WATER TEMPERATURES: Maximum daily, 29.0°C on many days during July and August; minimum daily, 9.0°C Dec. 26, Jan. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 15...	1100	786	526	8.2	25.0	7.0	7.6	92	1.9	K22	K300
NOV 13...	1355	770	540	8.0	20.0	8.3	8.4	91	1.0	K40	K7
DEC 09...	1330	848	548	8.3	17.0	--	6.5	66	1.0	620	80
JAN 07...	1335	828	557	8.4	13.5	4.8	12.4	118	2.1	K40	K20
FEB 04...	1045	807	579	8.3	12.5	5.3	9.7	89	1.1	36	52
MAR 05...	1005	1120	576	8.3	18.5	27	7.8	83	1.0	88	29
APR 09...	1430	1270	500	8.3	22.5	51	7.9	90	.5	K23	K30
MAY 15...	0940	1560	482	8.2	24.0	42	7.9	91	1.4	K110	350
JUN 22...	1407	16500	357	7.6	27.0	130	--	--	--	--	--
JUL 17...	0851	2830	536	7.9	28.0	45	7.2	89	1.3	K100	K100
AUG 21...	0930	2220	525	8.2	27.5	34	7.3	91	.9	K450	500
SEP 18...	1000	2070	671	8.1	24.0	22	7.6	88	.7	K50	360

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	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 15...	230	27	63	17	24	.7	2.1	200	29	40	.3
NOV 13...	230	16	64	16	25	.7	2.5	210	22	40	.3
DEC 09...	220	14	65	15	28	.8	3.1	210	21	40	.3
JAN 07...	230	30	64	17	26	.7	1.7	210	34	38	.3
FEB 04...	240	26	68	16	29	.8	2.2	210	36	36	.3
MAR 05...	240	25	70	17	28	.8	2.1	220	35	44	.2
APR 09...	230	30	64	17	20	.6	2.0	200	26	27	.2
MAY 15...	200	14	57	15	19	.6	2.8	180	31	31	.1
JUN 22...	160	19	51	7.8	11	.4	4.5	150	15	15	.1
JUL 17...	230	17	66	15	19	.6	2.8	210	26	23	.2
AUG 21...	230	23	67	16	20	.6	2.2	210	15	30	.2
SEP 18...	290	54	88	18	31	.8	3.0	260	28	60	.3

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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)
OCT 15...	12	304	310	--	--	.66	.64	.000	.010	.41	2.3
NOV 13...	12	319	312	--	--	.77	.78	.020	.030	.35	.33
DEC 09...	12	329	312	--	--	1.1	1.1	.010	.020	.55	.32
JAN 07...	4.4	281	308	--	--	.62	.59	.050	.040	.58	.57
FEB 04...	6.6	327	321	--	--	1.1	.01	.020	.060	.81	.71
MAR 05...	9.5	326	337	--	--	1.1	1.1	.030	.050	1.2	.52
APR 09...	11	293	291	--	--	.84	.87	.040	.060	.93	.66
MAY 15...	13	290	282	.93	.050	.98	1.0	.090	.090	.63	.68
JUN 22...	17	216	212	--	--	.48	.49	.100	.080	1.2	.89
JUL 17...	15	310	294	--	--	.72	.73	.010	.040	.99	.66
AUG 21...	14	301	295	--	--	.85	.95	.070	.070	.60	.42
SEP 18...	16	395	392	--	--	.64	.80	.070	.060	.66	.50

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 15...	.41	2.3	.100	.090	6.7	--	--	54	115	77
NOV 13...	.37	.36	.070	.060	--	4.2	.4	32	67	73
DEC 09...	.56	.34	.130	.090	20	--	--	16	37	96
JAN 07...	.63	.61	.100	.010	7.4	--	--	35	78	44
FEB 04...	.83	.77	.090	.070	--	2.8	.1	45	98	63
MAR 05...	1.20	.57	.130	.090	4.3	--	--	59	178	79
APR 09...	.97	.72	.140	.080	4.1	--	--	134	459	90
MAY 15...	.72	.77	.120	.090	--	8.1	1.6	102	430	94
JUN 22...	1.30	.97	.200	.090	6.1	--	--	255	11400	87
JUL 17...	1.00	.70	.110	.060	--	--	<.1	193	1480	77
AUG 21...	.67	.49	.080	.030	2.5	--	--	146	875	89
SEP 18...	.73	.56	.080	.020	4.4	--	--	135	755	71

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
NOV 13...	1355	1	0	1	100	30	70	0	--	<1	0
FEB 04...	1045	2	1	1	100	30	70	0	0	1	10
MAY 15...	0940	2	0	2	0	0	70	1	--	<1	10
JUL 17...	0851	3	1	2	100	30	70	1	--	<1	10

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
NOV 13...	0	0	1	<3	1	1	0	250	--	<10	4
FEB 04...	10	0	3	<3	4	2	2	230	220	10	5
MAY 15...	0	10	1	<3	2	1	1	1300	1300	10	2
JUL 17...	0	10	1	<3	6	4	2	1900	1900	20	6

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV 13...	0	4	10	7	3	.4	.3	.1	5	2
FEB 04...	2	3	20	20	4	.3	.3	.0	4	4
MAY 15...	0	4	40	--	<1	.1	.1	.0	0	0
JUL 17...	6	0	70	70	2	800	400	400	0	0

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 13...	3	1	1	0	0	0	0	30	--	<3
FEB 04...	0	0	0	0	0	0	1	10	--	<3
MAY 15...	3	0	0	0	1	1	0	10	--	<3
JUL 17...	1	0	0	1	0	0	0	20	10	8

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDE, TOTAL (UG/L)
FEB 04...	1045	.00	2	.00	.00	.0	.00	12	.00	.6	.00
AUG 21...	0930	.00	1	.00	.00	.0	.00	.0	.00	.0	.00

DATE	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHION, TOTAL (UG/L)
FEB 04...	<.8	.00	.0	.01	.00	.1	.00	.00	.0	.00
AUG 21...	.3	.00	.8	.00	.00	.0	.00	.00	.0	.00

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)
FEB 04...	.00	.1	.00	.0	.00	.0	.00	.00	.0	.00
AUG 21...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)
FEB										
04...	.00	.00	.0	.00	.00	.0	.00	.02	.00	.00
AUG										
21...	.00	.00	.0	.00	.00	.0	.00	--	--	--

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 13,80	MAR 5,81	MAY 15,81	JUN 22,81
TIME	1355	1005	0940	1407
TOTAL CELLS/ML	340	2700	180	520
DIVERSITY: DIVISION	0.9	0.3	1.5	1.0
.CLASS	0.9	0.3	1.5	1.0
..ORDER	1.7	0.3	2.0	1.7
...FAMILY	1.9	0.4	2.1	1.9
....GENUS	1.9	0.4	2.1	1.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...COCCOMYXACEAE								
....ELAKATOTHRIX	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	--	-	42	8
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	56	11
....SCENEDESMUS	39	12	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	180#	54	2600#	95	13	7	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	39	12	--	-	--	-	14	3
....MELOSIRA	--	-	50	2	--	-	--	-
....STEPHANODISCUS	--	-	--	-	78#	43	--	-
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	25	1	--	-	--	-
...NAVICULACEAE								
....GYROSIGMA	--	-	--	-	--	-	--	-
....NAVICULA	39	12	25	1	13	7	14	3
...NITZSCHIACEAE								
....NITZSCHIA	39	12	25	1	13	7	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	52#	29	--	-
..NOSTOCALES								
...HAMMATOIDEACEAE								
....RAPHIDIOPSIS	--	-	--	-	--	-	110#	22
..OSCILLATORIALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	280#	54
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	13	7	--	-

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

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	JUL 17,81		AUG 21,81		SEP 18,81	
TIME	0851		0930		1000	
TOTAL CELLS/ML	56		140		290	
DIVERSITY: DIVISION	1.0		1.4		0.5	
.CLASS	1.0		1.4		0.5	
..ORDER	1.0		1.4		1.0	
...FAMILY	1.0		1.6		1.0	
....GENUS	1.0		1.6		1.0	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	28#	50	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	14	5
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	--	-	--	-
....SCENEDESMUS	--	-	29#	20	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	28	10
....MELOSIRA	28#	50	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	--	-	--	-
...NAVICULACEAE						
....GYROSIGMA	--	-	14	10	--	-
....NAVICULA	--	-	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	--	-	14	10	240#	81
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	87#	60	--	-
..NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	--	-	--	-
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	14	5

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

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1980	29417	531	306	24300	36	2830	30	2350	230
NOV.	1980	24765	560	322	21500	38	2550	31	2090	240
DEC.	1980	25697	586	336	23300	40	2810	33	2270	250
JAN.	1981	26286	584	335	23800	40	2860	33	2320	250
FEB.	1981	25578	591	339	23400	41	2830	33	2280	250
MAR.	1981	39162	564	324	34300	39	4070	32	3330	240
APR.	1981	49980	486	280	37800	32	4280	27	3640	210
MAY	1981	66520	406	235	42300	25	4570	22	4030	170
JUNE	1981	300610	315	183	149000	19	15200	17	14000	140
JULY	1981	118830	471	272	87300	31	9800	26	8390	200
AUG.	1981	58120	524	301	47300	35	5490	29	4580	220
SEPT	1981	340180	218	127	117000	13	11900	12	11000	94
TOTAL		1105145	**	**	631000	**	69100	**	60400	**
WTD. AVG.		3028	365	211	**	23	**	20	**	160

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	400	515	580	575	598	574	521	433	405	426	575	145
2	514	530	573	572	580	578	516	447	506	429	574	142
3	555	535	567	583	578	582	507	350	452	416	538	135
4	539	532	584	578	572	577	525	300	405	457	569	157
5	540	533	583	555	570	587	529	383	240	447	566	193
6	551	535	641	565	590	580	568	350	265	495	532	242
7	552	540	602	560	594	585	515	346	386	489	560	379
8	551	546	578	563	596	582	518	347	439	420	559	501
9	553	543	570	570	595	579	500	376	555	393	560	540
10	586	547	577	568	596	577	516	452	480	396	561	556
11	571	549	545	567	602	592	519	448	465	422	503	588
12	546	550	559	568	603	624	520	413	181	452	489	607
13	555	540	572	565	600	582	523	467	173	458	557	593
14	535	558	580	568	602	560	512	473	310	473	550	618
15	526	565	596	569	605	547	521	482	250	491	496	601
16	530	573	584	558	613	556	518	504	228	522	500	659
17	534	562	591	560	601	553	519	505	230	524	550	658
18	538	561	590	561	617	555	518	512	240	498	548	671
19	533	560	592	555	598	596	491	513	250	482	545	646
20	541	566	598	550	588	659	477	523	287	508	542	620
21	542	574	590	555	583	585	500	522	299	550	525	613
22	545	566	597	560	590	558	488	518	351	557	539	654
23	556	570	592	594	582	543	514	523	393	569	542	668
24	596	582	591	598	572	541	455	475	408	575	500	634
25	561	583	593	608	583	538	370	452	419	569	501	662
26	524	577	591	620	577	531	365	464	414	540	517	652
27	478	584	601	622	580	530	495	503	413	556	535	642
28	480	580	590	630	579	528	520	508	425	561	543	635
29	496	620	592	650	---	533	490	405	408	566	539	646
30	490	585	593	703	---	524	451	230	420	581	474	656
31	504	---	590	615	---	525	---	395	---	563	320	---
MEAN	533	559	587	583	591	566	499	439	357	496	529	524

GUADALUPE RIVER BASIN

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	15.0	12.0	11.0	14.0	16.0	17.0	25.0	---	26.0	29.0	26.0
2	25.0	16.0	13.0	10.0	12.0	---	17.0	25.0	26.0	26.0	29.0	26.0
3	25.0	17.0	12.0	11.0	11.0	15.0	21.0	23.0	26.0	26.0	29.0	26.0
4	24.0	17.0	13.0	11.0	---	16.0	22.0	23.0	25.0	27.0	29.0	26.0
5	24.0	16.0	14.0	11.0	---	17.0	18.0	23.0	25.0	27.0	29.0	27.0
6	24.0	17.0	15.0	12.0	11.0	17.0	18.0	23.0	26.0	26.0	29.0	28.0
7	23.0	17.0	16.0	12.0	11.0	18.0	20.0	23.0	27.0	25.0	28.0	27.0
8	23.0	18.0	17.0	12.0	11.0	17.0	22.0	23.0	28.0	26.0	29.0	28.0
9	23.0	18.0	16.0	11.0	12.0	16.0	22.0	25.0	28.0	26.0	29.0	27.0
10	23.0	19.0	14.0	11.0	13.0	16.0	22.0	22.0	28.0	26.0	29.0	26.0
11	23.0	18.0	12.0	12.0	11.0	16.0	23.0	21.0	27.0	26.0	29.0	26.0
12	22.0	17.0	11.0	11.0	10.0	15.0	23.0	21.0	24.0	26.0	29.0	26.0
13	23.0	17.0	13.0	11.0	10.0	15.0	23.0	24.0	26.0	---	28.0	27.0
14	23.0	19.0	---	11.0	10.0	15.0	23.0	22.0	27.0	---	29.0	27.0
15	24.0	18.0	14.0	11.0	11.0	17.0	23.0	23.0	---	---	29.0	26.0
16	---	16.0	13.0	11.0	11.0	16.0	23.0	24.0	26.0	---	---	26.0
17	24.0	14.0	14.0	10.0	12.0	15.0	23.0	25.0	26.0	28.0	29.0	25.0
18	25.0	13.0	14.0	10.0	13.0	16.0	23.0	25.0	26.0	28.0	29.0	21.0
19	23.0	13.0	15.0	---	14.0	14.0	---	24.0	27.0	29.0	29.0	22.0
20	22.0	13.0	12.0	9.0	15.0	15.0	24.0	22.0	27.0	28.0	28.0	23.0
21	21.0	13.0	11.0	10.0	16.0	17.0	24.0	23.0	28.0	28.0	27.5	23.0
22	21.0	12.0	10.0	10.0	16.0	16.0	24.0	24.0	27.0	29.0	27.0	23.0
23	20.0	12.0	10.0	10.0	15.0	17.0	24.0	25.0	27.0	29.0	27.5	25.0
24	21.0	12.0	11.0	10.0	14.0	---	22.0	23.0	26.0	29.0	28.0	24.0
25	18.0	12.0	10.0	10.0	15.0	15.0	20.0	24.0	26.0	29.0	27.0	25.0
26	18.0	11.0	9.0	11.0	16.0	15.0	21.0	25.0	26.0	29.0	27.0	25.0
27	20.0	10.0	10.0	13.0	15.0	16.0	23.0	26.0	25.0	28.0	27.0	25.0
28	---	10.0	11.0	13.0	16.0	16.0	24.0	27.0	25.0	28.0	27.0	25.0
29	16.0	11.0	11.0	13.0	---	16.0	24.0	28.0	25.0	29.0	27.5	25.0
30	15.0	11.0	11.0	14.0	---	16.0	24.0	23.0	25.0	29.0	27.0	25.0
31	15.0	---	10.0	14.0	---	17.0	---	25.0	---	29.0	27.0	---
MEAN	22.0	14.5	12.5	11.0	13.0	16.0	22.0	24.0	26.5	27.5	28.5	25.5

08176900 COLETO CREEK AT ARNOLD ROAD CROSSING NEAR SCHROEDER, TX

LOCATION.--Lat 28°51'41", long 97°13'34", Goliad County, Hydrologic Unit 12100204, on right bank at downstream side of Arnold Road Crossing, 0.7 mi (1.1 km) downstream from confluence of Twelvemile and Fifteenmile Creeks, 3.2 mi (5.1 km) north of Schroeder, 12.8 mi (20.6 km) upstream from Coleto Creek Reservoir, and 26.0 mi (41.8 km) upstream from mouth.

DRAINAGE AREA.--357 mi^2 (925 km^2).

PERIOD OF RECORD.--October 1978 to current year. Records equivalent for January 1930 to December 1933 and October 1952 to September 1979, published as "near Schroeder".

GAGE.--Water-stage recorder. Datum of gage is 100.43 ft (30.611 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. No known diversion above station. Gage-height telemeter at station. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft^3/s (920 m^3/s) Aug. 31, 1981, gage height, 17.78 ft (5.419 m); minimum daily, 3.5 ft^3/s (0.099 m^3/s) Aug. 5, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharges since at least 1872 at site 3.5 mi (5.6 km) downstream, 122,000 ft^3/s (3,460 m^3/s) Sept. 21, 1967 (slope-area measurement of peak flow), 63,700 ft^3/s (1,800 m^3/s) Oct. 16, 1946, and 46,700 ft^3/s (1,320 m^3/s) in October 1925, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft^3/s (113 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 3	1900	5,730	162	11.46	3.493
June 13	1900	17,800	504	15.15	4.618
Aug. 31	2200	*32,500	920	17.78	5.419

Minimum daily discharge, 4.4 ft^3/s (0.12 m^3/s) Apr. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149	8.1	16	9.0	13	13	9.4	17	30	76	27	3760
2	61	8.1	14	8.1	11	14	8.2	627	305	86	26	260
3	36	7.7	12	8.1	11	14	8.5	3860	117	64	25	161
4	27	7.6	12	8.0	14	14	7.7	1250	458	59	24	118
5	22	6.5	12	7.5	20	12	6.9	225	1180	58	24	91
6	18	5.9	11	8.1	21	12	6.1	118	230	109	23	75
7	16	6.1	11	8.4	19	12	5.7	81	227	165	22	65
8	15	6.1	10	7.6	17	12	5.4	63	80	98	21	58
9	14	6.1	11	8.0	16	12	5.2	53	52	86	20	55
10	13	6.1	11	7.8	15	12	5.3	46	41	124	19	52
11	12	5.6	11	7.3	12	17	5.4	39	39	63	19	50
12	11	5.4	10	6.8	12	22	5.4	36	1790	53	20	48
13	10	5.4	9.6	6.7	12	23	5.1	33	9320	49	20	47
14	10	5.4	9.8	8.6	12	20	4.6	32	2740	46	21	46
15	9.7	5.4	13	7.8	12	17	4.9	29	527	43	19	51
16	9.5	6.4	16	7.3	12	15	4.7	29	363	42	17	43
17	9.6	9.2	15	7.2	12	14	4.4	27	884	41	16	40
18	9.1	8.6	14	6.5	12	13	5.3	25	199	40	16	40
19	8.7	7.4	12	22	12	11	180	23	118	38	16	40
20	8.1	7.3	11	94	12	11	103	21	95	37	21	40
21	8.2	9.0	9.9	60	11	12	53	21	83	35	25	40
22	8.2	17	9.9	36	11	11	36	20	72	34	19	38
23	8.1	18	9.9	26	11	10	30	20	70	34	16	36
24	7.8	16	10	21	11	9.7	64	50	190	33	16	36
25	6.9	16	10	18	13	9.9	169	103	277	32	35	35
26	7.1	31	9.9	17	16	9.9	92	126	390	35	23	34
27	7.9	30	10	17	15	9.9	65	53	302	40	19	35
28	7.7	25	9.9	15	13	9.9	44	32	159	36	19	34
29	7.9	20	9.6	14	---	10	32	265	103	32	28	34
30	8.1	17	9.5	13	---	11	24	180	84	30	103	34
31	8.1	---	9.3	12	---	10	---	49	---	29	8850	---
TOTAL	554.7	333.4	349.3	503.8	378	403.3	1000.2	7553	20525	1747	9569	5496
MEAN	17.9	11.1	11.3	16.3	13.5	13.0	33.3	244	684	56.4	309	183
MAX	149	31	16	94	21	23	180	3860	9320	165	8850	3760
MIN	6.9	5.4	9.3	6.5	11	9.7	4.4	17	30	29	16	34
AC-FT	1100	661	693	999	750	800	1980	14980	40710	3470	18980	10900

CAL YR 1980	TOTAL	16942.3	MEAN	46.3	MAX 3700	MIN 3.5	AC-FT	33610
WTR YR 1981	TOTAL	48412.7	MEAN	133	MAX 9320	MIN 4.4	AC-FT	96030

08176990 COLETO CREEK RESERVOIR INFLOW (GUADALUPE DIVERSION) NEAR SCHROEDER, TX

LOCATION.--Lat 28°50'21", long 97°11'20", Victoria County, Hydrologic Unit 12100204, on right bank of small tributary 1,200 ft (365 m) upstream from Coleto Creek and 2.6 mi (4.2 km) northeast of Schroeder.

PERIOD OF RECORD.--March 1980 to current year

GAGE.--Water-stage recorder. Datum of gage is 100.52 ft (30.638 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Discharge represents flow diverted by pumping from the Guadalupe River to be used as makeup water for the Central Power and Light Co. generating plant on Coleto Creek Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 36 ft^3/s (1.02 m^3/s) Apr. 2, 11, Sept. 11, 1980; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 35 ft^3/s (0.99 m^3/s) Jan. 16; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	32	25	18	29	32	33	32	.00	.00	.00	.00
2	34	32	29	19	29	16	33	31	.00	.00	.00	.00
3	31	29	26	19	29	22	33	3.8	.00	.00	.00	.00
4	33	30	24	19	28	33	33	.03	.00	.00	.00	.00
5	32	29	25	19	30	33	32	.03	.00	.00	.00	.00
6	32	27	19	19	29	33	33	.01	.00	.00	.00	.00
7	31	29	14	19	28	32	33	.00	.00	.00	.00	.00
8	30	29	18	18	28	32	33	.00	.00	.00	.00	.00
9	30	23	17	18	29	32	33	.00	.00	.00	.00	.00
10	33	25	18	18	31	32	33	.00	.00	.00	.00	.00
11	32	29	13	17	27	31	33	.00	.00	.00	.00	.00
12	31	25	12	17	23	31	33	.00	.00	.00	.00	.00
13	30	25	16	19	20	31	33	.00	.00	.00	.00	.00
14	29	23	15	28	19	31	32	.00	.00	.00	.00	.00
15	25	17	16	31	18	31	32	.00	.00	.00	.00	.00
16	26	15	15	35	21	31	33	.00	.00	.00	.00	.00
17	28	15	14	34	27	31	32	.00	.00	.00	.00	.00
18	29	17	18	34	31	32	32	.00	.00	.00	.00	.00
19	26	20	16	33	30	31	32	.00	.00	.00	.00	.00
20	25	22	10	33	34	32	32	.00	.00	.00	.00	.00
21	28	28	16	33	33	32	31	.00	.00	.00	.00	.00
22	32	27	16	32	33	31	31	.00	.00	.00	.00	.00
23	31	25	18	32	33	31	30	.00	.00	.00	.00	.00
24	27	23	17	31	32	31	27	.00	.00	.00	.00	.00
25	20	21	15	30	31	32	24	.00	.00	.00	.00	.00
26	19	18	15	31	28	32	24	.00	.00	.00	.00	.00
27	22	20	15	30	32	32	25	.00	.00	8.0	.00	.00
28	29	21	15	28	32	31	29	.00	.00	8.3	.00	.00
29	28	23	16	28	---	32	33	.00	.00	.06	.00	.00
30	31	23	18	33	---	34	33	.00	.00	9.3	.00	.00
31	33	---	19	32	---	34	---	.00	---	8.4	.00	---
TOTAL	899	722	540	807	794	961	940	66.87	.00	34.06	.00	.00
MEAN	29.0	24.1	17.4	26.0	28.4	31.0	31.3	2.16	.000	1.10	.000	.000
MAX	34	32	29	35	34	34	33	32	.00	9.3	.00	.00
MIN	19	15	10	17	18	16	24	.00	.00	.00	.00	.00
AC-FT	1780	1430	1070	1600	1570	1910	1860	133	.00	68	.00	.00

WTR YR 1981 TOTAL 5763.93 MEAN 15.8 MAX 35 MIN .00 AC-FT 11430

08177300 PERDIDO CREEK AT FARM ROAD 622 NEAR FANNIN, TX

LOCATION.--Lat 28°45'05", long 97°19'01", Goliad County, Hydrologic Unit 12100204, at right downstream end of bridge on Farm Road 622, 1.2 mi (1.9 km) downstream from Farmer Creek, 3.1 mi (5.0 km) upstream from Kilgore Creek, and 6.1 mi (9.8 km) northwest of Fannin.

DRAINAGE AREA.--28.0 mi^2 (72.5 km^2).

PERIOD OF RECORD.--June 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 134.66 ft (41.044 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. No known diversion above gage. Several observations of water temperature were made during the year. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,600 ft^3/s (442 m^3/s) May 29, 1981, gage height, 13.80 ft (4.206 m), from floodmark; minimum daily, 0.04 ft^3/s (0.001 m^3/s) July 7, 8, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 20, 1976, reached a stage of 26.28 ft (8.010 m), and flood of Sept. 15, 16, 1967, reached a stage of 26.08 ft (7.949 m), from information by the State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 2	1830	4,300	123	10.16	3.097	June 4	2000	619	17.5	6.88	2.097
May 25	0330	511	14.5	6.66	2.030	June 12	0930	5,750	163	10.84	3.304
May 29	1700	*15,600	442	a13.80	4.206	July 6	1200	1,290	36.5	7.87	2.399

a From floodmark.

Minimum daily discharge, 0.09 ft^3/s (0.003 m^3/s) Oct. 6, 7, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.19	.14	.28	.32	.28	.37	.28	.24	36	5.4	.89	.95
2	.12	.16	.27	.32	.23	.32	.25	496	112	3.9	.88	.82
3	.12	.17	.25	.34	.25	.39	.28	400	46	2.4	.89	.80
4	.10	.17	.27	.36	.49	.30	.22	22	119	2.3	.85	.76
5	.10	.16	.30	.36	.44	.22	.19	3.3	73	3.8	.90	.74
6	.09	.17	.28	.39	.32	.24	.19	1.9	9.0	258	.89	.80
7	.09	.17	.28	.33	.31	.25	.22	1.6	24	33	.84	.81
8	.10	.17	.32	.32	.28	.25	.22	1.4	2.8	5.2	.82	.76
9	.09	.19	.30	.32	.27	.25	.22	1.4	1.4	3.0	.71	.78
10	.11	.19	.31	.32	.25	.30	.19	1.1	1.0	2.4	.69	.80
11	.11	.19	.28	.32	.19	.53	.19	1.0	.98	1.9	.71	.80
12	.11	.18	.29	.32	.21	.45	.19	1.0	721	1.7	.70	.79
13	.12	.17	.32	.33	.22	.37	.19	1.0	206	1.6	.73	.85
14	.12	.18	.32	.34	.23	.31	.19	.96	73	1.4	.74	2.6
15	.11	.17	.57	.32	.25	.28	.17	.89	29	1.4	.67	4.1
16	.12	.25	.41	.32	.25	.27	.17	1.0	13	1.5	.62	1.3
17	.15	.24	.36	.32	.25	.28	.17	.92	9.4	1.4	.60	1.0
18	.21	.17	.36	.32	.27	.25	.22	.85	6.3	1.2	.59	1.0
19	.14	.19	.36	1.9	.28	.24	.19	.80	5.3	1.2	.53	1.0
20	.14	.19	.32	1.6	.28	.24	.18	.74	4.5	1.2	.56	1.1
21	.14	.35	.32	.40	.28	.27	.21	.76	4.1	1.2	.49	1.1
22	.12	.37	.32	.32	.24	.21	.29	.78	3.8	1.1	.48	1.1
23	.12	.28	.30	.32	.24	.22	.40	.86	3.6	1.1	.48	1.4
24	.13	.25	.31	.32	.27	.22	.35	1.6	6.6	1.1	.65	1.1
25	.12	.57	.28	.32	.48	.25	.32	75	4.9	1.3	.87	1.1
26	.13	.48	.30	.32	.40	.25	.27	4.4	3.7	2.8	.71	1.1
27	.16	.27	.32	.34	.31	.25	.23	3.0	3.5	1.8	.65	1.1
28	.16	.25	.32	.32	.28	.28	.21	2.7	3.2	1.1	.80	1.2
29	.14	.25	.32	.31	---	.32	.22	1460	2.9	.95	1.3	1.2
30	.12	.28	.32	.28	---	.25	.21	70	4.0	.92	5.1	1.2
31	.14	---	.32	.30	---	.28	---	63	---	.90	1.6	---
TOTAL	3.92	6.97	9.88	13.02	8.05	8.91	6.83	2620.20	1532.98	348.17	27.94	34.16
MEAN	.13	.23	.32	.42	.29	.29	.23	84.5	51.1	11.2	.90	1.14
MAX	.21	.57	.57	1.9	.49	.53	.40	1460	721	258	5.1	4.1
MIN	.09	.14	.25	.28	.19	.21	.17	.24	.98	.90	.48	.74
CFSM	.005	.008	.01	.02	.01	.01	.008	3.02	1.83	.40	.03	.04
IN.	.01	.01	.01	.02	.01	.01	.01	3.48	2.04	.46	.04	.05
AC-FT	7.8	14	20	26	16	18	14	5200	3040	691	55	68

CAL YR 1980 TOTAL 421.75 MEAN 1.15 MAX 140 MIN .04 CFSM .04 IN .56 AC-FT 837
WTR YR 1981 TOTAL 4621.03 MEAN 12.7 MAX 1460 MIN .09 CFSM .45 IN 6.14 AC-FT 9170

08177360 COLETO CREEK RESERVOIR (CONDENSER NO. 1) NEAR FANNIN, TX

LOCATION.--Lat 28°42'54", long 97°12'42", Goliad County, Hydrologic Unit 12100204, at Condensor No. 1 cooling water outlet, at Central Power and Light power plant, 2 mi (3 km) northeast of Fannin, and 14 mi (23 km) southwest of Victoria.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1980 to September 1981.

INSTRUMENTATION.--Water temperature is recorded continuously at this station.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 40.0°C July 25, Aug. 18; minimum daily, 14.5°C Dec. 20.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	31.5	29.5	31.0	29.0	27.5	28.0	24.5	23.5	24.0	23.0	22.5	23.0
2	32.5	30.5	31.5	29.0	27.5	28.0	24.5	23.5	24.0	23.0	23.0	23.0
3	33.0	30.0	31.5	29.0	27.5	27.5	24.0	23.0	23.5	23.0	22.0	23.0
4	34.5	30.5	32.5	28.0	27.0	27.5	25.0	23.5	24.5	24.0	23.0	23.5
5	34.0	30.0	32.5	29.5	27.0	28.5	26.5	25.0	25.5	24.0	22.5	23.0
6	34.0	30.5	31.5	29.5	26.5	28.0	27.0	26.0	26.5	24.0	22.5	23.5
7	34.0	30.5	32.0	29.5	27.0	28.0	27.5	25.5	27.0	24.0	23.0	23.5
8	32.5	30.0	31.0	29.5	27.0	28.5	27.5	26.0	27.0	23.5	23.0	23.5
9	32.5	30.0	31.5	30.0	29.0	29.5	27.0	25.0	26.0	23.5	23.0	23.5
10	32.5	30.0	31.5	30.5	29.5	30.0	25.0	24.0	24.5	24.0	19.5	23.5
11	32.5	31.5	32.0	31.0	30.0	30.5	24.5	23.5	24.0	24.0	23.5	24.0
12	32.0	30.0	31.0	31.5	30.0	31.0	25.0	23.0	24.0	24.0	23.0	23.5
13	31.5	30.0	31.0	31.0	22.5	26.5	25.0	24.5	24.5	23.0	22.5	23.0
14	31.5	30.0	31.0	24.0	23.0	23.5	25.5	23.0	25.0	24.0	21.5	23.0
15	31.0	30.0	30.0	23.5	22.0	23.0	25.5	23.0	25.0	23.5	22.5	23.0
16	31.0	29.0	30.0	22.0	20.0	21.5	26.0	24.0	25.5	23.5	22.5	23.0
17	31.0	29.0	30.0	20.0	17.0	18.5	26.0	23.5	25.0	23.0	20.5	21.5
18	31.0	29.0	30.0	23.0	19.0	21.0	26.5	23.0	24.5	21.0	20.5	21.0
19	30.0	28.5	29.0	25.0	22.5	24.0	26.5	23.5	25.0	21.0	19.5	20.5
20	30.0	28.5	29.0	24.5	24.0	24.5	24.5	14.5	17.5	21.0	19.0	20.0
21	30.0	28.5	29.0	24.5	23.0	24.0	19.5	15.5	18.5	21.5	18.5	20.5
22	30.0	28.5	29.0	23.5	23.0	23.0	22.0	19.5	20.5	22.0	18.0	20.5
23	30.0	28.5	29.0	23.5	23.0	23.0	22.5	19.5	22.0	22.5	21.0	22.0
24	30.0	28.5	29.0	23.5	23.5	23.5	23.0	21.0	22.5	23.0	21.5	22.5
25	29.0	28.0	28.5	23.5	22.5	23.0	22.0	18.5	21.0	23.0	22.0	22.5
26	29.0	28.0	28.5	23.0	19.5	21.5	21.5	20.5	21.0	23.5	21.5	23.0
27	29.0	28.0	28.5	22.5	20.5	22.0	22.5	18.0	21.0	24.5	23.5	24.0
28	29.0	28.0	28.5	22.5	21.5	22.0	22.5	18.0	20.0	25.0	24.0	24.5
29	29.0	28.0	28.5	23.0	22.0	22.5	23.0	19.5	22.0	25.0	24.0	24.5
30	29.0	28.0	28.5	23.5	22.5	23.0	23.5	21.5	22.5	25.0	23.0	24.0
31	29.0	27.5	28.0	---	---	---	23.0	22.0	23.0	25.0	23.0	24.0
MONTH	34.5	27.5	30.0	31.5	17.0	25.0	27.5	14.5	23.5	25.0	18.0	23.0

08177360 COLETO CREEK RESERVOIR (CONDENSER NO. 1) NEAR FANNIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	25.0	23.0	24.0	28.0	26.5	27.5	30.5	28.5	29.5	36.0	34.5	35.0
2	24.0	23.0	23.5	27.5	26.0	27.5	30.5	29.5	30.0	35.5	29.5	34.0
3	23.5	22.5	23.0	27.5	26.0	26.5	30.5	28.5	30.0	30.0	29.0	29.5
4	23.0	22.5	22.5	28.0	26.0	27.0	30.5	30.0	30.0	32.5	30.0	31.0
5	23.0	22.0	22.5	28.0	27.0	27.5	30.5	29.5	30.0	34.0	30.0	32.5
6	22.5	21.5	22.0	28.0	27.0	27.5	30.5	29.5	30.0	34.0	31.5	33.0
7	23.0	19.5	22.0	27.5	26.5	27.0	31.0	30.0	30.5	34.5	31.5	33.5
8	23.5	22.0	23.0	27.5	26.0	27.0	31.0	28.5	30.5	34.5	32.5	33.5
9	23.5	22.0	22.5	27.5	26.0	27.0	31.5	30.5	31.0	34.0	32.0	33.5
10	25.0	19.5	21.5	26.5	25.5	26.5	31.5	30.0	31.0	30.5	29.5	30.0
11	24.0	21.0	22.0	25.5	25.0	25.5	31.5	31.0	31.5	33.0	30.0	31.5
12	21.5	20.0	20.5	25.5	25.0	25.0	33.0	28.5	31.0	33.0	30.0	32.0
13	20.5	19.5	20.0	26.0	25.5	26.0	33.0	28.5	31.5	33.5	30.0	32.0
14	21.0	20.0	20.5	26.0	19.0	22.0	33.0	28.5	31.0	34.0	31.0	33.0
15	22.0	20.5	21.0	20.0	19.0	19.5	33.0	28.5	31.5	33.0	32.0	32.5
16	23.0	20.5	22.0	20.0	19.5	20.0	33.5	28.5	31.5	33.5	32.5	33.0
17	24.0	20.0	23.0	20.5	20.0	20.0	34.0	33.0	33.5	34.0	33.0	33.5
18	24.5	22.5	23.5	20.5	19.5	20.0	33.5	33.0	33.5	34.5	33.5	34.0
19	25.0	23.0	24.5	19.5	18.0	18.5	34.0	32.5	33.5	35.0	33.5	34.0
20	26.0	23.5	25.0	22.0	18.0	19.0	34.5	33.0	33.5	34.0	30.0	32.5
21	25.0	24.0	25.0	24.5	23.0	23.5	34.0	33.0	33.5	33.5	29.5	30.5
22	25.5	23.5	24.5	26.5	23.0	25.0	34.0	28.5	33.0	34.5	29.5	31.5
23	25.5	24.0	25.0	26.0	24.5	25.5	33.5	28.5	32.0	34.0	29.0	30.0
24	25.5	23.5	25.0	27.0	25.0	26.0	32.0	30.0	31.5	34.0	29.5	29.5
25	26.0	24.5	25.5	26.5	26.0	26.5	32.0	29.5	31.0	34.0	29.5	29.5
26	27.0	24.5	26.5	27.5	26.5	27.0	34.5	29.5	32.5	31.0	30.0	30.0
27	27.5	26.0	27.0	27.5	27.0	27.5	34.0	30.5	33.5	35.5	30.5	33.0
28	28.5	26.0	27.5	28.0	27.5	27.5	34.5	33.0	34.0	36.0	33.5	35.0
29	---	---	---	28.0	27.5	27.5	35.0	33.5	34.5	35.5	30.0	34.0
30	---	---	---	29.0	27.0	28.0	35.0	35.0	34.5	33.5	30.0	31.0
31	---	---	---	29.0	27.5	28.5	---	---	---	35.0	30.0	32.5
MONTH	28.5	19.5	23.5	29.0	18.0	25.0	35.0	28.5	32.0	36.0	29.0	32.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	35.5	32.5	34.5	37.5	37.0	37.0	39.5	38.5	39.0	37.5	36.5	37.0
2	35.5	35.0	35.5	38.0	36.5	37.0	39.5	38.5	39.0	37.5	36.5	37.0
3	35.5	32.5	34.5	38.0	37.0	37.5	39.5	38.0	38.5	37.5	36.5	37.0
4	35.0	32.5	34.5	38.5	37.5	38.0	39.5	31.0	36.0	37.5	36.5	37.0
5	35.0	31.5	33.5	38.0	36.5	37.5	39.0	38.0	38.5	38.0	36.5	37.5
6	35.5	33.5	34.5	37.0	34.5	36.0	39.0	38.0	38.5	38.0	37.5	37.5
7	36.5	34.0	35.5	35.5	32.5	34.5	39.0	38.0	38.5	38.5	37.5	38.0
8	37.0	34.5	36.0	37.0	35.0	36.0	39.0	38.0	38.5	38.5	37.5	38.0
9	37.0	29.5	34.0	37.0	36.5	37.0	39.5	38.5	39.0	38.5	37.5	38.0
10	37.5	35.5	37.0	38.0	37.0	37.5	39.5	38.5	39.0	38.0	37.5	37.5
11	37.0	35.0	36.5	38.5	37.5	37.5	39.5	38.5	39.0	38.0	35.5	37.5
12	36.5	30.0	33.5	38.5	37.5	38.0	39.5	38.5	39.0	38.0	37.0	37.5
13	36.0	34.5	35.0	39.0	37.5	38.0	39.0	38.5	38.5	38.5	37.5	38.0
14	37.0	35.5	36.0	39.0	37.5	38.5	39.0	38.5	38.5	38.0	37.0	37.5
15	37.0	35.5	36.0	39.0	37.5	38.0	39.0	38.0	38.5	37.5	36.0	37.0
16	36.5	35.5	36.5	39.0	37.5	38.0	39.5	38.0	39.0	37.5	35.5	37.0
17	36.5	33.5	35.5	39.0	37.5	38.5	39.5	38.5	39.0	37.0	32.0	35.5
18	36.5	32.5	35.5	39.0	30.5	35.0	40.0	38.5	39.0	32.0	29.0	30.0
19	37.0	34.5	36.0	39.0	38.0	38.5	39.0	38.5	39.0	30.0	29.0	29.5
20	37.0	34.5	36.0	39.0	38.0	38.5	38.5	38.0	38.5	30.0	29.0	29.5
21	37.5	35.5	36.5	39.5	37.5	38.5	38.5	37.5	38.0	30.0	29.0	29.5
22	37.5	36.0	36.5	39.5	38.0	39.0	38.5	38.0	38.0	29.5	28.5	29.0
23	38.0	36.5	37.0	39.5	38.5	39.0	39.0	38.0	38.5	29.5	28.5	29.0
24	38.0	37.0	37.5	39.5	38.5	39.0	39.0	37.0	38.5	29.5	28.5	29.0
25	37.5	30.0	34.0	40.0	39.0	39.5	39.0	37.0	38.0	29.5	28.5	29.0
26	38.0	33.0	36.0	39.5	39.0	39.0	39.0	37.0	38.5	29.5	28.5	29.0
27	38.0	36.5	37.5	39.0	38.5	39.0	39.0	37.5	38.5	29.5	28.5	29.0
28	38.0	36.5	37.5	39.5	38.0	38.5	38.5	37.5	38.0	29.0	28.0	28.5
29	38.0	37.0	37.5	39.5	38.0	38.5	38.0	36.5	37.5	29.0	28.0	28.5
30	37.5	36.0	37.0	39.5	38.0	38.5	37.0	36.0	36.5	29.0	28.0	28.5
31	---	---	---	39.5	38.5	39.0	37.0	36.0	36.5	---	---	---
MONTH	38.0	29.5	36.0	40.0	30.5	38.0	40.0	31.0	38.5	38.5	28.0	34.0

08177400 COLETO CREEK RESERVOIR NEAR VICTORIA, TX

LOCATION.--Lat 28°43'51", long 97°09'53", Victoria County, Hydrologic Unit 12100204, on right bank 175 ft (53 m) upstream from right end of spillway of dam on Coleto Creek, 1.6 mi (2.6 km) upstream from U.S. Highway 59, 11.6 mi (18.7 km) west of Victoria, and 12.8 mi (20.1 km) upstream from mouth. Record includes contents of station 08177240 Coleto Creek Reservoir (Turkey Creek Arm) near Schroeder, and station 08177380 Coleto Creek Reservoir (Sulphur Creek Arm) near Fannin.

DRAINAGE AREA.--494 mi² (1,279 km²).

PERIOD OF RECORD.--February 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage 80.00 ft (23.384 m) National Geodetic Vertical Datum of 1929. Supplementary gage (Turkey Creek Arm).--Water-stage recorder 2.7 mi (4.3 km) upstream at datum 90.00 ft (17.432 m) National Geodetic Vertical Datum of 1929. Station 08177240 Coleto Creek Reservoir (Turkey Creek Arm) near Schroeder is locally known as Dike No. 2.

Supplementary gage (Sulphur Creek Arm).--Water-stage recorder 2.8 mi (4.5 km) upstream at datum 90.00 ft (27.432 m) National Geodetic Vertical Datum of 1929. Station 0817730 Coleto Creek Reservoir (Sulphur Creek Arm) near Fannin is known locally as Dike No. 1.

REMARKS.--The reservoir system consists of the main reservoir (station 08177400), Turkey Creek Arm (station 08177240), and Sulphur Creek Arm (station 08177380). Figures shown below are the total contents for the three stations. Cooling water is diverted from the main reservoir through a Central Power and Light coal-fired generating plant, through a canal to the Sulphur Creek Arm, and then through a canal to Turkey Creek Arm where it is released back into the main reservoir. The system was built by the Guadalupe-Blanco River Authority, and storage began in February 1980.

The main reservoir is formed by a compacted earthfill dam 20,800 ft (6,340 m) long, including a 2,000-foot (610 m) upcontrolled spillway and a 403-foot (123 m) wide concrete outlet structure with seven 40 x 28-foot (12.2 x 8.5 m) spillway gages. Low-flow releases are made through the dam by a controlled 8-inch (203 mm) pipe. Turkey Creek Arm is formed by a compacted earthfill dam 2,250 ft (686 m) long, including a 186-foot (56.7 m) wide concrete outlet structure with two 40 x 11 ft (12.2 x 13.4 m) spillway gates. Sulphur Creek Arm is formed by a compacted earthfill dam 1,030 ft (314 m) long, including a 186-foot (56.7 m) wide concrete outlet structure with two 40 x 11-foot (12.2 x 3.4 m) spillway gates. Data regarding the dams and reservoirs are given in the following table:

	Coleto Creek Reservoir		Turkey Creek Arm		Sulphur Creek Arm	
	Gage height (feet)	Contents (acre-feet)	Gage height (feet)	Contents (acre-feet)	Gage height (feet)	Contents (acre-feet)
Top of dam	39.0	140,200	17.0	7,330	17.0	2,550
Spillway	27.3	63,560	--	--	--	--
Top of spillway gates	19.0	34,000	12.9	4,950	12.9	1,640
Crest of spillway	-9.0	954	1.89	1,400	1.91	306

COOPERATION.--Elevations and capacity tables were furnished by Forrest and Cotton Engineers, Consulting Engineers for the Guadalupe-Blanco River Authority.

EXTREMES FOR PERIOD FEBRUARY TO SEPTEMBER 1980.--Maximum contents, 22,420 acre-ft (27.6 hm 3) Sept. 30 (stage rising); minimum, no appreciable storage prior to Feb. 28.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 40,050 acre-ft (49.4 hm³) May 25; minimum, 22,600 acre-ft (27.9 hm³) Nov. 16.

CONTENTS, IN ACRE-FEET, FEBRUARY TO SEPTEMBER 1980
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	344	2140	4160	16580	16330	16040	17810
2					---	376	2260	4230	16570	16320	16090	17810
3					---	412	2460	4290	16580	16300	16080	17820
4					---	454	2560	4340	16580	16260	16050	17870
5					---	491	2640	4390	16600	16220	15880	17860
6					---	534	2720	4440	16600	16210	15990	17950
7					---	577	2800	4510	16590	16100	16060	18090
8					---	620	2840	4820	16570	16110	16090	18190
9					---	665	2900	4930	16540	16120	16090	18280
10					---	707	2980	5010	16540	16080	17200	18340
11					---	745	3050	5090	16520	16050	17770	18380
12					---	773	3110	5160	16520	16020	17890	18400
13					---	797	3170	5230	16620	15980	17920	18440
14					---	821	3240	5310	16660	15950	17940	18500
15					---	856	3240	5440	16660	15910	18030	18520
16					---	893	3360	5930	16640	15860	18030	18530
17					---	954	3430	6280	16630	15800	18060	18560
18					---	1010	3490	6470	16510	15740	18060	18560
19					---	1090	3510	13670	16630	15730	18070	18560
20					---	1170	3570	14730	16460	15720	18060	18560
21					---	1230	3600	15260	16400	15720	18040	18540
22					---	1280	3660	15400	16350	15740	18020	18520
23					---	1360	3720	15480	16400	15760	18020	18540
24					---	1420	3780	15560	16490	15750	18020	18540
25					---	1490	3840	15610	16480	15740	17980	18520
26					---	1600	3880	15650	16520	15760	17960	18800
27					---	1700	3930	15660	16490	15770	17950	19330
28					---	1800	4000	15550	16470	15990	17930	19340
29					305	1900	4050	15360	16300	16020	18020	19280
30					---	1980	4110	16450	16210	16030	18020	22420
31					---	2050	---	16590	---	16040	18010	---
MAX					---	2050	4110	16590	16660	16330	18070	22420
MIN					---	344	2140	4160	16210	15720	15880	17810

WTR YR 1980 MAX - MIN -

08177400 COLETO CREEK RESERVOIR NEAR VICTORIA, TX--Continued

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22760	22740	23310	23420	25220	26480	27660	29590	37310	36890	36560	36640
2	22840	22740	23210	23400	25140	26500	27710	34310	37790	36430	36460	36560
3	22800	22800	23280	23460	25250	26620	27710	37880	37420	36480	36430	36470
4	22820	22740	23360	23420	25430	26600	27660	37430	39020	36530	36350	36610
5	22800	22760	23400	23480	25550	26560	27610	37840	36940	37070	36300	36520
6	22740	22760	23440	23520	25650	26600	27680	38050	37280	37200	36210	36570
7	22760	22800	23420	23440	25740	26650	27700	38080	36800	37150	36200	36550
8	22740	22800	23430	23500	25740	26630	27730	38060	36850	36630	36180	36570
9	22720	22780	23380	23480	25900	26650	27750	38150	36920	36820	36090	36570
10	22760	22780	23320	23520	25800	26690	27760	37990	37000	36380	36020	36590
11	22740	22780	23320	23500	25600	26870	27780	37620	37230	36600	36010	36640
12	22690	22800	23360	23410	25720	27010	27780	37170	37250	36680	36060	36700
13	22690	22860	23400	23510	25720	27000	27780	37210	38000	36770	36010	36710
14	22710	22690	23400	23560	25720	27080	27780	37080	37140	36760	35970	36930
15	22710	22620	23500	23550	25770	27150	27810	37100	36920	36730	35920	36640
16	22710	22600	23500	23600	25790	27170	27810	37130	36830	36730	35880	36640
17	22750	22670	23480	23570	25870	27240	27830	37100	36710	36750	35870	36340
18	22870	22630	23540	23610	25950	27180	27830	37070	36560	36720	35810	36300
19	22790	22610	23420	24200	26020	27150	28150	36850	36710	36680	35730	36350
20	22790	22650	23340	24510	26090	27250	28430	36710	36800	36680	35720	36420
21	22810	22710	23340	24650	26130	27370	28540	36700	36730	36650	35680	36430
22	22810	22790	23340	24750	26000	27250	28590	36660	36840	36620	35670	36480
23	22850	22870	23440	24830	26070	27270	28540	36660	36970	36530	35590	36560
24	22730	22850	23360	24910	26140	27300	28640	37030	36720	36470	35530	36550
25	22710	22970	23300	25000	26240	27330	29020	40050	36970	36410	35570	36530
26	22810	23050	23400	25090	26330	27400	29220	39110	36600	36640	35520	36520
27	22850	23090	23380	25090	26390	27470	29370	38290	36620	36700	35620	36520
28	22690	23110	23400	25140	26430	27500	29450	37780	36630	36690	35620	36500
29	22620	23180	23440	25210	---	27530	29500	38940	36530	36630	35820	36490
30	22620	23260	23380	25190	---	27560	29560	37800	36680	36630	36690	36490
31	22700	---	23420	25310	---	27640	---	37830	---	36600	39160	---
MAX	22870	23260	23540	25310	26430	27640	29560	40050	39020	37200	39160	36930
MIN	22620	22600	23210	23400	25140	26480	27610	29590	36530	36380	35520	36300

WTR YR 1981 MAX 40050 MIN 22600

08177410 COLETO CREEK RESERVOIR (OUTFLOW) NEAR VICTORIA, TX

LOCATION.--Lat 28°43'54", long 97°09'50", Victoria County, Hydrologic Unit 12100204, on top of Coleto Creek Dam at Pier No. 4, 1.6 mi (2.6 km) upstream from U.S. Highway 59, and 11.6 mi (18.7 km) west of Victoria.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1980 to September 1981.

INSTRUMENTATION.--Water temperature is recorded continuously at this station.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 31; minimum daily, 11.5°C Jan. 28.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	27.5	27.0	27.0	19.5	18.5	19.0	13.5	13.0	13.5	14.0	13.5	14.0
2	27.0	25.5	26.0	19.0	18.0	18.5	13.5	13.0	13.0	14.0	13.5	13.5
3	25.5	25.0	25.0	18.0	17.5	18.0	13.5	13.0	13.5	13.5	13.5	13.5
4	25.0	24.5	25.0	18.0	17.5	18.0	13.5	13.5	13.5	13.5	13.0	13.5
5	25.0	24.5	24.5	18.0	17.5	18.0	13.5	13.0	13.5	13.0	13.0	13.0
6	25.0	25.0	25.0	18.0	17.5	18.0	14.0	13.0	13.5	13.0	13.0	13.0
7	25.0	25.0	25.0	18.0	17.5	18.0	14.5	13.5	14.0	13.5	13.0	13.0
8	25.0	25.0	25.0	18.0	17.5	18.0	15.0	14.5	14.5	13.5	13.5	13.5
9	25.0	25.0	25.0	18.0	18.0	18.0	15.0	14.5	14.5	13.5	13.5	13.5
10	25.0	25.0	25.0	18.0	17.5	18.0	15.0	15.0	15.0	13.5	13.5	13.5
11	25.5	25.0	25.0	18.0	18.0	18.0	15.0	15.0	15.0	14.0	13.5	13.5
12	25.5	25.0	25.5	18.5	18.0	18.0	15.5	15.0	15.0	14.0	13.5	14.0
13	25.5	25.0	25.5	18.5	18.0	18.5	15.5	15.0	15.5	14.0	14.0	14.0
14	26.0	25.0	25.5	18.5	18.0	18.5	15.5	15.5	15.5	14.0	14.0	14.0
15	26.0	25.5	25.5	18.5	18.5	18.5	15.5	15.5	15.5	14.5	14.0	14.0
16	26.0	25.5	25.5	19.5	18.5	19.0	15.5	15.5	15.5	14.5	14.0	14.5
17	26.0	25.0	25.5	19.0	17.5	18.0	16.0	15.5	16.0	14.5	14.5	14.5
18	26.0	25.5	26.0	18.0	17.0	17.5	16.0	16.0	16.0	14.5	14.5	14.5
19	26.5	26.0	26.0	17.5	17.0	17.0	16.5	16.0	16.0	14.5	14.0	14.5
20	26.0	25.5	26.0	17.0	16.5	17.0	17.0	16.5	17.0	14.5	14.0	14.5
21	25.5	25.0	25.0	17.0	16.0	16.5	16.5	16.0	16.5	14.5	13.5	14.0
22	25.0	24.5	25.0	16.5	16.0	16.5	16.0	15.5	15.5	13.5	13.0	13.0
23	25.0	24.0	24.5	16.5	15.5	16.0	15.5	15.0	15.5	13.0	12.5	12.5
24	24.5	24.0	24.0	16.0	15.5	16.0	15.5	15.0	15.5	12.5	12.5	12.5
25	23.5	23.0	23.5	16.0	15.0	15.5	15.0	15.0	15.0	12.5	12.5	12.5
26	23.5	22.5	23.0	15.5	15.0	15.5	15.0	15.0	15.0	12.5	12.5	12.5
27	23.0	22.5	23.0	15.5	15.0	15.0	15.0	14.5	14.5	12.5	12.0	12.5
28	23.0	22.0	22.5	15.5	15.0	15.0	14.5	14.5	14.5	12.5	11.5	12.5
29	21.5	20.0	20.5	15.0	14.0	14.5	14.5	14.0	14.5	12.5	12.5	12.5
30	20.0	19.5	20.0	14.0	13.0	13.5	14.5	14.0	14.5	12.5	12.5	12.5
31	19.5	19.0	19.0	---	---	---	14.5	14.0	14.0	12.5	12.5	12.5
MONTH	27.5	19.0	24.5	19.5	13.0	17.0	17.0	13.0	15.0	14.5	11.5	13.5

08177410 COLETO CREEK RESERVOIR (OUTFLOW) NEAR VICTORIA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.0	12.5	12.5	13.5	13.5	13.5	18.5	18.5	18.5	21.5	21.0	21.0
2	13.0	13.0	13.0	14.0	13.5	14.0	19.0	18.5	18.5	21.5	21.0	21.5
3	13.0	13.0	13.0	14.0	14.0	14.0	19.0	18.5	18.5	25.0	21.5	23.0
4	13.0	13.0	13.0	14.5	14.0	14.0	19.5	18.5	19.0	24.5	23.5	23.5
5	13.0	13.0	13.0	14.5	14.5	14.5	20.0	19.0	19.5	23.5	23.0	23.0
6	13.0	13.0	13.0	14.5	14.5	14.5	20.0	19.5	20.0	22.5	22.5	22.5
7	13.5	13.0	13.5	14.5	14.5	14.5	20.0	19.5	20.0	22.5	22.5	22.5
8	13.5	13.5	13.5	15.0	14.5	14.5	20.0	20.0	20.0	22.5	22.0	22.5
9	13.5	13.5	13.5	15.0	14.5	15.0	20.5	20.0	20.0	22.5	22.5	22.5
10	14.0	13.5	13.5	15.0	15.0	15.0	20.0	20.0	20.0	22.5	22.5	22.5
11	15.0	14.5	15.0	15.0	15.0	15.0	20.5	20.0	20.0	23.0	22.5	22.5
12	15.0	14.5	14.5	15.0	15.0	15.0	20.5	20.0	20.0	23.0	22.5	22.5
13	14.5	14.5	14.5	15.0	15.0	15.0	20.5	20.0	20.0	23.0	22.5	22.5
14	14.5	14.0	14.0	15.0	15.0	15.0	20.5	20.0	20.5	23.0	22.5	22.5
15	14.0	13.5	14.0	15.5	15.0	15.0	20.5	20.0	20.5	23.0	22.5	22.5
16	13.5	13.0	13.0	15.5	15.0	15.5	20.5	20.0	20.5	23.0	22.5	23.0
17	13.0	13.0	13.0	15.5	15.5	15.5	20.5	20.0	20.5	23.0	23.0	23.0
18	13.0	12.5	13.0	16.0	15.5	15.5	20.5	20.5	20.5	23.0	23.0	23.0
19	12.5	12.5	12.5	16.5	16.0	16.5	20.5	20.5	20.5	23.0	23.0	23.0
20	13.0	12.5	13.0	16.5	16.5	16.5	21.0	20.5	20.5	23.0	23.0	23.0
21	13.0	13.0	13.0	17.0	16.5	17.0	21.0	20.5	20.5	23.0	23.0	23.0
22	13.0	13.0	13.0	17.0	17.0	17.0	21.0	20.5	21.0	23.0	23.0	23.0
23	13.0	13.0	13.0	18.5	17.5	18.0	21.5	21.0	21.0	23.0	23.0	23.0
24	13.0	13.0	13.0	18.0	18.0	18.0	21.5	21.0	21.0	23.5	23.0	23.5
25	13.5	13.0	13.5	18.0	18.0	18.0	21.5	21.0	21.5	23.5	23.5	23.5
26	13.5	13.5	13.5	18.0	18.0	18.0	21.5	21.0	21.5	23.5	23.5	23.5
27	13.5	13.5	13.5	18.0	18.0	18.0	21.5	21.0	21.5	23.5	23.5	23.5
28	13.5	13.5	13.5	18.5	18.0	18.0	21.5	21.0	21.5	23.5	23.0	23.0
29	---	---	---	18.5	18.0	18.5	21.5	21.0	21.5	26.5	23.0	23.5
30	---	---	---	18.5	18.5	18.5	21.5	21.0	21.5	26.0	25.0	25.5
31	---	---	---	18.5	18.5	18.5	---	---	---	25.0	24.5	25.0
MONTH	15.0	12.5	13.5	18.5	13.5	16.0	21.5	18.5	20.5	26.5	21.0	23.0

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

08177500 COLETO CREEK NEAR VICTORIA, TX

LOCATION.--Lat 28°43'51", long 97°08'18", Victoria County, Hydrologic Unit 12100204, on left bank at downstream side of westbound bridge on U.S. Highway 59, 1.6 mi (2.6 km) downstream from Coleto Creek dam, 9.0 mi (14.5 km) southwest of Victoria, and 11.2 mi (18.0 km) upstream from mouth.

DRAINAGE AREA.--514 mi^2 (1,331 km^2).

PERIOD OF RECORD.--June 1939 to September 1954, June 1978 to current year.

REVISED RECORDS.--WSP 1562: 1939-40. WSP 1732: 1941.

GAGE.--Water-stage recorder. Datum of gage is 44.18 ft (13.466 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 17, 1955, at same site and at datum 5.0 ft (1.52 m) higher than present datum.

REMARKS.--Records good. Diversions from Guadalupe River basin to Coleto Creek basin upstream from Coleto Creek Reservoir began Mar. 6, 1980 (see station 08176990). Flow completely regulated since Feb. 21, 1980, by Coleto Reservoir 1.9 mi (3.1 km) upstream. No other large diversion above station. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--16 years (water years 1940-54, 1979) prior to regulation by Coleto Creek Reservoir, 92.7 ft^3/s (2.625 m^3/s), 67,160 acre-ft/yr (82.8 hm^3/yr).

EXTREMES FOR PERIOD OR RECORD.--Maximum discharge, 89,000 ft^3/s (2,520 m^3/s) Oct. 16, 1946, gage height, 36.64 ft (11.168 m), present datum, from floodmark, on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1875, 236,000 ft^3/s (6,680 m^3/s) Sept. 22, 1967, gage height, 42.0 ft (12.80 m), present site and datum, from floodmark, on basis of slope-area measurement of peak flow. Flood of July 1, 1936, reached a stage of 32.2 ft (9.81 m), present site and datum, from information by railroad company.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,500 ft^3/s (467 m^3/s) Sept. 1 at 0200 hours, gage height, 19.73 ft (6.014 m); no flow May 6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	4.9	5.7	6.8	4.4	5.9	5.2	7.7	264	9.9	8.4	5250
2	7.0	5.1	5.8	7.0	4.1	5.6	5.0	66	203	303	8.2	523
3	6.2	4.9	5.4	6.5	4.9	6.9	4.9	4910	514	13	8.2	375
4	5.9	4.9	4.9	6.5	6.1	5.9	4.6	2470	2030	9.9	6.7	88
5	5.4	5.4	4.9	6.5	5.6	4.7	4.5	15	3330	33	6.4	117
6	5.1	5.4	4.6	5.3	5.2	4.9	4.6	.00	341	868	6.4	46
7	4.0	5.0	4.6	4.3	4.8	5.1	5.2	.00	557	502	6.2	52
8	3.8	4.9	4.7	4.5	4.5	5.0	5.2	1.3	93	363	6.2	30
9	4.0	4.8	4.6	5.6	4.5	5.1	5.2	8.2	7.6	25	6.2	8.4
10	4.0	4.6	4.3	6.3	4.6	5.3	5.2	7.6	7.1	344	6.2	6.2
11	3.8	4.8	4.1	6.1	4.7	6.5	5.3	125	18	26	6.2	5.7
12	3.8	4.8	4.3	5.8	5.7	6.7	5.4	253	9000	19	6.2	5.5
13	3.8	5.2	4.0	5.8	5.7	5.6	5.1	11	6790	16	6.2	5.1
14	4.2	5.3	4.0	5.8	5.9	5.3	5.1	8.6	4750	15	6.2	325
15	4.2	5.1	4.7	5.5	5.8	5.2	5.4	8.2	1130	14	6.2	403
16	4.0	5.3	3.9	5.4	5.4	5.5	5.7	8.0	716	13	6.2	16
17	3.6	5.6	3.9	5.0	4.9	5.7	5.3	7.2	1250	10	6.2	13
18	4.2	5.4	4.0	4.7	4.9	5.5	5.4	6.9	372	10	6.2	10
19	3.8	5.6	3.8	13	4.6	5.6	5.4	6.5	70	9.9	6.2	9.5
20	3.8	5.6	4.6	7.3	4.6	5.8	5.3	6.3	50	9.9	6.2	8.5
21	3.8	5.9	5.0	4.9	4.9	5.8	6.0	6.2	107	9.8	6.2	8.1
22	4.0	6.2	5.1	4.4	4.7	5.7	6.5	6.2	12	9.8	5.9	6.3
23	4.0	5.8	5.2	4.7	4.8	5.5	7.6	6.3	8.7	9.7	5.4	7.0
24	4.0	5.6	5.3	5.1	5.1	5.8	8.4	7.1	301	9.7	5.9	6.6
25	4.2	6.6	5.3	5.1	5.8	5.9	7.9	678	296	11	5.4	6.1
26	4.2	7.7	5.7	5.0	5.6	5.5	7.5	735	623	10	5.1	5.7
27	4.2	6.3	6.0	5.9	5.4	4.6	7.1	407	365	9.6	5.8	5.6
28	4.0	5.6	6.3	5.3	5.4	4.7	7.1	248	128	9.4	6.1	5.6
29	4.2	5.7	6.5	6.4	---	4.7	7.1	1990	113	9.2	6.9	5.6
30	4.2	5.6	6.8	5.6	---	4.3	7.1	1740	14	9.0	13	5.4
31	4.9	---	7.1	4.9	---	4.4	---	124	---	8.6	2570	---
TOTAL	143.3	163.6	155.1	181.0	142.6	168.7	175.3	13874.30	33460.4	2719.4	2766.8	7358.9
MEAN	4.62	5.45	5.00	5.84	5.09	5.44	5.84	448	1115	87.7	89.3	245
MAX	13	7.7	7.1	13	6.1	6.9	8.4	4910	9000	868	2570	5250
MIN	3.6	4.6	3.8	4.3	4.1	4.3	4.5	.00	7.1	8.6	5.1	5.1
AC-FT	284	325	308	359	283	335	348	27520	66370	5390	5490	14600

CAL YR 1980 TOTAL 7888.28 MEAN 21.6 MAX 2450 MIN .84 AC-FT 15650
WTR YR 1981 TOTAL 61309.40 MEAN 168 MAX 9000 MIN .00 AC-FT 121600

08177600 OLMOS CREEK TRIBUTARY AT FARM ROAD 1535, SHAVANO PARK, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°34'35", long 98°32'45", Bexar County, Hydrologic Unit 12100301, at culvert on Farm Road 1535 at Shavano Park and 1.9 mi (3.1 km) southeast of intersection of Farm Roads 1535 and 1604.

DRAINAGE AREA.--0.33 mi² (0.85 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Digital recorders (stage and rainfall) and crest-stage gages. Datum of gage is 907.92 ft (276.734 m) National Geodetic Vertical Datum of 1929, San Antonio supplementary adjustments of 1951 and 1953.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 303 ft³/s (8.58 m³/s) Sept. 26, 1973, gage height, 6.26 ft (1.908 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43 ft³/s (1.22 m³/s) Dec. 28 at 1630 hours, gage height, 3.09 ft (0.942 m), no peak above base of 50 ft³/s (1.42 m³/s); no flow most of time.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: May 1970 to current year. Water temperature: May 1970 to current year. Bacteria analyses: April 1976 to current year.

REMARKS.--No water-quality samples were made during the current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)
JUN										
13...	1542	37	166	6.2	24.0	70	17	--	--	3.2
13...	1554	72	137	7.1	24.0	60	35	--	--	4.2
13...	1604	86	121	7.3	--	--	--	--	--	3.7
13...	1637	219	102	7.5	24.0	80	70	--	--	4.5
13...	1702	278	90	7.4	22.5	80	52	8.4	98	3.7
13...	1733	141	92	7.4	22.5	80	34	8.2	95	3.0
13...	1822	67	109	7.5	22.0	--	--	8.7	101	2.9

DATE	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	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
JUN									
13...	46000	26000	130000	71	4	26	1.5	2.7	.1
13...	--	--	--	60	1	22	1.3	2.5	.1
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	47	3	17	1.1	1.9	.1
13...	--	--	--	42	1	15	1.0	1.5	.1
13...	--	--	--	42	1	15	1.0	1.6	.1
13...	--	--	--	--	--	--	--	--	--

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
JUN									
13...	5.8	67	11	3.8	.1	15	106	47	5
13...	5.1	59	6.0	3.3	.0	13	88	151	36
13...	--	57	--	--	--	--	--	--	--
13...	4.3	44	3.1	1.8	.0	9.8	65	227	38
13...	4.3	41	3.1	1.6	.1	9.9	61	153	22
13...	4.3	41	3.0	1.8	.0	9.7	61	65	5
13...	--	49	--	--	--	--	--	--	--

08177600 OLMOS CREEK TRIBUTARY AT FARM ROAD 1535, SHAVANO PARK TX--CONTINUED
(Flood-hydrograph partial-record station)

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
JUN									
13...	.28	.020	.30	.320	1.3	1.6	.290	17	14
13...	.26	.020	.28	.210	1.4	1.6	.200	20	--
13...	--	--	--	--	--	--	--	--	--
13...	.18	.020	.20	.220	1.7	1.9	.390	19	--
13...	.20	.020	.22	.140	1.4	1.5	.280	18	11
13...	.22	.020	.24	.120	1.5	1.6	.270	17	--
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)
JUN							
13...	1554	1	100	<1	0	<10	70
13...	1637	1	200	<1	0	<10	30
13...	1733	1	100	<1	0	<10	80

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JUN						
13...	<10	2	.0	0	0	<3
13...	<10	2	.0	0	0	<3
13...	<10	3	.0	0	0	9

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)
JUN									
13...	1554	.00	.00	.00	.00	.00	.00	.00	.03
13...	1733	.00	.00	.00	.00	.00	.01	.00	.49

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JUN									
13...	.00	.00	.00	.00	.00	.00	.00	.00	.00
13...	.00	.00	.00	.00	.00	.00	.00	.01	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN									
13...	.00	.00	.00	.00	0	.00	.01	.01	.00
13...	.00	.00	.00	.00	0	.00	.02	.03	.00

08177700 OLMOS CREEK AT DRESDEN DRIVE, SAN ANTONIO, TX

LOCATION.--Lat 29°29'56", long 98°30'36", Bexar County, Hydrologic Unit 12100301, on right bank 30 ft (9 m) downstream from low-water bridge on Dresden Drive at San Antonio, 0.15 mi (0.24 km) west of intersection of Blanco Road and Dresden Drive, and 4.0 mi (6.4 km) upstream from Olmos Dam.

DRAINAGE AREA.--21.2 mi^2 (54.9 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 726.10 ft (221.315 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good prior to April and poor thereafter. Recording rain gage located at station, with three additional recording rain gages located in watershed. Rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--13 years, 4.34 ft^3/s (0.123 m^3/s), 2.78 in/yr (71 mm/yr), 3,140 acre-ft/yr (3.87 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,450 ft^3/s (211 m^3/s) Sept. 13, 1978, gage height, 14.82 ft (4.517 m), from floodmark; no flow at times.
Maximum stage since 1935, that of Sept. 13, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in September and November 1947 reached a stage of 8.5 ft (2.59 m), from information by local resident.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 13	unknown	*2,500	70.8	unknown	---
Sept. 8	unknown	1,800	51.0	unknown	---

Minimum daily discharge, 0.01 ft^3/s (0.0003 m^3/s) Feb. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.56	.05	.25	.06	.19	16	.10	.40	3.0	.80	.25	1.2
2	.97	.05	.21	.05	.13	.60	.10	3.0	2.0	.40	.25	1.1
3	.26	.05	.22	.05	.01	6.0	.10	6.6	1.4	.30	.25	1.0
4	.25	.05	.15	.05	4.8	2.5	.12	1.0	4.0	.30	.25	.80
5	.18	.03	.49	.05	3.2	.40	.14	.60	5.0	2.5	.25	.70
6	.13	.03	.50	.10	.86	.30	.14	.55	2.5	.80	.25	.68
7	.14	.05	.30	.05	.28	.25	.14	.40	2.0	.50	2.0	.68
8	.11	.05	12	.60	.19	.22	.10	.40	1.8	.45	1.0	150
9	.10	.04	2.4	.26	.30	.20	.07	.40	1.4	.42	.40	20
10	.08	.05	.65	.14	.28	.15	.05	.40	1.0	.40	.40	2.4
11	.08	.05	3.3	.10	.15	7.0	.08	.35	.80	.35	.40	1.6
12	.06	.03	.33	.06	.15	7.4	.08	.32	10	.35	.40	1.4
13	.04	.05	.20	.06	.11	1.0	.08	.30	350	.35	.40	1.2
14	.04	.04	.23	.32	.07	.50	.10	.28	250	.35	.60	1.0
15	.03	1.1	.23	.10	.09	.35	.10	.25	25	.35	.45	.80
16	.18	31	.17	.06	.18	.22	.20	.22	35	.35	.43	.60
17	.10	3.9	.15	.05	.22	.20	.30	.20	2.0	.33	.40	.42
18	32	.42	.17	.06	.22	.15	.30	.18	1.0	.33	10	.40
19	4.7	.25	.20	42	.21	.12	.20	.18	.80	.33	2.0	.40
20	.23	.20	.06	3.2	.20	.10	.10	.18	.60	.33	1.3	.37
21	.14	.21	.03	.48	.20	.08	3.0	.18	.50	.30	1.0	.35
22	.10	.84	.05	.29	.13	.05	10	.18	.40	.30	.80	.35
23	.07	.58	.06	.39	.22	.05	35	.18	.35	.28	.65	.35
24	.04	.20	.06	.32	.30	.05	8.6	25	.30	.30	.58	.35
25	.02	25	.05	.27	.28	.05	11	6.0	.30	.40	.52	.35
26	.02	10	.03	.30	.21	.08	5.0	2.0	8.0	.38	.45	.35
27	.04	.62	.03	.28	.16	.10	3.0	.60	.40	.40	.40	.35
28	1.4	.63	.04	.22	.35	.15	2.0	.20	.20	.35	.40	.35
29	.07	.26	.06	.22	---	.15	1.0	80	5.0	.28	.40	.35
30	.05	.25	.06	.21	---	.12	.60	20	2.0	.28	2.5	.35
31	.05	---	.05	.17	---	.10	---	7.0	---	.25	1.2	---
TOTAL	42.24	76.08	22.73	50.57	13.69	44.64	81.80	157.55	716.75	13.81	30.58	190.25
MEAN	1.36	2.54	.73	1.63	.49	1.44	2.73	5.08	23.9	.45	.99	6.34
MAX	32	31	12	42	4.8	16	35	80	350	2.5	10	150
MIN	.02	.03	.03	.05	.01	.05	.05	.18	.20	.25	.25	.35
CFSM	.06	.12	.03	.08	.02	.07	.13	.24	1.13	.02	.05	.30
IN.	.07	.13	.04	.09	.02	.08	.14	.28	1.26	.02	.05	.33
AC-FT	84	151	45	100	27	89	162	313	1420	27	61	377

CAL YR 1980 TOTAL 730.34 MEAN 2.00 MAX 103 MIN .00 CFSM .09 IN 1.28 AC-FT 1450
WTR YR 1981 TOTAL 1440.69 MEAN 3.95 MAX 350 MIN .01 CFSM .19 IN 2.53 AC-FT 2860

08177800 OLMOS RESERVOIR AT SAN ANTONIO, TX

LOCATION.--Lat 29°28'28", long 98°28'23", Bexar County, Hydrologic Unit 12100301, at left upstream side of dam on Olmos Drive, 0.8 mi (1.3 km) upstream from Hildebrand Street, 1.5 mi (2.4 km) upstream from Brackenridge Park Zoo, and 4.0 mi (6.4 km) downstream from gaging station 08177700.

DRAINAGE AREA.--32.4 mi² (83.9 km²).

PERIOD OF RECORD.--June 1968 to September 1971, April 1976 to current year.

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

REMARKS.--The dam is a concrete gravity-type structure with a maximum height of 50 ft (15 m) and a total length of 1,941 ft (592 m), spillway crest length 1,051 ft (320 m). The dam, spillway section, and gate house were rebuilt in 1980. The outlet structure consists of six vertical slide-gate-controlled concrete conduits with entrance dimensions of 5.75 ft (1.75 m) wide by 7.83 ft (2.39 m) high. The gates are maintained and operated by the city of San Antonio Fire Department as required to control downstream floodflow. The reservoir is empty except during flooding when it is used as a detention reservoir. The reservoir has a surface area of about 950 acres (384 hm²) at top of the dam. The dam is owned by the city of San Antonio. Rain gage and gage-height telemeters at station. Figures given herein represent elevations at 2400 hours. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Design flood (probably maximum flood)	736.4	24,150
Floor of gate operating room	736.0	23,560
Top of dam (crest of spillway)	728.0	14,240
Lowest gated outlet (invert)	680.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 704.50 ft (214.732 m) Sept. 13, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 703.10 ft (214.305 m) June 13.

ELEVATION, IN FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	682.37	682.33	682.89	681.65	684.44	682.01	681.68	681.68	681.68	681.68	681.68	681.68
2	682.36	682.40	682.89	681.58	684.41	682.00	681.68	682.71	681.68	681.68	681.68	681.68
3	682.52	682.35	682.89	681.55	684.33	682.87	681.68	682.26	681.68	681.68	681.68	681.68
4	682.63	682.83	682.95	681.53	686.11	682.95	681.68	681.68	681.76	681.68	681.68	681.68
5	682.41	683.59	683.10	681.55	684.00	682.65	681.68	681.68	681.68	681.68	681.68	681.68
6	682.45	683.68	683.45	681.90	683.54	682.48	681.68	681.68	681.68	681.68	681.68	681.68
7	682.81	683.65	683.40	682.72	683.43	682.87	681.68	681.68	681.68	681.68	681.68	681.68
8	682.39	683.72	683.75	682.94	683.45	682.47	681.68	681.68	681.68	681.68	681.68	681.68
9	682.30	683.77	683.70	687.32	683.59	682.59	681.68	681.68	681.68	681.68	681.68	681.68
10	682.25	683.88	683.50	687.28	683.75	682.50	681.68	681.68	681.68	681,68	681.68	681.68
11	682.42	683.86	683.20	686.70	683.93	683.72	681.68	681.68	681.68	681.68	681.68	681.68
12	682.69	683.81	682.90	686.48	684.33	685.92	681.68	681.68	702.43	681.68	681.68	681.68
13	682.46	683.74	682.95	686.17	684.92	682.75	681.68	681.68	689.03	681.68	681.68	681.68
14	682.37	683.68	683.15	686.09	685.05	682.68	681.68	681.68	681.76	681.68	681.68	681.68
15	682.35	685.12	683.28	685.97	685.05	682.66	681.68	681.68	692.48	681.68	681.68	681.68
16	682.34	685.61	683.05	685.71	685.10	682.54	681.68	681.68	681.68	681.68	681.68	681.68
17	682.40	683.09	682.85	685.67	682.33	682.71	681.68	681.68	681.68	681.68	681.68	681.68
18	685.75	682.91	682.50	685.19	683.24	682.64	681.68	681.68	681.68	681.68	681.68	681.68
19	682.68	682.87	682.35	686.97	682.08	681.68	681.68	681.68	681.68	681.68	681.68	681.68
20	682.61	682.91	682.30	686.26	682.11	681.68	681.68	681.68	681.68	681.68	681.68	681.68
21	682.61	682.91	682.25	686.03	682.06	681.68	681.68	681.68	681.68	681.68	681.68	681.68
22	682.54	682.91	682.20	685.73	682.02	681.68	681.68	681.68	681.68	681.68	681.68	681.68
23	682.44	682.91	682.15	685.61	682.07	681.68	687.17	681.68	681.68	681.68	681.68	681.68
24	682.51	682.90	682.10	683.70	682.14	681.68	681.68	681.68	681.68	681.68	681.68	681.68
25	682.50	682.90	682.00	683.63	682.10	681.68	682.35	681.68	681.68	681.68	681.68	681.68
26	682.61	682.90	681.94	683.60	682.07	681.68	681.68	681.68	683.27	681.68	681.68	681.68
27	682.62	682.90	681.87	683.67	682.03	681.68	681.68	681.68	681.68	681.68	681.68	681.68
28	682.74	682.90	681.83	684.01	682.01	681.68	681.68	681.68	681.68	681.68	681.68	681.68
29	682.38	682.90	681.79	684.24	---	681.68	681.68	696.40	681.68	681.68	681.68	681.68
30	682.34	682.90	681.74	684.36	---	681.68	681.68	689.30	681.68	681.68	681.75	681.68
31	682.34	---	681.69	684.40	---	681.68	---	681.76	---	681.68	681.68	---
MAX	685.75	685.61	683.75	687.32	686.11	685.92	687.17	696.40	702.43	681.68	681.75	681.68
MIN	682.25	682.33	681.69	681.53	682.01	681.68	681.68	681.68	681.68	681.68	681.68	681.68

CAL YR 1980 MEAN 682.95 MAX 689.39 MIN 680.34
WTR YR 1981 MEAN 682.60 MAX 702.43 MIN 681.53

08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX

LOCATION.--Lat 29°24'34", long 98°29'41", Bexar County, Hydrologic Unit 12100301, on left bank 193 ft (59 m) downstream from South Alamo Street Bridge in San Antonio, 2.1 mi (3.4 km) upstream from San Pedro Creek, and 230.6 mi (371.1 km) upstream from mouth.

DRAINAGE AREA.--41.8 mi^2 (108.3 km^2). Flow of river comes from intermittent spring flow and from artesian wells; drainage area of streams not applicable.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1895 to June 1906 periodic discharge measurements only, January 1915 to November 1929, February 1939 to current year. Ground-water discharge into river is discussed by Petit and George, Texas Board of Water Engineers Bull. 5608, vol. 1 (1956, p. 45).
Water-quality records: Chemical, biochemical, and pesticide analyses: November 1968 to September 1979. Sediment analyses: May 1970 to September 1973. Water temperatures: November 1968 to September 1979. Bacteria analyses: May 1976 to September 1979.

REVISED RECORDS.--WSP 1312: 1917. WSP 1923: Drainage area. WRD TX-72-1: 1971(m).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 605.26 ft (184.483 m) National Geodetic Vertical Datum of 1929. Jan. 26, 1915, to Feb. 27, 1916, nonrecording gage at site 1.3 mi (2.1 km) upstream at different datum. Feb. 28, 1916, to Apr. 7, 1920, nonrecording gage at site 1.1 mi (1.8 km) upstream at different datum. Apr. 8, 1920, to Nov. 16, 1929, and Feb. 15, 1939, to Apr. 25, 1967, water-stage recorder in vicinity of South Alamo Street Bridge at 7.00-foot (2.134 m) higher datum. Apr. 25, 1967, to May 13, 1969, water-stage recorder at site 307 ft (94 m) downstream at same datum.

REMARKS.--Water-discharge records good. Floodflow is regulated by Olmos flood-control reservoir, capacity 14,240 acre-ft (17.6 hm^3), about 8.5 mi (13.7 km) upstream. Dam completed in 1926 and rebuilt in 1980. Springs emerge intermittently from the Edwards and associated limestones along the Balcones Fault Zone. Rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--56 years, 55.7 ft^3/s (1.577 m^3/s), 18.10 in/yr (460 mm/yr), 40,350 acre-ft/yr (49.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft^3/s (433 m^3/s) Sept. 10, 1921, gage height, 20.14 ft (6.139 m), from floodmark, at former site and datum, from rating curve extended above 2,000 ft^3/s (56.6 m^3/s) on basis of slope-area measurement of peak flow; no flow at times due to regulation.
Maximum stage since 1819, that of Sept. 10, 1921.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,080 ft^3/s (87.2 m^3/s) June 16 at 0800 hours, gage height, 12.20 ft (3.719 m); minimum daily, 3.6 ft^3/s (0.102 m^3/s) Feb. 13, due to regulation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	16	16	14	17	93	13	44	32	72	55	46
2	13	15	14	15	16	18	13	48	34	72	50	73
3	12	14	13	15	16	22	13	79	22	71	49	74
4	12	5.2	14	17	39	34	13	22	64	70	44	44
5	11	15	16	16	41	19	12	26	42	131	41	38
6	12	16	15	18	20	19	12	27	31	112	38	63
7	12	16	14	17	18	19	13	27	31	111	35	73
8	12	16	23	18	17	18	13	28	33	108	35	291
9	12	16	20	17	47	18	12	40	31	105	34	69
10	13	16	14	17	13	11	13	31	32	102	35	68
11	11	16	14	16	19	21	12	26	213	102	32	50
12	10	26	14	17	5.6	45	12	26	146	102	30	47
13	12	17	14	16	3.6	43	12	23	609	100	44	52
14	12	8.6	14	17	16	22	12	22	875	95	55	61
15	12	18	18	17	17	21	12	20	74	93	37	62
16	13	165	15	17	25	21	12	21	1200	90	35	60
17	14	33	14	16	13	21	15	19	286	87	23	57
18	63	12	15	17	16	20	12	19	72	85	75	56
19	36	12	14	189	18	20	12	16	74	81	243	57
20	14	12	13	38	17	19	12	13	81	76	38	72
21	14	14	14	7.9	17	19	9.9	12	75	73	30	43
22	13	17	14	17	15	18	38	13	71	69	44	37
23	16	15	25	17	31	18	335	16	79	67	42	37
24	29	12	16	19	17	17	22	228	83	66	42	23
25	18	124	15	17	16	17	107	53	82	66	41	32
26	16	61	16	18	18	18	30	11	271	64	40	31
27	19	12	16	18	16	16	13	31	124	69	40	53
28	19	13	15	16	16	16	18	17	79	76	39	48
29	17	14	15	20	---	16	24	280	103	66	42	34
30	16	12	15	17	---	15	24	380	82	46	110	13
31	17	---	15	17	---	14	---	102	---	56	81	---
TOTAL	512	758.8	480	707.9	540.2	708	870.9	1720	5031	2583	1579	1764
MEAN	16.5	25.3	15.5	22.8	19.3	22.8	29.0	55.5	168	83.3	50.9	58.8
MAX	63	165	25	189	47	93	335	380	1200	131	243	291
MIN	10	5.2	13	7.9	3.6	11	9.9	11	22	46	23	13
AC-FT	1020	1510	952	1400	1070	1400	1730	3410	9980	5120	3130	3500

CAL YR 1980 TOTAL 10925.36 MEAN 29.9 MAX 416 MIN .86 AC-FT 21670
WTR YR 1981 TOTAL 17254.80 MEAN 47.3 MAX 1200 MIN 3.6 AC-FT 34220

08178620 LORENCE CREEK AT THOUSAND OAKS BOULEVARD, SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°35'24", long 98°27'47", Bexar County, Hydrologic Unit 123100301, on right bank 30 ft (9 m) upstream from Thousand Oaks Boulevard and 4.2 mi (6.8 km) upstream from mouth.

DRAINAGE AREA.--4.05 mi² (10.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1980 to current year.

GAGE.--Digital recorders (stage and rainfall), concrete control, and crest-stage gages. Gage is not referenced to National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 600 ft³/s (17.0 m³/s) Oct. 18, 1980, at 1335 hours, gage height, 2.59 ft (0.789 m); no flow most of time.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 18	1335	*600	17.0	2.59	0.789
June 13	1830	275	7.79	2.31	0.704
June 14	0740	121	3.43	2.05	0.625

Minimum discharge, no flow most of time.

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)
OCT										
18...	1215	.80	112	7.9	--	80	31	--	--	--
18...	1232	6.0	96	7.4	21.0	100	71	8.3	95	6.3
APR										
23...	0910	3.5	147	--	20.5	--	--	9.2	102	--
23...	1030	26	151	--	20.5	--	--	--	--	--
23...	1045	28	153	--	--	--	--	--	--	--
23...	1100	25	150	--	--	--	--	--	--	--
23...	1112	19	126	--	20.5	--	--	9.2	102	--
23...	1115	19	154	--	--	--	--	--	--	--
23...	1130	16	150	--	--	--	--	--	--	--
MAY										
29...	1307	1.6	138	--	--	80	6.8	--	--	4.0
29...	1325	7.8	133	--	--	100	33	--	--	4.6
29...	1354	16	133	--	--	100	17	--	--	4.2
29...	1424	11	114	--	--	80	24	--	--	3.0
29...	1524	4.2	114	--	--	60	18	--	--	3.6

DATE	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	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)
OCT										
18...	180000	K73000	68000	--	--	--	--	--	--	--
18...	280000	130000	64000	34	2	12	.9	2.6	.2	5.0
APR										
23...	380000	88000	170000	--	--	--	--	--	--	--
23...	260000	44000	84000	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
MAY										
29...	210000	16000	190000	61	0	22	1.5	1.5	.1	6.7
29...	K120000	K95000	310000	56	0	20	1.4	2.2	.1	8.1
29...	200000	K60000	390000	53	016	49	1.4	2.5	.1	7.8
29...	K160000	16000	140000	50	1	18	1.3	1.6	.1	5.5
29...	>31000	14000	130000	52	1	19	1.2	1.5	.1	4.7

08178620 LORENCE CREEK AT THOUSAND OAKS BLOULEVARD, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
OCT									
18...	--	--	--	--	--	--	44	42	.63
18...	32	2.7	4.2	.1	8.4	55	139	28	.89
APR									
23...	--	--	--	--	--	--	--	--	3.5
23...	--	--	--	--	--	--	--	--	2.8
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
MAY									
29...	61	3.0	2.1	.1	14	88	67	18	.75
29...	56	3.8	2.6	.0	13	85	36	15	.46
29...	57	2.6	2.7	.0	14	84	49	14	.88
29...	49	2.2	1.6	.0	12	72	53	16	.63
29...	51	2.2	1.5	.0	11	72	19	15	.42

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)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
OCT									
18...	.030	.66	.170	1.2	1.4	.230	--	12	--
18...	.040	.93	.090	--	--	.410	--	16	--
APR									
23...	.050	3.5	.240	1.9	2.1	4.400	.460	--	--
23...	.030	2.8	.160	1.8	2.0	.430	.410	8.1	7.9
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
MAY									
29...	.020	.77	.140	1.3	1.4	.210	--	14	14
29...	.310	.77	.130	1.4	1.5	.310	--	19	--
29...	.030	.91	.120	1.5	1.6	.340	--	15	12
29...	.030	.66	.110	1.2	1.3	.240	--	12	--
29...	.030	.45	.110	1.1	1.2	.220	--	10	9.6

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)
OCT							
18...	1232	3	6	1	0	18	90
MAY							
29...	1307	2	100	<1	0	<10	210
29...	1325	2	200	<1	0	<10	110
29...	1354	2	200	<1	0	<10	40

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT						
18...	<10	4	.3	0	0	10
MAY						
29...	<10	7	.2	0	0	20
29...	<10	10	.3	0	0	10
29...	<10	4	.2	0	0	5

08178620 LORENCE CREEK AT THOUSAND OAKS BOULEVARD, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
OCT									
18...	1232	.00	.0	.00	.1	.00	.00	.00	.09
MAY									
29...	1307	.00	.0	.00	.0	.00	.00	.00	.01
29...	1325	.00	.0	.00	.0	.00	.00	.00	.03
29...	1354	.00	.0	.00	.0	.00	.00	.00	.08

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
OCT									
18...	.00	.00	.00	.00	.00	.01	.01	.00	.00
MAY									
29...	.00	.00	.00	.00	.00	.00	.00	.00	.00
29...	.00	.00	.00	.00	.00	.00	.00	.00	.00
29...	.00	.00	.00	.00	.00	.00	.00	.01	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT									
18...	.00	.00	.00	.00	0	.00	.03	.02	.00
MAY									
29...	.00	.00	.00	.00	0	.00	.01	.02	.00
29...	.00	.00	.00	.00	0	.00	.01	.03	.00
29...	.00	.00	.00	.00	0	.00	.01	.02	.00

08178640 WEST ELM CREEK AT SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°37'23", long 98°26'29", Bexar County, Hydrologic Unit 12100301, at mid-channel, 1.8 mi (2.9 km) upstream from mouth of East Elm Creek, 2.1 mi (3.4 km) upstream from Farm Road 1604, and 7.0 mi (11.3 km) north of San Antonio International Airport.

DRAINAGE AREA.--2.45 mi^2 (6.35 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1976 to current year.

GAGE.--Digital recorders (stage and rainfall) and crest-stage gages. Gage is not referenced to National Geodetic Vertical Datum 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,000 ft^3/s (56.6 m^3/s) Nov. 1, 1977, gage height, 5.82 ft (1.774 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,300 ft^3/s (36.8 m^3/s) June 13 at 1655 hours, gage height, 5.43 ft (1.655 m); no flow most of time.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, pesticide, and bacteria analyses: May 1976 to current year. Water temperatures: May 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT 18...	1538	14	94	8.0	21.0	200	440	8.0	92	4.7	>68000	68000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 18...	22000	40	10	15	.5	1.3	.1	2.7	30	6.9	2.1	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 18...	4.6	51	765	490	.47	.040	.51	.100	1.7	1.8	.150	33

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 18...	1538	1	0	0	0	0	100

08178640 WEST ELM CREEK AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 18...	0	20	.3	0	0	10

DATE	TIME	PCB TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
OCT 18...	1538	.00	.0	.00	.1	.00	.00	.00	1.3

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
OCT 18...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT 18...	.00	.00	.00	.00	0	.00	.11	.00	.00

08178690 SALADO CREEK TRIBUTARY AT BITTERS ROAD, SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°31'36", long 98°26'25", Bexar County, Hydrologic Unit 12100301, at culvert on Bitters Road immediately east of MacArthur High School in San Antonio.

DRAINAGE AREA.--0.26 mi² (0.67 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1968 to September 1981 (discontinued).

GAGE.--Digital recorders (stage and rainfall) and crest-stage gage. Gage is not referenced to National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 253 ft³/s (7.16 m³/s) May 7, 1972, gage height, 7.88 ft (2.402 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
aApr. 23	unknown	104	2.95	5.08	1.548	June 11	1030	53	1.50	4.05	1.234
aApr. 25	unknown	78	2.21	4.57	1.393	June 16	0650	97	2.75	4.94	1.506
May 24	2335	56	1.59	4.12	1.256	Sept. 8	0755	112	3.17	5.24	1.597
May 29	1225	*169	4.79	6.35	1.935	Sept. 14	1900	117	3.31	5.35	1.631

a From crest-stage gage.

Minimum discharge, no flow most of time.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to September 1981 (discontinued). Sediment analyses: April to September 1973. Water temperatures: November 1968 to September 1981 (discontinued). Bacteria analyses: April 1976 to September 1981 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
AUG												
18...	1444	17	77	8.1	27.5	60	57	6.8	87	18	350000	240000
18...	1449	39	89	8.2	28.0	55	37	6.3	82	>23	640000	380000
18...	1500	41	80	7.9	27.5	40	16	6.5	83	>23	>600000	600000
18...	1515	33	79	7.5	27.5	40	12	6.2	79	18	>820000	820000
18...	1543	22	89	--	28.0	45	8.0	5.2	67	15	>480000	480000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
AUG												
18...	860000	40	15	14	1.2	1.7	.1	3.0	25	8.0	4.3	.1
18...	1100000	26	3	9.2	.7	.8	.1	9.1	23	2.0	9.0	.0
18...	310000	30	5	10	1.1	1.2	.1	8.9	25	2.0	2.9	.0
18...	250000	29	4	10	.9	1.3	.1	7.6	25	5.0	3.3	.0
18...	420000	35	5	12	1.2	1.3	.1	3.6	30	5.0	2.9	.0

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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)
AUG												
18...	2.4	50	0	0	.86	.050	.91	.360	2.1	2.5	.730	29
18...	1.7	46	231	58	.93	.070	1.0	.440	3.2	3.6	.860	38
18...	1.8	43	80	20	.80	.050	.85	.420	2.0	2.4	.560	20
18...	1.8	45	21	6	.80	.060	.86	.360	1.2	1.6	.400	18
18...	2.3	46	7	2	.73	.090	.82	.360	1.2	1.6	.410	17

08178690 SALADO CREEK TRIBUBARY AT BITTERS ROAD, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)
AUG							
18...	1444	1	10	<1	10	<10	54
18...	1449	1	7	<1	10	<10	44
18...	1515	1	7	<1	0	<10	44

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)
AUG						
18...	58	19	.1	0	0	19
18...	35	13	.0	0	0	12
18...	44	12	.0	0	0	17

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)
AUG									
18...	1444	.00	.0	.00	.1	.00	.00	.00	.30
18...	1449	.00	.0	.00	.4	.00	.01	.00	1.0

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
AUG									
18...	.01	.00	.00	.00	.00	.01	.00	.04	.00
18...	.02	.00	.00	.00	.00	.02	.01	.02	.68

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG									
18...	.00	.00	.00	.00	0	.00	.03	.03	.00
18...	.00	.00	.00	.00	0	.00	.04	.05	.01

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX

LOCATION (revised).-Lat 29°30'57", long 98°25'51", Bexar County, Hydrologic Unit 12100301, on right bant at downstream side of eastbound bridge on Interstate Highway 410 in San Antonio, 1.0 mi (1.6 km) west of Northeast School, 1.1 mi (1.8 km) upstream from Perrin-Beitel Creek, and 2.7 mi (4.3 km) east of San Antonio International Airport.

DRAINAGE AREA.--137 mi² (355 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder with concrete control. Datum of gage is 684.60 ft (208.666 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records poor prior to June 12 and good there after. No known diversion above station. Recording rain gage located at station with four additional recording rain gages located in watershed. Flow is affected at times by discharge from flood-detention pools of nine floodwater-retarding structures with combined detention capacity of 24,460 acre-ft (30.2 hm³). These structures control runoff from 67.7 mi² (175.3 km²) above this station.

AVERAGE DISCHARGE.--21 years, 9.72 ft³/s (0.275 m³/s), 7,040 acre-ft/yr (8.68 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft³/s (705 m³/s) May 12, 1972, gage height, 15.22 ft (4.639 m), from rating curve extended above 8,000 ft³/s (227 m³/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1853, 23 to 24 ft (7.0 to 7.3 m) in October 1913. Flood in September 1921 reached a stage of 18 ft (5.5 m), and flood of Sept. 27, 1946, reached a stage of 18.2 ft (5.55 m), and are the highest since 1899.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.08 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 23	0900	332	9.40	a4.38	1.335
June 13	2400	*1,070	30.3	5.84	1.780
June 16	1230	930	26.3	5.60	1.707

a From floodmark.

Minimum discharge, no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	.80	1.2	.38	.10	3.0	.00	2.3	3.7	7.2	.00	.80
2	1.4	.65	1.8	.38	.05	3.7	.00	5.0	2.6	6.9	.00	.81
3	.50	.52	2.0	.38	.04	2.0	.00	8.2	5.0	6.6	.00	.74
4	.18	.40	2.0	.38	2.5	3.0	.00	6.0	3.0	6.5	.00	1.3
5	.18	.25	1.7	.60	.70	1.6	.00	3.4	2.1	7.9	.00	.73
6	.18	.18	2.0	.40	.30	1.2	.00	2.5	2.0	7.4	.00	.67
7	.18	.12	2.5	.80	.20	1.1	.00	2.0	1.8	4.6	.00	.56
8	.18	.06	3.9	1.1	.15	1.0	.00	1.4	1.7	1.9	.00	12
9	.18	.00	2.0	.80	.13	2.0	.00	1.0	1.6	.99	.00	1.4
10	.18	.00	1.2	.60	.10	3.0	.00	.70	1.6	.60	.00	.99
11	.18	.00	.90	.60	.09	5.0	.00	.40	4.0	.50	.00	4.7
12	.18	.00	.60	.60	.08	2.5	.00	.20	40	.40	.00	5.3
13	.18	.00	.58	2.1	.07	1.6	.00	.04	267	.35	.00	5.3
14	.20	.00	.70	1.0	.06	1.0	.00	.15	384	.30	.01	5.7
15	.20	.00	1.1	.60	.05	.70	.00	.20	38	.25	.00	3.4
16	.20	.00	.90	.55	.07	.50	.20	.30	357	.20	.00	1.5
17	.20	.00	.65	.56	.08	.40	.20	.20	79	.18	.00	.72
18	5.4	.00	.58	.60	.08	.30	.20	.02	35	.15	1.4	.65
19	2.4	.00	.50	11	.08	.20	.20	.04	20	.12	7.4	.88
20	1.4	.00	.48	2.0	.08	.19	.20	.12	14	.10	4.5	1.0
21	1.7	.00	.46	.40	.08	.17	.20	1.6	13	.08	3.0	.86
22	1.3	.00	.44	.30	.08	.12	5.0	1.4	11	.08	.70	.13
23	.90	.00	.44	.20	.08	.10	25	1.4	12	.05	.33	.03
24	.50	.00	.44	.20	.08	.08	9.4	9.8	12	.05	.06	.00
25	.60	10	.44	.18	.08	.05	10	5.4	11	.05	.00	.00
26	.80	3.5	.42	.15	.20	.04	6.0	3.0	9.9	.05	.00	3.8
27	1.0	2.1	.40	.15	.45	.03	3.7	2.4	9.4	.03	.10	1.1
28	1.2	1.6	.40	.15	.80	.02	3.0	1.9	9.8	.00	.35	.90
29	1.2	1.2	.40	.15	---	.18	2.7	90	9.4	.00	.53	.85
30	1.1	1.0	.40	.15	---	.10	2.4	8.4	7.3	.00	2.0	.63
31	.95	---	.40	.10	---	.02	---	5.0	---	.00	2.2	---
TOTAL	27.85	22.38	31.93	27.56	6.86	34.90	68.40	164.47	1367.9	53.53	22.58	57.45
MEAN	.90	.75	1.03	.89	.25	1.13	2.28	5.31	45.6	1.73	.73	1.92
MAX	5.4	10	3.9	11	2.5	5.0	25	90	384	7.9	7.4	12
MIN	.18	.00	.40	.10	.04	.02	.00	.02	1.6	.00	.00	.00
AC-FT	55	44	63	55	14	69	136	326	2710	106	45	114

CAL YR 1980 TOTAL 1222.86 MEAN 3.34 MAX 140 MIN .00 AC-FT 2430
WTR YR 1981 TOTAL 1885.81 MEAN 5.17 MAX 384 MIN .00 AC-FT 3740

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: November 1971 to September 1973. Water temperatures: November 1968 to current year. Bacteria analyses: May 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)
JUN										
13...	1750	698	218	--	25.0	100	1800	7.0	85	5.8
13...	1852	738	203	--	25.0	100	3300	6.8	83	6.3
13...	2015	574	223	8.2	25.0	50	1200	7.6	93	4.9
14...	1306	312	214	--	25.0	60	120	6.4	78	3.1
15...	1109	29	364	7.2	25.0	35	32	5.6	68	2.8

DATE	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	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)
JUN										
13...	--	--	--	65	1	24	1.3	7.7	.4	11
13...	78000	62000	350000	78	9	29	1.4	7.3	.4	6.7
13...	540000	98000	300000	87	13	32	1.6	7.9	.4	6.8
14...	48000	10000	28000	92	7	34	1.6	4.5	.2	6.0
15...	K18000	K7000	K910	150	24	57	2.8	10	.4	10

DATE	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
JUN									
13...	64	26	6.6	.5	11	126	2440	370	.25
13...	69	24	7.8	.3	11	128	3720	420	.31
13...	74	24	8.8	.3	12	137	1690	340	.31
14...	85	8.9	5.6	.1	13	125	154	52	.11
15...	130	32	10	.2	17	217	48	106	.35

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)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
JUN									
13...	.070	.32	.180	1.2	1.4	.890	45	--	.10
13...	.030	.34	.110	2.1	2.2	2.200	43	4.0	.10
13...	.020	.33	.120	1.1	1.2	.960	25	--	--
14...	.020	.13	.010	2.3	2.3	.230	7.7	--	.00
15...	.040	.39	.210	4.1	4.3	.130	4.2	--	--

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JUN							
13...	1750	3	0	0	10	0	90
13...	1852	2	0	0	10	0	60
13...	2015	--	--	--	--	--	--
14...	1306	2	300	<1	0	<10	30

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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						
13...	0	0	.1	0	0	0
13...	--	0	.1	0	0	0
13...	0	--	--	--	--	--
14...	<10	3	.1	0	0	4

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)
JUN									
13...	1750	.00	.0	.00	.0	.00	.00	.00	.43
13...	1852	.00	.0	.00	.0	.00	.00	.00	.42

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JUN									
13...	.00	.00	.00	.00	.00	.00	.00	.00	.00
13...	.00	.00	.00	.00	.00	.00	.00	.01	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN									
13...	.00	.00	.00	.00	0	.00	.13	.04	.03
13...	.00	.00	.00	.00	0	.00	.07	.02	.01

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX

LOCATION.--Lat 29°21'25", long 98°24'45", Bexar County, Hydrologic Unit 12100301, on right bank at upstream side of bridge on Loop 13 at San Antonio, 1.4 mi (2.3 km) east of Brooks Air Force Base, and 3.3 mi (5.3 km) upstream from Rosillo Creek.

DRAINAGE AREA.--189 mi^2 (490 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 526.95 ft (160.614 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Small diversions above station. Recording rain gages located in watershed. Most of low flow comes from artesian wells and springs in city of San Antonio. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08178700.

AVERAGE DISCHARGE.--21 years, 42.5 ft^3/s (1.204 m^3/s), 3.05 in/yr (77 mm/yr), 30,790 acre-ft/yr (38.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft^3/s (371 m^3/s) Sept. 27, 1973, gage height, 28.83 ft (8.787 m); no flow Aug. 13, 1967.
Maximum stage since at least 1941, that of Sept. 27, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of Sept. 27, 1946, and Aug. 15, 1960, were about equal magnitude. Flood of Aug. 15, 1960, reached a stage of 26.8 ft (8.17 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,020 ft^3/s (57.2 m^3/s) June 16, gage height, 15.92 ft (4.852 m); minimum, 8.2 ft^3/s (0.23 m^3/s) Feb. 2-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	21	21	17	8.8	44	19	18	60	36	24	29
2	19	21	20	17	8.3	43	19	34	39	30	23	24
3	16	22	21	17	8.2	28	21	64	34	34	22	59
4	15	23	21	17	15	43	20	49	39	30	19	32
5	15	23	24	16	35	30	20	29	69	49	19	28
6	16	24	28	18	18	23	21	23	41	60	19	23
7	15	25	26	18	12	22	19	22	28	36	19	20
8	15	23	32	16	11	22	19	21	26	32	19	86
9	15	22	55	20	10	21	19	22	25	28	19	63
10	15	22	27	22	10	20	20	31	23	30	19	27
11	15	21	22	19	9.9	26	20	22	87	31	16	22
12	15	22	20	18	9.8	43	20	21	345	29	15	22
13	15	22	18	18	10	72	19	20	281	25	18	24
14	15	23	18	18	11	36	18	19	1090	25	51	23
15	15	25	21	19	11	26	19	19	201	25	68	55
16	16	134	20	19	9.9	24	20	20	898	25	11	29
17	17	118	18	18	9.9	23	21	22	580	25	9.6	24
18	23	37	18	18	10	22	21	21	91	24	29	22
19	73	24	18	128	11	20	22	19	59	24	303	20
20	33	20	17	158	11	21	20	19	47	24	69	21
21	23	19	17	29	11	21	19	18	43	24	32	21
22	21	22	17	16	12	21	19	19	40	23	27	20
23	21	25	18	13	12	23	182	19	38	23	25	21
24	24	22	17	12	12	21	74	144	37	23	24	19
25	19	61	17	12	13	21	76	149	39	23	24	18
26	17	155	17	12	16	22	82	62	40	22	22	17
27	18	50	18	11	17	22	29	34	56	22	22	18
28	19	28	19	11	19	23	23	29	41	22	20	19
29	20	24	19	11	---	23	23	74	47	22	21	19
30	22	22	17	9.5	---	20	20	433	46	21	52	19
31	22	---	17	8.9	---	19	---	153	---	22	82	---
TOTAL	636	1100	658	756.4	351.8	845	944	1649	4490	869	1142.6	844
MEAN	20.5	36.7	21.2	24.4	12.6	27.3	31.5	53.2	150	28.0	36.9	28.1
MAX	73	155	55	158	35	72	182	433	1090	60	303	86
MIN	15	19	17	8.9	8.2	19	18	18	23	21	9.6	17
CFSM	.11	.19	.11	.13	.07	.14	.17	.28	.79	.15	.20	.15
IN.	.13	.22	.13	.15	.07	.17	.19	.32	.88	.17	.22	.17
AC-FT	1260	2180	1310	1500	698	1680	1870	3270	8910	1720	2270	1670

CAL YR 1980	TOTAL	11589.6	MEAN 31.7	MAX 475	MIN 6.2	CFSM .17	IN 2.28	AC-FT 22990			
WTR YR 1981	TOTAL	14285.8	MEAN 39.1	MAX 1090	MIN 8.2	CFSM .21	IN 2.81	AC-FT 28340			

08179000 MEDINA RIVER NEAR PIPE CREEK, TX

LOCATION.--Lat 29°40'31", long 98°58'33", Bandera County, Hydrologic Unit 12100302, on right bank 500 ft (150 m) upstream from Bandera Falls, 0.6 mi (1.0 km) upstream from Red Bluff Creek, and 4.1 mi (6.6 km) southwest of Pipe Creek.

DRAINAGE AREA.--474 mi² (1,228 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1922 to June 1935, October 1952 to current year. Monthly discharge only for some periods published in WSP 1312 and 1732.

REVISED RECORDS.--WSP 1312: 1925(M). WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,067.37 ft (325.334 m) Corps of Engineers datum. December 1922 to June 1935, water-stage recorder at site 1.9 mi (3.1 km) upstream at different datum.

REMARKS.--Water-discharge records good except those for periods of no gage-height record, which are poor. Small diversion above station.

AVERAGE DISCHARGE.--41 years (water years 1923-34, 1953-81), 144 ft³/s (4.078 m³/s), 4.13 in/yr (105 mm/yr), 104,300 acre-ft/yr (129 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 281,000 ft³/s (7,960 m³/s) Aug. 2, 1978, gage height, 49.6 ft (15.12 m), from floodmark, from rating curve extended above 32,000 ft³/s (906 m³/s) on basis of slope-area measurements of 64,000 and 281,000 ft³/s (1,810 and 7,960 m³/s); minimum, 0.2 ft³/s (0.006 m³/s) July 14-16, 1956.

Maximum stage since at least 1880, that of Aug. 2, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1919 reached a stage of about 43 ft (13.1 m), present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s (45.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 16	1100	2,420	68.5	6.67	2.033
Apr. 23	1000	8,440	239	11.95	3.642
June 16	unknown	a*29,800	844	a22.78	6.943

a From floodmark.

Minimum daily discharge, 87 ft³/s (2.46 m³/s) Feb. 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	506	155	180	140	105	106	408	424	275	610	230	134
2	380	150	176	134	101	117	382	604	265	558	222	169
3	319	147	169	134	99	230	382	735	265	517	217	179
4	287	142	169	132	101	540	362	672	500	478	210	151
5	256	139	172	132	106	390	342	559	600	517	200	142
6	238	134	176	129	105	355	328	494	460	644	193	137
7	218	130	176	129	100	325	323	463	350	503	190	131
8	205	127	175	129	98	305	323	435	310	480	188	127
9	190	122	176	129	97	290	318	414	300	441	183	123
10	179	122	175	129	104	280	305	370	290	408	188	120
11	167	121	170	124	98	300	305	349	270	391	190	117
12	158	120	168	121	98	360	292	337	600	387	173	115
13	152	119	167	121	99	430	283	321	570	386	168	113
14	147	116	167	121	99	390	274	309	650	379	163	204
15	147	115	169	118	97	365	270	300	550	370	159	141
16	914	144	167	118	95	350	270	297	8000	362	149	139
17	455	171	164	118	94	345	270	282	3000	356	145	124
18	390	161	161	118	93	340	459	265	1500	349	169	118
19	510	146	155	124	93	334	561	245	1200	338	192	115
20	322	140	152	132	93	328	442	236	1000	329	173	113
21	271	133	149	132	93	323	388	232	900	321	156	111
22	241	135	149	126	92	305	370	232	800	313	147	110
23	224	138	152	121	87	296	4790	245	700	303	140	109
24	206	134	149	118	87	296	1420	437	760	289	138	108
25	195	144	143	116	88	292	855	317	807	281	137	105
26	186	187	143	114	90	287	683	260	945	291	136	104
27	185	209	146	111	92	287	578	250	767	280	133	103
28	179	197	146	109	96	292	518	240	940	283	133	101
29	173	188	140	109	---	936	474	235	799	269	131	98
30	163	184	140	111	---	623	436	245	703	251	134	98
31	158	---	140	108	---	466	---	285	---	243	135	---
TOTAL	8321	4370	4981	3807	2700	10883	17411	11089	29076	11927	5222	3759
MEAN	268	146	161	123	96.4	351	580	358	969	385	168	125
MAX	914	209	180	140	106	936	4790	735	8000	644	230	204
MIN	147	115	140	108	87	106	270	232	265	243	131	98
CFSM	.57	.31	.34	.26	.20	.74	1.22	.76	2.04	.81	.35	.26
IN.	.65	.34	.39	.30	.21	.85	1.37	.87	2.28	.94	.41	.30
AC-FT	16500	8670	9880	7550	5360	21590	34530	22000	57670	23660	10360	7460

CAL YR 1980	TOTAL 42298	MEAN 116	MAX 6600	MIN 14	CFSM .25	IN 3.32	AC-FT	83900	
WTR YR 1981	TOTAL 113546	MEAN 311	MAX 8000	MIN 87	CFSM .66	IN 8.91	AC-FT	225200	

NOTE.--No gage-height record Jan. 29 to Mar. 19, May 26 to June 25.

08179000 MEDINA RIVER NEAR PIPE CREEK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN												
20...	1405	132	540	8.2	11.5	0	.50	12.2	114	.4	--	K2
APR												
20...	1346	430	479	8.1	24.0	5	11	9.7	118	1.2	330	150
AUG												
10...	1329	194	498	7.9	28.0	0	.90	9.2	121	.6	--	K11

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN												
20...	K3	270	71	77	19	8.5	.2	1.0	200	70	11	.3
APR												
20...	30	240	55	70	17	7.3	.2	1.3	190	51	9.2	.2
AUG												
10...	84	250	59	70	18	8.7	.3	1.4	190	59	19	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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												
20...	9.7	317	16	1	.70	.000	.70	.040	.30	.34	.010	6.1
APR												
20...	9.4	280	17	2	.70	.000	.70	.020	.50	.52	.020	2.0
AUG												
10...	13	304	3	3	--	<.020	.61	.110	.41	.52	.010	1.1

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN							
20...	1405	0	30	<1	0	<10	10
AUG							
10...	1329	0	40	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN						
20...	<10	<1	.0	0	0	<3
AUG						
10...	13	2	.4	0	0	<3

DATE	TIME	PCB TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN									
20...	1405	.00	.0	.00	.0	.00	.00	.00	.00
AUG									
10...	1329	.00	.0	.00	.0	.00	.00	.00	.00

08179000 MEDINA RIVER NEAR PIPE CREEK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JAN 20...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 10...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 20...	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 10...	.00	.00	.00	.00	0	.00	.00	.00	.00

08179100 RED BLUFF CREEK NEAR PIPE CREEK, TX

LOCATION.--Lat 29°40'51", long 98°57'19", Bandera County, Hydrologic Unit 12100302, on left bank 0.8 mi (1.3 km) upstream from bridge on Farm Road 1283, 1.8 mi (2.9 km) downstream from Pipe Creek, 1.9 mi (3.1 km) upstream from mouth, and 3.2 mi (5.1 km) south of Pipe Creek.

DRAINAGE AREA.--56.3 mi² (145.8 km²).

PERIOD OF RECORD.--April 1956 to September 1981 (discontinued).

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,107.2 ft (337.475 m) Corps of Engineers datum.

REMARKS.--Records good. Small dams on upstream tributaries affect flow during time of storm runoff. No known diversion. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1957-81), 12.5 ft³/s (0.354 m³/s), 3.02 in/yr (77 mm/yr), 9,060 acre-ft/yr (11.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 46,900 ft³/s (1,330 m³/s) Sept. 27, 1964, gage height, 22.64 ft (6.901 m), from rating curve extended above 2,000 ft³/s (56.6 m³/s) on basis of slope-area measurement of peak flow; no flow for many days each year.
Maximum stage since at least 1905, that of Sept. 27, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of about 17 ft (5.2 m) was reached in July 1937. Flood in October 1953 reached a stage of 13.8 ft (4.21 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 23	0800	290	8.21	4.19	1.277	June 4	1900	10,900	309	12.63	3.850
May 24	0230	1,440	40.8	5.99	1.826	June 14	1000	*11,900	337	13.06	3.981
May 25	0230	1,090	30.9	5.44	1.658	June 16	1000	916	25.9	5.11	1.558

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	91	43	4.6	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	87	38	4.1	.00
3	.00	.00	.00	.00	.00	.00	.00	8.3	85	34	3.6	.00
4	.00	.00	.00	.00	.00	.00	.00	36	1730	31	3.2	.00
5	.00	.00	.00	.00	.00	.00	.00	40	658	29	2.9	.00
6	.00	.00	.00	.00	.00	.00	.00	39	328	45	2.5	.00
7	.00	.00	.00	.00	.00	.00	.00	37	221	38	2.0	.00
8	.00	.00	.00	.00	.00	.00	.00	36	164	43	1.7	.00
9	.00	.00	.00	.00	.00	.00	.00	35	123	32	1.5	.00
10	.00	.00	.00	.00	.00	.00	.00	29	95	25	1.3	.00
11	.00	.00	.00	.00	.00	.00	.00	26	79	22	.94	.00
12	.00	.00	.00	.00	.00	.00	.00	22	114	19	.69	.00
13	.00	.00	.00	.00	.00	.00	.00	20	99	17	.59	.00
14	.00	.00	.00	.00	.00	.00	.00	17	1520	15	.42	.00
15	.00	.00	.00	.00	.00	.00	.00	12	410	13	.24	.00
16	.00	.00	.00	.00	.00	.00	.00	14	492	11	.13	.00
17	.00	.00	.00	.00	.00	.00	.00	10	360	10	.04	.00
18	.00	.00	.00	.00	.00	.00	.00	4.9	281	9.2	.01	.00
19	.00	.00	.00	.00	.00	.00	.00	.66	223	8.5	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	184	8.4	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	152	7.4	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	127	7.4	.00	.00
23	.00	.00	.00	.00	.00	.00	47	.00	109	6.9	.00	.00
24	.00	.00	.00	.00	.00	.00	2.9	306	100	6.4	.00	.00
25	.00	.00	.00	.00	.00	.00	.06	354	88	6.3	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	170	80	6.2	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	133	72	6.1	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	112	62	5.8	.00	.00
29	.00	.00	.00	.00	---	.00	.00	111	54	5.4	.00	.00
30	.00	.00	.00	.00	---	.00	.00	107	48	5.0	.00	.00
31	.00	---	.00	.00	---	.00	---	106	---	4.8	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	49.96	1785.86	8236	558.8	30.46	.00
MEAN	.000	.000	.000	.000	.000	.000	1.67	57.6	275	18.0	.98	.000
MAX	.00	.00	.00	.00	.00	.00	47	354	1730	45	4.6	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	48	4.8	.00	.00
CFSM	.000	.000	.000	.000	.000	.000	.03	1.02	4.89	.32	.02	.000
IN.	.00	.00	.00	.00	.00	.00	.03	1.18	5.44	.37	.02	.00
AC-FT	.00	.00	.00	.00	.00	.00	99	3540	16340	1110	60	.00

CAL YR 1980 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 CFSM .000 IN .00 AC-FT 0
WTR YR 1981 TOTAL 10661.08 MEAN 29.2 MAX 1730 MIN .00 CFSM .52 IN 7.04 AC-FT 21150

NOTE.--No gage-height record July 28 to Sept. 1.

08179500 MEDINA LAKE NEAR SAN ANTONIO, TX

LOCATION.--Lat 29°32'24", long 98°56'01", Medina County, Hydrologic Unit 12100302, at gate-operating platform, 576 ft (176 m) from left end of Medina Dam on Medina River, 4.2 mi (6.8 km) upstream from Medina diversion dam, 13 mi (21 km) north of Castroville, 28 mi (45 km) west of San Antonio, and 70.4 mi (113.3 km) upstream from mouth. Water-quality sampling site at the center of low-water bridge 0.6 mi (1.0 km) downstream.

DRAINAGE AREA.--634 mi² (1,642 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1913 to current year. Prior to October 1965, monthend contents only.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Nonrecording gage read once daily if stage changing materially, otherwise intermittently. Datum of gage is 7.80 ft (2.377 m) below National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a gravity-type concrete dam, 1,580 ft (482 m) long. The dam was completed and storage began May 7, 1913. The uncontrolled emergency spillway is a cut through natural rock 880 ft (268 m) long, with a 3-foot-wide (1 m) cutoff wall, located near right end of dam. The dam and lake are owned by the Bexar-Medina-Atascosa Counties Water Improvement District No. 1, which has a permit from the Texas Department of Water Resources to irrigate 150,000 acres (60,700 hm²) annually. An undetermined amount of water from the lake enters the Edwards and associated limestones in the Balcones Fault Zone, part of which is above and part below the dam. Water is released downstream to Medina Diversion Reservoir where it is diverted into Medina Canal by the Water District. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam	1,084.0	-
Crest of spillway	1,072.0	254,000
Water-supply outlet pipes (invert)	966.5	4,780
Lowest gated outlet (invert)	920.0	0

COOPERATION.--Capacity table, based on survey made prior to June 1912, and gage-height record were furnished by the Bexar-Medina-Atascosa Counties Water Improvement District No. 1.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents observed, 288,800 acre-ft (365 hm³) Sept. 16, 1919, gage height, 1,078.0 ft (328.57 m); minimum observed since lake first filled, 780 acre-ft (0.962 hm³) about Apr. 11, 1948, gage height, 944.0 ft (287.73 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents, 265,600 acre-ft (327 hm³) June 4, 14, gage height, 1,074.0 ft (327.35 m); minimum, 191,200 acre-ft (236 hm³) Oct. 12-16, gage height, 1,059.8 ft (323.03 m).

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

1,055.0	171,000	1,070.0	242,400
1,060.0	192,000	1,074.0	265,600
1,065.0	217,200		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191600	196000	197000	199600	200600	200100	215200	244700	256300	258100	255200	254000
2	191600	196000	197000	199600	200600	200100	216200	245900	256300	258100	255200	254000
3	191600	196000	197000	199600	200600	200100	216700	248200	256300	257500	255200	254000
4	191600	196000	197500	199600	200600	200100	217200	248800	265600	257500	255200	254000
5	191600	196000	197500	199600	200600	203600	217700	249400	262700	257500	255200	254000
6	191600	196000	197500	199600	200600	203600	218200	251100	259800	257500	254600	254000
7	191600	196000	198100	199600	200600	204100	218200	252900	259200	256900	254600	254000
8	191600	196000	198100	200100	200600	204100	218700	254000	258100	256900	254600	254000
9	191600	196000	198100	200100	200600	204600	218700	254000	257500	256900	254600	254000
10	191600	196000	198600	200100	200600	205100	218700	254600	256900	256900	254600	254000
11	191600	195500	198600	200100	200600	206100	219200	255200	256300	256300	254600	254000
12	191200	195500	198600	200100	200600	206600	219200	255200	256300	256300	254600	254000
13	191200	195500	199100	200100	200600	207100	219200	255200	259800	256300	254600	253400
14	191200	195500	199100	200100	200600	208100	219200	255200	265600	256300	254600	253400
15	191200	195500	199100	200100	200600	208600	219500	255700	264400	256300	254600	253400
16	191200	195500	199100	200100	200600	209100	219700	255700	264400	256300	254600	253400
17	192500	195500	199100	200100	200600	209100	220200	255700	263300	255700	254600	253400
18	193500	195500	199100	200100	200100	209700	220700	255700	263300	255700	254600	253400
19	194500	195500	199100	200100	200100	210200	221200	255700	262100	255700	254600	253400
20	196000	195500	199100	200100	200100	210200	221800	255500	262100	255700	254000	253400
21	196000	195500	199600	200100	200100	210700	222300	255500	261000	255200	254000	253400
22	196000	196000	199600	200600	200100	210700	222800	255200	261000	255200	254000	253400
23	196000	196000	199600	200600	200100	211200	228800	255200	259800	255200	254000	253400
24	196000	196000	199600	200600	200100	211700	234900	257500	259200	255200	254000	253400
25	196000	196500	199600	200600	200100	211700	235900	257500	259200	255200	254000	252900
26	196000	196500	199600	200600	200100	212200	236400	257500	259200	255200	254000	252900
27	196000	196500	199600	200600	200100	212200	237400	256900	258600	255200	254000	252900
28	196000	196500	199600	200600	200100	212700	238900	256900	258600	255200	254000	252300
29	196000	197000	199600	200600	---	212700	240400	256900	258600	255200	254000	251700
30	196000	197000	199600	200600	---	213200	243600	256900	258100	255200	254000	251700
31	196000	---	199600	200600	---	214200	---	256300	---	255200	254000	---
MAX	196000	197000	199600	200600	200600	214200	243600	257500	265600	258100	255200	254000
MIN	191200	195500	197000	199600	200100	200100	215200	244700	256300	255200	254000	251700
(†)	1060.8	1061.0	1061.5	1061.7	1061.6	1064.4	1070.2	1072.4	1072.7	1072.2	1072.0	1071.6
(‡)	+4400	+1000	+2600	+1000	-500	+14400	+29400	+12700	+1800	-2900	-1200	-2300

CAL YR 1980 MAX 230800 MIN 167200 ‡ -31200
WTR YR 1981 MAX 265600 MIN 191200 ‡ +60100

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

08179500 MEDINA LAKE NEAR SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
MAR 20...	1020	411	15.0	200	48	53	16	8.2

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
MAR 20...	.3	1.7	150	49	11	.3	9.5	239

08180000 MEDINA CANAL NEAR RIOMEDINA, TX

LOCATION.--Lat 29°30'19", long 98°54'11", Medina County, Hydrologic Unit 12100302, in center of canal, 54 ft (16 m) upstream from center pier of double-barrel flume, 350 ft (107 m) downstream from county highway bridge, 1,900 ft (579 m) downstream from head of canal and diversion dam, 4.6 mi (7.4 km) downstream from Medina Dam, 4.7 mi (7.6 km) north of Riomedina, and 25 mi (40 km) northwest of San Antonio.

PERIOD OF RECORD.--March 1922 to May 1934, July 1957 to current year.

REVISED RECORDS.--WSP 568: 1922. WSP 1712: 1922(M), 1924, 1926.

GAGE.--Water-stage recorder. Altitude of gage is 910 ft (277 m), from topographic map.

REMARKS.--Records good. Station is above all diversions from canal. Canal diverts from right end of Medina Diversion Dam 1,900 ft (579 m) upstream from gage for irrigation downstream near Lacoste and Natalia.

AVERAGE DISCHARGE.--35 years (water years 1923-33, 1958-81), 41.0 ft^3/s (1.161 m^3/s), 29,700 acre-ft/yr (36.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 216 ft^3/s (6.12 m^3/s) May 6, 1971; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	38	.00	47	.00	39	57	.00	45	101	98	43
2	50	38	.00	38	22	24	52	.00	34	78	98	30
3	66	47	.00	28	32	.01	49	.00	33	51	98	31
4	67	67	.00	28	21	.00	48	.00	22	52	98	31
5	67	71	.00	31	6.8	.00	48	.00	1.8	51	100	32
6	67	64	.00	32	.00	.00	54	10	.81	50	107	32
7	67	59	.00	23	.00	.00	70	31	.08	39	106	32
8	67	59	.00	23	.00	.00	77	41	7.9	38	105	32
9	67	59	.00	23	.00	.00	82	40	9.8	38	105	33
10	67	52	.00	23	.00	.00	82	34	30	38	103	33
11	67	43	.00	21	.00	.00	78	50	43	38	102	33
12	67	46	.00	10	.00	.00	76	81	.00	38	100	33
13	67	57	.00	10	.00	.00	76	82	.00	68	99	33
14	70	49	.00	10	.00	.00	74	89	.80	89	98	38
15	81	38	.00	10	.00	.00	59	103	.66	88	96	46
16	75	38	.00	30	13	.00	36	113	.14	89	93	35
17	50	17	.00	28	28	20	50	113	.29	90	90	33
18	50	.00	.00	22	28	31	28	142	.03	77	88	44
19	50	.00	.00	5.9	28	26	.00	173	.00	54	65	43
20	45	.00	.00	.00	27	25	6.4	173	.00	72	54	44
21	40	.00	.00	.00	26	25	32	170	.00	95	56	54
22	47	.00	.00	.00	26	24	30	162	.00	95	56	60
23	59	.00	.00	.00	26	24	6.3	171	11	96	56	66
24	49	.00	.00	.00	36	27	.00	160	21	96	57	75
25	40	.00	.00	.00	39	37	.00	136	21	97	56	73
26	40	.00	.00	.00	46	45	.00	123	22	97	56	72
27	48	.00	.00	.00	34	48	.00	122	22	98	56	70
28	64	.00	33	.00	34	36	.00	121	28	99	56	68
29	63	.00	54	.00	---	30	.00	102	68	99	56	67
30	48	.00	53	.00	---	43	.00	69	100	100	55	68
31	38	---	50	.00	---	55	---	69	---	99	55	---
TOTAL	1783	842.00	190.00	442.90	472.80	559.01	1170.70	2680.00	522.31	2310	2518	1384
MEAN	57.5	28.1	6.13	14.3	16.9	18.0	39.0	86.5	17.4	74.5	81.2	46.1
MAX	81	71	54	47	46	55	82	173	100	101	107	75
MIN	38	.00	.00	.00	.00	.00	.00	.00	.00	38	54	30
AC-FT	3540	1670	377	878	938	1110	2320	5320	1040	4580	4990	2750

CAL YR 1980 TOTAL 23320.43 MEAN 63.7 MAX 175 MIN .00 AC-FT 46260
WTR YR 1981 TOTAL 14874.72 MEAN 40.8 MAX 173 MIN .00 AC-FT 29500

08180700 MEDINA RIVER NEAR MACDONA, TX.

LOCATION.--Lat 29°20'05", long 98°41'22", Bexar County, Hydrologic Unit 12100302, at downstream side of Loop 1604 bridge, 0.1 mi (0.2 km) downstream from Polecat Creek, 0.7 mi (1.1 km) north of Macdona, 2.2 mi (3.5 km) downstream from Potranca Creek, and 21.2 mi (34.1 km) upstream from mouth.

DRAINAGE AREA.--885 mi^2 (2,292 km^2), of which 634 mi^2 (1,642 km^2) is above dam forming Medina Lake.

PERIOD OF RECORD.--January to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 589.86 ft (179.789 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is regulated by Medina Lake (station 08179500) 41.1 mi (66.1 km) upstream and by Medina Diversion Lake, capacity 4,500 acre-ft (5.55 hm^3). For diversion of canal records, see Medina Canal near Riomedina (station 08180000). A large part of the streamflow is lost into the Edwards and associated limestones in the Balcones Fault Zone, which crosses the basin between the upstream end of Medina Lake and about 5 mi (8 km) downstream from Medina Dam, or 0.9 mi (1.4 km) downstream from the diversion dam. There are several small diversions below Medina Diversion Dam. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,810 ft^3/s (165 m^3/s) June 15, 1981, gage height, 16.08 ft (4.901 m); minimum, 24 ft^3/s (0.68 m^3/s) Apr. 6, 7, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, during period January to September, 5,810 ft^3/s (165 m^3/s) June 15 at 0500 hours, gage height, 16.08 ft (4.901 m); minimum, 24 ft^3/s (0.68 m^3/s) Apr. 6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, JANUARY TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				55	56	47	30	43	494	1110	224	91
2				55	55	52	29	42	447	1020	204	91
3				55	46	50	28	52	414	953	191	89
4				53	50	50	28	52	561	901	178	89
5				55	55	46	25	72	3020	860	165	87
6				55	53	40	25	80	3550	885	152	86
7				53	52	42	25	81	2270	870	142	85
8				53	58	42	25	72	1580	864	135	90
9				53	58	42	26	57	1190	837	130	87
10				53	56	40	28	47	973	786	125	83
11				52	56	42	28	45	848	731	119	82
12				50	55	47	29	87	1150	684	118	82
13				49	56	54	29	106	2150	639	115	81
14				49	58	57	28	139	3760	577	113	81
15				47	58	48	29	176	5000	528	111	82
16				47	58	45	34	182	4080	495	110	83
17				49	56	43	32	179	4270	467	107	81
18				46	56	34	30	191	4130	441	105	80
19				59	56	39	31	186	3470	424	134	79
20				75	56	39	32	143	2910	414	119	81
21				61	55	42	34	110	2500	392	108	80
22				53	56	41	34	79	2200	362	105	80
23				52	52	41	45	65	1930	342	103	78
24				50	49	41	57	75	1710	320	101	77
25				50	50	41	59	279	1540	305	99	76
26				52	50	42	52	591	1430	293	94	76
27				55	50	49	47	535	1430	286	93	72
28				56	47	44	45	437	1330	277	91	72
29				56	---	43	44	375	1270	264	91	71
30				56	---	40	43	606	1200	253	94	71
31				55	---	31	---	562	---	239	96	---
TOTAL				1659	1513	1354	1031	5746	62807	17819	3872	2443
MEAN				53.5	54.0	43.7	34.4	185	2094	575	125	81.4
MAX				75	58	57	59	606	5000	1110	224	91
MIN				46	46	31	25	42	414	239	91	71
AC-FT				3290	3000	2690	2040	11400	124600	35340	7680	4850

WTR YR 1981 TOTAL - MEAN - MEAN - MAX - MIN - AC-FT -

08180800 MEDINA RIVER NEAR SOMERSET, TX

LOCATION.--Lat 29°15'45", long 98°34'56", Bexar County, Hydrologic Unit 12100302, on left bank 300 ft (91 m) upstream from bridge on State Highway 16, 2.1 mi (3.4 km) upstream from Elm Creek, 4.9 mi (7.9 km) downstream from Medio Creek, 5.2 mi (8.4 km) northeast of Somerset, and 14.1 mi (22.7 km) upstream from mouth.

DRAINAGE AREA.--967 mi² (2,505 km²), of which 634 mi² (1,642 km²) is above dam forming Medina Lake.

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 493.56 ft (150.437 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is regulated by Medina Lake (station 08179500) 56 mi (90 km) upstream and by Medina Diversion Lake, capacity 4,500 acre-ft (5.55 hm³). For diversion of canal records, see Medina Canal near Riomedina (station 08180000). A large part of the streamflow is lost into the Edwards and associated limestones in the Balcones Fault Zone, which crosses the basin between the upstream end of Medina Lake and about 5 mi (8 km) downstream from Medina Dam, or 0.9 mi (1.4 km) downstream from the diversion dam. There are several small diversions below Medina Diversion Dam. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years, 278 ft³/s (7.873 m³/s), 201,400 acre-ft/yr (248 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,500 ft³/s (864 m³/s) July 17, 1973, gage height, 29.39 ft (8.958 m); minimum, 21 ft³/s (0.59 m³/s) July 23, 24, 1971.
Maximum stage since about 1890, that of July 17, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,200 ft³/s (289 m³/s) June 15 at 1500 hours, gage height, 20.96 ft (6.389 m); minimum daily, 35 ft³/s (0.99 m³/s) Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	43	68	66	64	62	52	61	530	1230	239	100
2	57	45	67	66	64	63	51	60	456	1120	216	100
3	57	44	68	65	62	67	51	66	431	1030	201	99
4	57	47	66	65	62	68	51	71	415	976	186	106
5	57	42	66	65	66	66	50	76	1860	924	174	102
6	56	41	66	65	68	63	49	86	4480	940	161	100
7	44	43	67	65	67	62	51	88	2960	933	151	98
8	36	47	68	66	66	61	51	86	1920	921	141	105
9	35	48	67	65	68	60	51	79	1460	920	135	98
10	38	50	66	66	68	60	51	71	1150	870	131	108
11	41	48	65	66	66	61	50	65	976	810	126	97
12	40	44	65	65	66	63	50	72	1090	761	120	93
13	38	47	65	64	64	66	50	102	2460	715	118	92
14	38	47	65	64	66	71	50	113	6830	662	116	91
15	40	49	69	63	66	69	50	137	8010	598	113	91
16	42	62	69	63	66	65	51	153	5940	561	112	93
17	42	85	68	62	66	63	54	152	5590	526	110	92
18	39	72	67	62	66	60	52	160	6110	497	109	89
19	54	63	67	72	66	55	53	162	4460	473	112	88
20	45	61	66	111	65	58	54	145	3400	465	130	88
21	46	60	65	94	65	58	53	123	2730	445	112	88
22	46	61	65	75	64	59	54	101	2350	408	102	90
23	43	62	65	70	63	59	62	88	2090	385	100	90
24	50	63	66	68	62	58	73	92	1870	369	99	89
25	49	67	66	67	62	57	75	144	1680	348	98	88
26	43	98	66	67	63	58	79	457	1550	331	96	89
27	45	89	67	66	63	59	73	507	1540	321	95	87
28	44	73	67	65	61	64	68	437	1460	300	95	86
29	43	68	67	65	---	60	63	378	1370	288	95	85
30	46	68	67	65	---	57	62	512	1330	271	97	84
31	44	---	66	64	---	55	---	561	---	256	101	---
TOTAL	1412	1737	2062	2112	1815	1907	1684	5405	78498	19654	3991	2806
MEAN	45.5	57.9	66.5	68.1	64.8	61.5	56.1	174	2617	634	129	93.5
MAX	57	98	69	111	68	71	79	561	8010	1230	239	108
MIN	35	41	65	62	61	55	49	60	415	256	95	84
AC-FT	2800	3450	4090	4190	3600	3780	3340	10720	155700	38980	7920	5570

CAL YR 1980	TOTAL	25016	MEAN	68.3	MAX	1040	MIN 35	AC-FT	49620
WTR YR 1981	TOTAL	123083	MEAN	337	MAX	8010	MIN 35	AC-FT	244100

08181400 HELOTES CREEK AT HELOTES, TX

LOCATION.--Lat 29°34'42", long 98°41'29", Bexar County, Hydrologic Unit 12100302, 42 ft (13 m) left of and 44 ft (13 m) downstream from centerline of bridge on State Highway 16, 0.1 mi (0.2 km) northwest of Helotes, and 8.6 mi (13.8 km) upstream from mouth.

DRAINAGE AREA.--15.0 mi^2 (38.8 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-73-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 1,014.82 ft (309.317 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. An undetermined amount of flow is diverted for domestic use above the station, and some flow enters the Edwards and associated limestones through the Balcones Fault Zone in the vicinity of the gage. Recording rain gage located at station, with two additional recording rain gages located in watershed.

AVERAGE DISCHARGE.--13 years, 4.63 ft^3/s (0.131 m^3/s), 4.19 in/yr (106 mm/yr), 3,350 acre-ft/yr (4.13 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,680 ft^3/s (217 m^3/s) July 16, 1973, gage height, 10.8 ft (3.29 m), from floodmarks, from rating curve extended above 5,000 ft^3/s (142 m^3/s); no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1923, 13.7 ft (4.18 m) in 1927, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 140 ft^3/s (3.96 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 12	1315	959	27.2	4.02	1.225
June 14	1200	*1,260	35.7	4.47	1.362

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.03	.00	.00	4.1	7.4	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.03	3.1	6.1	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.16	1.9	5.2	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	2.4	4.4	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	8.0	6.8	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	7.7	5.8	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	6.7	3.9	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	5.3	3.1	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	4.0	2.4	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	2.6	2.1	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	1.5	1.3	.00	.00
12	.00	.00	.00	.00	.00	.32	.00	.00	166	1.0	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	280	.50	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	606	.24	.00	.00
15	.00	.03	.00	.00	.00	.00	.00	.00	385	.05	.00	.00
16	.00	.12	.00	.00	.00	.00	.00	.00	288	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	198	.00	.00	.00
18	1.3	.00	.00	.00	.00	.00	.00	.00	134	.00	.11	.00
19	.00	.00	.00	.13	.00	.00	.00	.00	89	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	63	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	49	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	38	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.17	.00	32	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.30	27	.00	.00	.00
25	.00	.23	.00	.00	.00	.00	.03	.03	21	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	18	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	15	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	13	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.09	11	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.48	8.5	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	3.9	---	.00	.00	---
TOTAL	1.30	.38	.00	.13	.00	.35	.20	4.99	2488.8	50.29	.11	.00
MEAN	.042	.013	.000	.004	.000	.011	.007	.16	83.0	1.62	.004	.000
MAX	1.3	.23	.00	.13	.00	.32	.17	3.9	606	7.4	.11	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	1.5	.00	.00	.00
CFSM	.003	.001	.000	.000	.000	.001	.000	.01	5.53	.11	.000	.000
IN.	.00	.00	.00	.00	.00	.00	.00	.01	6.17	.12	.00	.00
AC-FT	2.6	.8	.00	.3	.00	.7	.4	9.9	4940	100	.2	.00

CAL YR 1980 TOTAL 4.65 MEAN .013 MAX 1.3 MIN .00 CFSM .001 IN .01 AC-FT 9.2
WTR YR 1981 TOTAL 2546.55 MEAN 6.98 MAX 606 MIN .00 CFSM .47 IN 6.32 AC-FT 5050

08181400 HELOTES CREEK AT HELOTES, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: May 1969 to current year. Sediment analyses: May 1972 to September 1973. Water temperatures: May 1969 to current year. Bacteria analyses: April 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5-DAY (MG/L)
JUN										
12...	1145	247	384	7.9	24.5	5	33	7.4	89	2.3
12...	1204	882	304	7.5	24.0	30	290	7.4	88	3.4
12...	1240	754	255	7.8	24.0	35	140	7.6	90	4.1
12...	1406	662	283	7.8	24.0	50	150	--	--	4.2
12...	1454	429	--	--	--	--	--	7.7	92	3.8
12...	1546	295	309	7.8	24.5	30	150	7.7	93	3.1

DATE	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	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
JUN									
12...	54000	--	89000	200	18	61	11	6.3	.2
12...	110000	K19000	K120000	160	9	49	8.9	4.4	.2
12...	>16000	K16000	K62000	130	7	40	6.6	3.6	.1
12...	21000	K13000	42000	150	19	48	7.0	3.2	.1
12...	--	--	--	--	--	--	--	--	--
12...	9800	7400	24000	160	10	52	7.3	4.3	.1

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	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)
JUN									
12...	1.4	180	14	13	.1	8.5	--	223	118
12...	2.1	150	10	7.1	.1	7.6	--	179	824
12...	2.5	120	13	5.3	.1	7.7	4140	151	462
12...	2.5	130	18	5.7	.1	7.9	--	170	472
12...	--	--	--	--	--	--	--	--	--
12...	2.4	150	13	7.1	.1	8.4	--	174	312

DATE	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JUN									
12...	38	.38	.010	.39	.060	.94	1.0	.080	7.5
12...	136	.36	.030	.39	.150	2.2	2.3	.330	48
12...	72	.44	.020	.46	.100	2.5	2.6	.190	23
12...	80	.54	.020	.56	.100	2.2	2.3	.220	32
12...	--	--	--	--	--	--	--	--	--
12...	64	.63	.020	.65	.100	1.9	2.0	.120	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)
JUN							
12...	1145	1	200	<1	10	<10	20
12...	1204	1	0	0	10	0	40
12...	1406	1	0	0	0	0	40

08181400 HELOTES CREEK AT HELOTES, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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						
12...	<10	3	.2	0	0	5
12...	0	0	.1	0	0	0
12...	0	0	.1	0	0	0

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)
JUN									
12...	1145	.00	.0	.00	.0	.00	.00	.00	.00
12...	1204	.00	.0	.00	.1	.00	.00	.00	.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JUN									
12...	.00	.00	.00	.00	.00	.00	.01	.00	.00
12...	.00	.00	.00	.00	.00	.00	.01	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN									
12...	.00	.00	.00	.00	0	.00	.00	.00	.00
12...	.00	.00	.00	.00	0	.00	.00	.00	.00

08181500 MEDINA RIVER AT SAN ANTONIO, TX

LOCATION.--Lat 29°15'14", long 98°28'20", Bexar County, Hydrologic Unit 12100302, near left bank on downstream side of pier of upstream bridge of two bridges on U.S. Highway 281 in San Antonio and 6.8 mi (10.9 km) upstream from mouth.

DRAINAGE AREA.--1,317 mi² (3,411 km²), of which 634 mi² (1,642 km²) is above dam forming Medina Lake.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to December 1930, July 1939 to current year. October 1929 to December 1930 records below about 50 ft³/s (1.42 m³/s) in connection with seepage investigation (published as "at Losoya"). Published as "near San Antonio" July 1939 to September 1970.

REVISED RECORDS.--WSP 1562: 1957. WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.0 ft (133.81 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). October 1929 to December 1930, nonrecording gage at Losoya 1.5 mi (2.4 km) downstream at different datum.

REMARKS.--Water-discharge records good. Flow is slightly regulated by Medina Lake (station 08179500), 60 mi (97 km) upstream, and diversion dam reservoir, capacity 4,500 acre-ft (5.55 hm³). For diversion of canal records, see Medina Canal near Riomedina (station 08180000). For statement concerning losses into the Edwards and associated limestones formation, see Medina River near Somerset (station 08180800). Several small diversions below diversion dam reservoir. Records furnished by the city of San Antonio indicate that during the current year sewage effluent in the amounts of 1,030 acre-ft (1.27 hm³) from Mitchell Lake plant and 26,210 acre-ft (32.3 hm³) from Leon Creek plant was discharged into the Medina River above this station. A temperature and gage-height telemeter at this station.

AVERAGE DISCHARGE.--42 years (water years 1930-31, 1939-81), 173 ft³/s (4.899 m³/s), 125,300 acre-ft/yr (154 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft³/s (903 m³/s) July 17, 1973, gage height, 43.59 ft (13.286 m); minimum daily, 3.3 ft³/s (0.093 m³/s) Apr. 18, Nov. 1, 1956, and Jan. 24, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 55 ft (16.8 m) sometime prior to construction of Medina Dam in 1913, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,500 ft³/s (411 m³/s) June 14 at 0500 hours, gage height, 29.04 ft (8.851 m); minimum daily, 64 ft³/s (1.81 m³/s) Oct. 9, Apr. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	78	103	112	110	114	99	86	516	1280	280	172
2	108	81	103	111	110	118	97	88	379	1200	260	168
3	103	80	104	112	109	119	99	114	330	1130	247	193
4	104	85	102	113	111	124	98	104	310	1070	237	183
5	104	77	106	114	126	118	97	99	1340	1030	225	165
6	100	75	109	116	120	114	95	102	2920	1040	208	156
7	84	77	109	117	116	110	97	101	2750	1020	197	151
8	65	85	112	115	112	108	96	99	1730	1000	186	202
9	64	86	116	115	114	106	97	95	1300	997	178	185
10	69	90	113	115	114	104	88	85	1080	963	175	170
11	75	89	112	113	114	109	68	77	973	903	167	159
12	73	78	112	113	114	114	71	81	1280	848	164	153
13	69	84	111	112	113	124	71	104	4230	801	158	146
14	69	90	110	113	114	118	72	110	11600	748	165	148
15	73	96	115	111	114	115	78	122	10700	683	157	151
16	78	143	116	112	114	110	75	132	8580	642	152	154
17	76	154	113	111	113	107	82	131	7760	606	150	144
18	70	120	112	111	114	104	77	133	7200	572	146	140
19	97	107	112	146	115	98	66	133	5750	541	200	136
20	81	100	111	197	113	99	72	122	4250	525	234	134
21	83	96	113	148	113	100	64	105	3300	488	197	131
22	84	95	115	124	112	99	73	91	2700	434	179	127
23	79	97	116	117	111	101	140	77	2380	404	168	127
24	91	96	116	114	111	100	113	142	2150	386	168	127
25	90	107	113	112	112	102	113	147	1870	363	166	125
26	79	177	113	111	111	101	114	338	1650	343	161	120
27	81	134	115	110	112	102	101	444	1730	333	160	120
28	80	111	113	109	112	104	95	348	1610	324	159	123
29	79	104	113	109	---	102	89	292	1430	315	157	125
30	84	103	114	109	---	101	87	443	1370	303	186	120
31	81	---	114	109	---	100	---	663	---	295	199	---
TOTAL	2586	2995	3456	3651	3174	3345	2684	5208	95168	21587	5786	4455
MEAN	83.4	99.8	111	118	113	108	89.5	168	3172	696	187	149
MAX	113	177	116	197	126	124	140	663	11600	1280	280	202
MIN	64	75	102	109	109	98	64	77	310	295	146	120
AC-FT	5130	5940	6850	7240	6300	6630	5320	10330	188800	42820	11480	8840

CAL YR 1980 TOTAL 41739 MEAN 114 MAX 1820 MIN 22 AC FT 82790
WTR YR 1981 TOTAL 154095 MEAN 422 MAX 11600 MIN 64 AC-FT 305600

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 22...	1300	76	758	7.9	21.5	7	58	6.4	73	17	290	61
DEC 04...	1522	101	835	7.4	16.3	5	15	6.9	70	18	290	36
JAN 15...	1105	106	951	7.9	14.0	6	13	6.0	58	17	300	45
FEB 26...	1150	105	930	7.4	20.0	5	8.9	6.7	74	12	330	95
APR 14...	1252	66	916	7.9	23.0	5	19	3.8	44	4.7	330	93
JUN 17...	1312	7980	387	7.4	24.0	25	160	6.9	82	3.5	170	29
JUL 30...	1040	301	645	7.9	27.0	10	24	6.0	76	2.2	280	66
SEP 11...	1405	155	759	7.6	26.0	5	17	4.0	49	13	300	67

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
OCT 22...	85	19	48	1.2	4.3	230	79	66	.3	13	--
DEC 04...	83	19	50	1.3	5.7	250	82	67	.4	13	--
JAN 15...	89	20	59	1.5	4.1	260	90	66	.5	13	--
FEB 26...	94	22	66	1.6	4.3	230	110	84	.3	12	--
APR 14...	97	22	63	1.5	4.1	240	100	84	.4	15	--
JUN 17...	51	10	13	.4	3.9	140	54	13	.1	12	--
JUL 30...	79	19	29	.8	2.3	210	70	36	.2	14	368
SEP 11...	86	20	44	1.1	4.7	230	79	56	.3	12	--

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 22...	453	136	96	3.0	.690	3.7	1.400	1.1	2.5	1.100	9.5
DEC 04...	470	1	6	2.6	.540	3.1	3.600	--	--	2.000	16
JAN 15...	498	1	11	2.3	.410	2.7	5.100	2.6	7.7	1.300	12
FEB 26...	531	14	4	2.5	.910	3.4	2.200	1.1	3.3	1.300	9.7
APR 14...	530	26	4	2.5	.370	2.9	.670	1.0	1.7	1.500	9.6
JUN 17...	241	218	16	.43	.040	.47	.150	1.3	1.4	.230	12
JUL 30...	376	45	21	1.8	.090	1.9	.410	1.1	1.5	.260	2.9
SEP 11...	440	37	4	1.8	.370	2.2	2.400	1.6	4.0	.000	5.6

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 22...	1300	1	50	<1	0	<10	<10
FEB 26...	1150	1	50	<1	0	<10	10
JUN 17...	1312	2	60	<1	0	<10	20
SEP 11...	1405	2	0	0	0	7	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)
OCT 22...	31	8	.1	1	0	10
FEB 26...	<10	20	.2	1	0	10
JUN 17...	<10	<1	.0	0	0	5
SEP 11...	1	10	.0	1	0	20

DATE	TIME	PCB TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL 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)
FEB 26...	1150	.00	13	.0	.00	.0	.0	18	.00	.0	.00
SEP 11...	1405	.00	17	.0	.00	.0	.0	42	.00	1.1	.00

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)
FEB 26...	<3.0	.00	.0	.20	.00	.0	.00	.00	.0	.00
SEP 11...	2.1	.00	.0	.11	.00	.6	.01	.00	.0	.00

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 26...	.00	.2	.00	.0	.01	.0	.00	.00	.0	.00
SEP 11...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00

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)
FEB 26...	.00	.00	.0	.00	0	0	.00	.02	.00	.00
SEP 11...	.00	.00	.0	.00	0	0	.00	.00	.00	.00

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX

LOCATION (revised).--Lat 29°13'19" long 98°21'20", Bexar County, Hydrologic Unit 12100301, at downstream side of bridge on Farm Road 1604, 2.7 mi (4.3 km) southwest of Elmendorf, 3.3 mi (5.3 km) downstream from Braunig Plant Lake, and 203.0 mi (326.6 km) upstream from mouth. Prior to Dec. 19, 1980, at site 2.5 mi (4.0 km) upstream.

DRAINAGE AREA.--1,743 mi² (4,514 km²).

WATER-DISCHARGE RECORDS

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

GAGE (revised) .--Water-stage recorder. Altitude of gage is 385 ft (117 m), from topographic map. Prior to Dec. 19, 1980, at site 2.5 mi (4.0 km) upstream at different datum.

REMARKS.--Water-discharge records good. Flow slightly regulated by Medina Lake (station 08179500) and Olmos flood-control reservoir, combined capacity 269,500 acre-ft (332 hm³). Storage began in Medina Lake in 1913, and Olmos Dam was completed in 1926. Water is diverted above station from Medina River for irrigation in the vicinity of Devine and Lytle, with some water diverted for irrigation near San Antonio. During the current year, records furnished by the city of San Antonio show that upstream from this station 145,800 acre-ft (180 hm³) of sewage effluent was discharged into the San Antonio River from the Rilling Road, Leon Creek, Salado Creek, and Mitchell Lake plants. Records furnished by the San Antonio City Public Service Board show that upstream from this station 4,150 acre-ft (5.12 hm³) was pumped into Braunig Lake, 120 acre-ft (0.148 hm³) was released from Braunig Lake, and 12,950 acre-ft (16.0 hm³) was pumped into Calaveras Lake. For additional information relative to sewage effluent, see station 08181500. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08178700.

AVERAGE DISCHARGE.--19 years (water years 1963-81), 529 ft³/s (14.98 m³/s), 383,300 acre-ft/yr (473 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s (1,130 m³/s) Sept. 27, 1973, gage height, 47.60 ft (14.508 m); minimum, 12 ft³/s (0.34 m³/s) Aug. 24-26, 1963. All stages at site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 61 ft (18.6 m) in 1946. Second highest was 53 ft (16.2 m) in 1913, from information by local residents. All site and datum in use prior to Dec. 19, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,000 ft³/s (198 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 14	1600	*18,000	510	a44.50	13.564
June 16	2100	14,000	396	a41.82	12.747

a At site and datum in use after Dec. 18, 1980.

Minimum discharge, 122 ft³/s (3.46 m³/s) Nov. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	324	167	274	308	314	352	270	325	1070	1780	435	520
2	289	171	275	301	317	479	235	407	812	1650	404	444
3	274	204	270	308	314	371	238	633	740	1570	386	664
4	265	176	263	308	344	467	235	550	703	1480	381	555
5	262	167	290	315	575	381	221	372	1430	1450	362	437
6	235	167	290	326	418	350	226	360	2710	1630	345	437
7	187	171	279	328	350	327	232	354	4100	1450	328	422
8	175	166	293	323	333	321	236	347	2800	1410	324	902
9	172	163	379	334	365	319	236	333	2030	1390	299	882
10	174	191	294	323	344	320	235	354	1620	1360	295	484
11	172	230	280	313	330	332	210	315	1580	1280	293	466
12	167	231	278	287	316	397	204	315	2200	1210	282	428
13	169	220	268	254	313	587	209	333	4760	1170	283	411
14	172	219	263	255	309	435	213	342	14600	1120	349	437
15	172	211	293	253	318	362	217	350	12500	1050	521	487
16	170	914	292	246	320	346	218	368	11700	1000	395	479
17	173	869	278	234	339	341	233	379	11200	955	384	435
18	198	398	275	233	317	334	222	377	7330	908	426	421
19	424	306	323	769	327	316	212	382	6400	870	1330	404
20	239	282	306	1230	325	317	203	360	5080	853	918	400
21	193	272	307	537	318	311	216	331	4030	808	527	428
22	189	275	315	398	313	301	241	321	3210	717	468	400
23	197	293	331	363	332	302	1060	303	2790	680	452	407
24	234	275	317	342	309	316	921	1010	2590	657	457	399
25	189	482	307	338	285	313	603	1130	2340	633	471	386
26	169	1030	296	338	249	313	694	690	2180	575	454	384
27	180	447	314	334	251	314	429	772	2630	535	446	378
28	179	307	313	331	244	308	354	703	2170	530	446	358
29	179	280	316	324	---	310	343	1010	1970	505	437	313
30	175	267	321	326	---	309	336	2040	2040	476	569	386
31	179	---	316	312	---	308	---	1880	---	449	978	---
TOTAL	6476	9551	9216	11191	9189	10859	9702	17746	121315	32151	14445	13954
MEAN	209	318	297	361	328	350	323	572	4044	1037	466	465
MAX	424	1030	379	1230	575	587	1060	2040	14600	1780	1330	902
MIN	167	163	263	233	244	301	203	303	703	449	282	313
AC-FT	12850	18940	18280	22200	18230	21540	19240	35200	240600	63770	28650	27680

CAL YR 1980 TOTAL 123900 MEAN 339 MAX 4290 MIN 131 AC-FT 245800
WTR YR 1981 TOTAL 265795 MEAN 728 MAX 14600 MIN 163 AC-FT 527200

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1966 to current year. Chemical, biochemical, and pesticide analyses: January 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
WATER TEMPERATURES: October 1966 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,240 micromhos Jan. 29, 1973, Aug. 8, 1975; minimum daily, 263 micromhos Sept. 27, 1973, Sept. 14, 1978.
WATER TEMPERATURES: Maximum daily, 32.0°C June 21, 1969, and July 4, 1980; minimum daily, 5.5°C Jan. 10, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 950 micromhos Mar. 12; minimum daily, 269 micromhos June 14.
WATER TEMPERATURES: Maximum daily, 30.0°C July 19, 25, Aug. 8, 17, 18; minimum daily, 11.0°C Jan. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)
OCT 22...	1400	211	827	7.8	23.0	10	9.0	5.6	65	16
DEC 04...	1107	251	810	7.7	18.0	10	5.6	6.8	72	12
JAN 15...	1250	221	948	--	17.0	5	14	5.0	52	16
FEB 25...	1238	316	933	7.7	20.0	5	7.1	4.6	51	19
APR 14...	1729	168	915	7.7	25.0	5	3.2	3.9	48	7.8
MAY 26...	1206	2520	537	--	25.6	--	--	--	--	--
JUN 18...	1341	7250	443	7.8	25.0	10	180	6.6	80	3.9
JUL 30...	1336	440	733	7.7	28.5	5	21	4.8	62	11
SEP 08...	1350	557	737	7.8	28.5	5	72	4.3	56	20

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)	ALKA-LINITY FIELD (MG/L AS CACO3)
OCT 22...	--	--	270	17	79	17	65	1.7	7.2	250
DEC 04...	--	--	280	16	81	18	67	1.8	8.3	260
JAN 15...	--	--	290	31	85	19	72	1.8	6.2	260
FEB 25...	K600	130	300	37	86	20	76	1.9	6.8	260
APR 14...	--	--	290	21	87	18	67	1.7	6.2	270
MAY 26...	--	--	200	42	61	12	33	1.0	5.0	160
JUN 18...	--	--	190	34	58	12	13	.4	3.3	160
JUL 30...	--	--	280	56	79	19	46	1.3	3.9	220
SEP 08...	--	--	280	49	82	18	46	1.2	4.3	230

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)
OCT 22...	70	78	.5	15	--	482	37	0	1.9	.720
DEC 04...	70	81	.4	15	--	497	0	2	1.8	1.00
JAN 15...	80	79	.6	14	--	512	12	10	2.1	.900
FEB 25...	82	89	.4	14	--	531	18	6	2.2	1.00
APR 14...	76	78	.5	16	--	511	3	0	1.6	.740
MAY 26...	59	39	.2	12	--	317	--	--	--	--
JUN 18...	53	17	.2	12	--	265	336	16	1.6	.050
JUL 30...	73	54	.3	15	441	422	43	24	1.6	.530
SEP 08...	70	59	.3	13	--	431	168	26	1.8	1.20

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 22...	2.6	6.00	.40	6.40	1.50	26	--	--	--
DEC 04...	2.8	4.90	--	--	10.0	14	--	--	--
JAN 15...	3.0	5.10	1.3	6.40	2.70	19	--	--	--
FEB 25...	3.2	6.00	1.3	7.30	3.40	15	28	24	92
APR 14...	2.3	.000	8.7	8.70	2.50	12	--	--	--
MAY 26...	--	--	--	--	--	--	--	--	--
JUN 18...	1.6	.330	.97	1.30	.230	11	--	--	--
JUL 30...	2.1	1.20	1.4	2.60	.910	4.7	--	--	--
SEP 08...	3.0	1.60	1.2	2.80	.930	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)
OCT 22...	1400	2	50	<1	0	<10	<10
FEB 25...	1238	1	40	<1	0	<10	20
JUN 18...	1341	2	100	<1	0	<10	20
SEP 08...	1350	2	0	0	0	2	30

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 22...	50	20	.5	0	0	20
FEB 25...	<10	30	.2	1	0	20
JUN 18...	<10	3	.0	0	0	5
SEP 08...	0	10	.0	1	0	10

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)
FEB 25...	1238	.00	5	.00	.00	.0	.10	5.0	.00	.6	.00
SEP 08...	1350	.00	1	.00	.00	.0	.00	5.0	.00	.4	.00

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)
FEB 25...	.9	.00	.0	.44	.00	.2	.00	.00	.0	.00
SEP 08...	.3	.00	.0	.29	.00	.1	.00	.00	.0	.00

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 25...	.00	.1	.00	.0	.02	.1	.00	.00	.0	.00
SEP 08...	.00	.0	.00	.0	.01	.0	.01	.00	.0	.00

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)
FEB 25...	.00	.00	.0	.00	0	.0	.00	.03	.00	.00
SEP 08...	.00	.00	.0	.00	0	.0	.00	.00	.00	.00

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	6476	838	475	8300	76	1330	75	1320	290
NOV.	1980	9551	701	398	10300	58	1500	63	1640	260
DEC.	1980	9216	855	484	12000	78	1950	77	1910	300
JAN.	1981	11191	797	452	13700	71	2140	72	2170	280
FEB.	1981	9189	860	487	12100	80	1980	77	1910	300
MAR.	1981	10859	851	482	14100	78	2290	76	2240	290
APR.	1981	9702	773	439	11500	68	1780	70	1830	270
MAY	1981	17746	616	351	16800	47	2250	56	2690	230
JUNE	1981	121315	409	234	76800	24	7750	38	12400	170
JULY	1981	32151	627	358	31000	46	4030	57	4970	240
AUG.	1981	14445	734	417	16300	61	2390	66	2590	270
SEPT	1981	13954	729	414	15600	60	2250	66	2490	270
TOTAL		265795	**	**	238000	**	31600	**	38200	**
WTD. AVG.		728	583	332	**	44	**	53	**	220

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	790	896	793	874	902	782	903	861	467	540	773	663
2	835	908	807	861	859	784	890	840	590	578	760	719
3	855	855	860	847	854	760	906	600	609	580	747	694
4	870	835	846	855	880	806	913	664	629	581	758	681
5	855	880	868	848	620	787	909	723	513	590	790	700
6	840	900	860	831	760	851	882	797	398	555	799	710
7	835	890	861	875	832	889	864	832	442	592	821	730
8	877	900	853	885	846	880	930	849	463	605	808	680
9	865	900	800	895	840	861	922	865	498	594	810	550
10	878	860	811	882	833	856	913	846	531	586	816	691
11	886	880	852	884	878	887	900	785	551	616	812	741
12	872	890	865	860	883	950	893	800	479	606	831	744
13	853	910	891	856	912	734	875	790	369	613	843	750
14	825	890	872	887	916	802	915	785	269	632	836	745
15	859	920	849	899	894	886	916	780	291	640	750	725
16	878	450	840	898	871	819	932	776	340	669	804	742
17	890	480	871	908	858	823	924	765	346	687	817	800
18	880	580	891	890	886	873	909	750	400	680	793	790
19	700	710	875	600	899	877	892	732	472	675	525	757
20	722	790	890	506	907	879	855	754	516	668	579	758
21	815	810	883	650	905	884	844	772	485	683	695	764
22	827	840	863	758	893	887	896	792	498	687	791	779
23	830	835	847	821	885	856	500	830	512	702	790	802
24	839	800	860	870	834	855	650	527	531	704	778	796
25	847	710	884	862	915	903	725	480	541	723	775	810
26	896	490	877	850	927	897	525	530	538	725	805	780
27	827	580	846	846	930	916	650	555	480	710	826	790
28	823	680	853	865	934	905	744	578	515	726	813	785
29	880	780	847	883	---	900	800	500	528	733	830	790
30	892	800	843	896	---	898	871	386	511	727	788	760
31	879	---	850	900	---	886	---	420	---	735	504	---
MEAN	846	788	855	840	870	857	842	709	477	650	770	741

08181800 SAN ANTONIO RIVER NR ELMENDORF, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

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

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX

LOCATION.--Lat 28°57'05", long 98°03'50", Karnes County, Hydrologic Unit 12100303, on left bank 23 ft (7 m) downstream from bridge on Farm Road 791, 0.9 mi (1.4 km) upstream from Scared Dog Creek, 3.6 mi (5.8 km) southwest of Fall City, and 150.5 mi (242.2 km) upstream from mouth.

DRAINAGE AREA.--2,113 mi² (5,473 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 1732: 1947(M). WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 285.49 ft (87.017 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. For diversions and regulation above station, see REMARKS for Salado Creek (upper station) at San Antonio (station 08178700), Medina River at San Antonio (station 08181500), and San Antonio River near Elmendorf (station 08181800). Flow is slightly regulated by Calaveras Lake on Calaveras Creek, which enters the San Antonio River downstream from the station near Elmendorf. Flow is affected at times by discharge from the flood-detention pools of ten floodwater-retarding structures with a combined detention capacity of 26,130 acre-ft (32.2 hm³). These structures control runoff from 73.8 mi² (191.1 km²). Records furnished by the San Antonio City Public Service Board show that during the current year no water was released into Calaveras Creek from Calaveras Lake.

AVERAGE DISCHARGE.--56 years (water years 1926-81), 399 ft³/s (11.30 m³/s), 289,100 acre-ft (356 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft³/s (1,340 m³/s) Sept. 29, 1946, gage height, 33.80 ft (10.302 m), from floodmark; minimum, 15 ft³/s (0.42 m³/s) June 27, 28, 1956.
Maximum stage since at least 1875, that of Sept. 29, 1946.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1913 reached a stage of 28.4 ft (8.66 m), from floodmark, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,400 ft³/s (323 m³/s) June 18 at 1600 hours, gage height, 16.84 ft (5.133 m), no other peak above base of 4,000 ft³/s (113 m³/s); minimum, 146 ft³/s (4.13 m³/s) Apr. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	353	186	323	325	342	244	272	356	1780	2120	521	884
2	388	189	311	327	317	236	266	453	1270	1960	497	779
3	353	179	315	317	316	446	217	578	968	1790	494	480
4	324	194	319	328	319	379	206	585	866	1690	453	499
5	312	208	325	333	326	386	212	626	818	1610	453	580
6	307	183	327	331	483	405	210	446	813	1570	457	542
7	298	174	347	343	470	334	196	396	945	1640	433	462
8	241	177	329	354	381	326	209	401	1990	1660	406	440
9	207	182	316	350	340	308	215	401	2850	1590	400	568
10	190	177	416	349	335	310	213	395	2120	1510	402	954
11	186	173	389	359	353	313	208	401	1880	1490	358	516
12	191	226	335	339	331	325	201	390	1720	1450	340	472
13	184	259	321	323	326	332	179	373	1550	1440	342	436
14	174	253	317	288	305	487	174	373	1610	1350	323	423
15	179	243	319	276	309	464	182	388	3770	1140	322	430
16	184	269	320	281	309	366	180	384	10100	1080	330	458
17	185	668	357	279	309	324	182	401	11000	1020	347	481
18	186	1010	336	275	318	325	184	415	11200	984	350	447
19	183	555	324	279	331	331	198	412	9630	924	353	421
20	361	385	318	449	309	330	176	425	7170	893	881	411
21	365	328	310	1260	322	323	158	417	5550	855	1030	402
22	243	314	302	721	319	330	166	388	4360	838	541	401
23	212	310	303	453	310	322	183	366	3510	750	460	410
24	209	334	313	386	301	308	574	357	2970	689	439	402
25	218	328	320	358	314	317	1090	737	2710	677	425	400
26	258	439	311	339	303	319	568	1160	2550	652	438	390
27	201	1170	296	334	265	307	753	791	2380	637	430	381
28	184	689	305	337	246	301	506	714	2370	598	415	377
29	188	428	316	340	---	292	406	723	2400	563	411	370
30	187	353	314	339	---	280	360	734	2210	565	421	340
31	188	---	325	337	---	271	---	1660	---	543	469	---
TOTAL	7439	10583	10079	11709	9209	10341	8844	16646	105060	36278	13941	14556
MEAN	240	353	325	378	329	334	295	537	3502	1170	450	485
MAX	388	1170	416	1260	483	487	1090	1660	11200	2120	1030	954
MIN	174	173	296	275	246	236	158	356	813	543	322	340
AC-FT	14760	20990	19990	23220	18270	20510	17540	33020	208400	71960	27650	28870

CAL YR 1980 TOTAL 138188 MEAN 378 MAX 2940 MIN 128 AC-FT 274100
WTR YR 1981 TOTAL 254685 MEAN 698 MAX 11200 MIN 158 AC-FT 505200

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1968 to September 1981 (discontinued). Sediment analyses: January 1966 to September 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)
NOV										
14...	1545	255	929	7.2	21.0	3.4	38	13	290	47
DEC										
10...	1415	430	893	7.8	18.0	4.0	41	15	280	41
FEB										
06...	1140	500	902	7.6	12.5	5.8	54	14	290	51
MAR										
03...	1115	460	1010	7.7	19.5	3.0	33	14	300	52
APR										
29...	1625	390	600	7.2	25.0	1.0	12	11	210	47
JUN										
10...	1530	2070	458	7.5	29.0	4.2	55	6.4	220	57
JUL										
22...	1435	844	720	7.9	29.5	4.3	57	3.1	270	66
SEP										
02...	1200	630	442	7.7	26.5	2.6	33	10	160	39

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV									
14...	82	20	76	2.0	7.2	240	83	91	.4
DEC									
10...	83	18	70	1.8	8.6	240	84	91	.4
FEB									
06...	85	19	71	1.8	5.2	240	88	79	.4
MAR									
03...	88	20	81	2.0	7.1	250	94	100	.4
APR									
29...	63	12	39	1.2	6.0	160	63	43	.3
JUN									
10...	62	15	18	.5	3.9	160	55	26	.2
JUL									
22...	77	18	42	1.2	4.2	200	73	53	.3
SEP									
02...	48	9.4	29	1.1	5.3	120	43	37	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
NOV									
14...	14	518	5.4	.580	6.0	1.40	1.2	2.60	1.70
DEC									
10...	16	515	4.4	.510	4.9	2.30	.60	2.90	2.90
FEB									
06...	14	506	4.7	.340	5.0	3.30	.00	3.20	2.30
MAR									
03...	15	556	2.6	.010	2.6	1.20	1.3	2.50	2.00
APR									
29...	13	336	3.2	.640	3.8	.350	4.3	4.60	1.50
JUN									
10...	12	288	1.4	.430	1.8	.150	1.7	1.80	.610
JUL									
22...	15	403	2.8	.190	3.0	.140	1.4	1.50	.710
SEP									
02...	11	255	2.0	.090	2.1	.120	2.9	3.00	1.00

08183900 CIBOLO CREEK NEAR BOERNE, TX

LOCATION.--Lat 29°46'26", long 98°41'50", Kendall County, Hydrologic Unit 12100304, on left bank 0.6 mi (1.0 km) upstream from Southern Pacific Lines bridge, 0.9 mi (1.4 km) downstream from Menger Creek, and 2.5 mi (4.0 km) southeast of Boerne.

DRAINAGE AREA.--68.4 mi² (177.2 km²).

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

REVISED RECORDS.--WRD TX-73-1: 1964-65, 1966(P), 1968-72(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,339.61 ft (408.313 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No know diversion above station. Flow is affected at times by discharge from flood-detention pools of four floodwater-retarding structures with a combined detention-capacity of 8,850 acre-ft (10.9 hm³). This structure controls runoff from 34.0 mi² (88.1 km²). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 30.2 ft³/s (0.855 m³/s), 6.00 in/yr (152 mm/yr), 21,880 acre-ft/yr (27.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,400 ft³/s (1,030 m³/s) Sept. 27, 1964, gage height, 19.15 ft (5.837 m), from floodmark, from rating curve extended above 2,500 ft³/s (70.8 m³/s) on basis of slope-area measurement at 12,000 ft³/s (340 m³/s) and contracted-opening measurement of 36,400 ft³/s (81,030 m³/s); no flow at times in 1962-64, 1966-67, and 1971.
Maximum stage since at least 1892, that of Sept. 27, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Second highest flood in 1952 reached a stage of 16.3 ft (4.97 m), discharge 25,600 ft³/s (725 m³/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 ft³/s (25.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 24	2400	1,080	30.6	4.56	1.390	June 14	1530	*8,550	242	10.95	3.338
June 4	1930	4,790	136	7.74	2.359	July 6	1630	2,550	72.2	5.85	1.783
June 12	1415	2,330	66.0	5.68	1.731						

Minimum discharge, 2.2 ft³/s (0.062 m³/s) Nov. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	4.2	5.3	4.2	4.8	11	15	45	41	76	23	10
2	7.3	4.2	5.7	4.2	4.0	6.7	14	252	41	69	24	9.4
3	6.4	4.2	5.5	4.2	3.8	17	15	179	38	62	27	7.3
4	6.9	4.2	5.4	4.2	6.1	40	15	130	943	57	27	9.1
5	7.3	3.9	6.0	4.0	7.1	10	13	106	1250	90	27	10
6	6.9	3.3	5.8	4.5	5.2	8.9	13	86	1120	365	27	7.4
7	7.3	3.2	5.9	4.2	4.6	10	12	75	599	163	33	6.5
8	8.3	3.3	22	3.9	4.6	10	13	65	301	110	32	7.0
9	7.3	3.4	33	4.1	4.6	9.2	13	59	178	90	32	6.4
10	6.4	3.1	28	3.9	5.4	10	13	44	138	77	31	5.2
11	6.0	3.3	12	3.8	4.6	16	12	37	141	68	29	4.5
12	5.6	3.2	7.5	3.7	4.5	21	12	35	493	61	31	4.2
13	5.2	3.3	7.5	3.8	4.6	18	12	33	438	54	28	4.2
14	5.2	3.0	7.3	4.5	4.8	15	12	32	2130	47	27	27
15	5.2	4.0	6.4	4.6	5.1	15	13	29	1130	43	30	36
16	5.6	18	6.2	5.0	5.5	15	14	30	920	40	31	20
17	6.9	5.4	5.8	4.7	5.5	16	13	27	613	36	29	14
18	20	2.7	6.1	4.8	5.6	16	13	25	451	34	65	11
19	15	2.4	5.9	9.3	6.0	15	13	21	335	31	43	12
20	6.9	2.6	5.2	6.7	6.4	15	13	18	259	29	33	13
21	6.9	2.5	5.0	4.9	6.7	16	13	17	220	27	30	15
22	6.0	3.3	4.9	4.6	7.0	16	13	17	186	25	31	15
23	6.4	3.5	5.3	4.9	6.6	15	121	18	161	24	29	14
24	6.0	3.2	5.3	5.1	7.4	16	34	129	149	22	31	14
25	5.6	17	4.8	5.2	7.5	16	22	189	134	22	29	13
26	5.6	13	4.9	5.0	7.5	15	19	67	121	27	24	11
27	6.0	5.6	5.0	5.2	7.1	14	15	47	112	29	23	11
28	6.4	5.1	4.7	4.9	6.7	14	14	36	100	29	16	10
29	6.0	5.0	4.6	4.5	---	27	14	34	90	27	12	9.4
30	4.9	5.4	4.4	4.8	---	20	14	41	82	25	12	9.4
31	4.5	---	4.3	4.5	---	16	---	53	---	25	15	---
TOTAL	217.8	148.5	245.7	145.9	159.3	479.8	542	1976	12914	1884	881	346.0
MEAN	7.03	4.95	7.93	4.71	5.69	15.5	18.1	63.7	430	60.8	28.4	11.5
MAX	20	18	33	9.3	7.5	40	121	252	2130	365	65	36
MIN	4.5	2.4	4.3	3.7	3.8	6.7	12	17	38	22	12	4.2
CFSM	.10	.07	.12	.07	.08	.23	.27	.93	6.29	.89	.42	.17
IN.	.12	.08	.13	.08	.09	.26	.29	1.07	7.02	1.02	.48	.19
AC-FT	432	295	487	289	316	952	1080	3920	25610	3740	1750	686

CAL YR 1980 TOTAL 1602.48 MEAN 4.38 MAX 47 MIN .05 CFSM .06 IN .87 AC-FT 3180
WTR YR 1981 TOTAL 19940.00 MEAN 54.6 MAX 2130 MIN 2.4 CFSM .80 IN 10.84 AC-FT 39550

08185000 CIBOLO CREEK AT SELMA, TX

LOCATION.--Lat 29°35'38", long 98°18'39", Bexar-Guadalupe County line, Hydrologic Unit 12100304, on right bank 0.6 mi (1.0 km) downstream from Missouri-Kansas-Texas Railroad Co. bridge and 0.9 mi (1.4 km) upstream from bridge on Interstate Highway 35 at Selma.

DRAINAGE AREA.--274 mi^2 (710 km^2).

PERIOD OF RECORD.--March 1946 to current year. Figures for water year 1960 in WSP 1813 are in error and should be disregarded.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 728.34 ft (221.998 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Small diversion above station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08183900. Considerable flow of Cibolo Creek enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between this station and the one near Boerne (station 08183900). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--35 years, 15.5 ft^3/s (0.439 m^3/s), 11,230 acre-ft/yr (13.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,000 ft^3/s (1,840 m^3/s) July 16, 1973, gage height, 26.2 ft (7.99 m), from floodmark, from rating curve extended above 16,000 ft^3/s (453 m^3/s) on basis of field estimate of 54,000 ft^3/s (1,530 m^3/s) and contracted-opening measurement of 65,000 ft^3/s (1,840 m^3/s); no flow most of time.

Maximum stage since at least 1869, that of July 16, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 26 ft (7.9 m) occurred in 1889, but stage for flood in 1913 is unknown, from information by local residents.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 14	2300	*16,900	479	14.67	4.471
June 16	1500	10,600	300	12.10	3.688

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
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	.74	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.45	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.22	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.21	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	429	.20	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	455	.16	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	173	.16	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	27	.12	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	2.6	.10	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.82	.06	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	7.0	.02	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	279	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	2630	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	3080	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	3210	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	1310	.00	.00	.00
18	4.9	.00	.00	.00	.00	.00	.00	.00	718	.00	.00	.00
19	2.8	.00	.00	.00	.00	.00	.00	.00	479	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	315	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	214	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	151	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	108	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	74	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	74	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	104	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	54	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	15	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	3.4	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	1.3	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	7.70	.00	.00	.00	.00	.00	.00	.00	13914.12	2.73	.00	.00
MEAN	.25	.000	.000	.000	.000	.000	.000	.000	464	.088	.000	.000
MAX	4.9	.00	.00	.00	.00	.00	.00	.00	3210	.74	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	15	.00	.00	.00	.00	.00	.00	.00	27600	5.4	.00	.00

CAL YR 1980	TOTAL	9.82	MEAN .027	MAX 4.9	MIN .00	AC-FT 19		
WTR YR 1981	TOTAL	13924.55	MEAN 38.1	MAX 3210	MIN .00	AC-FT 27620		

08186000 CIBOLO CREEK NEAR FALLS CITY, TX

LOCATION.--Lat 29°00'50", long 97°55'42", Karnes County, Hydrologic Unit 12100304, on right bank at downstream side of pier of bridge on State Highway 123, 5.7 mi (9.2 km) northeast of Falls City, and 10.4 mi (16.7 km) upstream from mouth.

DRAINAGE AREA.--827 mi^2 (2,142 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 733: 1931. WSP 1058: 1935. WSP 1562: 1931(M), 1933. WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 264.28 ft (80.553 m) National Geodetic Vertical Datum of 1929. Nov. 4, 1930, to Aug. 4, 1940, water-stage recorder at site 1,600 ft (488 m) upstream at datum 0.56 ft (0.171 m) higher. Aug. 5 to Sept. 13, 1940, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Diversions for irrigation above station. Much of the base flow is effluent from the Carrizo Sands in the vicinity of Sutherland Springs. Flow is affected a times by discharge from flood-detention pools of ten floodwater-retarding structures with combined detention capacity of 16,620 acre-ft (20.5 hm^3). These structures control runoff from 62.9 mi^2 (163 km^2).

AVERAGE DISCHARGE.--51 years, 126 ft^3/s (3.568 m^3/s), 92,290 acre-ft/yr (113 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,600 ft^3/s (952 m^3/s) July 6, 1942, gage height, 34.45 ft (10.500 m); maximum gage height, 35.44 ft (10.802 m) Sept. 28, 1973; no flow July 30, 31, Aug. 4-22, 1956, Aug. 1, 1971.
Maximum stage since at least 1890, that of Sept. 28, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--In October 1913, a stage of 35 ft (10.7 m) occurred, discharge about 35,000 ft^3/s (991 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,440 ft^3/s (267 m^3/s) June 17 at 2400 hours, gage height, 23.14 ft (7.053 m), no other peak above base of 3,600 ft^3/s (102 m^3/s); minimum, 20 ft^3/s (0.57 m^3/s) May 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	23	42	30	31	31	29	42	256	135	43	613
2	31	23	38	30	29	32	29	51	130	126	44	472
3	32	23	34	29	28	33	28	557	87	111	42	88
4	30	22	32	29	32	42	28	178	691	100	41	62
5	28	22	32	29	42	38	27	89	793	93	41	51
6	27	22	31	29	40	37	26	62	569	161	40	46
7	26	23	31	29	40	38	25	46	142	132	39	44
8	25	23	32	29	40	35	25	38	132	95	37	40
9	24	23	46	30	38	33	26	34	284	88	36	41
10	24	23	34	31	37	31	26	30	172	82	36	40
11	24	22	31	30	34	32	25	28	124	77	38	40
12	23	22	32	29	33	35	25	26	802	77	38	36
13	23	23	32	29	33	36	25	25	1160	72	37	34
14	22	23	32	29	32	37	25	26	2010	68	38	122
15	22	23	35	30	32	44	25	25	3090	65	39	705
16	22	34	36	30	32	44	25	24	3230	63	38	239
17	23	46	33	30	32	40	25	25	5880	60	37	89
18	25	39	32	30	31	37	26	24	5810	57	37	54
19	28	51	32	39	32	34	59	23	1290	55	75	42
20	70	43	30	53	32	31	35	21	862	54	71	37
21	36	40	29	74	32	32	26	20	697	54	79	35
22	28	38	31	90	32	30	25	21	578	54	62	33
23	26	35	32	66	30	27	49	21	392	51	51	33
24	25	32	32	52	29	29	153	21	278	50	45	33
25	26	36	30	44	30	28	163	29	243	49	50	32
26	23	94	31	39	30	28	480	33	469	49	39	31
27	23	155	34	37	30	28	175	56	326	49	37	31
28	26	98	33	35	30	28	79	44	232	48	36	30
29	24	63	32	34	---	29	59	37	273	47	35	29
30	23	50	31	33	---	28	49	850	160	46	219	29
31	23	---	30	31	---	29	---	744	---	44	1460	---
TOTAL	845	1194	1022	1159	923	1036	1822	3250	31162	2312	2960	3211
MEAN	27.3	39.8	33.0	37.4	33.0	33.4	60.7	105	1039	74.6	95.5	107
MAX	70	155	46	90	42	44	480	850	5880	161	1460	705
MIN	22	22	29	29	28	27	25	20	87	44	35	29
AC-FT	1680	2370	2030	2300	1830	2050	3610	6450	61810	4590	5870	6370

CAL YR 1980	TOTAL	29893	MEAN	81.7	MAX	7520	MIN 10	AC-FT 59290
WTR YR 1981	TOTAL	50896	MEAN	139	MAX	5880	MIN 20	AC-FT 101000

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1968 to current year. Chemical and biochemical analyses: October 1969 to current year. Sediment records: October 1968 to September 1969.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 to current year.

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

REMARKS.--Specific conductance and water temperature from October 1980 through February 1981 are measured once daily. Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is eatimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,270 micromhos May 20, 21, 1971; minimum daily, 143 micromhos Sept. 7, 1980.
WATER TEMPERATURES: Maximum daily, 34.0°C July 31, Aug. 8, 9, 1980; minimum daily, 4.5°C Jan. 7, 1970.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,850 micromhos Aug. 23; minimum daily, 160 micromhos Sept. 1, 15.
WATER TEMPERATURES: Maximum daily, 32.0°C Oct. 11, July 20, 23; minimum daily, 9.0°C Jan. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)
NOV 14...	1425	23	1487	7.9	21.0	9.2	103	1.6	370	140
DEC 10...	1300	33	906	7.9	14.5	8.2	79	3.9	250	95
FEB 06...	1005	40	1370	7.9	11.0	10.4	94	2.3	390	170
MAR 05...	1718	48	1400	8.3	20.0	10.2	112	1.5	400	180
APR 29...	1135	62	523	7.7	23.5	6.2	73	4.0	150	53
JUL 27...	1340	50	1310	8.4	29.0	10.5	136	1.3	400	150
SEP 03...	1542	77	341	7.9	29.0	5.8	76	3.1	110	18

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY 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 14...	110	24	160	3.6	9.9	230	230	190	.3
DEC 10...	75	14	95	2.6	9.0	150	150	120	.3
FEB 06...	120	23	150	3.3	6.9	220	270	170	.3
MAR 05...	120	24	140	3.1	6.8	220	260	170	.3
APR 29...	49	7.5	43	1.5	8.0	100	79	49	.2
JUL 27...	117	25	130	3.0	6.2	250	230	160	.3
SEP 03...	36	5.3	29	1.2	8.5	94	42	32	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
NOV 14...	14	876	.51	.010	.52	.000	.54	.54	.070
DEC 10...	13	566	1.4	.100	1.5	.120	1.4	1.50	.250
FEB 06...	3.1	876	.98	.020	1.0	.070	.91	.98	.200
MAR 05...	6.5	860	1.1	.030	1.1	.090	.78	.87	.180
APR 29...	13	309	.92	.050	.97	.120	1.4	1.50	.540
JUL 27...	11	830	.60	.020	.62	.080	.90	.98	.080
SEP 03...	15	224	.25	.020	.27	.160	1.4	1.60	.350

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MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	845	1410	876	2000	170	379	250	564	430
NOV.	1980	1194	1210	744	2400	130	431	200	646	380
DEC.	1980	1022	1280	786	2170	140	395	210	590	400
JAN.	1981	1159	1250	771	2410	140	440	210	658	390
FEB.	1981	923	1390	860	2140	160	403	240	600	420
MAR.	1981	1036	1320	814	2280	150	420	220	627	410
APR.	1981	1822	1270	780	3840	140	693	210	1040	390
MAY	1981	3250	657	393	3450	61	533	93	814	220
JUNE	1981	31162	313	182	15300	23	1930	36	3030	110
JULY	1981	2312	1140	699	4360	120	763	180	1150	360
AUG.	1981	2960	770	467	3730	79	631	120	952	250
SEPT	1981	3211	527	314	2720	47	411	73	630	180
TOTAL		50896	**	**	46800	**	7420	**	11300	**
WTD. AVG.		139	567	341	**	54	**	82	**	190

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1			1400			1440			950			1400
2			1390			1440			1060			1410
3			1400			1440			1080			1430
4			1400			1460			1100			1440
5			1390			1450			1140			1460
6			1400			1450			1190			1480
7			1410			1460			1210			1500
8			1430			1480			1230			1490
9			1440			1480			1150			1480
10			1450			1480			1200			1470
11			1460			1480			1250			1480
12			1400			1480			1270			1470
13			1490			1480			1280			1480
14			1490			1480			1290			1470
15			1480			1450			1300			1470
16			1480			1380			1310			1470
17			1490			1350			1330			1480
18			1480			1330			1340			1440
19			1450			1260			1360			1450
20			1200			1250			1380			1200
21			1250			1260			1390			1000
22			1200			1270			1400			900
23			1280			1300			1410			800
24			1300			1410			1420			900
25			1400			1380			1410			1000
26			1500			1050			1430			1100
27			1600			900			1390			1200
28			1790			950			1400			1250
29			1600			900			1410			1270
30			1500			880			1400			1280
31			1450						1390			1290
MONTH			1430			1330			1290			1320

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1			1270	---	---	1500	1110	1080	1100	800	700	761
2			1290	---	---	1510	1110	1090	1100	1340	650	818
3			1350	---	---	1500	1110	1100	1100	900	200	421
4			1400	---	---	1450	1110	1100	1110	640	410	551
5			1360	1380	1350	1360	1490	1090	1230	850	640	764
6			1360	1360	1340	1350	1500	1080	1310	950	880	916
7			1350	1360	1310	1340	1510	1100	1450	1040	850	956
8			1340	1360	1350	1360	1550	1500	1520	1150	910	1050
9			1340	1380	1350	1370	1550	1540	1550	1150	1110	1140
10			1380	1410	1380	1400	1550	1540	1550	1150	1050	1120
11			1400	1420	1400	1410	1550	1540	1550	1110	1040	1080
12			1380	1420	1400	1410	1550	1150	1490	1150	1080	1110
13			1360	1400	1380	1390	1550	1140	1330	1210	1100	1140
14			1350	1400	1380	1390	1550	1150	1530	1240	1150	1200
15			1330	1410	1380	1390	1550	1510	1540	1250	1110	1230
16			1310	1350	1300	1320	1550	1500	1540	1310	1210	1250
17			1350	1320	1250	1290	1550	1500	1540	1350	1250	1300
18			1400	1310	1280	1290	1550	1500	1520	1350	1310	1340
19			1430	1320	1290	1310	1510	1300	1430	1350	1250	1310
20			1440	1360	1320	1340	1310	1240	1270	1340	1240	1300
21			1450	1490	1350	1410	1350	1310	1350	1400	1310	1350
22			1470	1530	1380	1430	1350	1200	1310	1400	1240	1370
23			1460	1420	1400	1410	1850	1080	1210	1400	1340	1380
24			1450	1450	1400	1420	1300	900	1140	1410	1310	1370
25			1480	1450	1410	1430	1710	900	1050	1450	1300	1360
26			1500	1510	1440	1480	1110	390	541	1410	1200	1320
27			1510	1510	1490	1500	380	340	345	1350	1140	1230
28			1530	1500	1040	1120	480	340	413	1240	1100	1140
29				1110	1040	1080	590	480	533	1140	1050	1090
30				1100	1040	1070	710	600	645	1150	250	685
31				1110	1040	1080	---	---	---	310	240	280
MONTH			1390	1530	1040	1360	1850	340	1210	1450	200	1080

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	400	300	343	950	880	909	1350	1330	1340	260	160	187
2	510	400	477	990	940	960	1350	1340	1340	280	170	216
3	590	500	550	1040	990	1010	1340	1320	1330	330	280	310
4	600	240	435	1090	1040	1060	1350	1320	1340	630	440	536
5	290	200	258	1110	1090	1100	1350	1330	1340	760	640	711
6	280	200	240	1240	540	908	1350	1340	1340	900	750	823
7	380	280	326	910	600	795	1350	1330	1340	1040	910	980
8	510	390	436	1110	940	1040	1350	1340	1350	1140	1030	1090
9	540	440	495	1180	1100	1120	1360	1340	1350	1220	1150	1190
10	550	410	478	1210	1180	1200	1360	1340	1350	1240	1200	1220
11	700	390	458	1240	1200	1220	1360	1340	1350	1250	1210	1230
12	540	200	381	1250	1210	1240	1350	1330	1340	1240	1210	1220
13	300	200	242	1240	1200	1210	1330	1310	1320	1250	1230	1240
14	340	200	252	1250	1210	1240	1330	1320	1320	1250	250	1130
15	300	200	256	1300	1250	1280	1330	1300	1320	760	160	391
16	350	240	273	1310	1300	1300	1320	1290	1310	810	380	579
17	250	200	219	1310	1300	1310	1320	1310	1310	480	360	406
18	290	240	258	1310	1300	1300	1320	1300	1310	610	480	543
19	400	300	353	1340	1300	1310	1310	970	1260	720	610	663
20	450	400	435	1340	1310	1330	970	700	829	810	720	768
21	510	450	493	1350	1300	1330	1110	850	1000	910	820	863
22	550	500	533	1310	1290	1300	1090	1060	1070	990	910	958
23	610	540	583	1310	1210	1300	1130	1080	1110	1040	990	1020
24	800	610	670	1310	1300	1310	1210	1130	1140	1050	1030	1040
25	940	610	709	1340	1300	1310	1470	1210	1370	1100	1050	1070
26	750	580	685	1340	1300	1320	1210	1040	1160	1160	1090	1120
27	600	400	524	1330	1300	1310	1230	1160	1190	1200	1160	1180
28	650	450	587	1340	1300	1320	1380	1240	1290	1250	1190	1220
29	710	410	545	1340	1310	1320	1420	1390	1410	1290	1260	1280
30	880	710	798	1340	1310	1330	1380	340	1150	1320	1270	1280
31	---	---	---	1350	1330	1340	440	190	296	---	---	---
MONTH	940	200	443	1350	540	1200	1470	190	1230	1320	160	882

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TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1			28.0			17.5			13.0			14.0
2			28.0			19.0			13.0			14.0
3			29.0			19.0			13.0			13.0
4			29.0			20.0			12.0			13.5
5			30.0			21.0			13.0			13.0
6			30.0			22.0			13.0			13.0
7			28.0			22.0			14.0			13.0
8			28.5			22.0			14.5			14.0
9			29.5			23.0			14.0			14.0
10			31.0			23.0			13.0			14.0
11			32.0			23.0			12.0			14.0
12			30.0			24.0			12.0			14.0
13			29.0			24.0			13.0			13.0
14			27.0			24.0			13.0			13.0
15			26.0			20.0			14.0			12.0
16			26.0			19.0			14.0			10.0
17			25.0			19.0			15.0			10.0
18			---			18.0			14.0			10.0
19			20.0			18.0			13.0			9.0
20			16.0			18.0			12.0			10.0
21			18.0			19.0			11.0			10.0
22			18.0			19.0			9.5			10.5
23			---			18.0			10.0			11.0
24			18.5			17.0			11.0			12.0
25			19.0			---			11.0			12.5
26			19.0			11.0			12.0			12.0
27			18.5			12.0			13.0			12.5
28			17.0			12.5			13.0			12.0
29			16.0			13.0			14.0			13.0
30			---			13.5			14.0			14.0
31			---						14.0			14.0
MONTH			24.5			19.0			13.0			12.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1			12.0	---	---	19.0	22.0	19.0	20.0	28.0	25.5	26.5
2			10.0	---	---	20.0	20.5	19.5	20.0	26.5	24.5	25.5
3			11.0	---	---	20.0	21.5	20.0	20.5	24.5	23.0	23.5
4			11.0	---	---	20.0	22.0	20.0	21.0	25.5	24.0	24.5
5			11.0	---	---	---	21.5	18.5	20.0	26.0	24.0	25.0
6			10.0	18.5	---	---	21.0	16.0	19.0	27.0	24.0	25.5
7			11.0	19.0	---	---	21.5	16.5	20.0	27.0	24.0	25.5
8			12.0	18.5	---	---	22.0	20.0	21.0	26.5	24.5	25.5
9			13.0	17.5	15.5	16.5	23.5	21.0	22.0	27.0	25.0	25.5
10			13.0	16.0	---	---	23.5	22.0	22.5	25.5	22.5	24.0
11			11.0	15.0	14.5	15.0	23.0	22.0	22.5	25.0	21.5	23.5
12			10.0	15.0	14.0	14.5	24.0	21.5	23.0	24.5	22.0	23.5
13			11.0	17.0	14.0	15.5	24.5	20.5	23.0	26.0	23.0	24.5
14			12.0	18.5	14.5	16.0	24.0	22.5	23.5	26.0	23.5	25.0
15			14.0	19.5	---	---	23.5	22.0	22.5	24.5	23.5	24.0
16			14.0	18.0	16.5	17.5	23.5	22.0	23.0	26.5	24.0	25.0
17			13.0	19.0	16.0	17.5	23.5	22.0	23.0	28.0	25.0	26.5
18			13.0	19.0	16.5	17.5	23.5	22.0	23.0	29.5	26.5	28.0
19			15.0	18.5	15.0	16.5	25.0	22.5	23.5	28.0	25.0	27.0
20			16.0	17.5	14.5	16.0	26.5	23.0	24.5	26.5	23.5	25.0
21			15.0	20.0	---	---	25.0	24.0	24.5	24.5	23.5	24.0
22			15.0	19.0	---	---	24.0	23.0	23.5	26.5	23.5	25.0
23			15.0	18.5	---	---	23.5	21.5	22.5	27.5	25.0	26.0
24			16.0	19.0	---	---	22.0	20.5	21.5	28.0	24.5	26.5
25			16.0	17.5	16.0	17.0	22.0	21.0	21.5	28.0	24.5	26.5
26			18.0	20.0	16.5	18.0	21.5	19.5	20.5	29.0	25.5	27.5
27			18.0	19.5	16.5	18.5	23.5	20.5	22.0	30.0	26.5	28.0
28			19.0	20.5	16.5	18.5	24.0	22.5	23.0	30.5	27.5	29.0
29				21.5	17.0	20.0	26.5	23.0	24.5	29.0	26.5	27.5
30				22.0	15.5	18.5	27.5	24.5	26.0	26.5	24.0	25.5
31				20.5	19.0	19.5	---	---	---	25.5	24.0	24.5
MONTH			13.5	22.0	14.0	17.5	27.5	16.0	22.0	30.5	21.5	25.5

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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

08186500 ECLETO CREEK NEAR RUNGE, TX

LOCATION.--Lat 28°55'12", long 97°46'19", Karnes County, Hydrologic Unit 12100303, on left bank 55 ft (17 m) downstream from Farm Road 81, 215 ft (66 m) left of left end of bridge, 2.6 mi (4.2 km) upstream from Salt Branch, 4.5 mi (7.2 km) northwest of Runge, and 5.2 mi (8.4 km) upstream from mouth.

DRAINAGE AREA.--239 mi^2 (619 km^2).

PERIOD OF RECORD.--March 1962 to current year.
Water-quality records: Sediment: February 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 215.03 ft (65.541 m) State Department of Highways and Public Transportation datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 41.9 ft^3/s (1.187 m^3/s), 2.38 in/yr (60 mm/yr), 30,360 acre-ft/yr (37.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 74,000 ft^3/s (2,100 m^3/s) Aug. 31, 1981, gage height, 34.10 ft (10.394 m), from floodmark, from rating curve extended above 7,300 ft^3/s (207 m^3/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood information begins with the flood in June 1903, which reached a stage of 34 ft (10.4 m), discharge 71,000 ft^3/s (2,010 m^3/s). A stage of 32 ft (9.8 m), discharge 39,000 ft^3/s (1,100 m^3/s), occurred in September 1952, from information by local residents.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 4	1030	1,090	30.9	9.93	3.027
Aug. 31	0630	*74,000	2,100	34.10	10.394
Sept. 2	0800	6,540	185	22.42	6.834

Minimum daily discharge, 0.04 ft^3/s (0.001 m^3/s) Oct. 14, 19, Aug. 10-19, 24-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	.35	2.0	.20	.65	1.3	.65	2.8	3.5	19	.12	1850
2	7.4	.35	1.4	.24	.51	1.3	.50	3.3	1.9	5.8	.12	4650
3	7.4	.40	.83	.24	.50	1.3	.57	307	.96	1.9	.10	1070
4	8.0	.60	.73	.24	.78	1.7	.59	929	2.4	.66	.09	145
5	9.5	.69	.57	.24	1.4	1.4	.50	158	2.6	.33	.09	81
6	7.8	.68	.50	.24	2.8	1.4	.49	48	2.2	102	.08	61
7	6.0	.59	.48	.24	9.5	1.3	.42	27	1.8	32	.07	50
8	4.0	.58	.38	.24	11	1.3	.42	16	1.4	8.6	.06	42
9	2.7	.55	.39	.24	6.5	1.2	.35	10	1.6	8.8	.06	38
10	1.4	.71	.30	.24	4.2	1.0	.40	7.3	2.9	8.4	.04	33
11	.59	1.3	11	.24	2.5	1.1	.35	5.2	2.3	5.0	.04	31
12	.16	2.0	4.2	.24	2.0	1.5	.33	3.7	6.8	3.3	.04	29
13	.10	2.2	1.8	.24	1.6	1.7	.20	3.0	15	2.3	.04	27
14	.04	2.4	1.0	.32	1.4	1.6	.20	2.4	8.3	1.6	.04	39
15	.05	2.9	1.3	.42	1.2	2.0	.20	2.2	3.1	.90	.04	158
16	.08	3.7	.70	.42	1.0	2.2	.24	2.3	3.0	.57	.04	242
17	.08	2.4	.36	.38	.91	2.1	.24	2.1	2.2	.30	.04	72
18	.09	3.3	.23	.35	.91	3.2	.27	1.9	2.0	.20	.04	38
19	.04	4.3	.16	1.4	.91	2.4	.28	1.5	1.8	.17	.04	26
20	.34	4.5	.12	3.8	.91	1.9	2.7	1.2	1.6	.13	.06	21
21	1.7	4.1	.10	24	.91	1.5	31	.97	1.4	.12	.07	18
22	.59	4.1	.08	20	.91	1.2	9.8	.66	1.2	.14	.07	16
23	.35	3.5	.10	7.0	.87	.84	4.7	.57	1.1	.12	.05	14
24	.25	3.1	.10	3.5	.91	.61	3.9	.87	4.8	.12	.04	13
25	.23	3.9	.10	2.1	.91	.56	30	15	40	.10	.04	12
26	.17	19	.10	1.5	.91	.57	26	13	65	.12	.04	11
27	.35	50	.10	1.1	1.0	.50	51	5.3	27	.17	.04	11
28	.74	20	.13	.90	1.1	.50	13	6.9	24	.16	.04	10
29	.26	7.1	.15	.95	---	.50	5.4	3.5	14	.13	.05	10
30	.33	3.6	.16	.76	---	.48	3.3	3.1	53	.12	64	9.9
31	.35	---	.18	.69	---	.58	---	3.2	---	.12	25500	---
TOTAL	70.09	152.90	29.75	72.67	58.70	40.74	188.00	1586.97	298.86	203.38	25565.69	8827.9
MEAN	2.26	5.10	.96	2.34	2.10	1.31	6.27	51.2	9.96	6.56	825	294
MAX	9.5	50	11	24	11	3.2	51	929	65	102	25500	4650
MIN	.04	.35	.08	.20	.50	.48	.20	.57	.96	.10	.04	9.9
CFSM	.009	.02	.004	.01	.009	.005	.03	.21	.04	.03	3.45	1.23
IN.	.01	.02	.00	.01	.01	.01	.03	.25	.05	.03	3.98	1.37
AC-FT	139	303	59	144	116	81	373	3150	593	403	50710	17510

CAL YR 1980	TOTAL	5758.04	MEAN	15.7	MAX	1980	MIN	.00	CFSM .07	IN .90	AC-FT	11420
WTR YR 1981	TOTAL	37095.65	MEAN	102	MAX	25500	MIN	.04	CFSM .43	IN 5.77	AC-FT	73580

08188500 SAN ANTONIO RIVER AT GOLIAD, TX
(National stream-quality accounting network)

LOCATION.--Lat 28°38'58", long 97°23'04", Goliad County, Hydrologic Unit 12100303, on right bank at upstream side of bridge on U.S. Highway 183, 1.2 mi (1.9 km) southeast of courthouse in Goliad, 11.7 mi (18.8 km) upstream from Manahuilla Creek, and 66.5 mi (107.0 km) upstream from mouth.

DRAINAGE AREA.--3,921 mi^2 (10,155 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1924 to March 1929, February 1939 to current year.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 91.08 ft (27.761 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1929, nonrecording gage at Texas and New Orleans Railroad Co. bridge 0.9 mi (1.4 km) upstream at same datum.

REMARKS.--Water-discharge records good. Many diversions and regulations above station (see station 08181800). Flow is affected at times by discharge from flood-detention pools of 36 floodwater-retarding structures with combined detention capacity of 66,730 acre-ft (82.3 hm^3). These structures control runoff from 213 mi^2 (552 km^2).

AVERAGE DISCHARGE.--46 years (water years 1925-28, 1940-81), 675 ft^3/s (19.12 m^3/s), 489,000 acre-ft/yr (603 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft^3/s (3,910 m^3/s) Sept. 23, 1967, gage height, 53.7 ft (16.37 m), from floodmark, from rating curve extended above 26,000 ft^3/s (736 m^3/s) on basis of slope-area measurement of peak flow; minimum observed, 1.2 ft^3/s (0.034 m^3/s) June 16, 1956.
Maximum stage since 1869, that of Sept. 23, 1967. Flood of July 9, 1942, reached a stage of 44.9 ft (13.69 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in October 1913 and June 15, 1935, reached about the same stage as flood in 1942. Maximum stage since about 1800 occurred in 1869 and was several feet higher than flood of Sept. 23, 1967.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 21	2400	12,800	362	31.96	9.741
Sept. 2	1600	*17,400	493	36.40	11.095

Minimum discharge, 217 ft^3/s (6.15 m^3/s) Nov. 13, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	554	236	520	361	406	365	379	500	2350	2450	663	9440
2	460	236	452	365	399	341	376	639	2040	2250	630	16000
3	415	237	422	370	393	337	370	3030	1640	2120	601	14100
4	416	238	405	369	389	339	366	4240	1160	1980	584	5720
5	409	234	413	363	398	517	344	2290	1440	2390	553	1620
6	382	231	406	357	409	489	306	1160	1670	3700	526	1520
7	368	258	402	358	419	486	294	837	2010	3120	518	1380
8	359	238	405	359	579	511	290	626	2140	2420	501	1200
9	349	227	432	360	546	448	279	551	2420	1860	477	1100
10	308	222	419	362	472	427	270	509	2880	1650	459	1060
11	270	225	416	364	435	415	273	473	2720	1620	447	1340
12	251	226	482	366	415	413	277	451	2880	1590	434	1440
13	241	222	468	370	433	412	280	430	4170	1550	411	1100
14	243	225	418	373	417	413	282	420	5900	1470	413	1020
15	241	271	413	367	409	421	277	410	4390	1400	402	1030
16	233	285	414	346	398	568	263	400	5620	1350	391	2000
17	228	288	412	318	397	579	257	395	6840	1290	417	1850
18	240	296	410	310	395	484	293	390	8040	1210	571	1200
19	241	786	426	320	397	438	1480	385	9720	1160	509	977
20	244	913	411	370	400	426	421	385	11300	1110	473	874
21	246	604	393	363	405	419	334	390	12500	1060	646	824
22	415	482	383	796	400	409	306	390	12400	1020	1290	793
23	420	431	376	1120	402	397	282	400	10300	997	889	771
24	313	404	367	696	398	392	283	435	6490	931	626	765
25	268	397	365	532	392	384	450	744	4120	860	555	743
26	257	436	369	472	388	375	1190	882	3530	834	531	726
27	255	466	379	445	400	371	1160	1060	3250	815	512	709
28	260	878	373	428	393	375	1100	1040	2980	781	512	687
29	261	1210	363	419	---	376	850	1020	2700	739	522	677
30	244	723	358	418	---	377	599	1300	2820	707	587	665
31	236	---	360	415	---	379	---	1130	---	688	2510	---
TOTAL	9627	12125	12632	13232	11684	13083	13931	27312	142420	47122	19160	73331
MEAN	311	404	407	427	417	422	464	881	4747	1520	618	2444
MAX	554	1210	520	1120	579	579	1480	4240	12500	3700	2510	16000
MIN	228	222	358	310	388	337	257	385	1160	688	391	665
AC-FT	19100	24050	25060	26250	23180	25950	27630	54170	282500	93470	38000	145500

CAL YR 1980	TOTAL	197873	MEAN	541	MAX	7590	MIN 168	AC-FT	392500
WTR YR 1981	TOTAL	395659	MEAN	1084	MAX	16000	MIN 222	AC-FT	784800

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1945 to September 1946, September 1958 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to current year. Sediment records: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1945 to September 1946, September 1958 to current year.
WATER TEMPERATURES: September 1958 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,580 micromhos July 22, 1978; minimum daily, 138 micromhos Oct. 27, 1960.
WATER TEMPERATURES: Maximum daily, 36.0°C June 5, 1969; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,330 micromhos Oct. 20; minimum daily, 150 micromhos Sept. 2.
WATER TEMPERATURES: Maximum, 35.0°C Aug. 10; minimum daily, 10.0°C Jan. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
14...	1330	243	1260	8.0	24.0	--	35	7.4	87	2.3	100	280
NOV												
12...	1335	227	1280	7.7	20.5	10	22	8.5	93	1.2	200	140
DEC												
10...	0925	418	1000	8.1	16.0	25	40	8.0	79	2.3	420	260
JAN												
08...	1050	361	1190	8.0	13.0	7	18	9.0	85	4.4	140	80
FEB												
02...	1440	397	1130	8.1	15.0	10	25	9.1	88	2.3	K70	K80
MAR												
03...	1355	503	1180	8.1	19.0	--	34	8.0	86	1.1	780	170
APR												
10...	0915	270	1280	8.3	23.0	10	31	8.1	93	4.2	120	280
MAY												
14...	1232	425	1010	8.0	25.0	15	--	7.5	86	4.2	--	600
JUN												
23...	1205	10400	467	7.7	29.0	10	130	--	--	--	--	--
JUL												
16...	1315	1350	734	7.8	29.0	5	120	6.5	82	1.2	K80	1300
AUG												
20...	1120	473	1050	8.1	28.0	--	85	6.3	80	2.9	210	440
SEP												
03...	1340	14100	217	--	27.0	--	--	--	--	--	--	--
18...	1350	1140	783	8.2	25.0	20	390	6.4	75	2.4	K1000	470

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												
14...	370	120	110	24	130	2.9	7.3	250	140	190	.5	20
NOV												
12...	400	150	120	25	120	2.6	8.9	250	160	180	.4	18
DEC												
10...	330	100	99	20	93	2.2	8.8	230	110	130	.4	18
JAN												
08...	340	110	100	23	110	2.6	7.0	240	130	150	.6	7.9
FEB												
02...	340	96	100	21	99	2.4	6.1	240	120	130	.4	15
MAR												
03...	370	130	110	23	110	2.5	5.9	240	140	160	.3	16
APR												
10...	370	120	110	24	130	2.9	7.5	250	130	170	.4	17
MAY												
14...	320	95	97	20	93	2.2	6.5	230	100	140	.3	18
JUN												
23...	200	35	60	11	17	.5	4.7	160	51	25	.2	14
JUL												
16...	280	95	86	17	46	1.2	4.0	210	73	67	.2	17
AUG												
20...	340	88	99	22	92	2.3	6.7	250	100	130	.4	19
SEP												
03...	87	5	30	2.9	11	.5	5.9	82	7.0	13	.1	13
18...	260	70	81	14	62	1.7	7.7	190	81	92	.3	17

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT											
14...	775	793	--	--	--	--	4.9	4.8	.000	.030	1.1
NOV											
12...	786	807	28	1	--	--	5.6	5.4	.020	.040	1.7
DEC											
10...	624	647	51	10	--	--	6.8	6.7	.020	.030	1.4
JAN											
08...	696	678	36	9	--	--	5.5	5.3	.450	.420	1.5
FEB											
02...	659	636	67	11	--	--	6.4	.64	.040	.090	1.2
MAR											
03...	713	737	--	--	--	--	6.0	6.1	.030	.090	1.1
APR											
10...	766	763	72	19	--	--	5.6	5.4	.070	.060	2.1
MAY											
14...	642	636	103	32	6.1	.290	6.4	5.2	.140	.110	1.7
JUN											
23...	282	282	260	76	--	--	.91	.71	.120	.070	1.5
JUL											
16...	452	448	148	7	--	--	2.6	2.6	.150	.150	1.2
AUG											
20...	642	635	--	--	3.4	.140	3.5	3.5	.270	.310	1.4
SEP											
03...	--	132	--	--	--	--	--	--	--	--	--
18...	484	478	892	28	--	--	1.9	2.0	.070	.090	1.3

DATE	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
14...	1.1	1.10	1.1	1.40	1.20	8.6	--	--	50	33	100
NOV											
12...	--	1.70	--	1.70	1.30	--	6.5	.6	38	23	99
DEC											
10...	1.1	1.40	1.1	2.30	.150	8.5	--	--	66	74	100
JAN											
08...	.00	1.90	.42	4.20	4.10	10	--	--	60	58	97
FEB											
02...	--	1.20	--	1.80	1.30	--	5.9	.3	79	85	92
MAR											
03...	.88	1.10	.97	1.70	1.60	9.3	--	--	69	94	92
APR											
10...	1.6	2.20	1.7	4.20	4.70	7.3	--	--	81	59	99
MAY											
14...	1.4	1.80	1.5	3.60	.100	--	13	--	186	213	65
JUN											
23...	.89	1.60	.96	.330	.160	10	--	--	262	7360	88
JUL											
16...	.50	1.30	.65	.660	.420	--	3.9	.8	380	1390	90
AUG											
20...	1.2	1.70	1.5	1.70	1.60	5.7	--	--	179	229	98
SEP											
03...	--	--	--	--	--	--	--	--	--	--	--
18...	1.0	1.40	1.1	.900	.510	13	--	--	361	1110	97

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)
NOV											
12...	1335	3	0	3	100	0	100	1	<1	0	0
FEB											
02...	1440	4	2	2	100	30	70	0	<1	10	10
MAY											
14...	1232	5	1	4	100	0	100	1	<1	10	0
JUL											
16...	1315	4	1	3	100	10	90	2	<1	20	10

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
NOV 12...	0	1	<3	3	0	3	540	--	<10	5
FEB 02...	0	3	<3	6	3	3	1100	--	<10	8
MAY 14...	10	1	<3	3	0	5	1600	1600	10	5
JUL 16...	10	2	<3	28	24	4	6500	6500	14	12

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV 12...	0	6	50	50	3	.4	.2	.2	11	5
FEB 02...	4	4	50	50	4	.3	.2	.1	9	9
MAY 14...	0	7	80	80	2	.1	.0	.1	5	0
JUL 16...	10	2	190	190	4	.5	.3	.2	7	4

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 12...	6	1	0	1	0	0	0	30	30	4
FEB 02...	0	1	0	1	0	0	0	30	20	10
MAY 14...	7	1	0	1	1	0	1	10	3	7
JUL 16...	3	1	1	0	0	0	0	40	6	34

DATE	TIME	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
NOV 12...	1345	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)
NOV 12...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 12,80	MAR 3,81	MAY 14,81	JUN 23,81
TIME	1335	1355	1232	1205
TOTAL CELLS/ML	270	540	24000	22000
DIVERSITY: DIVISION	1.0	1.5	1.5	0.3
.CLASS	1.0	1.5	1.5	0.3
..ORDER	2.4	2.0	1.8	0.8
...FAMILY	2.7	2.2	2.2	0.9
....GENUS	2.7	2.2	3.5	0.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)								
.BACILLARIOPHYCEAE								
..BACILLARIALES								
...NITZSCHIACEAE								
....NITZSCHIA	39	14	90#	17	3700#	15	*	0
..EUPODISCALES								
...COSCINODISCACEAE								
....CYCLOTELLA	26	10	26	5	2500	10	160	1
....MELOSIRA	--	-	--	-	--	-	--	-
..FRAGILARIALES								
...FRAGILARIACEAE								
....SYNEDRA	--	-	--	-	--	-	140	1
..NAVICULALES								
...NAVICULACEAE								
....FRUSTULIA	--	-	--	-	--	-	--	-
....NAVICULA	52#	19	26	5	--	-	*	0
..SURIRELLALES								
...SURIRELLACEAE								
....SURIRELLA	13	5	--	-	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....TETRAEDRON	--	-	--	-	--	-	--	-
...DICTYOSPHAERIACEAE								
....DICTYOSPHAERIUM	--	-	--	-	--	-	120	1
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	430	2	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	870	4	*	0
....CHODATELLA	--	-	--	-	*	0	--	-
....FRANCEIA	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	430	2	*	0
....OOCYSTIS	--	-	13	2	430	2	--	-
....QUADRIGULA	--	-	--	-	430	2	--	-
....SELENASTRUM	39	14	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	2200	9	--	-
....COELASTRUM	--	-	--	-	3500	14	--	-
....SCENEDESMUS	--	-	26	5	2800	12	120	1
....TETRASTRUM	52#	19	--	-	2200	9	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	52#	19	64	12	220	1	*	0
...POLYBLEPHARIDACEAE								
....SPERMATOZOOPSIS	--	-	13	2	--	-	--	-
CHRYSOPHYTA								
.XANTHOPHYCEAE								
..MISCHOCOCCALES								
...SCIADACEAE								
....CENTRITRACTUS	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-

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

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE TIME	NOV 12,80 1335		MAR 3,81 1355		MAY 14,81 1232		JUN 23,81 1205	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	1700	7	--	-
....ANACYSTIS	--	-	--	-	2600	11	*	0
..NOSTOCALES								
...HAMMATOIDEACEAE								
....RAPHIDIOPSIS	--	-	--	-	--	-	400	2
...NOSTOCACEAE								
....APHANIZOMENON	--	-	--	-	--	-	1400	7
..OSCILLATORIALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	280#	52	--	-	19000#	87
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	*	0	--	-
....PHACUS	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-

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

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	JUL 16,81	AUG 20,81	SEP 18,81
TIME	1315	1120	1350
TOTAL CELLS/ML	350	8100	700
DIVERSITY: DIVISION	0.9	1.2	0.0
.CLASS	0.9	1.2	0.0
..ORDER	1.8	1.6	0.0
...FAMILY	2.0	2.2	0.0
....GENUS	2.0	2.4	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..BACILLARIALES						
...NITZSCHIACEAE						
....NITZSCHIA	150#	44	110	1	--	-
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	42	12	460	6	--	-
....MELOSIRA	--	-	140	2	--	-
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	--	-
..NAVICULALES						
...NAVICULACEAE						
....FRUSTULIA	14	4	--	-	--	-
....NAVICULA	--	-	--	-	--	-
..SURIRELLALES						
...SURIRELLACEAE						
....SURIRELLA	14	4	*	0	--	-
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....TETRAEDRON	--	-	*	0	--	-
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	--	-	--	-	--	-
...HYDRODICTYACEAE						
....PEDIASTRUM	--	-	250	3	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	280	4	--	-
....CHODATELLA	--	-	--	-	--	-
....FRANCEIA	14	4	--	-	--	-
....KIRCHNERIELLA	--	-	*	0	--	-
....OOCYSTIS	--	-	320	4	--	-
....QUADRIGULA	--	-	--	-	--	-
....SELENASTRUM	--	-	71	1	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	--	-	--	-
....COELASTRUM	--	-	--	-	--	-
....SCENEDESMUS	110#	32	4800#	59	700#	100
....TETRASTRUM	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	140	2	--	-
...POLYBLEPHARIDACEAE						
....SPERMATOZOOPSIS	--	-	--	-	--	-
CHRYSOPHYTA						
.XANTHOPHYCEAE						
..MISCHOCOCCALES						
...SCIADACEAE						
....CENTRITRACTUS	--	-	*	0	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	*	0	--	-

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

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE TIME	JUL 16,81 1315		AUG 20,81 1120		SEP 18,81 1350	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	280	4	--	-
....ANACYSTIS	--	-	*	0	--	-
..NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	--	-	--	-
...NOSTOCACEAE						
....APHANIZOMENON	--	-	--	-	--	-
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	850	11	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	--	-
....PHACUS	--	-	*	0	--	-
....TRACHELOMONAS	--	-	140	2	--	-

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

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	9627	1140	680	17700	140	3580	130	3310	370
NOV.	1980	12125	995	588	19300	110	3700	110	3530	330
DEC.	1980	12632	1040	613	20900	120	4010	110	3830	350
JAN.	1981	13232	1030	612	21900	120	4220	110	4020	340
FEB.	1981	11684	1110	658	20800	130	4120	120	3860	360
MAR.	1981	13083	1090	644	22800	130	4470	120	4210	360
APR.	1981	13931	954	564	21200	110	4030	100	3870	320
MAY	1981	27312	648	378	27900	60	4450	65	4770	230
JUNE	1981	142420	400	229	88200	28	10700	36	13800	150
JULY	1981	47122	674	392	49900	60	7650	66	8410	240
AUG.	1981	19160	983	580	30000	110	5630	110	5450	330
SEPT	1981	73331	462	268	53100	41	8030	45	8910	170
TOTAL		395659	**	**	394000	**	64600	**	68000	**
WTD. AVG.		1084	631	368	**	60	**	64	**	220

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1030	1250	676	1170	1090	1160	1150	714	464	587	996	350
2	1040	1290	749	1120	1100	1180	1140	597	471	581	999	150
3	1070	1260	800	1110	1110	1190	1160	410	425	592	1020	217
4	1060	1280	878	1120	1120	1240	1170	367	494	600	1030	300
5	975	1270	940	1120	1140	1170	1180	374	487	520	1060	437
6	1010	1270	972	1130	1130	1110	1190	411	496	446	1080	634
7	1060	1280	1020	1150	1120	921	1210	650	414	503	1090	765
8	1040	1290	1030	1150	1100	915	1210	772	435	648	1100	834
9	1100	1300	1040	1140	1020	965	1230	748	422	591	1090	801
10	1150	1310	1090	1120	1060	1000	1250	860	449	644	1120	862
11	1190	1320	1080	1130	988	1010	1270	908	471	707	1140	902
12	1220	1310	1090	1120	998	1070	1260	1010	412	713	1160	837
13	1260	1290	1070	1110	1060	1130	1250	1030	436	707	1180	743
14	1280	1290	1030	1130	1100	1140	1240	1050	317	721	1200	760
15	1280	1270	1040	1140	1090	1130	1220	1060	375	738	1210	820
16	1290	1240	1030	1170	1100	1060	1250	1070	321	739	1230	750
17	1320	1200	1120	1200	1120	1030	1290	1080	316	738	1220	580
18	1310	1180	1090	1240	1160	1000	1280	1030	291	758	1180	745
19	1320	1050	1100	1210	1150	1050	508	1060	281	780	1120	869
20	1330	750	1100	1140	1160	1060	862	1070	301	811	1100	929
21	1320	638	1090	1220	1160	1070	1000	1080	332	808	1120	951
22	1250	699	1090	1050	1150	1090	1180	1040	409	841	1010	1010
23	1140	751	1100	822	1140	1090	1210	1000	458	852	729	1060
24	1120	826	1130	659	1150	1120	1300	914	505	851	610	1070
25	1140	926	1160	700	1160	1140	1060	868	525	867	727	1090
26	1170	1030	1150	750	1170	1150	956	991	539	893	830	1120
27	1060	1040	1140	876	1150	1160	873	956	551	900	947	1100
28	1080	950	1140	970	1160	1150	576	676	565	914	1030	1100
29	1100	854	1130	1040	---	1160	534	534	571	850	1020	1130
30	1150	594	1130	1090	---	1130	674	391	532	953	947	1140
31	1210	---	1150	1100	---	1140	---	680	---	970	710	---

WTR YR 1981 MEAN 958 MAX 1330 MIN 150

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	---	18.0	14.0	18.0	22.0	24.0	25.5	26.0	26.0	31.0	26.0
2	19.0	---	16.0	13.0	16.0	22.0	23.0	26.0	27.0	28.0	30.0	27.0
3	22.0	---	18.0	16.0	16.0	20.5	22.0	23.0	26.0	29.0	31.0	28.0
4	24.0	20.0	19.0	15.0	15.0	22.0	21.0	18.0	25.0	29.0	28.0	26.0
5	23.0	---	20.0	14.0	14.0	20.0	23.0	26.0	26.0	30.0	30.0	26.0
6	20.0	---	18.0	13.0	15.0	21.0	21.0	24.0	28.0	27.0	30.0	27.0
7	24.0	20.0	20.0	15.0	15.5	19.0	20.0	29.0	29.0	26.0	31.0	28.0
8	23.0	22.0	20.0	16.0	14.0	20.0	23.0	25.0	28.0	27.0	32.0	26.0
9	19.0	23.0	18.0	15.0	14.5	18.0	24.0	26.0	29.0	27.0	34.0	27.0
10	20.0	25.0	16.0	15.5	19.0	17.0	21.0	25.0	27.0	28.0	35.0	28.0
11	---	22.0	18.0	14.0	14.0	18.0	24.0	28.0	26.0	30.0	29.0	28.0
12	19.0	20.0	20.0	15.0	13.0	17.0	24.0	27.0	28.0	29.0	28.0	27.0
13	20.0	20.0	16.0	16.0	13.5	16.0	25.0	24.0	28.0	28.0	29.0	26.0
14	27.0	22.0	17.0	17.0	15.0	17.0	24.5	25.0	27.0	30.0	28.0	28.0
15	25.0	19.0	15.0	15.5	14.0	22.0	23.5	25.0	26.0	28.0	31.0	26.0
16	25.5	16.0	20.0	14.0	17.0	21.0	25.0	26.0	28.0	29.0	34.0	26.0
17	29.5	17.0	18.0	11.0	16.5	22.0	24.0	25.0	26.0	28.0	34.0	29.0
18	22.5	15.0	21.0	14.0	19.0	19.0	25.0	27.0	28.0	28.0	29.0	28.0
19	25.0	13.0	16.0	10.0	21.0	22.0	24.0	25.0	26.0	34.0	28.0	22.0
20	23.0	15.5	13.0	12.0	20.0	21.0	28.0	24.0	28.0	29.0	27.0	27.0
21	22.5	13.5	16.0	14.0	19.0	22.0	26.0	24.0	27.0	28.0	26.0	24.0
22	20.5	14.5	15.0	11.0	20.0	20.0	24.0	25.0	28.0	28.0	28.0	27.0
23	24.5	15.5	14.0	12.0	17.0	21.0	24.0	27.0	27.0	30.0	30.0	25.0
24	22.0	15.0	20.0	14.0	20.0	19.0	22.0	28.0	28.0	30.0	27.0	29.0
25	25.0	16.0	19.0	13.5	21.0	20.0	24.0	25.0	26.0	27.0	26.0	26.0
26	20.0	15.0	15.0	14.0	22.0	22.0	25.0	24.0	27.0	29.0	28.0	27.0
27	24.5	14.0	16.0	15.0	22.0	19.0	23.0	27.0	28.0	30.0	28.0	28.0
28	20.0	13.0	13.0	18.0	21.0	21.0	24.0	29.0	27.0	29.0	29.0	26.0
29	25.0	14.0	15.0	20.0	---	23.0	24.0	24.0	28.0	29.0	27.0	25.0
30	---	16.0	16.0	18.0	---	24.0	26.0	25.0	26.0	30.0	26.0	26.0
31	20.0	---	17.0	---	---	25.0	---	28.0	---	30.0	26.0	---

WTR YR 1981 MEAN 22.5 MAX 35.0 MIN 10.0

08188600 GUADALUPE-BLANCO RIVER AUTHORITY CALHOUN CANAL FLUME NO. 1 NEAR LONG MOTT, TX

LOCATION.--Lat 28°29'44", long 96°46'18", Calhoun County, Hydrologic Unit 12100204, on right bank at concrete Parshall flume No. 1, 518 ft (158 m) upstream from State Highway 185, 1,900 ft (579 m) downstream from pumping station on Goff Bayou, and 1.1 mi (1.8 km) northwest of Long Mott.

PERIOD OF RECORD.--March 1968 to Feburary 1970 (monthly discharge only), March 1970 to current year.

GAGE.--Water-stage and velocity recorders, duplex water-stage recorder, and Parshall flume. Datum of gage is 23.53 ft (7.172 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 6, 1981, deflection-vane recorder.

REMARKS.--Records fair. Flow is diverted from Guadalupe River 550 ft (168 m) upstream from Guadalupe River near Tivoli (station 08188800), and then through a system of canals, Hog Bayou, and Goff Bayou, a distance of 8.9 mi (14.3 km) to the pumping station on Goff Bayou 1,900 ft (579 m) upstream from flume No. 1. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years (water years 1969-81), 101 ft^3/s (2.860 m^3/s), 73,170 acre-ft/yr (90.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 311 ft^3/s (8.81 m^3/s) July 7, 1968; no flow at times in 1968-74 and 1977-81.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	52	.00	55	22	14	50	76	118	229	119	68
2	130	58	.00	48	4.2	26	48	61	163	233	128	85
3	100	67	.00	55	42	.00	61	68	170	237	114	95
4	86	40	.00	55	55	.00	73	25	134	237	116	103
5	86	20	.00	55	55	8.5	73	.00	41	239	137	116
6	70	9.3	.00	55	28	20	73	8.5	56	232	150	144
7	58	.00	.00	55	14	14	99	20	86	200	155	172
8	50	.00	.00	40	14	14	110	31	102	130	163	189
9	43	.00	.00	9.3	14	14	84	41	115	118	163	163
10	51	31	.00	.00	14	14	68	41	180	116	163	167
11	61	38	.00	.00	14	14	100	113	138	109	156	190
12	60	30	15	.00	14	14	122	161	77	109	157	212
13	50	35	12	.00	4.2	14	122	133	68	133	163	218
14	43	32	.00	9.3	.00	14	144	126	68	149	163	210
15	40	30	7.0	14	.00	14	162	136	81	168	156	183
16	25	47	14	14	.00	14	145	113	140	165	141	177
17	8.0	34	14	14	.00	14	147	107	198	138	143	185
18	.00	30	14	14	2.0	14	165	125	151	113	157	188
19	.00	44	14	14	3.4	14	138	140	122	122	170	171
20	.00	44	14	14	.00	14	111	167	157	109	180	177
21	12	44	14	18	.00	15	126	198	190	89	184	185
22	43	44	32	27	.00	14	109	228	190	68	177	185
23	43	44	44	27	.00	34	47	221	211	60	177	172
24	46	14	55	27	.00	55	7.6	202	231	76	190	156
25	41	10	55	27	.00	29	14	174	226	99	196	158
26	43	.00	55	27	.00	.00	14	118	218	109	173	163
27	43	.00	55	27	.00	.00	39	114	233	87	156	163
28	41	.00	55	27	4.2	17	44	139	231	76	150	155
29	43	.00	55	27	---	28	55	137	222	89	82	142
30	31	.00	55	27	---	42	57	134	221	97	41	136
31	32	---	55	27	---	55	---	100	---	95	47	---
TOTAL	1517.00	797.30	634.00	808.60	304.00	553.50	2607.6	3457.50	4538	4231	4567	4828
MEAN	48.9	26.6	20.5	26.1	10.9	17.9	86.9	112	151	136	147	161
MAX	138	67	55	55	55	55	165	228	233	239	196	218
MIN	.00	.00	.00	.00	.00	.00	7.6	.00	41	60	41	68
AC-FT	3010	1580	1260	1600	603	1100	5170	6860	9000	8390	9060	9580

CAL YR 1980 TOTAL 39869.30 MEAN 109 MAX 289 MIN .00 AC-FT 79080
WTR YR 1981 TOTAL 28843.50 MEAN 79.0 MAX 239 MIN .00 AC-FT 57210

08188750 GUADALUPE-BLANCO RIVER AUTHORITY CALHOUN CANAL FLUME NO. 2 NEAR LONG MOTT, TX

LOCATION.--Lat 28°30'09", long 96°45'40", Calhoun County, Hydrologic Unit 12100204, on left bank at concrete Parshall flume No. 2, 3,700 ft (1,130 m) downstream from State Highway 185, 4,200 ft (1,280 m) downstream from streamflow station 08188600, and 1.4 mi (2.3 km) north of Long Mott.

PERIOD OF RECORD.--October 1971 to June 1972 (monthly discharge only), July 1972 to current year.

GAGE.--Water-stage and velocity recorders, water-stage recorder, and Parshall flume. Datum of gage is 22.37 ft (6.818 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 6, 1981, deflection-vane recorders.

REMARKS.--Records fair except those for periods of low velocities, which are poor. Flow is diverted from Guadalupe River 550 ft (168 m) upstream from Guadalupe River near Tivoli (station 08188800), and then through a system of canals, Hog Bayou, and Goff Bayou, a distance of 8.9 mi (14.3 km) to the pumping station on Goff Bayou 1,900 ft (579 m) upstream from flume No. 1. Diversions to the Union Carbide Co. between flumes 1 (station 08188600) and 2 during the current year were 18,840 acre-ft (23.2 hm^3). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--10 years, 80.4 ft^3/s (2.277 m^3/s), 58,250 acre-ft/yr (71.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 282 ft^3/s (7.99 m^3/s) June 23, 1975; no flow at times in 1972-81.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	7.0	.00	.00	.00	.00	41	67	77	213	105	30
2	87	16	.00	7.6	.00	.00	48	20	118	213	115	44
3	72	23	.00	14	28	.00	55	27	128	215	100	53
4	72	20	.00	14	41	.00	60	9.3	91	211	102	60
5	72	6.0	.00	14	41	.00	69	.00	41	225	123	80
6	65	.00	.00	41	41	.00	69	8.5	56	214	136	111
7	58	.00	.00	41	14	.00	85	20	84	178	141	131
8	50	.00	.00	26	.00	.00	97	31	97	130	150	156
9	41	.00	.00	.00	.00	.00	70	41	102	118	150	163
10	50	31	.00	.00	.00	.00	54	41	160	116	150	167
11	59	38	.00	.00	.00	.00	81	113	124	109	143	182
12	58	29	.00	.00	.00	.00	95	157	77	109	144	190
13	48	16	.00	.00	.00	.00	95	133	68	114	150	190
14	40	.00	.00	.00	.00	.00	124	114	67	109	150	183
15	40	.00	.00	.00	.00	.00	148	106	81	117	142	169
16	25	.00	.00	.00	.00	.00	141	72	118	115	128	163
17	8.0	.00	.00	.00	.00	.00	120	63	157	103	129	172
18	.00	.00	7.0	.00	.00	.00	124	89	139	113	144	172
19	.00	.00	14	.00	.00	.00	97	118	122	122	158	158
20	.00	.00	14	.00	.00	.00	100	167	157	109	178	163
21	.00	.00	14	.00	.00	.00	126	198	190	89	184	172
22	.00	.00	24	.00	.00	.00	109	222	190	68	177	177
23	.00	.00	31	.00	.00	20	47	221	211	60	177	172
24	.00	.00	15	.00	.00	41	7.6	202	231	68	185	156
25	.00	.00	.00	.00	.00	20	14	174	219	85	183	158
26	.00	.00	.00	.00	.00	.00	14	118	204	95	160	163
27	.00	.00	.00	.00	.00	.00	39	105	210	73	142	163
28	.00	.00	.00	.00	.00	8.5	44	122	218	62	136	149
29	.00	.00	.00	.00	---	14	55	111	207	76	68	128
30	.00	.00	.00	.00	---	28	57	94	207	83	27	122
31	.00	---	.00	.00	---	41	---	58	---	82	27	---
TOTAL	939.00	186.00	119.00	157.60	165.00	172.50	2285.6	3021.80	4151	3794	4204	4297
MEAN	30.3	6.20	3.84	5.08	5.89	5.56	76.2	97.5	138	122	136	143
MAX	94	38	31	41	41	41	148	222	231	225	185	190
MIN	.00	.00	.00	.00	.00	.00	7.6	.00	41	60	27	30
AC-FT	1860	369	236	313	327	342	4530	5990	8230	7530	8340	8520

CAL YR 1980 TOTAL 32490.00 MEAN 88.8 MAX 274 MIN .00 AC-FT 64440
WTR YR 1981 TOTAL 23492.50 MEAN 64.4 MAX 231 MIN .00 AC-FT 46600

08188800 GUADALUPE RIVER NEAR TIVOLI, TX

LOCATION.--Lat 28°30'20", long 96°53'04", Calhoun-Refugio County line, Hydrologic Unit 12100204, on right bank at diversion and saltwater barrier, one orifice located upstream and one downstream, 550 ft (168 m) downstream from Calhoun County Irrigation Canal intake, 0.4 mi (0.6 km) downstream from San Antonio River, 3.5 mi (5.6 km) north of Tivoli, and at mile 10.2 (16.4 km). Water-quality sampling site on left bank 474 ft (144 m) upstream.

DRAINAGE AREA.--10,128 mi² (26,232 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-68-1: Drainage area.

GAGE.--Duplex water-stage recorder. Datum of gage is 0.04 ft (0.012 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Many small diversions above station. Some regulation by powerplants. Upstream regulation same as that for Guadalupe River at Cuero (station 08175800) and San Antonio River at Goliad (station 08188500).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (upstream from barrier), 13.7 ft (4.18 m) Sept. 22, 1967; minimum, 1.5 ft (0.46 m) Mar. 16, 1967. Maximum gage height (downstream from barrier), 13.6 ft (4.15 m) Sept. 22, 1967; minimum, 0.5 ft (0.15 m) July 12, 14, 1967.
Maximum stage since at least 1936, that of Sept. 22, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1936 reached a stage of 11 ft (3.4 m), present site and datum. Levees along the Navigation Canal from San Antonio Bay to Victoria were built in 1961 and decreased the flood plain materially.

EXTREMES FOR CURRENT YEAR.--Maximum gage height (upstream from barrier), 11.5 ft (3.51 m) Sept. 4, minimum, 2.6 ft (0.79 m) Nov. 11, 17, 18. Maximum gage height (downstream from barrier), 11.2 ft (3.41 m) Sept. 4 ; minimum, 2.6 ft (0.79 m) Nov. 11, 17, 18.

MAXIMUM DAILY GAGE HEIGHT, IN FEET, UPSTREAM AND DOWNSTREAM FROM SALTWATER BARRIER, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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	7.9	7.8	3.4	3.4	5.8	5.8	3.3	3.3	4.0	3.9	3.6	3.6	5.0	4.8	7.3	7.3	8.0	7.9	8.2	8.2	7.1	7.0	8.0	7.9
2	7.9	7.8	3.2	3.1	5.3	5.3	3.3	3.3	3.7	3.6	3.4	3.4	5.1	4.9	7.8	7.8	8.0	7.9	8.2	8.1	6.9	6.9	8.2	8.1
3	7.6	7.5	2.8	2.8	4.8	4.7	3.3	3.3	3.4	3.2	3.7	3.7	5.3	5.1	8.2	8.2	8.1	8.0	8.2	8.1	6.8	6.8	11.2	10.8
4	7.0	6.9	2.8	2.8	4.3	4.3	3.3	3.3	3.5	3.5	3.8	3.8	5.2	5.0	8.4	8.3	8.3	8.1	8.1	8.1	6.8	6.8	11.5	11.2
5	6.2	6.1	2.8	2.7	4.0	3.9	3.4	3.3	3.8	3.8	3.8	3.8	4.9	4.8	8.4	8.3	8.3	8.2	8.1	8.1	6.7	6.7	11.1	10.9
6	5.4	5.3	2.8	2.8	3.7	3.6	3.4	3.3	3.7	3.7	3.9	3.9	4.6	4.4	8.3	8.3	8.2	8.1	8.2	8.1	6.6	6.6	10.4	10.3
7	4.9	4.8	2.9	2.9	3.9	3.8	3.3	3.2	3.7	3.7	4.1	4.1	4.8	4.6	8.3	8.2	8.2	8.0	8.3	8.2	6.6	6.6	9.7	9.5
8	4.6	4.5	2.9	2.9	4.0	3.9	3.5	3.5	3.8	3.8	4.0	4.0	4.7	4.6	8.1	8.1	8.1	8.0	8.3	8.2	6.5	6.5	9.0	8.7
9	4.3	4.3	2.9	2.9	3.7	3.7	3.7	3.7	4.3	4.2	4.4	4.4	4.7	4.6	7.9	7.9	8.1	7.9	8.3	8.2	6.4	6.4	8.4	8.2
10	3.9	3.9	2.8	2.8	3.6	3.6	3.6	3.6	4.6	4.6	4.4	4.4	4.7	4.6	7.7	7.7	8.1	7.9	8.3	8.2	6.3	6.3	8.3	8.0
11	3.7	3.6	2.6	2.6	3.6	3.6	3.3	3.3	4.2	4.1	4.3	4.3	4.6	4.5	7.5	7.5	8.3	8.1	8.2	8.1	6.3	6.3	8.2	7.9
12	3.5	3.4	2.9	2.9	3.6	3.6	3.4	3.4	3.8	3.8	4.3	4.3	4.6	4.4	7.3	7.2	8.4	8.2	8.2	8.1	6.2	6.2	8.0	7.8
13	3.4	3.3	3.3	3.3	3.7	3.6	3.4	3.4	3.7	3.7	4.3	4.3	4.5	4.4	7.2	7.1	8.4	8.2	8.1	8.0	6.2	6.2	8.1	7.8
14	3.6	3.4	3.8	3.8	3.8	3.8	3.4	3.3	3.7	3.7	4.4	4.3	4.4	4.3	7.1	7.0	8.8	8.6	8.1	8.0	6.2	6.2	8.1	7.9
15	3.7	3.6	3.4	3.4	4.1	4.0	3.4	3.3	3.6	3.6	4.5	4.3	4.1	4.0	6.8	6.8	8.9	8.7	8.1	8.0	6.2	6.2	7.8	7.7
16	3.9	3.8	2.9	3.0	4.1	4.0	3.3	3.3	3.5	3.5	4.8	4.7	4.1	4.0	6.8	6.8	8.8	8.6	8.0	7.8	6.0	6.0	7.7	7.6
17	3.8	3.7	2.6	2.6	3.9	3.8	3.3	3.2	3.5	3.5	5.2	5.1	4.1	4.0	6.8	6.7	8.7	8.4	8.0	7.8	6.0	6.0	7.7	7.6
18	3.8	3.6	2.6	2.6	3.8	3.8	3.2	3.2	3.5	3.5	5.2	5.1	4.1	4.0	6.6	6.5	8.6	8.4	8.0	7.8	5.9	5.9	7.8	7.7
19	3.6	3.5	2.9	2.9	3.8	3.8	3.6	3.5	3.6	3.6	5.1	5.0	4.2	4.1	6.3	6.2	8.6	8.5	7.9	7.7	5.9	5.9	7.8	7.7
20	3.3	3.2	3.3	3.2	3.7	3.6	4.1	4.0	3.6	3.6	4.9	4.8	5.8	5.7	6.0	5.9	9.0	8.8	7.9	7.7	6.0	6.0	7.6	7.5
21	3.4	3.3	4.5	4.4	3.7	3.6	4.2	4.2	3.6	3.6	4.8	4.6	5.8	5.7	5.6	5.6	9.0	8.8	7.8	7.6	6.0	6.0	7.4	7.3
22	4.1	4.0	4.5	4.4	3.7	3.7	4.2	4.2	3.4	3.4	4.7	4.6	5.2	5.2	5.4	5.4	9.0	8.8	7.8	7.6	6.3	6.3	7.2	7.1
23	4.1	4.0	4.1	4.1	3.6	3.5	4.8	4.7	3.3	3.3	4.6	4.5	4.9	4.8	5.3	5.2	9.0	8.7	7.8	7.5	7.0	7.0	7.0	6.9
24	3.7	3.6	3.8	3.8	3.5	3.5	6.0	5.9	3.3	3.3	4.6	4.4	5.1	5.0	5.1	5.0	9.0	8.8	7.7	7.4	7.2	7.2	6.8	6.7
25	3.6	3.5	3.6	3.5	3.5	3.5	6.0	5.9	3.4	3.4	4.6	4.5	6.0	6.0	6.2	6.2	9.0	8.8	7.6	7.4	7.1	7.0	6.7	6.6
26	3.8	3.6	3.5	3.5	3.5	3.4	5.5	5.5	3.5	3.5	5.0	4.8	6.4	6.4	7.1	7.0	8.8	8.7	7.6	7.3	6.8	6.7	6.6	6.5
27	4.0	3.9	3.6	3.6	3.4	3.4	5.0	5.0	3.6	3.6	5.1	5.0	7.2	7.2	7.1	7.0	8.6	8.5	7.6	7.3	6.7	6.6	6.5	6.4
28	4.0	3.8	3.7	3.6	3.4	3.4	4.6	4.6	3.6	3.6	5.1	4.9	7.4	7.4	7.0	6.9	8.4	8.3	7.5	7.3	6.7	6.6	6.4	6.3
29	3.4	3.3	4.7	4.6	3.4	3.4	4.4	4.3	---	---	5.1	5.0	7.4	7.4	7.2	7.1	8.3	8.2	7.4	7.2	6.8	6.7	6.3	6.2
30	3.5	3.4	5.8	5.8	3.2	3.2	4.0	4.0	---	---	5.1	5.0	7.4	7.4	7.8	7.6	8.2	8.2	7.4	7.0	7.2	7.1	6.2	6.1
31	3.5	3.4	---	---	3.2	3.2	4.0	3.9	---	---	5.1	4.9	---	---	8.0	7.9	---	---	7.2	7.1	7.4	7.3	---	---

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1965 to current year. Chemical and biochemcial analyses: October 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1965 to current year.
WATER TEMPERATURES: October 1965 to current year.

INSTRUMENTATON.--Specific conductance is recorded continuously at this station. Beginning March 1981, water temperature is recorded continuously.

REMARKS.--Water temperature from October 1980 through February 1981 was measured. 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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,000 micromhos June 1, 1971, Aug. 3, 1978; minimum daily, 159 micromhos Apr. 28, 1980.
WATER TEMPERATURES (1966-69, 1981): Maximum daily, 32.0°C on several days during June, July, and August 1967069; minimum daily, 8.0°C Jan. 15, 1968.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 904 micromhos Nov. 21; minimum daily, 220 micromhos Sept. 5.
WATER TEMPERATURES: Maximum daily, 31.5°C July 25, Aug. 18.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)
OCT 28...	1138	720	8.0	18.0	8	39	8.2	85	1.0	250	52
FEB 13...	1255	797	8.2	8.5	5	.90	8.2	68	3.2	280	46
MAR 20...	1205	685	7.8	18.5	5	57	8.3	88	2.9	250	35
MAY 07...	1225	347	7.2	24.5	90	150	4.6	55	2.8	120	6
JUL 30...	1326	726	7.4	31.0	5	54	6.2	83	1.9	280	37
SEP 17...	1435	679	--	27.0	10	100	7.2	89	1.1	250	41

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
OCT 28...	73	17	49	1.3	4.0	200	51	74	.3	14	--
FEB 13...	81	18	58	1.5	3.6	230	62	92	.3	11	--
MAR 20...	74	17	44	1.2	3.4	220	49	60	.3	13	--
MAY 07...	38	5.1	22	.9	6.7	110	14	32	.1	15	--
JUL 30...	83	17	45	1.2	3.2	240	49	59	.2	18	412
SEP 17...	79	13	43	1.2	4.7	210	32	66	.2	19	--

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 28...	402	71	23	1.5	.060	1.6	.070	1.4	1.50	.690	22
FEB 13...	464	5	0	2.5	.100	2.6	.260	.49	.75	.580	10
MAR 20...	393	102	26	2.2	.120	2.3	.160	1.1	1.30	.830	8.1
MAY 07...	199	308	17	.78	.010	.79	.020	1.7	1.70	.630	14
JUL 30...	418	115	13	.97	.030	1.0	.140	1.5	1.60	.270	3.6
SEP 17...	383	1	1	.73	.030	.76	.100	.90	1.00	.350	7.0

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 28...	1138	2	90	2	0	<10	<10
FEB 13...	1255	2	80	<1	0	<10	20
MAY 07...	1225	3	100	6	0	0	70
JUL 30...	1326	4	110	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 28...	60	6	.5	0	0	10
FEB 13...	<10	<1	.0	1	0	4
MAY 07...	0	10	.1	0	0	20
JUL 30...	<10	6	.2	1	0	<3

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)
FEB 13...	1255	<.10	6	<.10	<.01	<.1	<.10	11	<.01	1.2	<.01
JUL 30...	1326	.00	11	.00	.00	.0	.00	12	.00	1.9	.00

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)
FEB 13...	1.3	<.01	<.1	.01	<.01	.3	<.01	<.01	<.1	<.01
JUL 30...	2.5	.00	.2	.03	.00	.3	.00	.00	.0	.00

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 13...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01
JUL 30...	.00	.0	.00	.1	.00	.0	.00	.00	.0	.00

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)
FEB 13...	<.01	<.01	<.1	<.01	<0	<1.0	<.01	.03	<.01	<.01
JUL 30...	.00	.00	.0	.00	0	.0	.00	.01	.02	.00

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	616	492	537	641	624	637	---	---	800	---	---	---
2	493	390	434	681	639	666	728	688	708	---	---	809
3	505	409	443	710	677	696	688	626	637	---	---	---
4	555	505	527	744	710	728	649	628	637	---	---	---
5	622	555	588	767	732	750	660	645	652	---	---	810
6	622	593	608	770	759	763	684	660	669	---	---	---
7	674	647	659	775	751	766	705	684	693	789	775	782
8	700	663	681	775	753	762	767	705	724	786	778	783
9	705	672	687	800	761	784	764	748	753	---	---	---
10	740	703	714	797	780	789	771	760	766	---	---	---
11	756	732	746	800	783	791	769	753	761	---	---	---
12	786	740	755	789	738	770	793	746	770	---	---	---
13	794	751	777	773	730	752	777	750	764	---	---	---
14	767	737	752	775	740	753	808	758	783	---	---	790
15	780	753	761	811	759	791	800	783	792	---	---	790
16	783	753	773	849	808	826	815	786	800	---	---	791
17	816	766	784	870	848	859	812	775	794	---	---	---
18	808	775	792	858	836	842	794	746	769	---	---	---
19	800	783	794	841	805	823	794	769	780	---	---	777
20	783	764	774	883	778	808	805	783	791	---	---	784
21	797	724	752	904	860	883	808	794	800	---	---	767
22	724	684	701	860	738	799	816	791	807	---	---	790
23	738	686	709	746	605	684	802	780	791	---	---	732
24	822	748	803	639	603	620	808	783	801	---	---	---
25	819	789	804	649	641	646	789	775	778	---	---	---
26	789	712	753	822	647	729	---	---	---	---	---	723
27	724	698	709	850	728	789	---	---	---	---	---	651
28	703	655	689	728	683	706	---	---	---	---	---	700
29	693	643	671	---	---	---	---	---	817	---	---	705
30	689	657	674	---	---	---	---	---	820	---	---	733
31	657	622	641	---	---	---	---	---	810	---	---	---
MONTH	822	390	693	904	603	758	816	626	760	789	775	760

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	791	761	782	685	659	672	537	487	511
2	---	---	820	808	789	798	690	670	680	499	433	483
3	---	---	811	791	759	773	680	660	670	433	384	413
4	---	---	788	764	740	754	664	642	657	424	357	390
5	---	---	830	772	761	766	704	662	689	357	309	322
6	---	---	838	782	769	776	764	700	732	354	314	336
7	---	---	---	812	781	794	701	679	690	366	347	356
8	---	---	---	831	799	820	698	659	678	406	365	382
9	---	---	805	802	755	772	684	649	668	472	411	448
10	---	---	844	758	734	742	683	661	675	481	469	476
11	---	---	837	735	685	710	691	669	681	500	481	488
12	---	---	803	710	685	698	689	666	680	517	500	510
13	796	780	788	750	704	731	705	673	690	527	518	520
14	794	767	782	771	733	754	700	674	683	535	525	529
15	775	743	762	743	706	721	---	---	705	569	535	552
16	791	767	775	718	684	701	---	---	---	581	560	571
17	800	775	787	722	697	710	---	---	---	603	582	593
18	802	789	795	749	723	736	---	---	---	620	603	611
19	802	767	786	723	673	700	---	---	---	640	621	631
20	789	748	771	700	670	685	---	---	844	672	641	657
21	794	743	771	743	689	712	---	---	509	662	647	654
22	813	780	799	772	696	732	---	---	502	672	651	664
23	810	785	798	706	662	683	581	556	573	691	671	680
24	797	761	783	690	680	685	635	561	598	693	669	687
25	788	775	780	681	668	676	635	599	618	682	606	652
26	778	743	763	684	668	674	597	470	536	675	488	598
27	788	753	770	680	651	667	735	442	533	488	424	458
28	774	756	765	674	657	671	783	691	736	604	487	528
29	---	---	---	687	673	677	722	604	657	588	529	649
30	---	---	---	677	658	669	604	527	548	564	457	588
31	---	---	---	681	661	673	---	---	---	487	281	363
MONTH	813	743	794	831	651	724	783	442	650	693	281	526

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	453	362	389	505	494	500	697	690	694	710	572	626
2	658	461	545	518	486	502	698	688	693	685	263	417
3	600	465	505	520	508	514	704	682	693	420	277	356
4	519	376	437	528	518	523	707	682	694	359	271	326
5	376	325	348	546	522	534	707	681	694	271	220	238
6	328	304	315	526	490	508	703	683	693	265	252	258
7	381	323	354	552	470	511	701	680	690	344	269	300
8	405	384	392	470	382	423	692	679	687	435	348	398
9	433	376	402	475	382	425	695	681	689	500	439	468
10	535	441	497	509	480	493	709	680	694	538	495	511
11	482	363	413	545	511	527	705	675	690	564	539	551
12	379	352	366	565	534	549	700	673	686	619	562	586
13	376	327	356	588	566	582	702	669	686	678	622	659
14	329	313	321	596	570	583	686	655	670	675	639	661
15	323	306	314	594	579	586	694	676	685	665	629	648
16	338	315	325	619	593	604	701	675	688	649	546	580
17	360	336	351	642	617	629	707	678	692	689	609	648
18	360	343	352	655	636	643	710	684	697	738	546	645
19	346	320	333	662	645	651	721	690	706	594	537	561
20	340	335	337	663	643	650	745	717	731	641	562	591
21	335	306	320	674	640	657	717	664	692	715	646	684
22	339	305	322	694	674	685	669	648	659	711	693	700
23	340	315	328	702	685	694	771	644	706	731	703	714
24	412	368	390	712	691	702	779	670	734	753	732	738
25	460	414	437	717	706	710	670	586	631	767	760	763
26	466	461	475	719	704	710	586	514	545	776	761	770
27	520	493	506	710	682	696	559	516	537	783	769	777
28	522	511	517	707	677	692	589	560	576	781	769	775
29	538	505	522	718	687	702	611	587	602	796	782	789
30	517	497	507	721	686	704	632	590	615	790	780	785
31	---	---	---	702	689	696	634	593	614	---	---	---
MONTH	658	304	399	721	382	600	779	514	670	796	220	584

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1			29.0			20.0			14.5			18.0
2			27.5			---			15.0			---
3			25.5			---			---			---
4			---			19.0			16.0			---
5			---			20.0			19.0			14.0
6			27.0			21.0			---			---
7			25.0			23.0			---			---
8			25.0			---			19.0			---
9			24.0			---			16.0			---
10			25.0			23.0			17.0			---
11			---			23.5			15.5			---
12			---			21.5			14.5			---
13			25.0			21.0			---			---
14			26.5			22.0			---			14.0
15			---			---			16.0			14.0
16			---			---			17.0			13.5
17			26.0			18.0			17.0			---
18			---			18.0			18.0			---
19			---			16.0			16.5			12.0
20			23.5			15.5			---			12.0
21			25.0			14.5			---			12.5
22			23.0			---			12.5			11.5
23			22.0			---			15.0			12.0
24			23.0			15.0			13.5			---
25			---			14.5			---			---
26			---			13.5			---			14.0
27			22.0			---			---			14.0
28			20.0			13.5			---			20.0
29			18.0			---			13.5			16.0
30			20.0			---			13.5			16.0
31			20.0						13.5			---
MONTH			24.0			18.5			15.5			14.0

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1			---	---	---	---	22.5	21.5	22.0	26.5	25.5	26.0
2			16.0	---	---	19.5	23.0	22.0	22.5	26.0	25.0	25.5
3			15.0	---	---	19.0	23.5	22.5	23.0	24.5	23.5	24.0
4			14.5	---	---	---	23.5	23.0	23.0	24.5	22.5	23.5
5			15.0	20.0	19.5	20.0	23.5	22.5	23.0	25.5	23.5	24.5
6			14.0	19.5	18.5	19.0	23.5	22.5	23.0	26.0	23.5	24.5
7			---	19.0	18.5	19.0	23.5	22.5	23.0	26.0	24.0	25.0
8			---	19.0	18.5	18.5	23.5	22.5	23.0	26.0	25.0	25.5
9			15.0	18.5	17.5	18.0	24.5	23.0	23.5	26.0	25.5	25.5
10			17.0	18.0	17.0	17.5	25.5	24.0	24.5	25.5	24.5	25.0
11			14.0	17.0	16.5	17.0	25.5	24.5	25.0	25.0	24.0	24.5
12			13.0	16.5	16.0	16.5	25.5	24.5	25.0	25.0	24.0	24.5
13			13.0	17.0	16.0	16.5	26.0	25.0	25.5	25.0	24.5	24.5
14			---	17.5	16.0	17.0	25.5	25.0	25.5	26.0	25.0	25.5
15			---	18.5	17.0	17.5	---	---	25.0	26.0	25.0	25.5
16			14.5	18.5	17.5	18.0	---	---	25.0	25.5	25.0	25.5
17			14.0	18.0	17.5	18.0	---	---	---	26.5	25.5	26.0
18			17.0	18.5	17.5	18.0	---	---	---	27.5	26.5	27.0
19			16.5	18.5	17.0	18.0	---	---	---	28.0	27.0	27.5
20			17.5	19.0	17.0	18.0	---	---	26.0	27.5	26.5	27.0
21			---	20.0	18.5	19.0	---	---	25.5	26.5	26.0	26.5
22			---	20.0	19.0	19.5	---	---	25.5	26.5	26.0	26.0
23			18.0	20.0	19.0	19.5	25.0	24.0	24.5	27.0	26.0	26.5
24			18.5	20.0	19.0	19.5	24.5	23.0	24.0	27.0	26.0	26.5
25			18.0	20.0	19.0	19.5	23.5	23.0	23.5	26.5	25.5	26.0
26			18.5	20.5	19.0	19.5	23.0	22.5	22.5	27.0	26.0	26.5
27			19.0	21.5	20.0	20.5	23.5	22.5	23.0	28.5	26.0	27.0
28			---	21.0	20.5	21.0	24.0	23.5	24.0	29.0	28.0	28.5
29				21.5	21.0	21.0	25.0	24.0	24.5	29.0	28.0	28.5
30				21.5	20.5	21.0	26.0	24.5	25.0	28.0	26.5	27.5
31				22.0	21.0	21.5	---	---	---	27.0	24.5	26.0
MONTH			16.0	22.0	16.0	19.0	26.0	21.5	24.0	29.0	22.5	26.0

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

08189200 COPANO CREEK NEAR REFUGIO, TX

LOCATION.--Lat 28°18'12", long 97°06'44", Refugio County, Hydrologic Unit 12100405, on right bank at bridge on Farm Road 774, 3.6 mi (5.8 km) upstream from Alameda Creek, 8.1 mi (13.0 km) east of Refugio, and 11.9 mi (19.1 km) upstream from mouth.

DRAINAGE AREA.--87.8 mi² (227 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 17.25 ft (5.258 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for period of no gage-height record, which are fair. No known diversion above station. Recording rain gage is located at station.

AVERAGE DISCHARGE.--11 years, 52.7 ft³/s (1.492 m³/s), 8.15 in/yr (207 mm/yr), 38,180 acre-ft/yr (47.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,300 ft³/s (178 m³/s) Sept. 12, 1971, gage height, 21.00 ft (6.401 m), from rating curve extended above 3,800 ft³/s (108 m³/s); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1921, 22 ft (6.7 m) in September 1967, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 4	0400	3,680	104	17.75	5.410	June 13	unknown	*4,360	123	unknown	---
May 26	unknown	1,250	35.4	unknown	---	July 8	1200	518	14.7	10.16	3.097

Minimum discharge, no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146	.00	.02	.54	3.7	.23	.05	.00	28	87	1.7	59
2	172	.00	.00	.50	2.9	.18	.02	64	25	88	1.2	27
3	169	.00	.00	.37	2.0	.15	.00	2240	20	69	1.0	25
4	156	.00	.00	.36	3.4	.12	.00	3420	31	60	.82	40
5	135	.00	.00	.31	30	.07	.00	2420	46	53	.64	25
6	112	.00	.00	.29	49	.05	.00	1620	32	138	.46	25
7	85	.00	.00	.29	38	.04	.00	1140	26	370	.36	14
8	55	.00	.00	.23	25	.02	.00	799	21	505	.36	7.5
9	32	.00	.00	.19	18	.00	.00	558	19	419	.32	4.5
10	17	.00	.00	.13	14	.00	.00	437	15	307	.18	2.9
11	11	.00	.00	.13	10	.00	.00	322	27	314	.13	1.8
12	7.1	.00	.00	.11	7.5	.34	.00	226	1400	319	.11	1.4
13	4.8	.00	.00	.10	5.5	1.0	.00	162	4040	286	.30	.99
14	3.5	.00	.00	.10	4.1	1.2	.00	116	3380	248	.33	.84
15	2.4	.00	9.8	.10	3.1	1.3	.00	83	1860	194	.39	24
16	1.5	.00	38	.08	2.5	3.4	.00	63	857	128	.32	75
17	1.0	.00	46	.05	2.0	5.4	.00	48	605	74	.39	81
18	.73	.00	34	.05	1.7	5.2	.00	32	506	49	.34	69
19	.55	.00	20	13	1.3	3.8	.00	19	407	31	.29	42
20	.29	.00	13	74	1.1	2.6	.00	12	317	16	.29	23
21	.27	.00	7.8	85	.90	1.9	.00	9.3	256	11	.27	15
22	.14	.00	5.2	71	.79	1.3	.00	7.2	209	7.9	.17	12
23	.07	.00	3.8	60	.55	.93	.00	6.2	173	6.0	.10	9.9
24	.03	.00	2.9	53	.40	.62	.00	17	140	4.7	.08	8.1
25	.00	.00	2.2	42	.36	.52	.00	139	112	3.7	.11	6.6
26	.00	.00	1.8	25	.34	.42	.00	1040	67	3.9	.16	5.6
27	.00	.02	1.4	14	.29	.31	.00	534	76	5.1	.06	4.5
28	.00	.25	1.1	9.9	.25	.21	.00	102	113	4.9	.05	3.8
29	.00	.18	.94	7.3	---	.17	.00	50	88	3.8	2.9	3.4
30	.00	.06	.78	5.6	---	.10	.00	39	61	3.1	44	2.8
31	.00	---	.69	4.5	---	.08	---	31	---	2.2	90	---
TOTAL	1112.38	.51	189.43	468.23	228.68	31.66	.07	15755.70	14957	3811.3	147.83	620.63
MEAN	35.9	.017	6.11	15.1	8.17	1.02	.002	508	499	123	4.77	20.7
MAX	172	.25	46	85	49	5.4	.05	3420	4040	505	90	81
MIN	.00	.00	.00	.05	.25	.00	.00	.00	15	2.2	.05	.84
CFSM	.41	.000	.07	.17	.09	.01	.000	5.79	5.68	1.40	.05	.24
IN.	.47	.00	.08	.20	.10	.01	.00	6.68	6.34	1.61	.06	.26
AC-FT	2210	1.0	376	929	454	63	.1	31250	29670	7560	293	1230

CAL YR 1980 TOTAL 4417.91 MEAN 12.1 MAX 377 MIN .00 CFSM .14 IN 1.87 AC-FT 8760
WTR YR 1981 TOTAL 37323.42 MEAN 102 MAX 4040 MIN .00 CFSM 1.16 IN 15.81 AC-FT 74030

NOTE.--No gage-height rcord May 22 to June 24.

08189200 COPANO CREEK NEAR REFUGIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, Biochemical, and pesticide analyses: June 1970 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT											
10...	1205	16	170	7.1	23.5	3.8	7.2	84	1.9	41	0
JAN											
09...	1405	.22	577	7.4	12.0	69	7.3	67	5.0	78	0
FEB											
10...	1549	15	238	7.2	19.0	--	7.8	58	3.6	48	0
MAR											
17...	1600	5.6	937	7.5	18.5	390	7.5	80	1.5	73	4
MAY											
07...	1615	1020	92	6.5	27.5	6.5	3.0	38	3.0	29	0
JUN											
24...	1145	140	105	7.2	29.0	30	3.6	46	2.9	32	3
JUL											
28...	1415	5.2	338	6.6	32.0	120	4.8	65	2.3	69	0
SEP											
18...	1405	70	127	--	23.0	50	7.3	84	2.0	33	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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										
10...	12	2.6	17	1.2	5.4	52	5.3	17	.1	29
JAN										
09...	24	4.3	90	4.4	7.8	84	60	100	.2	8.2
FEB										
10...	15	2.5	31	2.0	5.6	49	4.4	48	.1	11
MAR										
17...	22	4.4	170	8.7	8.2	69	110	200	.3	9.6
MAY										
07...	8.7	1.7	6.1	.5	5.3	35	4.7	4.5	.0	19
JUN										
24...	9.1	2.2	8.7	.7	4.0	30	6.6	11	.1	23
JUL										
28...	22	3.4	43	2.4	3.3	70	11	57	.1	14
SEP										
18...	10	2.0	16	1.3	4.9	38	5.0	20	.1	16

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, 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										
10...	119	52	.00	.020	.00	.130	1.6	1.7	.170	20
JAN										
09...	345	23	.17	.020	.19	.080	1.7	1.8	1.700	18
FEB										
10...	148	--	.00	.000	.00	.180	2.1	2.3	.100	23
MAR										
17...	566	43	.00	.100	.09	.250	2.2	2.4	.350	28
MAY										
07...	71	11	.00	.000	.00	.160	1.1	1.3	.190	17
JUN										
24...	83	35	.02	.020	.04	.140	1.6	1.7	.130	27
JUL										
28...	196	84	.38	.060	.44	.240	1.6	1.8	.160	21
SEP										
18...	97	4	.03	.050	.08	.130	1.2	1.3	.080	19

08189200 COPANO CREEK NEAR REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 10...	1549	1	100	0	0	0	440
MAY 07...	1615	2	60	<1	0	<10	230
JUL 28...	1415	2	190	<1	10	<10	81

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 10...	0	10	1.5	0	0	10
MAY 07...	29	6	.1	0	0	7
JUL 28...	<10	21	.0	0	0	15

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)
FEB 10...	1549	<.10	2	<.1	<.01	<.1	<.1	<1	<.01	<.1	<.01
JUL 28...	1415	.00	--	.0	.00	--	.0	--	.00	--	.00

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)
FEB 10...	1.2	<.01	<.1	<.01	<.01	<.1	<.01	<.01	<.1	<.01
JUL 28...	--	.00	--	.00	.00	--	.00	.00	--	.00

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 10...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01
JUL 28...	.00	--	.00	--	.00	--	.00	.00	--	.00

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)
FEB 10...	<.01	<.01	<.1	<.01	<0	<1	<.01	<.01	<.01	<.01
JUL 28...	.00	.00	--	.00	0	--	.00	.01	.00	.00

08189500 MISSION RIVER AT REFUGIO, TX

LOCATION.--Lat 28°17'30", long 97°16'44", Refugio County, Hydrologic Unit 12100406, on left bank at upstream side of upstream bridge of two bridges on U.S. Highway 77, 560 ft (171 m) upstream from Missouri Pacific Railroad Co. bridge, and 0.2 mi (0.3 km) southwest of Refugio.

DRAINAGE AREA.--690 mi² (1,787 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.00 ft (0.305 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 25, 1958, nonrecording gage at site 59 ft (18 m) downstream at same datum. Nov. 26, 1958, to Apr. 18, 1963, nonrecording gage at present site and datum.

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

AVERAGE DISCHARGE.--42 years (water years 1940-81), 119 ft³/s (3.370 m³/s), 2.34 in/yr (59 mm/yr), 86,220 acre-ft/yr (106 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,000 ft³/s (2,240 m³/s) Sept. 12, 1971, gage height, 38.25 ft (11.659 m); minimum observed, 0.7 ft³/s (0.02 m³/s) Oct. 7, 9, 1940, Aug. 18-20, Sept. 5, 1945, Dec 29, 31, 1949, Jan. 1, 1950, July 13, Aug. 28, 1963, July 18, 19, 22-26, 31, Aug. 1, 2, 1971.
Maximum stage since about 1899, that of Sept. 12, 1971. Flood of Sept. 21, 1967, reached a stage of 36.5 ft (11.13 m), discharge 60,200 ft³/s (1,700 m³/s). Flood of July 7, 1942, reached a stage of 33.3 ft (10.15 m), discharge 41,700 ft³/s (1,180 m³/s). Flood of May 13, 1972, reached a stage of 28.25 ft (8.611 m).

EXTREMES OUTSIDE PERIOD OF RECORD.-Floods in August 1914 and May 17, 1938, reached a stage of 32.3 ft (9.85 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 5	0200	6,040	171	25.33	7.721	June 18	0500	*7,290	206	26.53	8.086
June 14	1200	6,530	185	25.89	7.891	July 8	0100	5,750	163	24.95	7.605

Minimum daily discharge, 17.0 ft³/s (0.48 m³/s) Nov. 19-23, Dec. 3-12, Jan. 5-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2100	22	18	18	31	26	23	26	214	222	56	626
2	1140	22	18	18	30	26	23	153	1620	214	54	672
3	317	22	17	18	29	26	23	2020	1380	171	52	200
4	153	21	17	18	36	26	23	4970	1010	124	50	123
5	99	21	17	17	83	26	23	5160	1740	123	50	89
6	71	21	17	17	142	25	22	1700	1290	1920	48	73
7	56	20	17	17	109	25	22	460	414	4980	47	62
8	52	20	17	17	68	24	22	238	211	5140	46	55
9	46	20	17	17	52	24	22	161	134	2090	45	50
10	42	20	17	17	42	23	22	122	98	993	43	47
11	39	20	17	17	38	25	22	96	590	538	42	45
12	37	20	17	17	34	30	22	80	3540	288	42	43
13	35	19	18	17	32	36	22	70	5270	203	44	41
14	33	19	18	17	31	60	22	63	6350	163	48	43
15	33	18	23	17	30	46	22	57	4180	139	50	463
16	32	18	164	17	30	34	22	53	1280	122	46	395
17	31	18	124	17	29	29	22	50	4100	111	42	120
18	30	18	55	17	29	28	22	46	6550	100	40	64
19	29	17	35	29	29	26	22	42	2460	92	39	49
20	28	17	26	342	29	25	24	38	509	86	39	44
21	28	17	22	594	29	25	45	36	278	81	39	41
22	27	17	21	230	28	24	40	35	208	77	38	40
23	27	17	20	112	27	24	33	34	172	73	37	38
24	27	18	20	71	26	23	30	79	151	69	43	37
25	26	20	19	55	26	23	30	578	147	66	40	36
26	25	21	19	45	26	23	28	1560	252	76	41	36
27	24	22	19	40	26	23	27	576	1170	89	39	35
28	24	22	19	37	26	23	25	206	1300	86	39	35
29	24	20	19	35	---	23	25	113	408	76	53	34
30	23	18	19	33	---	23	25	154	286	65	149	34
31	23	---	19	32	---	23	---	370	---	59	385	---
TOTAL	4681	585	885	1965	1147	847	755	19346	47312	18636	1826	3670
MEAN	151	19.5	28.5	63.4	41.0	27.3	25.2	624	1577	601	58.9	122
MAX	2100	22	164	594	142	60	45	5160	6550	5140	385	672
MIN	23	17	17	17	26	23	22	26	98	59	37	34
CFSM	.22	.03	.04	.09	.06	.04	.04	.90	2.29	.87	.09	.18
IN.	.25	.03	.05	.11	.06	.05	.04	1.04	2.55	1.00	.10	.20
AC-FT	9280	1160	1760	3900	2280	1680	1500	38370	93840	36960	3620	7280

CAL YR 1980	TOTAL	46963.7	MEAN 128	MAX 9240	MIN 4.7	CFSM .19	IN 2.53	AC-FT 93150		
WTR YR 1981	TOTAL	101655.0	MEAN 279	MAX 6550	MIN 17	CFSM .40	IN 5.48	AC-FT 201600		

08189500 MISSION RIVER AT REFUGIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1961 to current year. Chemical and biochemical analyses: January 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1961 to current year.
WATER TEMPERATURES: September 1961 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, 100,000 micromhos Nov. 28, 1965; minimum daily, 85 micromhos Sept. 13, 1971.
WATER TEMPERATURES: Maximum daily, 39.0°C June 20, 1981; minimum daily, 0.0°C Jan. 18, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,860 micromhos Apr. 19; minimum daily, 98 micromhos June 17, July 7.
WATER TEMPERATURES: Maximum daily, 39.0°C June 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV											
14...	0952	20	2750	7.6	21.0	11	6.9	77	1.2	94	K80
JAN											
06...	1428	17	2720	7.6	18.0	11	9.1	96	7.0	>10000	22000
FEB											
10...	1250	42	1170	--	9.0	--	--	--	--	--	--
MAR											
04...	1455	26	2420	8.0	22.5	22	9.4	109	1.5	130	55
MAY											
14...	0935	63	1710	7.5	24.5	16	6.6	76	2.4	K120	420
JUL											
16...	1108	123	1460	7.6	27.5	10	6.6	80	1.4	540	K340
AUG											
15...	0720	50	1580	--	32.0	--	--	--	--	--	--
SEP											
15...	1400	447	155	--	24.5	--	--	--	--	--	--
17...	1025	117	463	7.8	25.5	30	6.3	75	1.9	K900	2000

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)
NOV										
14...	490	180	150	28	380	7.5	5.2	310	19	720
JAN										
06...	460	170	140	27	380	7.7	3.7	290	67	700
FEB										
10...	210	64	66	12	150	4.5	4.2	150	31	260
MAR										
04...	470	190	140	29	320	6.4	3.5	280	59	600
MAY										
14...	370	100	120	18	220	5.0	4.3	270	41	390
JUL										
16...	340	71	110	16	170	4.0	2.9	270	32	300
AUG										
15...	360	97	110	20	190	4.6	3.8	260	38	340
SEP										
15...	55	3	19	1.9	9.1	.5	3.1	52	5.0	21
17...	120	23	37	5.5	42	1.7	3.7	92	8.0	78

08189500 MISSION RIVER AT REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)
NOV 14...	.4	41	1580	1530	.00	.00	.040	.040	.44	.43
JAN 06...	.5	25	1540	1520	.05	.01	.790	.550	.21	.55
FEB 10...	.2	19	--	633	--	--	--	--	--	--
MAR 04...	.3	35	1340	1350	.07	.08	.040	.060	.58	.31
MAY 14...	.3	35	1020	991	.10	.13	.150	.130	1.7	.56
JUL 16...	.2	40	827	833	.14	.15	.100	.140	.78	.53
AUG 15...	.3	45	--	903	--	--	--	--	--	--
SEP 15...	.1	6.3	--	96	--	--	--	--	--	--
17...	.1	14	288	243	<.10	<.10	.120	.140	1.1	.69

DATE	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 14...	.48	.47	.030	.030	--	29	1.1	77	4.2	72
JAN 06...	1.00	1.1	.530	.390	--	13	.7	31	1.4	75
FEB 10...	--	--	--	--	--	--	--	--	--	--
MAR 04...	.62	.37	.050	.020	11	--	--	109	7.7	94
MAY 14...	1.80	.69	.040	.020	--	17	.6	117	20	80
JUL 16...	.88	.67	.050	.040	--	5.6	.1	164	54	40
AUG 15...	--	--	--	--	--	--	--	--	--	--
SEP 15...	--	--	--	--	--	--	--	--	--	--
17...	1.20	.83	.060	<.010	11	--	--	69	22	94

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
NOV 14...	0952	7	1	6	100	0	800	0	0	0	0
JAN 06...	1428	7	1	6	800	0	800	0	0	0	0
MAY 14...	0935	10	1	9	700	100	600	0	--	<1	10
JUL 16...	1108	9	0	9	500	0	500	0	--	<1	20

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
NOV 14...	0	0	1	0	1	2	2	0	350	300	50
JAN 06...	0	0	0	0	0	4	4	0	370	330	40
MAY 14...	0	10	1	--	<3	2	1	1	490	470	20
JUL 16...	20	0	1	--	<3	3	3	0	350	290	60

08189500 MISSION RIVER AT REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
NOV 14...	2	0	5	260	60	200	.2	.0	.2	4	0
JAN 06...	2	2	0	240	60	180	.1	.0	.3	1	0
MAY 14...	0	0	4	160	40	120	.1	.1	.0	1	0
JUL 16...	1	0	2	220	90	130	.2	.1	.1	1	0

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 14...	4	1	0	1	0	0	0	10	0	10
JAN 06...	2	1	0	1	0	0	0	20	10	10
MAY 14...	3	1	1	0	0	0	0	0	0	5
JUL 16...	2	0	0	0	0	0	0	20	10	7

08189500 MISSION RIVER AT REFUGIO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 14,80		MAR 4,81		MAY 14,81		JUL 16,81		SEP 17,81	
TIME	0952		1455		0935		1108		1025	
TOTAL CELLS/ML	810		1300		12000		19000		130	
DIVERSITY: DIVISION	2.2		2.1		1.6		0.8		0.0	
.CLASS	2.2		2.1		1.6		0.8		0.0	
..ORDER	3.0		2.3		2.1		1.2		1.0	
...FAMILY	3.2		2.5		2.6		1.4		1.0	
....GENUS	3.4		2.9		3.3		2.2		1.0	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)										
.BACILLARIOPHYCEAE										
..ACHNANTHALES										
...ACHNANTHACEAE										
....COCCONEIS	13	2	--	-	--	-	--	-	--	-
..BACILLARIALES										
...NITZSCHIACEAE										
....NITZSCHIA	52	6	13	1	400	3	250	1	65#	50
..EUPODISCALES										
...COSCINODISCACEAE										
....CYCLOTELLA	65	8	52	4	--	-	480	2	65#	50
....MELOSIRA	26	3	--	-	67	1	--	-	--	-
....STEPHANODISCUS	--	-	--	-	1700	14	--	-	--	-
..FRAGILARIALES										
...FRAGILARIACEAE										
....SYNEDRA	--	-	26	2	--	-	--	-	--	-
..NAVICULALES										
...NAVICULACEAE										
....NAVICULA	65	8	26	2	--	-	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHLOROCOCCACEAE										
....SCHROEDERIA	--	-	--	-	67	1	110	1	--	-
....TETRAEDRON	--	-	--	-	*	0	*	0	--	-
...DICTYOSPHAERIACEAE										
....DICTYOSPHAERIUM	--	-	--	-	130	1	430	2	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	440	4	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	26	3	26	2	370	3	520	3	--	-
....TREUBARIA	--	-	--	-	--	-	*	0	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	1900#	16	--	-	--	-
....CRUCIGENIA	--	-	--	-	540	5	270	1	--	-
....SCENEDESMUS	180#	22	300#	22	740	6	270	1	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	77	10	26	2	340	3	*	0	--	-
...POLYBLEPHARIDACEAE										
....SPERMATOZOOPSIS	13	2	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.XANTHOPHYCEAE										
..MISCHOCOCCALES										
...SCIADACEAE										
....OPHIOCYTIUM	13	2	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	39	5	280#	21	--	-	--	-	--	-
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	-	26	2	67	1	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	100	8	540	5	5500#	29	--	-
....ANACYSTIS	130#	16	390#	29	3500#	30	9700#	51	--	-
....GOMPHOSPHAERIA	--	-	--	-	200	2	--	-	--	-
..NOSTOCALES										
...HAMMATOIDEACEAE										
....RAPHIDIOPSIS	--	-	--	-	--	-	250	1	--	-
..OSCILLATORIALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	540	5	1000	5	--	-

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

08189500 MISSION RIVER AT REFUGIO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE TIME	NOV 14,80 0952		MAR 4,81 1455		MAY 14,81 0935		JUL 16,81 1108		SEP 17,81 1025	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	26	3	13	1	130	1	*	0	--	-
....PHACUS	--	-	13	1	--	-	--	-	--	-
....TRACHELOMONAS	77	10	52	4	--	-	*	0	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..DINOKONTAE										
...GLENODINIACEAE										
....GLENODINIUM	13	2	--	-	*	0	*	0	--	-

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

08189500 MISSION RIVER AT REFUGIO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	4681	557	309	3900	130	1620	12	148	110
NOV.	1980	585	2620	1450	2290	660	1050	44	70	440
DEC.	1980	885	1670	929	2220	410	970	32	76	310
JAN.	1981	1965	907	503	2670	210	1120	19	99	180
FEB.	1981	1147	1550	860	2660	370	1140	31	95	300
MAR.	1981	847	2120	1180	2690	520	1180	40	91	390
APR.	1981	755	2430	1350	2750	610	1240	43	87	420
MAY	1981	19346	284	158	8240	59	3070	7.2	374	66
JUNE	1981	47312	181	101	12900	36	4600	4.8	618	44
JULY	1981	18636	329	183	9200	69	3490	8.1	406	74
AUG.	1981	1826	1370	762	3760	310	1540	30	145	280
SEPT	1981	3670	621	345	3420	130	1330	15	145	140
TOTAL		101655	**	**	56700	**	22400	**	2350	**
WTD. AVG.		279	372	206	**	81	**	8.6	**	80

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153	2660	2520	2570	1940	2450	2510	2070	477	890	1760	320
2	169	2660	2560	2600	1920	2420	2620	1200	121	670	1780	300
3	233	2670	2570	2650	2050	2450	2600	214	140	896	1740	430
4	552	2680	2650	2670	2100	2400	2630	165	171	1210	1590	706
5	789	2690	2750	2680	916	2170	2600	150	145	1100	1790	905
6	950	2680	2660	2730	563	2440	2670	185	195	280	1720	1020
7	1390	2730	2620	2610	485	2510	2780	365	262	98	1720	1180
8	1670	2740	2640	2620	560	2500	2820	645	504	120	1670	1240
9	1820	2730	2600	2660	927	2480	2760	935	722	190	1820	1340
10	1950	2720	2620	2630	1150	2560	2730	1140	991	240	1720	1430
11	2060	2730	2660	2600	1330	2010	2790	1360	416	403	1730	1500
12	2130	2720	2700	2640	1800	1750	2810	1510	120	729	1770	1550
13	2210	2750	2760	2740	1960	1690	2770	1650	108	1000	1740	1590
14	2280	2810	2760	2760	2090	1380	2770	1720	115	1200	1640	1620
15	2310	2790	2290	2720	2260	1240	2790	1790	166	1350	1550	100
16	2390	2780	650	2700	2440	1470	2820	1870	250	1490	1610	235
17	2610	2760	500	2710	2530	1600	2810	1890	98	1450	1710	480
18	2380	2710	796	2740	2590	1740	2850	1920	111	1400	1700	834
19	2350	2680	1130	2500	2300	1890	2860	1930	164	1610	1740	1250
20	2320	2750	1470	667	2330	2090	2770	1940	550	1580	1700	1380
21	2410	2800	1780	206	2350	2260	1800	2110	900	1630	1730	1530
22	2470	2780	2030	310	2340	2310	1940	2120	1060	1640	1750	1630
23	2490	2670	2290	414	2370	2370	2230	2150	1250	1670	1840	1690
24	2390	2500	2240	627	2470	2480	2270	1100	1340	1720	1550	1740
25	2570	2400	2300	788	2520	2540	2050	320	1260	1740	1690	1730
26	2630	2220	2390	1120	2500	2550	1880	140	990	1580	1640	1780
27	2660	2000	2450	1300	2330	2550	1900	272	320	1460	1780	1840
28	2530	2150	2470	1450	2490	2560	1970	512	172	1400	1690	1800
29	2590	2310	2490	1590	---	2570	1930	775	380	1400	1440	1820
30	2640	2450	2510	1720	---	2500	1970	630	476	1650	900	1800
31	2670	---	2550	1840	---	2510	---	357	---	1740	466	---
MEAN	1960	2620	2240	2020	1910	2210	2490	1130	466	1150	1630	1230

08189500 MISSION RIVER AT REFUGIO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					21.0	26.0	27.5	31.0	32.0	34.0	33.0	33.0
2					18.0	24.0	27.0	30.5	29.5	33.0	32.5	32.5
3					16.0	24.0	29.0	26.5	30.0	32.5	35.5	33.5
4					18.0	28.0	27.5	27.5	31.5	33.0	35.5	35.0
5					18.0	27.0	25.0	27.0	30.5	---	35.0	35.0
6					17.0	23.5	25.0	30.0	33.5	30.0	35.5	34.0
7					17.0	23.0	27.0	31.0	33.5	29.0	35.0	35.0
8					17.0	23.0	28.5	31.0	36.0	32.0	35.5	---
9					21.0	21.0	30.0	31.0	35.0	34.0	32.0	34.0
10					23.0	21.0	31.0	28.0	33.5	34.0	35.5	33.0
11					15.0	20.0	29.0	26.0	30.0	32.0	35.5	34.5
12					14.0	19.0	28.0	27.0	31.0	33.0	34.5	31.0
13					15.5	19.0	30.0	31.0	32.0	34.5	33.0	34.5
14					16.0	20.0	30.0	32.0	32.0	34.0	32.0	35.0
15					17.0	20.0	29.0	31.0	33.0	34.0	31.5	30.5
16					19.0	23.0	32.0	29.5	33.0	34.5	32.0	32.5
17					22.0	24.0	31.5	30.5	30.0	---	32.5	31.0
18					22.0	21.5	29.0	31.0	30.0	32.0	35.0	30.0
19					25.0	25.5	31.5	33.0	32.0	32.0	34.5	---
20					25.0	24.5	30.0	31.0	39.0	35.0	34.0	21.0
21					25.0	24.0	30.5	28.0	32.5	35.0	33.0	32.0
22					23.0	24.0	29.5	30.5	33.0	35.0	34.0	32.5
23					21.0	25.0	29.0	30.0	34.0	34.5	32.0	32.5
24					24.0	25.0	27.0	26.5	32.0	35.5	32.0	33.5
25					23.0	23.5	26.5	26.5	31.5	32.0	30.5	33.0
26					24.0	25.0	27.0	33.0	31.0	31.5	34.0	32.5
27					27.0	26.0	29.0	32.0	31.0	34.5	32.0	30.0
28					25.0	26.5	30.0	34.0	31.5	32.5	32.5	32.0
29					---	26.0	33.0	34.0	34.5	35.0	30.5	34.0
30					---	26.5	---	30.0	32.5	35.0	30.0	33.5
31					---	27.0	---	29.0	---	35.5	31.0	---
MEAN					20.5	23.5	29.0	30.0	32.5	33.5	33.5	32.5

08189700 ARANSAS RIVER NEAR SKIDMORE, TX

LOCATION.--Lat 28°16'56", long 97°37'14", Bee County, Hydrologic Unit 12100407, on right bank 160 ft (49 m) downstream from centerline of county road bridge, 3.8 mi (6.1 km) downstream from confluence of West Aransas and Poesta Creeks, and 4.4 mi (7.1 km) northeast of Skidmore.

DRAINAGE AREA.--247 mi² (640 km²).

PERIOD OF RECORD.--March 1964 to current year.
Water-quality records: Chemical analyses: October 1965 to September 1966. Sediment records: February 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 72.37 ft (22.058 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversion. Chase Field Naval Air Station and city of Beeville discharge sewage effluent into the stream via Poesta Creek. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years, 45.5 ft³/s (1.289 m³/s), 2.50 in/yr (64 mm/yr), 32,960 acre-ft/yr (40.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,800 ft³/s (2,340 m³/s) Sept. 22, 1967, gage height, 42.22 ft (12.869 m), from floodmark, from rating curve extended above 14,000 ft³/s (396 m³/s) on basis of slope-area measurements of 29,600 and 82,800 ft³/s (838 and 2,340 m³/s); no flow at times in 1964-67 and 1971.
Maximum stage since at least 1914, that of Sept. 22, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of September 1954 reached a stage of 33 ft (10.1 m), discharge 19,600 ft³/s (555 m³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 2	0500	1,900	53.8	15.09	4.599	June 17	1400	1,380	39.1	13.42	4.090
May 3	2000	4,540	129	20.52	6.254	July 6	0500	1,060	30.0	12.11	3.691
May 29	2400	5,030	142	21.26	6.480	July 7	0100	1,150	32.6	12.52	3.816
June 13	0600	*6,190	175	22.81	6.952	Aug. 31	1100	627	17.8	9.82	2.993

Minimum daily discharge, 3.3 ft³/s (0.093 m³/s) Nov. 14-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	3.8	4.8	4.0	4.9	3.9	4.2	31	169	17	12	115
2	31	3.7	4.7	4.0	4.2	3.8	4.6	1340	130	15	12	46
3	16	3.7	4.7	4.0	4.4	3.8	4.4	3310	59	13	11	25
4	10	3.7	4.3	4.0	5.5	4.4	4.4	1180	36	13	11	53
5	8.0	3.6	4.2	4.0	11	4.6	4.1	136	26	20	11	38
6	6.9	4.3	4.4	4.2	13	4.6	3.9	52	20	803	11	18
7	6.1	4.0	4.5	4.4	7.8	4.1	3.5	32	17	649	11	13
8	5.6	3.8	4.2	4.3	5.9	3.8	3.5	23	14	153	10	11
9	5.5	3.9	4.3	4.2	5.2	3.6	3.8	19	13	74	10	10
10	5.2	4.0	4.9	4.4	5.0	3.5	4.2	16	12	49	10	10
11	5.2	4.0	6.4	4.4	4.5	4.4	4.2	14	12	36	9.9	9.6
12	5.1	3.8	4.8	4.2	4.0	15	4.2	13	229	30	9.9	9.2
13	5.0	3.5	4.2	4.2	3.7	45	3.9	12	3530	29	10	8.9
14	4.9	3.3	4.2	4.2	3.8	22	3.6	11	581	25	12	8.6
15	4.7	3.3	5.2	4.2	3.8	11	3.5	10	127	22	12	8.3
16	4.6	3.3	24	4.2	3.8	7.4	3.5	9.5	61	21	11	10
17	5.2	3.5	13	4.2	3.8	5.9	3.5	9.3	863	19	11	8.6
18	5.1	3.5	7.2	4.2	3.9	5.2	4.0	9.0	179	18	10	7.6
19	5.0	3.5	5.7	11	3.9	4.9	5.2	8.4	47	18	10	7.3
20	4.5	3.8	4.9	57	4.0	4.5	12	7.6	27	18	10	7.3
21	4.2	4.1	4.1	25	4.3	4.2	6.9	7.2	21	17	11	7.1
22	4.2	4.7	3.9	12	4.5	4.3	5.5	7.0	17	17	10	7.1
23	4.2	5.9	3.9	7.9	3.7	4.1	5.3	6.8	15	17	10	7.1
24	4.2	7.1	4.0	6.3	3.5	3.9	5.6	64	14	16	10	7.1
25	4.0	5.7	4.0	5.6	3.7	3.8	6.3	170	13	16	11	6.9
26	4.0	8.8	4.0	5.2	4.3	4.0	5.8	67	110	16	15	7.0
27	4.0	21	3.9	4.4	4.3	4.0	5.2	22	125	33	11	6.9
28	4.0	8.8	3.8	4.3	4.0	4.0	4.9	13	45	26	10	6.4
29	4.0	5.8	3.9	4.6	---	4.3	4.4	1370	36	16	11	6.5
30	4.0	5.1	4.0	4.6	---	4.3	4.0	1880	24	13	26	6.6
31	3.8	---	4.0	4.9	---	4.2	---	96	---	12	383	---
TOTAL	295.2	151.0	168.1	228.1	138.4	210.5	142.1	9945.8	6572	2241	722.8	493.1
MEAN	9.52	5.03	5.42	7.36	4.94	6.79	4.74	321	219	72.3	23.3	16.4
MAX	107	21	24	57	13	45	12	3310	3530	803	383	115
MIN	3.8	3.3	3.8	4.0	3.5	3.5	3.5	6.8	12	12	9.9	6.4
CFSM	.04	.02	.02	.03	.02	.03	.02	1.30	.89	.29	.09	.07
IN.	.04	.02	.03	.03	.02	.03	.02	1.50	.99	.34	.11	.07
AC-FT	586	300	333	452	275	418	282	19730	13040	4450	1430	978

CAL YR 1980 TOTAL 8627.94 MEAN 23.6 MAX 4070 MIN .35 CFSM .10 IN 1.30 AC-FT 17110
WTR YR 1981 TOTAL 21308.10 MEAN 58.4 MAX 3530 MIN 3.3 CFSM .24 IN 3.21 AC-FT 42260

08189800 CHILTIPIN CREEK AT SINTON, TX

LOCATION.--Lat 28°02'48", long 97°30'13", San Patricio County, Hydrologic Unit 12100407, on left bank at upstream end of bridge on U.S. Highway 77, 0.2 mi (0.3 km) upstream from Missouri Pacific Railroad Co. bridge, and 0.8 mi (1.3 km) northeast of Sinton.

DRAINAGE AREA.--128 mi² (332 km²).

PERIOD OF RECORD.--July 1970 to current year.

REVISED RECORDS.--WRD TX-72-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 18.74 ft (5.712 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of no gage-height record, which are fair. No known diversions above station. An undetermined amount of water from oilfield operations enters stream upstream at various points. Several observations of water temperature werre made during the year.

AVERAGE DISCHARGE.--11 years, 52.0 ft³/s (1.473 m³/s), 5.52 in/yr (140 mm/yr), 37,670 acre-ft/yr (46.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,300 ft³/s (632 m³/s) Sept. 12, 1971, gage height, 29.10 ft (8.870 m), from rating curve extended above 13,400 ft³/s (379 m³/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stages since 1910, 30.27 ft (9.226 m) Sept. 22, 1967, and 28.8 ft (8.78 m) in April 1930, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
aMay 3	unknown	*2,670	75.6	12.8	3.90
May 30	0600	1,130	32.0	10.37	3.161
July 7	1000	2,520	71.4	12.54	3.822

a From floodmark.

Minimum discharge, no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	.16	.03	.02	.00	.00	.00	11	106	24	.23	74
2	74	.16	.03	.01	.00	.00	.00	414	84	20	.23	34
3	32	.26	.01	.01	.00	.00	.00	1840	181	14	.23	13
4	12	.19	.03	.02	7.4	.00	.00	1590	228	12	.23	3.3
5	5.0	.19	.07	.02	220	.00	.00	474	132	20	.23	1.0
6	1.6	.19	.09	.02	190	.00	.00	166	95	339	.23	.36
7	.36	.16	.06	.01	78	.00	.00	54	73	2080	.23	.13
8	.08	.19	.05	.00	7.6	.00	.00	22	59	916	.23	.06
9	.02	.16	.05	.02	.86	.00	.00	12	45	234	.23	.01
10	.00	.16	.00	.02	.40	.00	.00	7.1	34	94	.20	.00
11	.00	.16	.00	.00	.09	.17	.00	4.3	26	47	.19	.00
12	.00	.14	.00	.00	.01	48	.00	3.5	21	29	.40	.00
13	.00	.14	.00	.00	.00	252	.00	2.8	22	17	.45	.00
14	.00	.09	.00	.00	.00	90	.00	2.3	22	13	2.5	39
15	.00	.09	.01	.00	.00	24	.00	2.0	22	9.3	1.4	89
16	.00	.07	.01	.00	.00	15	.00	2.0	22	5.8	.90	74
17	.00	.07	.00	.00	.00	10	.00	1.7	22	2.8	.64	39
18	.01	.05	.00	.00	.00	.30	.00	1.7	22	1.7	.52	19
19	.00	.00	.00	52	.00	.15	.00	1.6	22	1.2	.35	5.4
20	.02	.00	.00	85	.00	.08	.50	1.4	28	.96	.26	1.9
21	.02	.12	.00	69	.00	.06	.20	1.5	42	.67	.26	.75
22	.03	.09	.00	9.4	.00	.04	.08	1.7	15	.41	.23	.28
23	.03	.04	.00	1.9	.00	.03	.30	1.6	6.7	.30	.24	.09
24	.04	.02	.00	.89	.00	.02	1.0	1.9	2.6	.23	.54	.01
25	.04	.81	.00	.37	.00	.01	.30	8.0	1.1	.21	.43	.00
26	.06	1.0	.00	.15	.00	.00	.06	2.1	17	.58	.26	.00
27	.14	.03	.01	.10	.00	.00	.01	1.5	217	2.0	.19	.00
28	.11	.02	.01	.08	.00	.00	.00	1.4	103	.44	1.5	.00
29	.07	.02	.00	.03	---	.00	.00	176	52	.30	25	.00
30	.11	.02	.01	.01	---	.00	.00	1010	35	.23	102	.00
31	.14	---	.03	.00	---	.00	---	385	---	.23	136	---
TOTAL	249.88	4.80	.50	219.08	504.36	439.86	2.45	6204.1	1757.4	3886.36	276.53	394.29
MEAN	8.06	.16	.016	7.07	18.0	14.2	.082	200	58.6	125	8.92	13.1
MAX	124	1.0	.09	85	220	252	1.0	1840	228	2080	136	89
MIN	.00	.00	.00	.00	.00	.00	.00	1.4	1.1	.21	.19	.00
CFSM	.06	.001	.000	.06	.14	.11	.001	1.56	.46	.98	.07	.10
IN.	.07	.00	.00	.06	.15	.13	.00	1.80	.51	1.13	.08	.11
AC-FT	496	9.5	1.0	435	1000	872	4.9	12310	3490	7710	548	782

CAL YR 1980 TOTAL 23526.98 MEAN 64.3 MAX 7150 MIN .00 CFSM .50 IN 6.84 AC-FT 46670
WTR YR 1981 TOTAL 13939.61 MEAN 38.2 MAX 2080 MIN .00 CFSM .30 IN 4.05 AC-FT 27650

NOTE.--No gage-height record March 19 to May 3.

08190000 NUECES RIVER AT LAGUNA, TX

LOCATION.--Lat 29°25'42", long 99°59'49", Uvalde County, Hydrologic Unit 12110101, on right bank 0.5 mi (0.8 km) downstream from Sycamore Creek, 1.0 mi (1.6 km) northeast of Laguna, and at mile 395.4 (636.2 km).

DRAINAGE AREA.--764 mi² (1,979 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year.

REVISED RECORDS.--WSP 1562: 1930, 1931(M), 1932, 1939.

GAGE.--Water-stage recorder. Datum of gage is 1,119.72 ft (341.291 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 26, 1925, nonrecording gage at site 2 mi (3 km) downstream at different datum.

REMARKS.--Water-discharge records good. Many small diversions above station for irrigation.

AVERAGE DISCHARGE.--58 years, 149 ft³/s (4.220 m³/s), 2.65 in/yr (67 mm/yr), 108,000 acre-ft/yr (133 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 307,000 ft³/s (8,690 m³/s) Sept. 24, 1955, gage height, 29.95 ft (9.129 m), in gage well, 32.7 ft (9.97 m), from floodmarks, from rating curve extended above 40,000 ft³/s (1,130 m³/s) on basis of float measurement of 110,000 ft³/s (3,120 m³/s) and slope-area measurements of 213,000 and 307,000 ft³/s (6,030 and 8,690 m³/s); minimum, 2.6 ft³/s (0.074 m³/s) Mar. 14-16, 1957.
Maximum stage since at least 1866, that of Sept. 24, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1913 reached a stage of about 29 ft (8.8 m), discharge 210,000 ft³/s (5,950 m³/s); flood of Sept. 21, 1923, reached a stage of about 26.5 ft (8.08 m), discharge 160,000 ft³/s (4,530 m³/s); from information by local residents. Discharges based on rating curve mentioned above.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 700 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 19	0100	1,040	29.5	6.43	1.960	June 14	0800	10,700	303	9.93	3.027
Apr. 23	0430	15,900	450	11.53	3.514	June 16	1500	*21,400	606	13.10	3.993

Minimum discharge, 38 ft³/s (1.08 m³/s) Nov. 12-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	42	47	52	49	55	107	385	182	467	200	170
2	117	41	46	52	48	53	102	409	178	449	195	198
3	105	42	46	51	49	72	100	470	176	431	191	189
4	95	42	47	51	50	83	97	457	181	414	186	252
5	87	41	47	51	50	94	95	406	176	426	181	356
6	80	40	46	51	49	92	93	366	169	424	175	252
7	74	40	47	51	50	84	92	341	167	395	170	222
8	69	40	51	51	49	78	92	325	165	380	210	213
9	64	39	50	51	49	74	91	308	162	367	282	199
10	61	39	52	52	49	72	91	288	158	354	229	190
11	58	39	53	52	48	74	89	273	156	342	207	185
12	55	38	53	52	48	85	88	262	156	329	195	178
13	53	38	52	52	49	93	87	253	490	318	189	178
14	52	38	53	51	48	92	88	246	1460	305	185	194
15	50	41	54	51	48	90	102	238	475	296	174	201
16	49	55	53	50	48	89	103	234	9880	285	167	239
17	48	46	53	52	48	90	113	226	7550	276	178	212
18	49	48	51	52	48	90	322	218	3210	268	193	199
19	49	48	51	59	47	90	727	208	1140	259	195	192
20	50	46	53	57	47	90	397	200	924	256	207	188
21	49	45	53	58	46	91	306	197	808	245	216	186
22	48	48	53	56	45	90	276	195	733	238	210	182
23	47	45	53	55	45	90	4060	190	680	234	204	173
24	45	45	53	53	45	90	1950	187	636	226	199	170
25	45	50	52	52	45	89	872	190	604	222	199	164
26	44	51	53	52	45	89	622	187	581	220	195	159
27	44	50	52	51	45	89	513	183	578	222	187	155
28	43	50	52	50	46	97	456	178	553	219	182	151
29	43	49	51	50	---	185	416	177	513	211	177	148
30	43	48	52	49	---	137	381	179	487	208	173	146
31	42	---	52	50	---	116	---	186	---	203	169	---
TOTAL	1877	1324	1581	1617	1333	2803	12928	8162	33328	9489	6020	5841
MEAN	60.5	44.1	51.0	52.2	47.6	90.4	431	263	1111	306	194	195
MAX	119	55	54	59	50	185	4060	470	9880	467	282	356
MIN	42	38	46	49	45	53	87	177	156	203	167	146
CFSM	.08	.06	.07	.07	.06	.12	.56	.34	1.45	.40	.25	.26
IN.	.09	.06	.08	.08	.06	.14	.63	.40	1.62	.46	.29	.28
AC-FT	3720	2630	3140	3210	2640	5560	25640	16190	66110	18820	11940	11590

CAL YR 1980	TOTAL	16470	MEAN	45.0	MAX	336	MIN 14	CFSM .06	IN .80	AC-FT	32670	
WTR YR 1981	TOTAL	86303	MEAN	236	MAX	9880	MIN 38	CFSM .31	IN 4.20	AC-FT	171200	

08190000 NUECES RIVER AT LAGUNA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN												
21...	0906	57	408	8.0	13.5	0	.40	9.4	92	.4	K30	K6
APR												
21...	0926	314	404	8.0	21.0	5	1.0	8.3	95	.8	170	52
AUG												
11...	1742	202	451	7.9	29.0	0	.40	8.0	110	.3	52	K15

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN												
21...	K9	200	18	56	14	8.1	.3	.7	180	15	13	.2
APR												
21...	35	200	16	57	13	6.9	.2	1.0	180	16	11	.2
AUG												
11...	K10	210	15	59	14	9.4	.3	1.1	190	11	17	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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												
21...	11	226	16	1	.74	.000	.74	.020	.29	.31	.000	3.9
APR												
21...	11	224	1	1	1.5	.000	1.5	.020	.57	.59	.010	8.3
AUG												
11...	14	240	0	3	--	<.020	1.3	.110	.49	.60	.010	1.4

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							
21...	0906	0	40	<1	0	<10	10
AUG							
11...	1742	0	40	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN						
21...	<10	<1	.1	0	0	<3
AUG						
11...	<10	1	.2	0	0	8

08190000 NUECES RIVER AT LAGUNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
JAN 21...	0906	.00	.0	.00	.0	.00	.00	.00	.00
AUG 11...	1742	.00	.0	.00	.0	.00	.00	.00	.00

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
JAN 21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 11...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 21...	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 11...	.00	.00	.00	.00	0	.00	.00	.00	.00

08190500 WEST NUECES RIVER NEAR BRACKETTVILLE, TX

LOCATION.--Lat 29°28'21", long 100°14'10", Kinney County, Hydrologic Unit 12110102, at Wilson Ranch on Farm Road 3199, 1.3 mi (2.1 km) upstream from Miguel Canyon, 16.0 mi (25.7 km) northeast of Brackettville, and 40.2 mi (64.7 km) upstream from mouth.

DRAINAGE AREA.--700 mi^2 (1,800 km^2).

PERIOD OF RECORD.--September 1939 to September 1950, April 1956 to current year.

REVISED RECORDS.--WSP 1312: 1949(M).

GAGE.--Water-stage recorder. Datum of gage is 1,326.79 ft (404.406 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 14, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good except those below 10 ft^3/s (0.28 m^3/s) which are fair. In ordinary years, a large part of streamflow from basis is lost by seepage into the Balcones Fault Zone of the Edwards and associated limestones above station. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--36 years (water years 1940-50, 1957-81), 35.7 ft^3/s (1.011 m^3/s), 25,860 acre-ft/yr (31.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246,000 ft^3/s (6,970 m^3/s) Sept. 20, 1964, gage height, 31.3 ft (9.54 m), from floodmark, from rating curve extended above 4,500 ft^3/s (127 m^3/s) on basis of slope-area measurements of 10,000, 51,000, 150,000, and 246,000 ft^3/s (283, 1,440, 4,250, and 6,970 m^3/s); no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, about 40 ft (12.2 m) June 14, 1935, discharge 550,000 ft^3/s (15,600 m^3/s), based on slope-area measurements of 580,000 ft^3/s (16,400 m^3/s) at site 33 mi (53 km) upstream from gage and 536,000 ft^3/s (15,200 m^3/s) at site 24 mi (39 km) downstream from gage, present site and datum, from gage-height relation of 1935 and 1955 flood peaks at site 0.6 mi (1.0 km) upstream. Flood in 1900 reached a stage of about 34 ft (10.4 m), and flood of Sept. 24, 1955, reached a stage of 27.1 ft (8.26 m), from floodmark at present site, discharge 150,000 ft^3/s (4,250 m^3/s), by slope-area measurement.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 23	1430	16,300	462	13.78	4.200
June 12	1800	8,240	233	10.80	3.292
June 16	1600	*19,300	547	14.79	4.508

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	20	1.8	148	9.5	4.5
2	.00	.00	.00	.00	.00	.00	.00	56	1.6	134	8.6	4.4
3	.00	.00	.00	.00	.00	.00	.00	48	1.5	121	7.9	4.3
4	.00	.00	.00	.00	.00	.00	.00	35	1.8	112	7.3	4.5
5	.00	.00	.00	.00	.00	.00	.00	26	2.8	253	6.8	5.4
6	.00	.00	.00	.00	.00	.02	.00	20	4.2	232	6.3	5.2
7	.00	.00	.00	.00	.00	.02	.00	16	3.4	110	5.9	5.0
8	.00	.00	.00	.00	.00	.00	.00	13	2.2	94	5.9	4.5
9	.00	.00	.00	.00	.00	.00	.00	11	1.6	83	7.9	4.4
10	.00	.00	.00	.00	.00	.00	.00	9.9	1.2	75	8.5	4.5
11	.00	.00	.00	.00	.00	.00	.00	9.7	.90	68	7.5	4.4
12	.00	.00	.00	.00	.00	.00	.00	9.2	1990	62	6.7	4.2
13	.00	.00	.00	.00	.00	.00	.00	8.5	996	56	6.1	4.1
14	.00	.00	.00	.00	.00	.10	.00	7.8	857	51	5.5	4.2
15	.00	.00	.00	.00	.00	.09	.00	7.5	303	46	4.9	4.3
16	.00	.00	.00	.00	.00	.03	.00	7.0	10300	41	4.6	4.3
17	.00	.00	.00	.00	.00	.00	.00	6.3	3300	37	4.3	4.5
18	.00	.00	.00	.00	.00	.00	1.1	5.7	966	33	3.9	4.0
19	.00	.00	.00	.00	.00	.00	4.6	5.5	475	30	3.9	3.9
20	.00	.00	.00	.00	.00	.00	7.5	5.0	381	27	4.0	3.8
21	.00	.00	.00	.00	.00	.00	8.4	4.6	334	24	4.0	3.9
22	.00	.00	.00	.00	.00	.00	8.4	4.4	305	22	4.2	3.7
23	.00	.00	.00	.00	.00	.00	3890	4.0	280	20	4.3	3.7
24	.00	.00	.00	.00	.00	.00	1170	3.7	261	18	4.4	3.6
25	.00	.00	.00	.00	.00	.00	228	3.4	248	16	4.5	3.5
26	.00	.00	.00	.00	.00	.00	122	3.0	243	15	4.7	3.5
27	.00	.00	.00	.00	.00	.00	88	2.6	238	15	5.0	3.5
28	.00	.00	.00	.00	.00	.00	60	2.4	203	14	4.9	3.5
29	.00	.00	.00	.00	---	.00	40	2.2	182	13	4.8	3.4
30	.00	.00	.00	.00	---	.00	29	2.2	164	12	4.6	3.5
31	.00	---	.00	.00	---	.00	---	2.0	---	10	4.6	---
TOTAL	.00	.00	.00	.00	.00	.26	5657.00	361.6	22049.00	1992	176.0	124.2
MEAN	.000	.000	.000	.000	.000	.008	189	11.7	735	64.3	5.68	4.14
MAX	.00	.00	.00	.00	.00	.10	3890	56	10300	253	9.5	5.4
MIN	.00	.00	.00	.00	.00	.00	.00	2.0	.90	10	3.9	3.4
AC-FT	.00	.00	.00	.00	.00	.5	11220	717	43730	3950	349	246

CAL YR 1980	TOTAL	0.94	MEAN	.003	MAX	.58	MIN	.00	AC-FT 1
WTR YR 1981	TOTAL	30360.06	MEAN	83.2	MAX	10300	MIN	.00	AC-FT 60220

NOTE.--No gage-height record Aug. 18 to Sept. 30.

08192000 NUECES RIVER BELOW UVALDE, TX

LOCATION.--Lat 29°07'25", long 99°53'40", Uvalde County, Hydrologic Unit 12110103, on right bank at McDaniel Ranch, 5.7 mi (9.2 km) upstream from bridge on U.S. Highway 83, 8.8 mi (14.2 km) southwest of Uvalde, 18.2 mi (29.3 km) downstream from West Nueces River, and at mile 366.0 (588.9 km).

DRAINAGE AREA.--1,947 mi² (5,043 km²).

PERIOD OF RECORD.--April 1939 to current year. October 1927 to April 1939, published as "near Uvalde"; records equivalent only during periods of floodflow.

REVISED RECORDS.--WSP 1732: 1956(M).

GAGE.--Water-stage recorder. Datum of gage is 796.12 ft (242.657 m) National Geodetic Vertical Datum of 1929. Oct. 4, 1927, to Apr. 30, 1939, water-stage recorder at site 6.2 mi (10.0 km) upstream at different datum.

REMARKS.--Records good. Part of flow of Nueces River enters Edwards and associated limestones in the Balcones Fault Zone which crosses basin downstream from Laguna (station 08190000) and upstream from this station. At low stage, most of headwater flow enters this formation. Many small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--42 years, 118 ft³/s (3.342 m³/s), 85,490 acre-ft/yr (105 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 ft³/s (5,350 m³/s) Sept. 24, 1955, gage height, 24.61 ft (7.501 m), from floodmark, from rating curve extended above 34,000 ft³/s (963 m³/s) on basis of conveyance study and slope-area measurement of peak flow; no flow at times in 1951-57.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1836, 40.4 ft (12.31 m) June 14, 1935, from floodmark discharge at former site, 616,000 ft³/s (17,400 m³/s), by slope-area measurement. Large floods also occurred in 1901 and 1913, stages unknown.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.08 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 23	1130	12,100	343	11.24	3.426
June 16	2200	*25,900	733	13.42	4.090
Sept. 6	0030	276	7.82	4.31	1.314

Minimum daily discharge, 8.8 ft³/s (0.25 m³/s) Mar. 22, Apr. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	10	11	12	12	11	9.1	319	83	592	147	109
2	14	11	11	12	12	11	9.2	359	83	542	146	110
3	14	11	11	12	12	12	9.5	375	80	492	141	119
4	14	11	11	12	13	11	8.8	456	77	454	135	119
5	14	11	11	12	13	10	8.9	420	77	429	133	153
6	14	11	12	12	13	10	9.0	353	78	477	129	256
7	14	11	12	12	12	9.9	9.2	304	73	433	125	202
8	14	11	12	12	12	10	9.0	273	70	390	128	177
9	14	11	11	12	12	10	9.0	250	68	361	133	158
10	14	11	11	13	12	10	12	222	66	337	203	143
11	13	11	11	13	11	10	9.8	202	65	320	184	129
12	13	11	11	13	11	12	9.4	186	69	306	162	118
13	12	11	11	13	12	11	9.0	174	64	288	146	118
14	12	11	12	13	12	11	9.7	163	811	273	135	137
15	12	12	13	13	12	9.9	13	155	1050	262	129	126
16	12	15	12	13	12	9.9	11	148	7220	247	120	123
17	12	12	11	13	12	9.7	11	141	13700	239	113	143
18	12	12	11	13	12	9.3	13	132	9540	227	113	141
19	11	11	11	14	11	9.4	11	121	4140	219	124	132
20	11	11	11	14	11	9.6	10	112	2380	210	127	125
21	11	10	12	13	11	9.2	10	104	1750	200	130	117
22	11	11	12	13	11	8.8	11	100	1410	192	139	114
23	12	11	12	13	11	9.4	4490	97	1200	187	141	110
24	11	11	12	13	11	9.6	5820	93	1050	178	138	106
25	11	12	11	13	11	9.0	2050	89	925	172	131	100
26	11	11	11	13	11	9.3	1000	87	854	170	134	98
27	11	11	12	13	11	9.7	714	87	812	171	135	94
28	11	11	12	13	11	9.8	554	82	882	170	126	92
29	9.6	11	11	13	---	9.3	443	81	727	166	120	90
30	9.5	11	11	13	---	9.2	368	83	648	161	114	87
31	9.5	---	12	13	---	9.0	---	82	---	153	111	---
TOTAL	378.6	336	355	396	327	309.0	15660.6	5850	50052	9018	4192	3846
MEAN	12.2	11.2	11.5	12.8	11.7	9.97	522	189	1668	291	135	128
MAX	15	15	13	14	13	12	5820	456	13700	592	203	256
MIN	9.5	10	11	12	11	8.8	8.8	81	64	153	111	87
AC-FT	751	666	704	785	649	613	31060	11600	99280	17890	8310	7630

CAL YR 1980	TOTAL	5485.1	MEAN	15.0	MAX	61	MIN 7.4	AC-FT	10880
WTR YR 1981	TOTAL	90720.2	MEAN	249	MAX	13700	MIN 8.8	AC-FT	179900

08193000 NUECES RIVER NEAR ASHERTON, TX

LOCATION.--Lat 28°30'00", long 99°40'54", Dimmit County, Hydrologic Unit 12110103, on right bank 28 ft (9 m) downstream from bridge on Farm Road 190, 0.1 mi (0.2 km) downstream from El Moro Creek, 5.8 mi (9.3 km) northeast of Asherton, and at mile 288.3 (463.9 km).

DRAINAGE AREA.--4,082 mi² (10,572 km²).

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

REVISED RECORDS.--WSP 1118: 1944.

GAGE.--Water-stage recorder. Datum of gage is 470.92 ft (143.536 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 2, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good. Part of flow of the Nueces River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Since March 1948, flow slightly regulated by Upper Nueces Reservoir, capacity 7,590 acre-ft (9.36 hm³), 13 mi (21 km) upstream. Many small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--42 years, 184 ft³/s (5.211 m³/s), 133,300 acre-ft/yr (164 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,500 ft³/s (807 m³/s) Oct. 6, 1959, gage height, 30.88 ft (9.412 m); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 33 ft (10.1 m) June 17, 1935; flood of June 30, 1913, reached about same stage, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 26	1200	3,320	94.0	19.35	5.898
May 2	0300	2,630	74.5	17.07	5.203
June 15	0900	3,000	85.0	18.31	5.581
June 19	2400	*9,480	268	28.67	8.739

Minimum discharge, no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.18	2.4	1680	58	759	69	52
2	.00	.00	.00	.00	.00	.18	3.4	2520	674	680	66	47
3	.00	.00	.00	.00	.00	.75	4.1	2060	1010	618	64	45
4	.00	.00	.00	.00	.00	.70	4.0	1360	819	566	53	52
5	.00	.00	.00	.00	.00	.37	3.6	1010	479	524	39	54
6	.00	.00	.00	.00	.01	.23	1.7	927	286	522	28	55
7	.00	.00	.00	.00	.02	.18	.87	746	271	520	23	58
8	.00	.00	.00	.00	.03	.08	.31	532	296	491	22	80
9	.00	.00	.00	.00	.03	.02	.04	393	201	448	20	133
10	.00	.00	.00	.30	.03	.02	.01	296	128	405	21	150
11	.00	.00	.00	.13	.02	.16	.00	239	87	363	16	138
12	.00	.00	.00	.02	.02	1.7	.00	186	84	333	12	121
13	.00	.00	.00	.01	.02	1.3	.00	152	310	310	9.7	107
14	.00	.00	.00	.00	.03	.88	.00	131	1690	282	13	106
15	.00	.00	.00	.00	.05	.50	.00	113	2730	253	21	105
16	.00	.00	.00	.00	.05	.24	.00	99	1810	233	25	102
17	.00	.00	.00	.00	.07	.16	288	84	2520	216	22	95
18	.00	.00	.00	.00	.10	.10	1370	70	6340	194	17	87
19	.00	.00	.00	.12	.13	.02	1610	56	9070	183	18	85
20	.00	.00	.00	.16	.50	.33	1080	38	9330	181	29	91
21	.00	.00	.00	.13	1.7	.64	600	23	7940	153	36	95
22	.00	.00	.00	.03	1.6	.33	498	14	5580	132	26	88
23	.00	.00	.00	.02	.54	.10	320	7.1	3320	128	24	83
24	.00	.00	.00	.01	.18	.12	400	4.6	2010	123	29	78
25	.00	.00	.00	.00	.06	.81	1120	2.7	1390	110	26	72
26	.00	.00	.00	.00	.03	1.4	3180	1.3	1220	103	28	68
27	.00	.00	.00	.00	.04	2.0	2990	.59	1050	109	37	64
28	.00	.00	.00	.00	.15	2.5	2650	.28	1020	110	40	63
29	.00	.00	.00	.00	---	2.6	1820	7.8	935	95	42	58
30	.00	.00	.00	.00	---	2.2	925	40	863	88	49	54
31	.00	---	.00	.00	---	2.1	---	50	---	81	52	---
TOTAL	.00	.00	.00	.93	5.41	22.90	18871.43	12843.37	63521	9313	976.7	2486
MEAN	.000	.000	.000	.030	.19	.74	629	414	2117	300	31.5	82.9
MAX	.00	.00	.00	.30	1.7	2.6	3180	2520	9330	759	69	150
MIN	.00	.00	.00	.00	.00	.02	.00	.28	58	81	9.7	45
AC-FT	.00	.00	.00	1.8	11	45	37430	25470	126000	18470	1940	4930

CAL YR 1980	TOTAL	25225.78	MEAN	68.9	MAX 4760	MIN .00	AC-FT	50040
WTR YR 1981	TOTAL	108040.74	MEAN	296	MAX 9330	MIN .00	AC-FT	214300

08194000 NUECES RIVER AT COTULLA, TX

LOCATION.--Lat 28°25'34", long 99°14'23", La Salle County, Hydrologic Unit 12110105, on left bank at downstream side of bridge on U.S. Highway 81, 0.4 mi (0.6 km) upstream from Missouri Pacific Railroad Co. bridge, 0.8 mi (1.3 km) southwest of Cotulla, 1.0 mi (1.6 km) upstream from Lind Dam, and at mile 235.7 (379.2 km).

DRAINAGE AREA.--5,260 mi² (13,620 km²).

PERIOD OF RECORD.--November 1923 to current year. November 1923 to September 1926 monthly discharge only, published in WSP 1312; figures of daily discharge for Oct. 31, 1923, to Sept. 30, 1926, published in WSP 588, 608, and 628, have been found to be unreliable and should not be used. Gage-height records collected in this vicinity in 1914-17 and since 1922 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1732: 1957(M). See PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 368.08 ft (112.191 m) National Geodetic Vertical Datum of 1929. Oct. 31, 1923, to Aug. 3, 1924, nonrecording gage at approximate site of present gage at datum 7.28 ft (2.219 m) higher. Aug. 4, 1924, to Nov. 19, 1934, nonrecording gage at site 5,000 ft (1,520 m) downstream at datum 8.42 ft (2.566 m) higher. Nov. 20, 1934, to July 14, 1938, water-stage recorder, and July 15, 1938, to Apr. 30, 1963, nonrecording gage, at present site and datum.

REMARKS.--Records good except those below 10 ft³/s (0.28 m³/s), which are poor. Part of flow of Nueces River and its headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Low flow is slightly regulated by small storage reservoirs above station, with most diverted above station by pumping (see REMARKS for Nueces River near Asherton, station 08193000). Several observation of water temperature were made during the year.

AVERAGE DISCHARGE.--57 years (water years 1925-81), 277 ft³/s (7.845 m³/s), 200,700 acre-ft/yr (247 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,600 ft³/s (2,340 m³/s) June 18, 1935, gage height, 32.4 ft (9.88 m), from floodmarks, from rating curve extended above 43,000 ft³/s (1,220 m³/s) on basis of slope-area measurement of peak flow; no flow at times each year.
Maximum stage since at least 1879, that of June 18, 1935.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 19, 1899, reached a stage of 29.7 ft (9.05 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 4	2100	4,520	128	14.55	4.435
June 16	0900	*23,000	651	23.20	7.071
June 23	0200	9,060	257	17.69	5.392

Maximum discharge, no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	2680	26	1360	80	39
2	.00	.00	.00	.00	.00	.00	.00	2560	79	1140	75	56
3	.00	.00	.00	.00	.00	.00	.00	2940	169	951	64	67
4	.00	.00	.00	.00	.00	.00	.00	4100	693	779	58	55
5	.00	.00	.00	.00	.00	.00	.00	4230	1200	656	56	38
6	.00	.00	.00	.00	.00	.00	.00	3360	1370	574	47	38
7	.00	.00	.00	.00	.00	.00	.00	2840	1040	520	38	43
8	.00	.00	.00	.00	.00	.00	.00	2460	499	510	31	46
9	.00	.00	.00	.00	.00	.00	.00	2060	393	509	26	48
10	.00	.00	.00	.00	.00	.00	.00	1550	363	481	21	61
11	.00	.00	.00	.00	.00	.00	.00	914	243	438	18	108
12	.00	.00	.00	.00	.00	.00	.00	514	159	391	16	135
13	.00	.00	.00	.00	.00	.00	.00	353	171	352	14	131
14	.00	.00	.00	.00	.00	.00	.00	257	3810	324	13	116
15	.00	.00	.00	.00	.00	.00	.00	193	8950	301	12	106
16	.00	.00	.00	.00	.00	.00	.00	157	21200	272	9.4	102
17	.00	.00	.00	.00	.00	.00	.00	130	13300	242	7.5	99
18	.00	.00	.00	.00	.00	.00	.00	111	6520	225	6.6	97
19	.00	.00	.00	.00	.00	.00	.00	92	4450	206	30	91
20	.00	.00	.00	.00	.00	.00	357	73	4490	187	27	84
21	.00	.00	.00	.00	.00	.00	1180	59	6400	177	18	79
22	.00	.00	.00	.00	.00	.00	1430	47	8480	171	14	82
23	.00	.00	.00	.00	.00	.00	1270	35	8930	147	16	89
24	.00	.00	.00	.00	.00	.00	784	25	7680	130	24	86
25	.00	.00	.00	.00	.00	.00	458	18	5750	124	27	79
26	.00	.00	.00	.00	.00	.00	497	14	4150	121	21	73
27	.00	.00	.00	.00	.00	.00	876	11	3140	112	21	68
28	.00	.00	.00	.00	.00	.00	1320	8.1	2350	105	22	64
29	.00	.00	.00	.00	---	.00	1670	15	1920	104	23	60
30	.00	.00	.00	.00	---	.00	2260	19	1600	106	31	59
31	.00	---	.00	.00	---	.00	---	11	---	92	35	---
TOTAL	.00	.00	.00	.00	.00	.00	12102.00	31836.1	119525	11807	901.5	2299
MEAN	.000	.000	.000	.000	.000	.000	403	1027	3984	381	29.1	76.6
MAX	.00	.00	.00	.00	.00	.00	2260	4230	21200	1360	80	135
MIN	.00	.00	.00	.00	.00	.00	.00	8.1	26	92	6.6	38
AC-FT	.00	.00	.00	.00	.00	.00	24000	63150	237100	23420	1790	4560

CAL YR 1980 TOTAL 47214.12 MEAN 129 MAX 5200 MIN .00 AC-FT 93650
WTR YR 1981 TOTAL 178470.60 MEAN 489 MAX 21200 MIN .00 AC-FT 354000

08194200 SAN CASIMIRO CREEK NEAR FREER, TX

LOCATION.--Lat 27°57'53", long 98°58'00", Webb County, Hydrologic Unit 12110105, at downstream side of bridge on Farm Road 863, 11.4 mi (18.3 km) upstream from mouth, and 22 mi (35 km) northwest of Freer.

DRAINAGE AREA.--469 mi² (1,215 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 298 ft (90.8 m) State Department of Highways and Public Transportation datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 69.9 ft³/s (1.980 m³/s), 50,640 acre-ft/yr (62.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,000 ft³/s (2,320 m³/s) Oct. 17, 1971, gage height, 26.87 ft (8.190 m), from rating curve extended above 21,000 ft³/s (595 m³/s) on basis of flow-through-culverts, contracted-opening, and flow-over-road determination of 82,000 ft³/s (2,320 m³/s); no flow for many days each year.
Maximum stage since at least 1946, that of Oct. 17, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Second highest stage, 26 ft (7.9 m), discharge 65,200 ft³/s (1,850 m³/s), occurred in 1954, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 3	unknown	a7,400	210	unknown	---	June 15	0400	2,810	79.6	19.45	5.928
May 27	1600	5,590	158	b21.2	6.46	June 19	0400	1,520	43.0	17.43	5.313
May 30	0500	1,300	36.8	16.87	5.142	Sept. 4	1600	*9,640	273	22.34	6.809
June 2	2400	3,870	110	20.25	6.172						

a Estimated.
b From floodmark.

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.31	.00	.44	.00	.05	.00	.00	117	705	23	.17	38
2	.27	.00	.25	.00	.03	.01	.00	90	2330	18	.15	13
3	.26	.00	.13	.00	.02	.04	.00	3700	2840	12	.13	441
4	.15	.00	.09	.00	.04	.02	.00	5000	970	9.0	.11	5500
5	.08	.00	.08	.00	.04	.00	.00	3000	209	6.5	.09	5350
6	.03	.00	.07	.00	.04	.00	.00	1500	93	5.0	.05	1820
7	.00	.00	.05	.00	.04	.00	.00	600	67	4.1	.04	312
8	.25	.00	.04	.00	.04	.00	.00	300	60	7.0	.06	67
9	.26	.00	.02	.00	.04	.00	.00	170	34	5.0	.04	31
10	.26	.00	.00	.00	.04	.00	.00	105	25	3.0	.02	18
11	.26	.00	.00	.00	.00	.43	.00	80	17	2.0	.03	12
12	.26	.00	.00	.00	.00	95	.00	58	14	1.9	.01	7.9
13	.26	.00	.00	.00	.00	147	.00	41	597	1.5	.00	5.9
14	.26	.00	.00	.00	.02	93	.00	29	1150	1.3	.04	4.5
15	.26	.00	.01	.00	.02	37	.00	20	2170	1.1	.02	3.6
16	.26	.00	.00	.00	.02	13	.00	14	1070	.93	.00	2.9
17	.26	.00	.00	.00	.02	2.7	.00	10	1410	.98	.00	2.3
18	.26	.00	.00	.00	.03	1.2	.00	7.5	1320	.91	.01	1.9
19	.25	.00	.00	1.6	.02	.42	12	5.2	1390	.99	6.8	1.7
20	.21	.00	.00	46	.02	.19	33	3.5	665	.92	141	1.7
21	.09	.01	.00	34	.01	.11	20	2.4	137	1.0	136	1.5
22	.00	.03	.00	17	.00	.07	1.4	1.6	85	1.1	8.8	1.3
23	.00	3.7	.00	2.9	.00	.09	.47	1.3	54	1.1	2.2	1.1
24	.00	.47	.00	1.5	.00	.08	47	.90	37	1.2	.76	.63
25	.00	2.3	.00	.68	.00	.07	309	29	70	1.1	.36	.63
26	.00	16	.00	.44	.00	.05	321	286	283	1.1	112	.56
27	.00	33	.00	.31	.00	.05	232	4140	168	1.3	279	.49
28	.00	4.9	.00	.10	.00	.02	68	1690	111	.83	35	.42
29	.00	1.0	.00	.07	---	.02	30	459	60	.34	13	.36
30	.00	.68	.00	.08	---	.01	40	970	36	.31	20	12
31	.00	---	.00	.08	---	.00	---	717	---	.20	59	---
TOTAL	4.50	62.09	1.18	104.76	.54	390.58	1113.87	23147.40	18177	114.71	814.89	13653.39
MEAN	.15	2.07	.038	3.38	.019	12.6	37.1	747	606	3.70	26.3	455
MAX	.31	33	.44	46	.05	147	321	5000	2840	23	279	5500
MIN	.00	.00	.00	.00	.00	.00	.00	.90	14	.20	.00	.36
AC-FT	8.9	123	2.3	208	1.1	775	2210	45910	36050	228	1620	27080

CAL YR 1980 TOTAL 12458.14 MEAN 34.0 MAX 5530 MIN .00 AC-FT 24710
WTR YR 1981 TOTAL 57584.91 MEAN 158 MAX 5500 MIN .00 AC-FT 114200

08194500 NUECES RIVER NEAR TILDEN, TX

LOCATION.--Lat 28°18'31", long 98°33'25", McMullen County, Hydrologic Unit 12110105, on right bank at downstream side of pier of bridge on State Highway 16, 1.8 mi (2.9 km) upstream from Kings Branch, 10.5 mi (16.9 km) south of Tilden, and at mile 141.2 (227.2 km).

DRAINAGE AREA.--8,192 mi² (21,217 km²).

PERIOD OF RECORD.--November 1942 to current year.

REVISED RECORDS.--WSP 1512: 1947. WSP 1732: 1951(M).

GAGE.--Water-stage recorder. Datum of gage is 183.5 ft (55.93 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Part of flow of Nueces River and its headwater tributaries enters Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Some loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Some diversions for irrigation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years (water years 1944-81), 451 ft³/s (12.77 m³/s), 326,700 acre-ft/yr (403 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,500 ft³/s (2,170 m³/s) Sept. 24, 1967, gage height, 26.57 ft (8.099 m); no flow at times.
Maximum stage since about 1902, that of Sept. 24, 1967. Flood of Oct. 11, 1946, reached a stage of 26.46 ft (8.065 m), discharge 70,000 ft³/s (1,980 m³/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in June 1935 reached a stage of 23.7 ft (7.22 m) and in July 1942 about 22 ft (6.7 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges peak above base of 1,800 ft³/s (51.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 3	1700	3,320	94.0	17.18	5.236	June 22	0100	*17,600	498	21.31	6.495
May 9	0600	8,810	249	19.48	5.938	June 30	0200	8,500	241	19.40	5.913
June 7	1700	5,380	152	18.38	5.602	Sept. 10	0100	6,790	192	18.89	5.758

Minimum discharge, no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	.05	.75	.00	.44	.36	.23	642	1680	7090	93	69
2	1.1	.05	1.5	.00	.30	.32	.17	1430	2370	5570	93	84
3	1.9	.05	1.7	.00	.19	.27	.19	3120	2820	4500	87	182
4	2.1	.05	1.1	.00	.27	.24	.19	2940	2950	3750	75	594
5	1.9	.08	.87	.00	.38	.23	.17	2720	2990	3120	67	907
6	1.8	.11	.61	.03	.24	.22	.17	3070	3720	2640	69	1030
7	1.6	.15	.52	.03	.23	.26	.17	3560	5130	2090	56	1230
8	1.5	.18	.55	.05	.27	.27	.21	6610	4670	1410	51	1990
9	1.2	.21	.48	.06	.24	.27	.25	8540	3670	856	46	5610
10	1.0	.22	.19	.05	.24	.26	.19	6940	3070	609	38	6070
11	.91	.27	.01	.04	.16	.76	.14	5340	2550	552	31	4210
12	.81	.32	.00	.03	.09	1.6	.07	4330	2070	530	23	2990
13	.74	.28	.00	.03	.06	11	.06	3710	1320	499	20	1050
14	.66	.27	.00	.03	.06	309	.05	3210	1400	476	16	173
15	.70	.27	.03	.02	.06	371	.05	2850	1370	414	13	163
16	.61	.25	.04	.00	.07	262	.06	2480	1370	370	10	157
17	.52	.32	.01	.01	.11	103	.09	1520	1710	341	9.1	140
18	.54	.29	.00	.02	.15	44	.24	318	2710	316	8.5	118
19	.51	.27	.00	.44	.21	19	.17	197	5050	290	8.5	105
20	.43	.27	.00	.58	.22	9.5	.13	149	7230	265	11	98
21	.33	.48	.00	.29	.26	5.6	.10	118	14000	245	8.0	95
22	.29	.89	.00	.39	.23	3.4	.10	94	16500	223	218	92
23	.27	.47	.00	.37	.18	1.9	.55	78	13100	200	319	86
24	.24	.22	.00	10	.17	1.3	207	63	9890	187	318	80
25	.18	.34	.00	11	.24	.94	539	52	7580	178	312	78
26	.17	.69	.00	6.4	.27	.76	641	43	6160	155	103	80
27	.17	.64	.00	3.6	.25	.54	736	216	5450	136	45	77
28	.14	1.3	.00	1.9	.27	.46	778	554	6450	126	180	74
29	.09	1.3	.00	1.2	---	.37	690	820	8070	121	273	71
30	.06	1.0	.00	.86	---	.23	595	1030	8310	107	88	67
31	.05	---	.00	.59	---	.25	---	1270	---	91	99	---
TOTAL	23.72	11.29	8.36	38.02	5.86	1149.31	4189.75	68014	155360	37457	2788.1	27770
MEAN	.77	.38	.27	1.23	.21	37.1	140	2194	5179	1208	89.9	926
MAX	2.1	1.3	1.7	11	.44	371	778	8540	16500	7090	319	6070
MIN	.05	.05	.00	.00	.06	.22	05	43	1320	91	8.0	67
CFSM	.000	.000	.000	.000	.000	.005	02	.27	.63	.15	.01	.11
IN.	.00	.00	.00	.00	.00	.01	02	.31	.71	.17	.01	.13
AC-FT	47	22	17	75	12	2280	8310	134900	308200	74300	5530	55080

CAL YR 1980 TOTAL 82381.14 MEAN 225 MAX 10600 MIN .00 CFSM .03 IN .37 AC-FT 163400
WTR YR 1981 TOTAL 296815.41 MEAN 813 MAX 16500 MIN .00 CFSM .10 IN 1.35 AC-FT 588700

08195000 FRIO RIVER AT CONCAN, TX

LOCATION.--Lat 29°29'18", long 99°42'16", Uvalde County, Hydrologic Unit 12110106, on left bank 0.7 mi (1.1 km) southeast of Concan Post Office, 15 mi (24 km) upstream from Dry Frio River, and 224.1 mi (360.6 km) upstream from mouth.

DRAINAGE AREA.--405 mi² (1,049 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to September 1929, October 1930 to current year.

REVISED RECORDS.--WSP 1342: Drainage area. WSP 1512: 1926, 1931-32, 1934(M), 1935-36. WSP 1712: 1958. WSP 1923: 1954(M), 1957(M).

GAGE.--Water-stage recorder. Datum of gage is 1,203.71 ft (366.891 m) National Geodetic Vertical Datum of 1929. Oct. 26, 1923, to July 28, 1924, nonrecording gage at site 86 ft (26 m) upstream at datum 5.08 ft (1.548 m) lower. July 29, 1924, to Oct. 3, 1930, nonrecording gage, and Oct. 4, 1930, to May 18, 1939, water-stage recorder, at site 130 ft (40 m) downstream at present datum.

REMARKS.--Water-discharge records good. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--56 years (water years 1925-29, 1931-81), 113 ft³/s (3.200 m³/s), 3.79 in/yr (96 mm/yr), 81,870 acre-ft/yr (101 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 162,000 ft³/s (4,590 m³/s) July 1, 1932, gage height, 34.44 ft (10.497 m), from floodmarks, from rating curve extended above 44,000 ft³/s (1,250 m³/s) on basis of flow-over-dam measurement of 56,600 ft³/s (1,600 m³/s) and slope-area measurement of 162,000 ft³/s (4,590 m³/s); no flow Aug. 5, 1956, to Jan 6, 1957.
Maximum stage since at least 1869, that of July 1, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 29	0330	3,090	87.5	6.75	2.057	June 14	1300	5,150	146	7.86	2.396
Apr. 18	1030	22,600	640	14.22	4.334	June 16	0930	*40,900	1,160	19.82	6.041
Apr. 23	1230	23,500	666	14.54	4.432	July 5	2300	1,410	39.9	5.60	1.707
May 2	1500	1,950	55.2	6.01	1.832						

Minimum daily discharge, 72 ft³/s (2.04 m³/s) Feb. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	265	108	105	105	88	88	277	447	220	504	234	158
2	223	108	105	102	85	89	258	878	217	490	228	160
3	204	108	105	102	85	118	250	606	212	477	223	166
4	187	108	102	102	86	160	240	447	205	473	216	161
5	171	105	105	102	86	221	225	440	214	561	211	169
6	160	102	105	102	86	206	208	440	212	735	206	163
7	149	102	105	102	83	179	208	434	191	532	200	153
8	141	98	108	98	83	164	207	427	177	506	207	148
9	134	98	115	98	83	156	204	421	167	480	211	142
10	128	95	118	98	82	154	200	421	160	454	201	142
11	121	95	122	98	79	156	198	414	155	438	194	139
12	116	92	126	95	80	176	194	414	393	421	187	133
13	112	92	126	95	80	176	190	408	494	406	183	132
14	107	92	126	95	80	178	185	402	1530	391	180	142
15	104	89	129	92	80	177	185	402	812	376	175	134
16	101	108	126	92	78	174	185	394	12900	365	171	136
17	99	111	122	92	78	171	216	380	4110	352	190	130
18	106	105	122	92	78	167	5570	363	1950	341	227	125
19	114	102	118	98	78	164	1040	344	1430	330	320	122
20	111	98	118	102	78	167	545	327	1180	321	255	119
21	109	95	115	98	77	165	439	311	1000	312	222	118
22	109	95	115	95	75	160	424	299	864	301	208	118
23	109	98	115	94	73	158	8900	290	736	292	198	112
24	105	98	111	92	72	155	1780	279	670	283	186	110
25	105	98	108	92	72	154	897	271	633	276	179	108
26	105	111	108	92	75	151	606	263	623	272	174	107
27	110	108	108	92	75	150	524	255	629	272	168	105
28	111	108	108	92	75	152	495	246	601	265	165	104
29	111	105	108	92	---	1070	467	237	544	255	163	102
30	111	105	105	89	---	408	454	230	517	248	161	101
31	111	---	105	89	---	312	---	224	---	242	158	---
TOTAL	4049	3037	3514	2979	2230	6276	25771	11714	33746	11971	6201	3959
MEAN	131	101	113	96.1	79.6	202	859	378	1125	386	200	132
MAX	265	111	129	105	88	1070	8900	878	12900	735	320	169
MIN	99	89	102	89	72	88	185	224	155	242	158	101
CFSM	.32	.25	.28	.24	.20	.50	2.12	.93	2.78	.95	.49	.33
IN.	.37	.28	.32	.27	.20	.58	2.37	1.08	3.10	1.10	.57	.36
AC-FT	8030	6020	6970	5910	4420	12450	51120	23230	66940	23740	12300	7850

CAL YR 1980	TOTAL 37746	MEAN 103	MAX 6270	MIN 12	CFSM .25	IN 3.47	AC-FT 74870			
WTR YR 1981	TOTAL 115447	MEAN 316	MAX 12900	MIN 72	CFSM .78	IN 10.60	AC-FT 229000			

08195000 FRIO RIVER AT CONCAN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN												
21...	1119	99	437	8.2	11.0	0	.40	10.8	100	.5	K7	K7
APR												
21...	1407	427	431	8.2	22.0	5	2.1	8.2	98	.6	430	170
AUG												
11...	1336	199	410	8.0	26.5	0	.40	8.0	104	.4	47	40

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN												
21...	K8	220	17	62	15	7.2	.2	.6	200	16	11	.1
APR												
21...	200	220	18	66	13	6.1	.2	1.2	200	19	9.1	.2
AUG												
11...	59	210	15	59	14	9.1	.3	1.0	190	13	15	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN												
21...	10	242	14	3	1.2	.000	1.2	.060	.32	.38	.000	6.7
APR												
21...	11	246	3	1	1.7	.000	1.7	.010	.76	.77	.010	10
AUG												
11...	13	238	0	0	1.4	.020	1.4	.120	.45	.57	<.010	1.6

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)
JAN							
21...	1119	0	40	<1	0	<10	<10
AUG							
11...	1336	0	40	<1	0	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN						
21...	<10	<1	.1	0	0	4
AUG						
11...	<10	<1	.1	1	0	8

08195000 FRIO RIVER AT CONCAN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
JAN 21...	1119	.00	.0	.00	.0	.00	.00	.00	.00
AUG 11...	1336	.00	.0	.00	.0	.00	.00	.00	.00

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
JAN 21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 11...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 21...	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 11...	.00	.00	.00	.00	0	.00	.00	.00	.00

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX

LOCATION.--Lat 29°30'16", long 99°46'52", Uvalde County, Hydrologic Unit 12110106, on right bank 2.3 mi (3.7 km) upstream from bridge on U.S. Highway 83, 3.1 mi (5.0 km) upstream from Rocky Creek, and 4.3 mi (6.9 km) southeast of Reagan Wells.

DRAINAGE AREA.--117 mi² (303 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1712: 1953. WSP 1923: 1955(M).

GAGE.--Water-stage recorder. Datum of gage is 1,335.2 ft (406.97 m) State Department of Highways and Public Transportation datum.

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

AVERAGE DISCHARGE.--29 years, 35.3 ft³/s (1.000 m³/s), 4.10 in/yr (104 mm/yr), 25,570 acre-ft/yr (31.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 ft³/s (3,480 m³/s) Aug. 13, 1966, gage height, 27.6 ft (8.41 m), from floodmark, from rating curve extended above 900 ft³/s (25.5 m³/s) on basis of slope-area measurements of 11,400, 30,700, 64,700, and 123,000 ft³/s (323, 869, 1,830, and 3,480 m³/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875 occurred in 1880, about 33 ft (10.1 m). Flood of June 14, 1935, reached a stage of 26.0 ft (7.92 m), discharge at site 2.6 mi (4.2 km) upstream, 64,700 ft³/s (1,830 m³/s), and that of July 1, 1932, reached a stage of 23 ft (7.0 m), discharge at site 2.0 mi (3.2 km) upstream, 30,700 ft³/s (869 m³/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 29	0130	1,490	42.2	5.22	1.591	May 2	0200	286	8.10	3.18	0.969
Apr. 18	0630	3,910	111	8.47	2.582	June 14	0930	7,430	210	11.70	3.566
Apr. 23	0530	13,900	394	15.66	4.773	June 16	0600	*14,600	413	16.04	4.889

Minimum discharge, 8.2 ft³/s (0.23 m³/s) Oct. 3-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	11	19	16	13	23	74	178	52	110	29	17
2	8.9	11	18	15	13	21	67	209	50	105	28	20
3	8.6	10	18	15	13	31	62	183	46	100	27	20
4	8.5	10	18	15	14	51	56	172	46	95	26	27
5	8.5	10	19	15	15	51	51	153	49	97	25	22
6	8.5	9.9	19	15	14	44	47	139	42	120	25	18
7	8.5	10	19	14	14	39	44	129	39	128	24	17
8	8.6	10	21	15	14	36	42	122	37	92	24	16
9	8.8	9.5	23	14	14	34	40	117	36	84	30	15
10	8.9	9.7	24	14	14	32	39	106	34	78	39	15
11	8.9	9.6	22	14	13	34	37	99	33	75	29	14
12	8.6	9.4	21	14	13	46	35	95	39	72	23	14
13	8.6	9.8	21	14	14	48	34	91	42	69	21	17
14	9.0	9.8	21	14	14	47	33	87	1000	66	21	36
15	9.0	11	22	14	14	43	37	83	130	63	20	21
16	9.3	19	21	13	14	39	36	81	3130	60	20	19
17	9.0	18	20	14	14	37	56	77	794	57	23	17
18	10	16	20	14	14	36	1200	71	427	54	29	16
19	12	15	19	16	14	34	233	66	297	51	28	15
20	11	15	18	16	14	32	133	62	250	48	25	15
21	11	14	19	15	14	32	101	60	220	46	23	15
22	11	15	19	14	14	31	102	60	200	44	21	15
23	11	15	19	14	13	29	2970	59	180	44	21	15
24	10	15	18	14	13	29	666	55	165	40	20	14
25	10	18	17	13	14	27	404	57	155	37	19	14
26	10	24	17	13	14	27	300	57	145	35	19	14
27	11	22	17	14	14	26	245	51	135	36	18	13
28	11	20	17	13	14	28	214	48	130	37	17	13
29	11	20	16	13	---	474	191	47	120	35	17	13
30	10	19	16	13	---	134	175	49	115	32	18	13
31	10	---	16	13	---	92	---	54	---	30	18	---
TOTAL	298.4	415.7	594	440	386	1687	7724	2917	8138	2040	727	510
MEAN	9.63	13.9	19.2	14.2	13.8	54.4	257	94.1	271	65.8	23.5	17.0
MAX	12	24	24	16	15	474	2970	209	3130	128	39	36
MIN	8.5	9.4	16	13	13	21	33	47	33	30	17	13
CFSM	.08	.12	.16	.12	.12	.47	2.20	.80	2.32	.56	.20	.15
IN.	.09	.13	.19	.14	.12	.54	2.46	.93	2.59	.65	.23	.16
AC-FT	592	825	1180	873	766	3350	15320	5790	16140	4050	1440	1010

CAL YR 1980 TOTAL 3981.22 MEAN 10.9 MAX 538 MIN .94 CFSM .09 IN 1.27 AC-FT 7900
WTR YR 1981 TOTAL 25877.10 MEAN 70.9 MAX 3130 MIN 8.5 CFSM .61 IN 8.23 AC-FT 51330

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN												
21...	1402	15	385	8.1	12.0	0	.20	10.6	100	.6	K3	K2
APR												
21...	1716	94	418	8.0	22.0	5	1.0	7.8	93	1.2	520	77
AUG												
11...	1019	32	402	7.8	26.5	0	.30	6.6	86	.4	96	52

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN												
21...	K2	190	17	55	12	6.3	.2	.3	170	18	11	.1
APR												
21...	150	210	10	66	11	5.6	.2	.9	200	17	8.4	.1
AUG												
11...	110	190	19	56	12	7.6	.3	.6	170	8.0	13	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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												
21...	8.0	213	14	0	.99	.010	1.0	.060	.41	.47	.000	1.9
APR												
21...	9.5	239	3	2	1.5	.000	1.5	.010	.67	.68	.020	12
AUG												
11...	12	212	14	4	.87	.030	.90	.110	.27	.38	.010	1.0

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)
JAN							
21...	1402	0	30	<1	0	<10	10
AUG							
11...	1019	0	40	<1	10	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN						
21...	<10	<1	.1	0	0	10
AUG						
11...	<10	1	.1	0	0	10

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
JAN 21...	1402	.00	.0	.00	.0	.00	.00	.00	.00
AUG 11...	1019	.00	.0	.00	.0	.00	.00	.00	.00

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
JAN 21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 11...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 21...	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 11...	.00	.00	.00	.00	0	.00	.00	.00	.00

08197500 FRIO RIVER BELOW DRY FRIO RIVER NEAR UVALDE, TX

LOCATION.--Lat 29°14'44", long 99°40'27", Uvalde County, Hydrologic Unit 12110106, on right bank 1.1 mi (1.8 km) upstream from Farm Road 1023, 5.7 mi (9.2 km) downstream from Dry Frio River, 6.3 mi (10.1 km) downstream from bridge on U.S. Highway 90, and 7.2 mi (11.6 km) northeast of Uvalde.

DRAINAGE AREA.--661 mi² (1,712 km²).

PERIOD OF RECORD.--September 1952 to current year. Sum of records published as Frio River at Knippa and Dry Frio River at Knippa for period September 1952 to September 1953 is equivalent to record for this station.

GAGE.--Water-stage recorder. Datum of gage is 882.47 ft (268.977 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Part of flow of Frio River enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Concan (station 08195000) and this station. Most of low flow enters this formation. Many diversions for irrigation above station. An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--29 years, 30.3 ft³/s (0.858 m³/s), 21,950 acre-ft/yr (27.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 88,500 ft³/s (2,510 m³/s) Aug. 13, 1966, gage height, 23.88 ft (7.279 m), from floodmark, from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of slope-area measurements of 24,400, 53,000, and 88,500 ft³/s (691, 1,500, and 2,510 m³/s); no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887, about 35 ft (10.7 m) in 1894. Flood of July 1, 1932, reached a stage of about 30 ft (9.1 m). A higher flood than that of 1894 occurred prior to 1887. Above information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 18	1700	15,200	430	12.26	3.737	June 14	1930	4,260	121	8.07	2.460
Apr. 23	1230	24,300	688	a14.52	4.426	June 16	1530	*40,200	1,140	17.54	5.346

a/ From floodmark.

Minimm discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1700	.00	.00	.00	.00	.00	10	286	.00	270	.09	.00
2	40	.00	.00	.00	.00	.00	1.1	370	.00	237	.03	.00
3	3.0	.00	.00	.00	.00	.00	.23	577	.00	209	.00	.00
4	1.0	.00	.00	.00	.00	.00	.02	329	.00	185	.00	.00
5	.10	.00	.00	.00	.00	.00	.00	252	.00	161	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	211	.00	381	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	177	.00	259	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	151	.00	175	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	135	.00	144	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	106	.00	117	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	87	.00	97	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	74	.00	82	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	62	99	67	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	50	764	51	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	35	751	37	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	29	13000	23	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	20	4890	12	.00	.00
18	.00	.00	.00	.00	.00	.00	3430	8.0	2200	7.7	.00	.00
19	.00	.00	.00	.00	.00	.00	1210	2.9	1290	7.0	.00	.00
20	.00	.00	.00	.00	.00	.00	415	1.7	990	6.7	.00	.00
21	.00	.00	.00	.00	.00	.00	262	1.3	819	5.5	.00	.00
22	.00	.00	.00	.00	.00	.00	218	.80	681	4.7	.00	.00
23	.00	.00	.00	.00	.00	.00	10200	.48	582	3.8	.00	.00
24	.00	.00	.00	.00	.00	.00	2320	.26	500	3.2	.00	.00
25	.00	.00	.00	.00	.00	.00	865	.15	436	2.5	.00	.00
26	.00	.00	.00	.00	.00	.00	591	.04	413	2.0	.00	.00
27	.00	.00	.00	.00	.00	.00	471	.00	454	1.4	.00	.00
28	.00	.00	.00	.00	.00	.00	396	.00	439	1.0	.00	.00
29	.00	.00	.00	.00	---	171	354	.00	362	.72	.00	.00
30	.00	.00	.00	.00	---	167	312	.00	305	.45	.00	.00
31	.00	---	.00	.00	---	52	---	.00	---	.25	.00	---
TOTAL	1744.10	.00	.00	.00	.00	390.00	21055.35	2966.63	28975.00	2553.92	.12	.00
MEAN	56.3	.000	.000	.000	.000	12.6	702	95.7	966	82.4	.004	.000
MAX	1700	.00	.00	.00	.00	171	10200	577	13000	381	.09	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.25	.00	.00
AC-FT	3460	.00	.00	.00	.00	774	41760	5880	57470	5070	.2	.00

CAL YR 1980 TOTAL 13583.52 MEAN 37.1 MAX 4900 MIN .00 AC-FT 26940
WTR YR 1981 TOTAL 57685.12 MEAN 158 MAX 13000 MIN .00 AC-FT 114400

08198000 SABINAL RIVER NEAR SABINAL, TX

LOCATION.--Lat 29°29'35", long 99°29'49", Uvalde County, Hydrologic Unit 12110106, on right bank 108 ft (33 m) upstream from concrete dam, 2.3 mi (3.7 km) downstream from mouth of Onion Creek, and 12.5 mi (20.1 km) north of Sabinal.

DRAINAGE AREA.--206 mi² (534 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WSP 1312: 1943(M), 1944(M), 1947(M).

GAGE.--Water-stage recorder. Datum of gage is 1,131.20 ft (344.790 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 9, 1971, at site 0.3 mi (0.5 km) downstream at same datum.

REMARKS.--Water-discharge records. Several small diversions above station for irrigation.

AVERAGE DISCHARGE.--39 years, 57.0 ft³/s (1.614 m³/s), 3.76 in/yr (96 mm/yr), 41,300 acre-ft/yr (50.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,200 ft³/s (1,560 m³/s) June 17, 1958, gage height, 28.3 ft (8.63 m), from floodmark at present site, from rating curve extended above 6,900 ft³/s (195 m³/s) on basis of slope-area measurement of 55,200 ft³/s (1,560 m³/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1892, about 33 ft (10.1 m) July 2, 1932, from information by local residents. There is a legend that a flood in the middle 1800's reached a stage of nearly 63 ft (19.2 m), see flood history for station 08198500.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 23	1000	*12,400	351	13.49	4.112	June 14	1000	4,920	139	9.01	2.746
May 24	0330	3,610	102	8.36	2.548	June 16	0900	9,580	271	11.74	3.578
June 12	1730	1,710	48.4	6.81	2.076	July 5	2000	2,870	81.3	7.69	2.344

Minimum daily discharge, 24 ft³/s (0.68 m³/s) Feb. 26-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	50	43	42	35	31	121	372	182	610	127	72
2	64	49	40	42	34	38	116	395	164	584	123	74
3	59	48	39	41	32	61	114	379	149	580	122	77
4	60	46	39	40	32	270	109	362	304	550	122	74
5	59	44	40	40	34	149	103	335	353	860	120	76
6	61	42	42	40	34	119	97	318	260	723	120	72
7	62	42	42	40	34	109	97	307	234	580	112	67
8	63	41	42	36	34	99	99	300	224	533	111	63
9	62	40	45	37	34	94	97	287	203	496	116	63
10	62	40	48	39	33	92	95	267	191	448	108	60
11	61	38	48	39	30	93	94	259	180	412	103	59
12	59	37	48	39	30	108	92	259	830	379	96	58
13	56	37	48	37	30	111	89	254	604	346	94	56
14	54	36	48	37	30	105	88	247	2150	314	89	70
15	53	36	48	39	30	104	88	238	1040	280	87	103
16	76	55	48	39	30	100	88	237	3570	261	87	86
17	80	59	46	37	30	97	95	229	1840	245	82	70
18	84	51	46	37	30	97	315	224	1460	230	136	65
19	89	46	43	41	30	92	204	213	1270	214	143	62
20	73	42	42	43	29	92	169	207	1150	194	115	63
21	64	40	42	42	29	92	155	197	1070	181	103	61
22	59	40	42	40	27	92	152	198	993	173	90	59
23	56	40	42	39	26	90	3780	200	926	165	87	58
24	56	39	43	39	26	90	758	593	860	158	84	56
25	54	41	42	39	26	90	599	262	815	152	79	56
26	54	52	42	39	24	90	527	194	763	156	78	52
27	55	54	42	38	24	88	476	168	798	153	74	53
28	52	49	42	37	24	90	442	172	778	149	72	51
29	52	46	42	37	---	266	416	183	700	142	69	48
30	51	46	42	37	---	166	393	210	652	137	73	48
31	48	---	42	36	---	135	---	223	---	132	77	---
TOTAL	1931	1326	1348	1208	841	3350	10068	8289	24713	10537	3099	1932
MEAN	62.3	44.2	43.5	39.0	30.0	108	336	267	824	340	100	64.4
MAX	93	59	48	43	35	270	3780	593	3570	860	143	103
MIN	48	36	39	36	24	31	88	168	149	132	69	48
CFSM	.30	.22	.21	.19	.15	.52	1.63	1.30	4.00	1.65	.49	.31
IN.	.35	.24	.24	.22	.15	.60	1.82	1.50	4.46	1.90	.56	.35
AC-FT	3830	2630	2670	2400	1670	6640	19970	16440	49020	20900	6150	3830

CAL YR 1980 TOTAL 17014.9 MEAN 46.5 MAX 4000 MIN 1.1 CFSM .23 IN 3.07 AC-FT 33750
WTR YR 1981 TOTAL 68642.0 MEAN 188 MAX 3780 MIN 24 CFSM .91 IN 12.40 AC-FT 136200

08198000 SABINAL RIVER NEAR SABINAL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 22...	0944	40	479	8.1	10.0	0	.20	10.8	97	.3	K24	K16
APR 22...	1511	151	440	8.1	21.5	5	.70	8.7	102	1.0	>59	59
AUG 12...	1012	102	455	7.9	25.0	0	.50	7.6	96	.5	190	K64

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN 22...	K18	240	25	71	14	7.6	.2	.7	210	30	12	.2
APR 22...	40	220	23	68	13	6.6	.2	1.0	200	25	9.1	.2
AUG 12...	90	220	19	68	12	8.9	.3	1.1	200	21	12	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 22...	11	273	14	1	.71	.000	.71	.030	.21	.24	.000	1.5
APR 22...	11	254	4	3	.66	.000	.66	.030	.53	.56	.010	1.1
AUG 12...	14	258	6	2	.97	.030	1.0	.120	.27	.39	.010	.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 22...	0944	0	30	<1	0	<10	10
AUG 12...	1012	0	40	<1	10	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 22...	<10	<1	.1	0	0	<3
AUG 12...	14	1	.1	0	0	6

08198000 SABINAL RIVER NEAR SABINAL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
JAN 22...	0944	.00	.0	.00	.0	.00	.00	.00	.00
AUG 12...	1012	.00	.0	.00	.0	.00	.00	.00	.00

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
JAN 22...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 12...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 22...	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 12...	.00	.00	.00	.00	0	.00	.00	.00	.00

08198500 SABINAL RIVER AT SABINAL, TX

LOCATION.--Lat 29°18'47", long 99°28'46", Uvalde County, Hydrologic Unit 12110106, on left bank 80 ft (24 m) downstream from bridge on U.S. Highway 90, 1,100 ft (335 m) downstream from Southern Pacific Lines railroad bridge, 0.8 mi (1.3 km) west of Sabinal, and 5.8 mi (9.3 km) upstream from Ranchero Creek.

DRAINAGE AREA.--247 mi² (640 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 882.17 ft (268.885 m) National Geodetic Vertical Datum of 1929. Prior to July 29, 1958, nonrecording gage, and July 29, 1958, to Mar. 19, 1964, water-stage recorder at site 80 ft (24 m) upstream at same datum.

REMARKS.--Records good. Several small diversions for irrigation above station. Most of low flow of the Sabinal River enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin upstream from this station and downstream from Sabinal River near Sabinal (station 08198000). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--29 years, 33.6 ft³/s (0.952 m³/s), 24,340 acre-ft/yr (30.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,300 ft³/s (2,080 m³/s) June 17, 1958, gage height, 33.3 ft (10.15 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 40 ft (12.2 m) Aug. 24, 1919, from information by local residents. Flood of July 2, 1932, reached a stage of 31 ft (9.4 m), discharge 60,000 ft³/s (1,700 m³/s), from information by Southern Pacific Lines. There is a legend that a flood in 1858 covered the townsite of Sabinal. The stage would have been 70 to 80 ft (21.3 to 24.4 m), which seems unlikely. However, it is possible that a flood occurred in 1858 that covered part of the townsite and was higher than any flood since that date.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 29	2100	183	5.18	5.76	1.756	June 12	2100	1,760	49.8	9.44	2.877
Apr. 18	1900	310	8.78	6.33	1.929	June 14	1300	4,230	120	12.55	3.825
Apr. 23	1600	*12,600	357	18.52	5.645	June 16	1300	9,050	256	16.39	4.996
May 24	0800	2,050	58.1	9.91	3.021	July 6	0200	2,290	64.9	10.26	3.127
June 5	0600	461	13.1	6.83	2.082						

Minimum discharge, 0.92 ft³/s (0.026 m³/s) Mar. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	3.5	2.3	1.8	1.7	1.0	40	235	92	358	47	7.9
2	80	3.3	2.3	1.8	1.7	.95	33	282	78	321	43	8.8
3	62	3.3	2.3	1.9	1.7	.97	29	256	70	292	39	8.6
4	48	3.3	2.3	2.0	1.7	1.1	25	231	75	277	36	7.9
5	38	3.3	2.3	2.0	1.6	1.4	22	189	288	249	33	7.7
6	30	3.2	2.3	2.0	1.6	3.0	18	165	152	840	30	7.5
7	22	3.1	2.3	2.0	1.6	9.4	16	150	123	373	28	7.3
8	16	3.0	2.3	2.0	1.6	7.5	15	136	107	294	26	8.4
9	12	2.9	2.4	2.0	1.6	5.7	12	130	97	277	25	7.1
10	9.0	3.0	2.4	2.0	1.5	4.6	11	115	88	242	25	6.9
11	7.4	3.0	2.4	1.9	1.8	4.3	9.8	104	84	224	22	6.8
12	6.4	3.0	2.4	1.9	1.9	4.4	8.5	98	609	206	20	6.8
13	5.7	3.0	2.4	1.9	1.9	5.3	7.7	93	672	193	18	7.4
14	5.4	2.9	2.4	1.9	1.9	11	6.9	87	2020	176	17	8.0
15	5.1	3.0	2.4	1.9	1.8	10	6.2	79	1290	163	15	7.3
16	5.0	38	2.4	1.9	1.7	8.4	6.2	77	3410	151	14	6.8
17	4.8	2.8	2.4	1.8	1.7	7.3	6.5	73	2000	140	12	6.7
18	5.0	2.7	2.4	1.8	1.7	6.1	101	64	1490	128	16	6.6
19	4.8	2.7	2.4	1.8	1.6	5.7	165	56	1220	118	20	6.6
20	4.7	2.6	2.4	1.8	1.4	5.1	84	50	1050	111	27	6.5
21	4.5	2.6	2.4	1.8	1.4	4.8	64	45	924	104	20	6.4
22	4.3	2.5	2.4	1.8	1.4	4.6	57	44	825	95	16	6.3
23	4.2	2.5	2.3	1.8	1.4	4.8	4340	44	740	87	14	6.1
24	3.9	2.5	2.3	1.8	1.4	5.0	1110	462	657	79	12	6.0
25	3.9	2.9	2.2	1.7	1.3	4.8	601	210	578	74	11	5.9
26	3.9	2.6	2.1	1.7	1.1	4.7	458	156	532	70	9.7	5.6
27	3.9	2.4	2.2	1.7	1.0	4.5	381	123	580	69	9.0	5.4
28	3.8	2.4	2.1	1.7	1.0	4.5	323	106	570	65	8.6	5.3
29	3.7	2.3	2.0	1.7	---	30	287	99	473	59	8.3	5.1
30	3.6	2.3	1.9	1.6	---	93	251	96	405	55	8.1	5.1
31	3.6	---	1.9	1.7	---	52	---	104	---	50	8.1	---
TOTAL	549.6	120.6	71.0	57.1	43.7	315.92	8494.8	4159	21299	5940	637.8	204.8
MEAN	17.7	4.02	2.29	1.84	1.56	10.2	283	134	710	192	20.6	6.83
MAX	135	38	2.4	2.0	1.9	93	4340	462	3410	840	47	8.8
MIN	3.6	2.3	1.9	1.6	1.0	.95	6.2	44	70	50	8.1	5.1
AC-FT	1090	239	141	113	87	627	16850	8250	42250	11780	1270	406

CAL YR 1980	TOTAL	6565.81	MEAN	17.9	MAX	1750	MIN	.45	AC-FT 13020
WTR YR 1981	TOTAL	41893.32	MEAN	115	MAX	4340	MIN	.95	AC-FT 83100

08200000 HONDO CREEK NEAR TARPLEY, TX

LOCATION.--Lat 29°34'10", long 99°14'47", Medina County, Hydrologic Unit 12110107, on left bank 460 ft (140 m) downstream from bridge on Ranch Road 462, 6.3 mi (10.1 km) southeast of Tarpley, and 16.6 mi (26.7 km) northwest of Hondo.

DRAINAGE AREA.--86.2 mi² (223.3 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1712: 1957.

GAGE.--Water-stage recorder. Datum of gage is 1,169.1 ft (356.34 m) Magnolia Oil Co. datum.

REMARKS.--Water-discharge records good. Several small diversions for irrigation above station.

AVERAGE DISCHARGE.--29 years, 40.3 ft³/s (1.141 m³/s), 6.35 in/yr (161 mm/yr), 29,200 acre-ft/yr (36.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,800 ft³/s (1,980 m³/s) June 17, 1958, gage height, 28.2 ft (8.60 m), from floodmark, from rating curve extended above 2,600 ft³/s (73.6 m³/s) on basis of slope-area measurements of 18,600 and 69,800 ft³/s (527 and 1,980 m³/s); no flow at times in 1952-57, 1962-64, 1967, and 1971.
Maximum stage since at least 1907, that of June 17, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1932 reached a stage of about 26 ft (7.9 m), discharge 58,500 ft³/s (1,660 m³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 18	0600	8,910	252	10.30	3.139	June 16	0800	3,710	105	6.42	1.957
May 24	2400	4,570	129	7.11	2.167	June 28	0400	788	22.3	3.68	1.122
June 4	1700	5,010	142	7.46	2.274	July 6	1800	1,170	33.1	4.20	1.280
June 12	1200	*10,700	303	11.42	3.481						

Minimum discharge, 7.2 ft³/s (0.20 m³/s) Feb. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	18	31	22	14	15	51	175	132	208	47	22
2	31	17	30	21	14	13	51	172	126	190	46	31
3	31	16	28	21	14	20	52	190	116	178	44	22
4	30	16	27	21	16	42	49	175	750	165	42	21
5	30	16	31	20	18	40	46	158	280	182	42	20
6	30	15	32	21	16	36	45	145	220	334	40	19
7	30	16	30	20	15	34	45	140	202	185	38	18
8	30	15	32	20	14	31	45	140	188	175	41	18
9	29	14	30	20	14	30	44	132	175	152	37	18
10	29	14	29	19	14	30	44	116	160	138	36	16
11	28	14	28	19	12	33	44	112	148	130	34	16
12	28	12	28	18	13	41	43	106	1840	122	33	16
13	28	11	29	18	13	44	42	104	665	114	32	21
14	28	16	31	18	14	44	40	97	791	106	32	48
15	28	12	32	18	13	45	40	96	692	97	34	21
16	28	28	31	17	13	44	43	96	1470	94	30	18
17	28	23	28	16	13	44	41	91	898	90	28	16
18	44	18	28	16	13	43	60	84	740	84	39	16
19	44	18	28	22	13	42	53	79	608	80	41	15
20	25	18	27	20	13	42	47	76	525	76	31	16
21	25	14	26	18	13	42	46	76	446	73	28	14
22	24	19	26	16	12	41	47	78	392	70	26	14
23	23	19	26	16	12	39	2110	73	350	65	24	14
24	21	17	26	16	12	39	402	674	302	63	24	13
25	20	22	25	16	12	38	314	617	272	59	23	13
26	20	32	25	16	13	38	269	217	252	62	22	13
27	20	29	24	16	13	37	241	178	255	68	21	13
28	20	31	24	15	13	40	217	155	448	59	20	13
29	20	31	24	14	---	103	199	152	262	55	20	12
30	18	31	23	14	---	57	180	164	230	51	22	12
31	18	---	23	14	---	54	---	155	---	49	21	---
TOTAL	839	572	862	558	379	1241	4950	5023	13935	3574	998	539
MEAN	27.1	19.1	27.8	18.0	13.5	40.0	165	162	465	115	32.2	18.0
MAX	44	32	32	22	18	103	2110	674	1840	334	47	48
MIN	18	11	23	14	12	13	40	73	116	49	20	12
CFSM	.31	.22	.32	.21	.16	.46	1.91	1.88	5.39	1.33	.37	.21
IN.	.36	.25	.37	.24	.16	.54	2.14	2.17	6.01	1.54	.43	.23
AC-FT	1660	1130	1710	1110	752	2460	9820	9960	27640	7090	1980	1070

CAL YR 1980 TOTAL 6638.80 MEAN 18.1 MAX 1900 MIN .60 CFSM .21 IN 2.86 AC-FT 13170
WTR YR 1981 TOTAL 33470.00 MEAN 91.7 MAX 2110 MIN 11 CFSM 1.06 IN 14.44 AC-FT 66390

08200000 HONDO CREEK NEAR TARPLEY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)
JAN 22...	1410	16	448	8.0	11.0	0	.50	11.4	106	.5
APR 23...	1131	1370	238	8.1	19.5	50	200	8.7	98	2.7
AUG 13...	1038	33	443	7.9	25.5	0	.50	7.6	97	.5

DATE	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	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 22...	K2	K2	<1	220	38	69	11	7.6	.2	.8
APR 23...	24000	12000	22000	120	13	42	4.4	3.1	.1	2.4
AUG 13...	120	88	150	210	26	66	10	9.9	.3	1.1

DATE	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
JAN 22...	180	40	10	.3	10	257	17	1	.48	--
APR 23...	110	16	3.4	.2	8.9	147	510	11	.23	.23
AUG 13...	180	31	13	.2	14	253	7	3	.59	--

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 22...	.000	--	.48	--	.040	--	.91	.95	.000	5.5
APR 23...	.000	.000	.23	.23	.050	.060	.87	.92	.080	15
AUG 13...	.020	--	.61	--	.110	--	.42	.53	.010	.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)
JAN 22...	1410	0	30	<1	0	<10	<10
AUG 13...	1038	0	30	<1	10	<10	<10

08200000 HONDO CREEK NEAR TARPLEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 22...	<10	<1	.0	1	0	4
AUG 13...	16	2	.0	0	0	6

DATE	TIME	PCB TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN 22...	1410	.00	.0	.00	.0	.00	.00	.00	.00
AUG 13...	1038	.00	.0	.00	.0	.00	.00	.00	.00

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JAN 22...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 13...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 22...	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 13...	.00	.00	.00	.00	0	.00	.00	.00	.00

08200700 HONDO CREEK AT KING WATERHOLE NEAR HONDO, TX

LOCATION.--Lat 29°23'26", long 99°09'04", Medina County, Hydrologic Unit 12110107, on left bank 0.3 mi (0.5 km) downstream from county road low-water crossing, 3.1 mi (5.0 km) north of Hondo, and 7.8 mi (12.6 km) upstream from Verde Creek.

DRAINAGE AREA.--142 mi² (368 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 897.87 ft (273.671 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Most of the low flow of Hondo Creek enters Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Tarpley (station 08200000) and this station. Small diversions above station for irrigation, amounts unknown.

AVERAGE DISCHARGE.--21 years, 15.2 ft³/s (0.430 m³/s), 11,010 acre-ft/yr (13.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 46,900 ft³/s (1,330 m³/s) July 15, 1973, gage height, 16.4 ft (5.00 m), from floodmark, from rating curve extended above 9,800 ft³/s (278 m³/s) on basis of contracted-opening measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 21 ft (6.4 m) in September 1919, from information by local resident. Other floods occurred in July 1932, stage 18 ft (5.5 m) and June 17, 1958, stage 17 ft (5.2 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 23	0900	9,440	267	8.18	2.493	June 4	1930	8,020	227	7.69	2.344
May 24	0900	719	20.4	3.44	1.049	June 12	1500	*14,900	422	9.83	2.996
May 25	0400	1,960	55.5	4.73	1.442	June 16	1130	3,430	97.1	5.66	1.725

Minimum discharge no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	1.2	1.2	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.05	.02	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	827	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	180	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	47	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	20	5.6	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	5.8	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.39	.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	2350	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	198	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	243	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	205	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	825	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	383	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	276	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	197	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	139	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	102	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	74	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	1890	.00	56	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	502	151	37	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	194	372	20	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	71	65	15	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	23	25	12	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	4.8	4.4	69	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.48	6.9	28	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	1.9	8.9	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	50	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	2685.28	676.20	6319.34	6.82	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	89.5	21.8	211	.22	.000	.000
MAX	.00	.00	.00	.00	.00	.00	1890	372	2350	5.6	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	5330	1340	12530	14	.00	.00

CAL YR 1980	TOTAL	4619.50	MEAN 12.6	MAX 4350	MIN .00	AC-FT	9160		
WTR YR 1981	TOTAL	9687.64	MEAN 26.5	MAX 2350	MIN .00	AC-FT	19220		

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX

LOCATION.--Lat 29°34'23", long 99°24'10", Medina County, Hydrologic Unit 12110107, on right bank 200 ft (61 m) upstream from county road crossing, 4.5 mi (7.2 km) downstream from Cascade Creek, and 7.9 mi (12.7 km) southeast of Utopia.

DRAINAGE AREA.--43.1 mi² (111.6 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder, crest-stage gages, and concrete control. Datum of gage is 1,265.8 ft (385.82 m) Magnolia Oil Co. datum, adjustment unknown.

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

AVERAGE DISCHARGE.--20 years, 19.4 ft³/s (0.549 m³/s), 6.11 in/yr (155 mm/yr), 14,060 acre-ft/yr (17.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,500 ft³/s (1,090 m³/s) July 15, 1973, gage height, 14.4 ft (4.39 m), from floodmark, from rating curve extended above 910 ft³/s (25.8 m³/s) on basis of field estimate of flow over and around end of dam, 14,100 ft³/s (399 m³/s), and slope-area measurement of 52,600 ft³/s (1,490 m³/s); no flow for many days in 1963-64.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1901, 16.4 ft (5.00 m) June 17, 1958, from floodmarks, discharge 52,600 ft³/s (1,490 m³/s), by slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 23	0600	*4,430	125	5.85	1.783	June 14	0900	1,120	31.7	3.81	1.161
May 24	0200	3,650	103	5.45	1.661	June 16	0700	2,050	58.1	4.54	1.384
May 24	2300	1,440	40.8	4.09	1.247	June 27	1800	1,010	28.6	3.70	1.128
June 4	1500	1,220	34.6	3.90	1.189	June 28	0200	1,260	35.7	3.94	1.201
June 12	1200	2,070	58.6	4.55	1.387	July 5	1700	1,860	52.7	4.41	1.344
June 13	1500	643	18.2	3.30	1.006	July 6	1700	1,500	42.5	4.14	1.262

Minimum daily discharge, 3.4 ft³/s (0.096 m³/s) Oct. 10-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	4.6	11	7.9	5.3	6.5	21	68	72	160	42	13
2	4.9	4.6	11	7.4	4.6	4.6	20	65	68	144	40	14
3	4.6	4.6	11	7.4	4.6	9.0	20	70	66	128	38	13
4	4.6	4.6	11	7.4	4.9	46	19	62	173	117	35	11
5	4.3	4.3	12	7.4	5.3	25	18	57	98	223	33	11
6	3.9	4.3	12	7.4	5.3	20	17	54	89	237	31	10
7	3.9	4.3	12	7.4	5.3	19	17	51	84	160	30	10
8	3.6	4.3	13	7.4	5.3	18	17	50	81	152	28	9.8
9	3.6	4.3	13	7.4	5.3	16	17	47	77	132	27	9.6
10	3.4	4.3	12	7.4	4.9	16	16	44	73	117	24	9.0
11	3.4	4.3	12	7.0	3.9	17	15	45	69	110	23	8.9
12	3.4	3.9	12	6.5	3.9	21	15	42	405	103	21	8.4
13	3.4	3.9	12	6.1	3.9	23	14	40	310	94	19	8.4
14	3.4	3.9	12	6.1	3.6	23	13	38	536	91	19	9.9
15	3.4	4.6	12	6.1	3.6	23	14	36	374	88	19	8.8
16	3.4	14	12	5.7	3.6	23	16	36	713	87	19	7.9
17	3.4	7.0	11	5.7	3.6	23	18	34	437	85	19	7.4
18	14	5.7	11	5.7	3.6	21	60	33	344	82	26	7.4
19	11	5.7	10	8.4	3.6	19	37	29	282	77	20	7.4
20	7.0	5.7	9.6	7.0	3.6	19	34	28	242	75	19	7.4
21	6.1	5.3	9.6	6.1	3.6	18	33	27	206	72	17	7.0
22	5.7	5.7	10	5.7	3.6	18	33	27	178	69	16	7.0
23	5.7	6.1	10	5.7	3.6	17	818	26	156	67	16	6.8
24	5.3	5.7	9.0	5.7	3.6	17	169	487	140	64	15	6.5
25	4.9	8.4	8.4	5.7	3.6	16	127	251	132	59	14	6.5
26	4.9	12	8.4	5.7	3.6	16	104	129	120	57	14	6.1
27	4.9	12	8.4	6.1	3.6	15	91	108	251	54	13	5.7
28	6.1	11	7.9	6.1	3.6	21	82	95	368	52	12	5.7
29	5.3	11	7.9	6.1	---	38	75	87	214	50	11	5.7
30	4.9	11	7.9	5.7	---	23	71	87	179	46	16	5.3
31	4.6	---	7.9	5.3	---	21	---	80	---	44	16	---
TOTAL	156.3	191.1	327.0	202.7	116.5	612.1	2021	2333	6537	3096	692	254.6
MEAN	5.04	6.37	10.5	6.54	4.16	19.7	67.4	75.3	218	99.9	22.3	8.49
MAX	14	14	13	8.4	5.3	46	818	487	713	237	42	14
MIN	3.4	3.9	7.9	5.3	3.6	4.6	13	26	66	44	11	5.3
CFSM	.12	.15	.24	.15	.10	.46	1.56	1.75	5.06	2.32	.52	.20
IN.	.13	.16	.28	.17	.10	.53	1.74	2.01	5.64	2.67	.60	.22
AC-FT	310	379	649	402	231	1210	4010	4630	12970	6140	1370	505

CAL YR 1980 TOTAL 1377.42 MEAN 3.76 MAX 38 MIN .08 CFSM .09 IN 1.19 AC-FT 2730
WTR YR 1981 TOTAL 16539.30 MEAN 45.3 MAX 818 MIN 3.4 CFSM 1.05 IN 14.27 AC-FT 32810

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN												
22...	1121	5.7	450	8.2	10.5	0	.30	11.4	104	.3	K3	K2
APR												
22...	1048	33	430	8.1	20.5	5	1.1	8.8	10	.4	310	120
AUG												
12...	1532	21	428	8.0	31.0	0	.30	7.4	106	.4	K8	K8

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (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)
JAN												
22...	K7	220	64	70	12	7.8	.2	.8	160	56	11	.2
APR												
22...	52	210	33	67	11	6.2	.2	1.0	180	37	8.9	.2
AUG												
12...	55	200	29	63	10	9.4	.3	1.0	170	29	15	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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												
22...	10	264	10	0	.69	.000	.69	.030	.26	.29	.000	2.4
APR												
22...	10	250	2	0	.54	.000	.54	.020	.66	.68	.010	2.3
AUG												
12...	15	245	5	4	--	<.020	.62	.130	.37	.50	.010	.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							
22...	1121	0	30	<1	0	<10	<10
AUG							
12...	1532	0	30	<1	10	<10	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN						
22...	<10	<1	.1	1	0	<3
AUG						
12...	17	2	.2	1	0	5

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
JAN 22...	1121	.00	.0	.00	.0	.00	.00	.00	.00
AUG 12...	1532	.00	.0	.00	.0	.00	.00	.00	.00

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
JAN 22...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 12...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 22...	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 12...	.00	.00	.00	.00	0	.00	.00	.00	.00

08202700 SECO CREEK AT ROWE RANCH NEAR D'HANIS, TX

LOCATION.--Lat 29°21'43", long 99°17'05", Medina County, Hydrologic Unit 12110107, on left bank 2.9 mi (4.7 km) north of D'Hanis and 8.0 mi (12.9 km) downstream from Rocky Creek.

DRAINAGE AREA.--168 mi^2 (435 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 900.88 ft (274.588 m) National Geodetic Vertical Datum of 1929. Prior to October 1970, published as "at Crook Ranch, near D'Hanis".

REMARKS.--Records good. All of low flow of Seco Creek enters Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Miller Ranch (station 08201500) and this station. No known diversion above station. Several observation of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years (water years 1962-81), 9.28 ft^3/s (0.263 m^3/s), 6,720 acre-ft/yr (8.29 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,500 ft^3/s (864 m^3/s) July 15, 1973, gage height, 26.0 ft (7.92 m), from floodmark, from rating curve extended above 16,000 ft^3/s (453 m^3/s) on the basis of slope-area measurement of 35,800 ft^3/s (1,010 m^3/s); no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 35.7 ft (10.88 m) May 31, 1935, from information by local resident. Other floods occurred Aug. 31, 1894, 33 ft (10.1 m); September 1919, 28 ft (8.5 m); July 2, 1932, 28.2 ft (8.60 m), discharge 35,800 ft^3/s (1,010 m^3/s), by slope-area measurement; June 17, 1958, 32.4 ft (9.88 m).

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 23	0900	*13,200	374	18.09	5.514	June 12	1400	7,680	217	15.30	4.663
May 24	0800	1,350	38.2	10.80	3.292	June 14	1500	886	25.1	10.15	3.094
June 4	2030	1,550	43.9	11.03	3.362	June 16	1200	1,420	40.2	10.88	3.316

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
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	1.6	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.23	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	156	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	122	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.75	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.08	66	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.3	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.19	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	1170	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	173	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	339	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	222	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	446	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	259	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	198	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	128	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	76	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	43	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	15	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	2150	.00	2.4	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	79	219	.37	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	7.0	159	.11	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	1.7	9.3	.01	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.45	.36	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.17	.07	113	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.04	.00	47	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	14	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	2238.36	387.73	3524.72	69.36	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	74.6	12.5	117	2.24	.000	.000
MAX	.00	.00	.00	.00	.00	.00	2150	219	1170	66	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	4440	769	6990	138	.00	.00

CAL YR 1980 TOTAL 1753.98 MEAN 4.79 MAX 1740 MIN .00 AC-FT 3480
WTR YR 1981 TOTAL 6220.17 MEAN 17.0 MAX 2150 MIN .00 AC-FT 12340

08205500 FRIO RIVER NEAR DERBY, TX

LOCATION.--Lat 28°44'11", long 99°08'40", Frio County, Hydrologic Unit 12110106, on right bank 17 ft (5 m) downstream from centerline of railroad tracks, 35 ft (11 m) right of the Missouri Pacific Railroad Co. bridge abutment, 167 ft (51 m) downstream from Interstate Highway 35, 917 ft (280 m) downstream from Leona River, 2.5 mi (4.0 km) south of Derby, and 122.4 mi (196.9 km) upstream from mouth.

DRAINAGE AREA.--3,493 mi² (9,047 km²).

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

REVISED RECORDS.--WSP 568: 1915-16, 1918-22. WSP 763: Drainage area. WSP 1312: 1917-18(M). WSP 1923: 1954.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 449.11 ft (136.889 m) National Geodetic Vertical Datum of 1929. Aug. 1, 1915, to Apr. 21, 1931, nonrecording gage, and Apr. 22, 1931, to Mar. 6, 1940, water-stage recorder at same site and datum. Mar. 7, 1940, to May 4, 1972, water-stage recorder, and May 5 to Nov. 1, 1972, nonrecording gage at site 167 ft (51 m) upstream at same datum.

REMARKS.--Records good. Part of flow of Frio River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone upstream from U.S. Highway 90 (see REMARKS for stations 08197500, 08198500, 08200700, and 08202700). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Many small diversions for irrigation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--66 years, 141 ft³/s (3.993 m³/s), 102,150 acre-ft/yr (126 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft³/s (6,510 m³/s) July 4, 1932, gage height, 29.45 ft (8.976 m), from floodmarks, from rating curve extended above 76,000 ft³/s (2,150 m³/s) on basis of slope-area measurement of peak flow; no flow at times most years.
Maximum stage since at least 1860, that of July 4, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft³/s (31.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 1	1800	3,090	87.5	7.51	2.289	June 7	0800	2,920	82.7	7.25	2.210
Apr. 20	1900	2,500	70.8	6.59	2.009	June 14	1600	*12,900	365	12.18	3.712
Apr. 25	2100	6,490	184	9.97	3.039	June 18	1900	9,580	271	11.17	3.405
May 3	0900	1,180	33.4	4.02	1.225						

Minimum discharge, 0.78 ft³/s (0.022 m³/s) Nov. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2570	2.5	9.5	9.8	17	7.8	6.3	725	254	945	129	38
2	1440	2.5	9.4	10	17	7.8	83	937	273	818	116	38
3	541	2.7	7.9	11	17	7.6	75	1080	196	756	104	39
4	324	2.8	7.3	10	16	8.0	50	1050	165	716	95	39
5	219	2.8	6.3	9.6	14	8.2	38	917	331	679	87	38
6	156	2.6	6.2	9.4	13	8.0	31	706	1400	641	80	51
7	114	2.1	6.1	9.6	12	7.6	27	594	2220	807	74	52
8	87	1.2	6.0	10	12	7.8	23	511	487	862	70	53
9	69	2.4	6.0	10	13	8.4	19	459	283	735	66	50
10	56	2.5	6.0	10	12	10	16	415	214	686	60	46
11	47	2.1	6.0	10	12	9.6	15	380	179	613	57	55
12	40	1.7	6.0	11	12	9.2	13	343	335	554	55	52
13	33	1.7	6.1	11	12	8.4	11	305	725	509	52	48
14	28	1.4	6.1	11	11	8.0	11	276	8860	471	52	43
15	23	1.4	6.5	12	11	7.5	10	253	6960	432	49	47
16	19	3.8	7.0	13	10	7.4	8.6	233	5300	393	45	49
17	16	5.8	7.5	14	9.5	7.4	8.0	212	4180	362	43	66
18	13	9.2	7.0	15	9.2	8.0	9.0	193	7760	336	41	65
19	11	17	6.8	17	8.6	10	176	173	7160	307	51	55
20	9.7	15	6.6	19	8.2	11	1940	149	4440	282	40	51
21	8.8	10	6.6	18	8.0	9.4	1270	123	3320	258	40	48
22	7.6	7.3	7.0	17	7.8	8.4	595	104	2650	238	39	45
23	7.5	6.9	7.4	20	7.8	7.5	436	90	2090	221	44	44
24	7.1	7.3	7.1	23	7.6	6.7	1340	82	1680	207	45	43
25	6.4	8.8	7.0	24	7.6	5.8	5070	119	1400	202	41	43
26	6.2	9.5	7.0	22	7.7	5.3	4840	618	1210	190	40	41
27	5.3	9.5	7.2	21	7.7	5.6	2790	648	1100	178	39	40
28	4.4	9.5	7.1	20	7.8	5.7	1600	344	1030	169	39	40
29	3.4	9.5	7.0	18	---	5.4	994	233	1050	162	38	40
30	3.0	9.5	7.5	18	---	5.8	791	193	1080	154	38	39
31	2.5	---	9.0	18	---	6.2	---	316	---	142	39	---
TOTAL	5877.9	171.0	216.2	451.4	308.5	239.5	22295.9	12781	68332	14025	1808	1398
MEAN	190	5.70	6.97	14.6	11.0	7.73	743	412	2278	452	58.3	46.6
MAX	2570	17	9.5	24	17	11	5070	1080	8860	945	129	66
MIN	2.5	1.2	6.0	9.4	7.6	5.3	6.3	82	165	142	38	38
AC-FT	11660	339	429	895	612	475	44220	25350	135500	27820	3590	2770

CAL YR 1980 TOTAL 42612.46 MEAN 116 MAX 5010 MIN .00 AC-FT 84520
WTR YR 1981 TOTAL 127904.40 MEAN 350 MAX 8860 MIN 1.2 AC-FT 253700

08206600 FRIO RIVER AT TILDEN, TX

LOCATION.--Lat 28°28'02", long 98°32'50", McMullen County, Hydrologic Unit 12110108, on left end at downstream side of bridge on State Highway 16 in Tilden, 300 ft (91 m) downstream from Leoncita Creek, 1.3 mi (2.1 km) upstream from Salt Branch, 1.8 mi (2.9 km) downstream from Big Slough, and 44.2 mi (71.1 km) upstream from mouth.

DRAINAGE AREA.--4,493 mi² (11,637 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 216.04 ft (65.849 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Part of flow of Frio River and its headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin upstream from U.S. Highway 90 (see REMARKS for station 08205500). Considerable loss of flow into various permeable formations also occurs downstream from the Balcones Fault Zone. Many small diversions above station for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s (357 m³/s) May 19, 1980, at 0900 hours, gage height, 26.35 ft (8.031 m); minimum daily, 0.04 ft³/s (0.001 m³/s) July 21, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1932 reached a stage of 38.44 ft (11.72 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 30	1000	4,110	116	21.40	6.523	May 30	0600	2,290	64.9	18.64	5.681
May 5	2100	2,030	57.5	17.90	5.456	June 17	unknown	*8,400	238	---	---

Minimum daily dischrge, 0.42 ft³/s (0.012 m³/s) Nov. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	4.6	7.8	8.8	18	9.1	6.0	2860	500	1280	108	59
2	11	3.7	7.2	12	19	9.2	5.6	2240	350	1150	101	47
3	332	3.4	11	12	17	9.3	5.6	1940	430	1110	96	46
4	597	3.2	16	12	17	9.1	5.5	1660	340	1080	90	55
5	950	2.9	14	13	18	8.5	14	1820	370	994	85	76
6	1150	2.5	12	13	17	9.8	61	1860	280	860	80	66
7	508	2.2	11	12	16	9.8	45	1500	230	748	76	48
8	132	1.9	11	11	15	9.9	35	1400	200	668	72	42
9	91	1.5	10	12	13	9.0	29	1220	500	611	67	51
10	71	1.2	9.3	12	13	9.0	25	880	950	657	64	54
11	57	.91	8.6	13	13	10	21	608	1280	768	59	54
12	48	.70	7.9	13	12	16	19	430	1460	772	58	55
13	41	.53	7.2	12	12	15	16	358	1040	675	55	51
14	35	.50	7.1	13	12	14	15	310	450	563	53	56
15	30	.42	7.2	12	12	12	14	270	190	481	51	48
16	27	.52	7.3	12	12	11	13	237	1000	411	49	41
17	24	.65	7.5	13	11	9.5	12	213	7300	363	45	35
18	21	.56	8.6	13	11	9.5	13	195	6400	324	43	36
19	18	.53	10	15	9.6	8.1	12	178	5400	291	41	39
20	16	.49	8.8	17	9.6	7.7	11	162	4100	263	135	49
21	14	2.6	7.9	17	9.2	15	12	148	6600	238	120	53
22	13	6.7	7.4	22	8.5	16	191	134	6000	216	65	47
23	12	5.7	7.1	18	8.3	13	461	118	4000	198	47	42
24	11	7.3	8.0	17	7.6	11	666	105	3000	181	42	40
25	8.9	13	8.5	23	8.1	9.3	891	95	2500	166	43	36
26	6.9	14	8.4	24	9.0	8.8	756	87	2100	152	47	36
27	5.7	28	7.6	25	9.2	7.8	612	83	1900	140	48	36
28	4.0	14	7.6	24	9.0	7.6	857	212	1750	133	45	36
29	3.4	9.1	8.1	21	---	6.8	2240	769	1600	129	41	37
30	4.2	8.3	8.2	21	---	6.3	3920	1900	1470	119	51	38
31	5.3	---	7.9	20	---	6.1	---	750	---	114	85	---
TOTAL	4257.4	141.61	276.2	482.8	346.1	313.2	10983.7	24742	63690	15855	2062	1409
MEAN	137	4.72	8.91	15.6	12.4	10.1	366	798	2123	511	66.5	47.0
MAX	1150	28	16	25	19	16	3920	2860	7300	1280	135	76
MIN	3.4	.42	7.1	8.8	7.6	6.1	5.5	83	190	114	41	35
AC-FT	8440	281	548	958	686	621	21790	49080	126300	31450	4090	2790

CAL YR 1980	TOTAL	73335.58	MEAN 200	MAX 11900	MIN .04	AC-FT 145500			
WTR YR 1981	TOTAL	124559.01	MEAN 341	MAX 7300	MIN .42	AC-FT 247100			

08206600 FRIO RIVER AT TILDEN, TX--Continued

WATER-QUALITY RECORDS

LOCATION.--Lat 28°28'02", long 98°32'50", McMullin County, Hydrologic Unit 12110108, at left downstream end of State Highway 16 bridge in Tilden, 300 ft (91 m) downstream from Leoncita Creek, 1.3 mi (2.1 km) upstream from Salt Branch, and 1.8 mi (2.9 km) downstream from Big Slough.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 21...	1500	14	1150	8.3	20.5	22	16	8.6	96	1.5	290	44
DEC 01...	1540	8.2	2230	8.2	17.5	25	22	8.6	90	2.6	280	0
JAN 12...	1412	13	3660	8.3	12.0	8	9.0	8.9	82	1.2	800	540
FEB 23...	1508	8.4	2810	8.0	18.0	10	17	9.5	100	2.4	640	420
APR 07...	1837	41	3360	7.3	21.0	25	70	6.2	69	1.7	880	670
MAY 19...	1537	187	908	7.7	27.5	10	84	5.4	68	1.4	330	150
JUN 30...	1612	1420	604	7.8	28.5	10	16	6.2	78	1.4	--	--
JUL 13...	1436	662	576	--	--	--	--	--	--	--	230	71
AUG 11...	1427	59	1230	--	29.5	0	35	5.3	70	.8	380	200
SEP 29...	1020	36	1710	8.1	26.0	5	23	6.8	84	1.5	490	300

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 (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
OCT 21...	88	18	140	3.6	5.2	250	84	190	.3	12	--
DEC 01...	74	23	350	9.1	7.7	350	140	440	.6	4.8	--
JAN 12...	200	74	430	6.6	6.0	260	410	800	.4	3.7	--
FEB 23...	170	52	350	6.0	4.9	220	380	600	.4	1.4	--
APR 07...	230	73	350	5.2	5.9	210	400	770	.3	7.8	--
MAY 19...	99	19	59	1.4	3.2	180	92	120	.1	13	--
JUN 30...	--	--	--	--	--	--	--	--	--	--	299
JUL 13...	71	13	29	.9	2.2	160	49	70	.1	13	--
AUG 11...	110	25	110	2.6	3.2	180	110	220	.2	17	--
SEP 29...	140	35	170	3.3	4.3	190	240	300	.3	13	--

08206600 FRIO RIVER AT TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
21...	732	25	0	.92	.010	.93	.000	.64	.64	.170	20
DEC											
01...	1250	4	24	.06	.010	.07	.060	1.0	1.1	.080	13
JAN											
12...	2080	12	8	.39	.010	.40	.050	.70	.75	.030	17
FEB											
23...	1690	21	7	2.6	.040	2.6	.070	.83	.90	.070	9.0
APR											
07...	1960	1	0	1.7	.040	1.7	.080	1.3	1.4	.100	8.2
MAY											
19...	514	151	27	.07	.000	.07	.050	1.7	1.7	.140	6.6
JUN											
30...	--	28	18	.91	.020	.93	.210	.19	.40	.060	3.3
JUL											
13...	344	--	--	--	--	--	--	--	--	--	--
AUG											
11...	704	67	12	1.9	.040	1.9	.160	.72	.88	.040	2.6
SEP											
29...	1020	28	5	2.1	.040	2.1	.140	.84	.98	.050	5.2

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT							
21...	1500	2	90	1	0	<10	10
FEB							
23...	1508	1	100	6	0	29	0
MAY							
19...	1537	2	80	<1	0	<10	<10
AUG							
11...	1427	2	100	<1	0	22	350

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						
21...	69	3	.1	0	0	<3
FEB						
23...	0	20	.5	1	0	10
MAY						
19...	<10	5	.1	1	0	10
AUG						
11...	11	33	.9	1	0	15

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)
FEB											
23...	1508	.00	2	.0	.00	.0	.0	0	.00	.0	.00
AUG											
11...	1427	.00	2	.0	.00	.0	.0	0	.00	.0	.00

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)
FEB										
23...	<.6	.00	.0	.00	.00	.0	.00	.00	.0	.00
AUG										
11...	.3	.00	.0	.00	.00	.0	.00	.00	.0	.00

08206600 FRIO RIVER AT TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)
FEB 23...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00
AUG 11...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
FEB 23...	.00	.00	.0	.00	0	0	.00	.00	.00	.00
AUG 11...	.00	.00	.0	.00	0	0	.00	.00	.00	.00

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX

LOCATION.--Lat 28°35'14", long 98°32'44", McMullen County, Hydrologic Unit 12110109, on left bank 25 ft (8 m) downstream from State Highway 16, 0.3 mi (0.5 km) upstream from mouth of Bruce Branch, 0.9 mi (1.4 km) downstream from mouth of Far Live Oak Creek, 3 mi (5 km) upstream from San Patricio Creek, 7 mi (11 km) downstream from Clear Creek, 8.7 mi (14.0 km) north of Tilden, and 13 mi (21 km) upstream from mouth.

DRAINAGE AREA.--793 mi² (2,054 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 242.95 ft (74.051 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. There are five diversions above station, but amounts are unknown. At times, excess water from Bexar-Medina-Atascosa Counties Water Improvement District No. 1 system enters San Miguel Creek basin via Chacon Creek 52 mi (84 km) upstream (amounts unknown).

AVERAGE DISCHARGE.--17 years, 70.3 ft³/s (1.991 m³/s), 50,930 acre-ft/yr (62.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s (583 m³/s) May 16, 1980, gage height, 27.31 ft (8.324 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1919, 32.6 ft (9.94 m) in 1942; stage of 1919 flood not known, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 ft³/s (25.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 11	2100	1,660	47.0	13.76	4.194	June 16	1600	*6,170	175	20.03	6.105
June 14	1200	1,720	48.7	13.93	4.246	Sept. 3	1200	1,350	38.2	12.87	3.923

Minimum discharge, 0.07 ft³/s (0.002 m³/s) May 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	3.4	8.7	2.4	3.4	2.0	2.1	20	7.7	23	3.2	17
2	4.6	3.2	7.6	2.4	2.8	2.0	2.1	346	10	21	3.0	20
3	4.1	3.2	5.9	2.4	2.6	2.3	2.3	424	7.3	19	3.4	795
4	3.9	3.1	5.4	2.4	2.7	4.6	2.2	185	22	18	3.9	204
5	4.0	3.1	5.0	2.2	3.3	3.2	2.0	37	86	26	3.6	52
6	3.8	3.1	4.4	2.3	3.2	6.9	1.3	15	218	23	3.4	23
7	3.6	3.1	4.3	2.4	2.8	8.6	.38	7.9	173	22	3.0	17
8	3.6	3.1	4.1	2.0	2.6	9.0	2.0	5.2	274	18	2.7	22
9	3.6	3.2	3.8	2.0	2.6	7.7	2.0	4.2	166	20	2.4	78
10	3.5	3.2	3.6	2.0	2.7	6.4	2.0	3.2	41	24	2.6	11
11	3.2	3.2	3.2	2.0	2.3	6.0	2.0	2.1	462	23	2.1	6.2
12	3.4	3.2	3.2	1.9	1.9	6.5	2.0	2.6	710	20	1.9	4.5
13	3.9	3.2	3.3	1.8	2.7	5.2	1.8	2.0	806	17	1.8	3.5
14	5.5	3.0	3.1	1.8	2.6	4.1	1.6	1.8	1570	15	1.9	3.3
15	5.0	2.8	4.7	1.8	2.5	3.5	.80	1.7	1510	12	1.9	2.7
16	4.3	3.9	5.2	1.6	2.6	3.2	.50	1.8	3650	11	1.6	2.8
17	4.1	28	4.1	1.6	2.4	2.8	2.8	1.8	3010	10	1.4	4.2
18	3.8	21	3.7	2.4	2.5	2.6	2.5	1.6	1050	11	1.5	2.6
19	3.4	9.0	4.0	11	2.5	2.3	1.5	.97	833	10	246	2.0
20	3.2	6.2	3.6	23	2.4	1.3	1.5	.52	356	10	58	1.8
21	3.3	12	3.2	20	2.3	.48	1.2	.52	108	9.7	7.8	1.7
22	3.3	11	2.8	11	2.1	2.1	1.4	.52	71	11	3.5	1.5
23	3.4	8.2	2.8	13	2.0	2.7	9.8	.41	53	9.3	2.3	1.4
24	3.3	6.6	2.8	16	1.9	2.8	23	.36	42	9.4	1.9	2.5
25	3.2	11	2.9	11	2.0	2.8	9.7	.36	39	8.7	8.7	3.2
26	3.9	65	2.7	8.4	2.0	2.8	5.2	.34	82	7.7	7.9	3.1
27	4.1	29	2.7	7.1	2.0	3.0	3.4	.19	39	6.8	6.7	3.0
28	13	16	2.7	5.9	2.0	2.2	2.9	.11	31	5.9	5.5	2.9
29	5.8	12	2.8	5.0	---	2.2	2.6	21	49	4.8	6.2	2.7
30	3.8	8.2	2.6	4.3	---	2.3	2.3	165	29	4.2	146	2.4
31	3.6	---	2.4	3.9	---	2.2	---	25	---	3.6	162	---
TOTAL	130.0	294.2	121.3	177.0	69.4	115.78	96.88	1278.20	15505.0	434.1	707.8	1297.0
MEAN	4.19	9.81	3.91	5.71	2.48	3.73	3.23	41.2	517	14.0	22.8	43.2
MAX	13	65	8.7	23	3.4	9.0	23	424	3650	26	246	795
MIN	3.2	2.8	2.4	1.6	1.9	.48	.38	.11	7.3	3.6	1.4	1.4
AC-FT	258	584	241	351	138	230	192	2540	30750	861	1400	2570

CAL YR 1980	TOTAL	52817.90	MEAN	144	MAX	16700	MIN	.00	AC-FT 104800
WTR YR 1981	TOTAL	20226.66	MEAN	55.4	MAX	3650	MIN	.11	AC-FT 40120

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
OCT 22...	0930	3.1	2850	7.9	20.0	7	10	7.6	85	.8	760
DEC 01...	1218	9.1	1770	7.8	15.5	20	16	9.8	98	1.8	410
JAN 12...	1100	1.9	2800	7.7	12.5	15	12	7.8	72	1.4	770
FEB 23...	1123	2.0	2630	7.7	18.0	5	7.4	9.4	99	1.9	710
APR 07...	1010	.43	2630	7.9	20.5	20	15	8.3	90	2.7	710
MAY 19...	1145	.82	1220	7.9	26.5	30	9.2	7.6	94	2.0	320
JUN 30...	1107	28	2210	7.4	26.0	20	10	5.8	69	1.3	640
AUG 11...	1117	1.9	2000	--	28.5	0	4.5	5.7	73	1.1	550
SEP 29...	1155	2.9	1700	7.9	26.0	5	3.1	5.8	72	1.2	500

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 (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 22...	430	210	57	330	5.2	10	330	450	460	.4	9.4
DEC 01...	220	110	32	210	4.5	11	190	270	290	.3	10
JAN 12...	440	220	53	310	4.9	8.4	330	540	420	.4	17
FEB 23...	480	200	52	270	4.4	8.4	230	520	410	.3	13
APR 07...	410	200	52	310	5.1	10	300	490	480	.4	6.9
MAY 19...	150	100	18	120	2.9	11	170	220	160	.2	13
JUN 30...	360	180	46	230	4.0	9.5	280	370	380	.2	21
AUG 11...	250	160	36	210	4.1	9.5	300	310	300	.3	11
SEP 29...	200	150	31	180	3.5	8.2	300	290	230	.3	15

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 22...	1720	19	0	.00	.000	.00	.040	.47	.51	.190	31
DEC 01...	1050	11	10	.11	.010	.12	.100	1.1	1.2	.140	11
JAN 12...	1770	18	8	.00	.000	.00	.060	.68	.74	.080	16
FEB 23...	1610	12	3	.00	.000	.00	.090	4.1	4.2	.070	8.0
APR 07...	1730	23	8	.03	.000	.03	.080	1.2	1.3	.130	16
MAY 19...	745	19	4	.00	.000	.00	.000	1.4	1.4	.130	8.7
JUN 30...	1410	16	4	.36	.010	.37	.110	.99	1.1	.120	5.2
AUG 11...	1220	10	3	.09	.020	.11	.140	.73	.87	.050	5.8
SEP 29...	1080	33	3	.09	.020	.11	.130	.63	.76	.090	8.1

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 22...	0930	2	100	10	0	20	40
FEB 23...	1123	2	100	0	0	0	20
MAY 19...	1145	5	100	<1	0	<10	10
AUG 11...	1117	5	120	2	0	39	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 22...	0	60	.1	0	0	10
FEB 23...	0	200	.0	0	0	20
MAY 19...	10	100	.1	0	0	20
AUG 11...	10	57	1.5	0	0	9

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)
FEB 23...	1123	.00	0	.0	.00	.0	.0	0	.00	.0	.00
AUG 11...	1117	.00	0	.0	.00	.0	.0	0	.00	.0	.00

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)
FEB 23...	.3	.00	.0	.00	.00	.0	.00	.00	.0	.00
AUG 11...	.2	.00	.0	.00	.00	.0	.00	.00	.0	.00

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 23...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00
AUG 11...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00

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)
FEB 23...	.00	.00	.0	.00	0	0	.00	.00	.00	.00
AUG 11...	.00	.00	.0	.00	0	0	.00	.00	.00	.00

08207000 FRIO RIVER AT CALLIHAM, TX

LOCATION.--Lat 28°29'31", long 98°20'47", McMullen County, Hydrologic Unit 12110108, on right bank at upstream side of county bridge, 0.6 mi (1.0 km) upstream from bridge on Farm Road 99, 0.8 mi (1.3 km) north of Calliham, 10.7 mi (17.2 km) downstream from San Miguel Creek, and 20.8 mi (33.5 km) upstream from mouth.

DRAINAGE AREA.--5,491 mi² (14,222 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1924 to April 1926 (monthly discharge only), April 1932 to March 1981 (discontinued).

REVISED RECORDS.--WSP 788: Drainage area. WSP 2123: 1932.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 153.47 ft (46.778 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 30, 1926, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Part of flow of Frio River and its headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin upstream from U.S. Highway 90 (see REMARKS for station 08205500 Frio River near Derby). Considerable loss of flow into various permeable formations also occurs downstream from the Balcones Fault Zone. Many small diversions above station for irrigation.

AVERAGE DISCHARGE.--49 years (water years 1925, 1933-80), 247 ft³/s (6.995 m³/s), 179,000 acre-ft/yr (221 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,200 ft³/s (2,270 m³/s) July 6, 1932, gage height, 39.2 ft (11.95 m), from floodmarks, from rating curve extended above 24,000 ft³/s (680 m³/s) on basis of contracted-opening measurement and flow-over-road measurement of 42,400 ft³/s (1,200 m³/s); no flow at times.
Maximum stage since at least 1870, that of July 6, 1932, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October to March, 1,200 ft³/s (34.0 m³/s) Oct. 6 at 2400 hours, gage height, 9.82 ft (2.993 m), no peak above base of 2,700 ft³/s (76.5 m³/s); minimum, 5.9 ft³/s (0.17 m³/s) Nov. 14-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO MARCH 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	16	20	17	33	13						
2	28	16	18	16	27	13						
3	92	13	18	18	23	14						
4	502	12	19	21	23	13						
5	762	11	24	20	25	13						
6	1090	10	21	21	24	14						
7	1040	9.8	19	21	22	15						
8	311	9.5	18	20	21	18						
9	148	9.0	17	20	20	19						
10	110	8.3	15	20	19	19						
11	86	7.4	14	21	17	21						
12	70	7.1	13	21	17	24						
13	59	6.9	13	21	16	29						
14	50	6.4	13	21	15	26						
15	47	5.9	14	22	16	24						
16	43	6.3	15	21	16	21						
17	40	6.9	16	20	16	18						
18	36	18	16	21	16	16						
19	32	25	15	32	15	14						
20	30	16	16	46	14	12						
21	2ª	15	16	56	14	11						
22	26	17	15	51	14	16						
23	24	22	15	47	11	22						
24	23	19	14	37	11	---						
25	22	19	14	44	12	---						
26	21	40	16	50	12	---						
27	19	73	16	47	14	---						
28	17	55	16	48	14	---						
29	19	32	16	43	---	---						
30	24	25	16	37	---	---						
31	16	---	17	37	---	---						
TOTAL	4845	537.5	505	937	497	---						
MEAN	156	17.9	16.3	30.2	17.8	---						
MAX	1090	73	24	56	33	---						
MIN	16	5.9	13	16	11	---						
AC-FT	9610	1070	1000	1860	986	---						

CAL YR 1980	TOTAL	90069.61	MEAN	246	MAX	8680	MIN	.31	AC-FT	178700		
WTR YR 1981	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		

08207000 FRIO RIVER AT CALLIHAM, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1967 to March 1981 (discontinued). Pesticide analyses: October 1974 to March 1981 (discontinued). Sediment records: October 1976 to March 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1967 to March 1981 (discontinued).
WATER TEMPERATURES: November 1967 to March 1981 (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, 5,750 micromhos Nov. 30, 1968; minimum daily, 104 micromhos Feb. 13, 1969.
WATER TEMPERATURES: Maximum daily, 33.0°C July 17, 1971; minimum daily, 6.0°C Jan. 9, 1970, Jan. 12, 13, 1973, Jan. 15, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,580 micromhos Jan. 6; minimum daily, 389 micromhos Oct. 6.

WATER QUALITY DATA, OCTOBER 1980 TO MARCH 1981

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)
NOV 30...	1730	25	2160	--	13.5	380	72	110	26
DEC 15...	1400	15	2070	8.0	16.0	370	89	110	23
JAN 16...	1255	21	--	--	--	--	--	--	--
27...	1100	47	2870	--	--	650	400	170	54
FEB 28...	1030	14	2660	--	20.0	580	330	160	44

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)
NOV 30...	340	7.6	6.9	310	240	390	.5	10	1310
DEC 15...	300	6.8	6.5	280	190	400	.5	10	1210
JAN 16...	--	--	--	--	--	--	--	--	--
27...	370	6.3	6.5	250	390	570	.4	6.2	1720
FEB 28...	330	6.0	6.7	250	320	550	.4	4.9	1570

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)
JAN 16...	1255	.00	0	.00	.00	.0	.00	.0	.00	.0	.00

08207000 FRIO RIVER AT CALLIHAM, TX--Continued

WATER QUALITY DATA, OCTOBER 1980 TO MARCH 1981

DATE	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHION, TOTAL (UG/L)
JAN 16...	.2	.00	.0	.00	.00	.0	.00	.00	.0	.00

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)
JAN 16...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 16...	.00	.00	.0	.00	0	.0	.00	.00	.00	.00

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO MARCH 1981

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1980	4845	619	357	4670	89	1170	81	1060	200
NOV.	1980	537.5	2230	1320	1920	450	647	300	441	560
DEC.	1980	505	2180	1290	1760	440	596	300	405	550
JAN.	1981	937	3130	1880	4760	730	1850	440	1100	640
FEB.	1981	497	2930	1750	2350	660	886	410	545	630
MAR.	1981	405	2820	1690	1850	630	684	390	427	630
TOTAL		7726.5	**	**	17300	**	5830	**	3980	**
WTD. AVG.		44	1400	829	**	280	**	190	**	350

08207000 FRIO RIVER AT CALLIHAM, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), OCTOBER 1980 TO MARCH 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1540	1650	2290	3150	3050	2660						
2	1560	1700	1980	3270	3010	2670						
3	1200	1770	1800	3420	3050	2680						
4	800	1850	1700	3520	3020	2710						
5	505	1970	1490	3540	2990	2730						
6	389	2060	1350	3580	3060	2740						
7	420	2100	1430	3510	3030	2740						
8	500	2140	1610	3480	3000	2750						
9	657	2150	1800	3460	2960	2770						
10	705	2130	2220	3450	2940	2790						
11	760	2120	2150	3350	2960	2770						
12	810	2100	2170	3270	2970	2840						
13	870	2090	2190	3150	2980	2890						
14	936	2110	2100	3040	2930	2720						
15	969	2180	2050	3030	2920	2740						
16	1020	2160	2350	2960	2910	2760						
17	1100	2240	2160	3010	2900	2860						
18	1180	2270	2200	3160	2880	2960						
19	1220	2200	2270	3290	2860	3030						
20	1260	2300	2300	3450	2840	3050						
21	1300	2340	2310	3360	2820	3060						
22	1340	2320	2320	3160	2770	3020						
23	1390	2210	2340	2630	2750	2990						
24	1420	2300	2390	2740	2730	---						
25	1470	2250	2520	2830	2720	---						
26	1500	2390	2640	2910	2710	---						
27	1530	2480	2750	2900	2680	---						
28	1570	2450	2810	2920	2660	---						
29	1560	2200	2870	2960	---	---						
30	1580	2190	2960	3000	---	---						
31	1590	---	3000	3070	---	---						
MEAN	1120	2150	2210	3180	2900	2820						

TEMPERATURE, WATER (DEG. C), OCTOBER 1980 TO MARCH 1981
ONCE-DAILY

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

08208000 ATASCOSA RIVER AT WHITSETT, TX

LOCATION.--Lat 28°37'18", long 98°17'02", Live Oak County, Hydrologic Unit 12110110, on right bank 1,000 ft (305 m) upstream from bridge on Farm Road 99, 1.1 mi (1.8 km) southwest of Whitsett, 3.9 mi (6.3 km) downstream from La Parita Creek, and 13.1 mi (21.1 km) upstream from mouth.

DRAINAGE AREA.--1,171 mi^2 (3,033 km^2).

PERIOD OF RECORD.--September 1924 to May 1926, May 1932 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 159.04 ft (48.475 m) National Geodetic Vertical Datum of 1929. Prior to May 8, 1926, nonrecording gage at bridge 1,200 ft (366 m) downstream at datum 1.38 ft (0.421 m) higher.

REMARKS.--Records good except those for periods of no gage-height record Feb. 15 to Mar. 23 and May 19 to June 30, which are fair. Considerable loss of flow into various permeable formations occurs upstream from this station. Records from the Lower Nueces River Water Supply District indicate that during the current year the Campbellton water wells discharged 28.8 acre-ft (35,500 m^3) into the Atascosa River 12 mi (19 km) upstream from this station. There are several small diversions above station.

AVERAGE DISCHARGE.--50 years (water years 1925, 1933-81), 135 ft^3/s (3.823 m^3/s), 97,810 acre-ft/yr (121 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft^3/s (3,430 m^3/s) Sept. 23, 1967, gage height, 41.3 ft (12.59 m), from floodmark, from rating curve extended above 24,000 ft^3/s (680 m^3/s) on basis of slope-area measurement of peak flow; no flow at times.
Maximum stage since at least 1881, that of Sept. 23, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Second highest stage, 41 ft (12.5 m), discharge 106,000 ft^3/s (3,000 m^3/s), occurred in September 1919.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,900 ft^3/s (82.1 m^3/s) Sept. 3 at 0800 hours, gage height, 21.95 ft (6.690 m), no other peak above base of 1,500 ft^3/s (42.4 m^3/s); minimum, 2.3 ft^3/s (0.065 m^3/s) Aug. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	16	30	10	13	16	10	9.9	77	56	7.5	845
2	49	13	23	11	15	15	9.6	17	45	51	7.6	1070
3	31	11	18	11	13	14	8.9	280	25	43	7.2	2630
4	24	10	16	11	13	16	8.6	250	60	37	6.6	826
5	19	8.9	15	11	15	16	8.6	100	15	33	5.4	783
6	16	7.8	14	11	19	16	8.3	60	19	37	4.7	206
7	14	7.8	14	11	23	15	8.0	40	10	102	4.2	74
8	13	8.3	15	10	21	13	7.6	28	8.0	103	3.9	49
9	12	7.9	17	9.7	20	14	7.3	21	7.0	62	3.6	37
10	10	7.7	15	10	18	14	7.0	17	6.2	46	3.2	29
11	10	8.2	14	11	16	16	7.8	14	30	34	3.2	25
12	11	8.3	13	11	15	17	8.7	12	300	27	3.2	21
13	9.9	7.5	13	11	14	40	9.4	9.7	215	25	2.9	18
14	8.6	8.0	13	11	13	140	8.3	8.6	180	22	2.9	16
15	7.0	7.5	19	10	16	290	7.6	8.0	80	19	2.7	15
16	6.3	8.2	41	9.8	16	100	7.4	7.5	78	17	2.5	15
17	9.0	18	51	10	15	43	8.1	7.0	500	17	2.5	16
18	8.9	81	33	11	16	28	10	6.7	150	16	2.3	20
19	8.0	58	26	20	17	22	11	6.4	95	15	3.6	15
20	16	35	21	84	19	18	8.2	6.2	70	13	3.7	13
21	11	24	18	133	18	15	9.1	6.0	61	12	3.9	13
22	10	27	16	78	16	13	14	5.8	56	11	4.8	13
23	10	29	14	50	17	12	82	5.6	54	11	5.1	12
24	8.6	24	13	36	16	11	445	32	70	9.6	3.6	13
25	8.0	23	12	27	15	11	300	10	250	9.4	3.0	13
26	9.4	179	12	22	16	10	150	6.6	170	9.9	2.7	13
27	9.6	396	13	19	14	10	70	5.6	110	9.6	2.5	12
28	9.7	189	13	17	14	10	32	5.6	80	9.2	2.6	12
29	16	71	12	14	---	10	15	66	66	8.7	3.2	11
30	16	43	11	15	---	10	11	165	57	7.7	52	11
31	13	---	11	15	---	10	---	120	---	7.4	476	---
TOTAL	475.0	1343.1	566	720.5	453	985	1298.5	1337.2	2944.2	880.5	642.8	6846
MEAN	15.3	44.8	18.3	23.2	16.2	31.8	43.3	43.1	98.1	28.4	20.7	228
MAX	71	396	51	133	23	290	445	280	500	103	476	2630
MIN	6.3	7.5	11	9.7	13	10	7.0	5.6	6.2	7.4	2.3	11
AC-FT	942	2660	1120	1430	899	1950	2580	2650	5840	1750	1270	13580

CAL YR 1980 TOTAL 73251.67 MEAN 200 MAX 15100 MIN .81 AC-FT 145300
WTR YR 1981 TOTAL 18491.80 MEAN 50.7 MAX 2630 MIN 2.3 AC-FT 36680

08210000 NUECES RIVER NEAR THREE RIVERS, TX
(National stream-gaging accounting network)

LOCATION.--Lat 28°26'10", long 98°11'06", Live Oak County, Hydrologic Unit 12110111, on left bank 100 ft (30 m) downstream from Missouri Pacific Railroad bridge, 0.2 mi (0.3 km) downstream from Frio River, 1.7 mi (2.7 km) south of Three Rivers, and at mile 102.6 (165.1 km).

DRAINAGE AREA.--15,600 mi² (40,400 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1915 to current year. Monthly discharge only for November 1919 to January 1920, published in WSP 1312.

REVISED RECORDS.--WSP 548: 1920-21. WSP 1562: 1916, 1918-21, 1922(M), 1923, 1929.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 101.13 ft (30.824 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 5, 1932, nonrecording gage at railroad bridge 100 ft (30 m) upstream at same datum.

REMARKS.--Water-discharge records good. Part of flow of Nueces and Frio Rivers and their headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone upstream from U.S. Highway 90 (see REMARKS for stations 08194600 and 08205500). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Many small diversions for irrigation and municipal supply above station. Minor upstream regulation by small reservoirs and by ground-water supplements (see station 08208000 Atascosa River at Whitsett). Gage-height telemeter at station.

AVERAGE DISCHARGE.--66 years, 863 ft³/s (24.44 m³/s), 625,200 acre-ft/yr (771 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 141,000 ft³/s (3,990 m³/s) Sept. 23, 1967, gage height, 49.21 ft (14.999 m); no flow at times.
Maximum stage since about 1875, that of Sept. 23, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s (170 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 4	0800	6,960	197	26.25	8.001	June 13	2400	6,770	192	25.77	7.855
May 11	1600	7,470	212	27.52	8.388	June 24	1700	*18,100	513	38.14	11.625

Minimum daily discharge, 16 ft³/s (0.45 m³/s) Nov. 14, 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	33	84	26	52	30	23	2740	2180	8700	231	1890
2	140	33	64	26	49	29	22	3870	1780	8470	214	994
3	83	30	48	27	45	28	21	6050	1940	7750	213	1670
4	235	30	39	29	43	29	21	6770	2280	6780	207	2940
5	578	28	39	32	44	29	19	6060	2550	5860	191	1620
6	835	25	43	32	45	30	18	4960	2820	5210	180	1430
7	1040	23	46	30	48	30	22	4380	3620	4590	175	1060
8	609	22	41	30	50	31	66	4220	4240	3580	163	1120
9	186	22	39	32	46	33	60	4380	5090	2410	155	1350
10	133	21	39	31	44	33	51	6080	5230	1490	147	2110
11	109	20	48	30	39	38	46	7380	4640	1220	138	3750
12	95	18	55	32	36	43	43	6960	4630	1240	130	5000
13	83	19	55	29	36	41	40	5860	6310	1220	123	4320
14	68	16	52	32	34	45	36	4740	6540	1110	117	2550
15	60	16	48	32	32	308	30	3920	5950	985	110	350
16	56	18	47	31	32	401	32	3300	5480	853	103	251
17	53	19	70	30	31	286	31	2740	5550	756	97	222
18	51	33	70	31	32	143	31	1980	6460	687	90	198
19	48	103	55	44	33	86	33	608	7480	634	104	184
20	44	81	46	73	33	60	34	414	8630	584	138	170
21	47	57	41	151	32	48	29	357	10600	537	307	165
22	43	54	39	164	30	39	31	311	12600	493	187	169
23	40	53	36	119	28	35	64	268	15700	459	260	162
24	38	58	33	91	27	35	441	232	17900	424	337	153
25	35	55	30	72	27	31	721	237	17200	395	338	146
26	33	80	29	67	28	31	1240	176	14900	377	312	146
27	33	330	29	71	28	28	1320	155	12500	344	172	141
28	31	462	30	70	28	28	1230	285	10500	311	135	138
29	29	238	30	66	---	27	1410	984	9070	290	225	134
30	35	131	29	60	---	26	1810	2800	8630	277	375	132
31	40	---	26	56	---	24	---	2750	---	255	1700	---
TOTAL	5018	2128	1380	1646	1032	2105	8975	95967	223000	68291	7374	34665
MEAN	162	70.9	44.5	53.1	36.9	67.9	299	3096	7433	2203	238	1156
MAX	1040	462	84	164	52	401	1810	7380	17900	8700	1700	5000
MIN	29	16	26	26	27	24	18	155	1780	255	90	132
AC-FT	9950	4220	2740	3260	2050	4180	17800	190400	442300	135500	14630	68760

CAL YR 1980 TOTAL 326078.3 MEAN 891 MAX 23900 MIN 1.2 AC-FT 646800
WTR YR 1981 TOTAL 451581.0 MEAN 1237 MAX 17900 MIN 16 AC-FT 895700

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1941 to September 1947, September 1950 to September 1952. Chemical, biochemical, and pesticide analyses: January 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1945 to September 1947, September 1950 to September 1952, October 1974 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, 4,310 micromhos Jan. 17, 1977; minimum daily, 157 micromhos May 26, 1975.
WATER TEMPERATURES: Maximum daily, 32.0°C on several days during summer of 1977-78 and 1981; minimum daily, 7.0°C Jan. 2, 3, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,270 micromhos Apr. 10, 15; minimum daily, 232 micromhos Sept. 3.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 16; minimum daily, 9.5°C Jan. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
20...	1353	44	1300	8.0	23.0	17	11	8.3	95	1.5	92	290
NOV												
17...	1502	20	1890	7.9	15.5	--	14	10.8	107	2.1	--	--
DEC												
15...	1513	45	1520	7.6	15.5	--	22	9.0	90	2.6	280	190
JAN												
13...	1322	28	2810	8.0	11.5	20	.75	10.9	99	1.1	K14	40
FEB												
10...	1200	42	2430	8.4	16.0	--	9.1	9.3	96	2.5	--	--
MAR												
16...	1500	395	1140	7.7	16.0	50	290	8.8	88	3.0	680	760
APR												
06...	1130	17	2680	8.2	22.0	5	16	9.2	99	2.3	K160	40
MAY												
12...	1555	6830	394	8.2	25.0	55	14	5.4	66	3.0	310	840
JUN												
18...	1305	6540	304	7.6	27.5	60	150	5.8	71	3.2	3300	K1300
JUL												
13...	1206	1220	619	7.9	29.5	5	120	7.0	89	1.5	660	1100
AUG												
18...	1234	84	1300	8.0	30.0	5	18	6.5	86	1.2	80	K140
SEP												
14...	1447	2400	580	7.8	29.0	40	25	5.0	64	1.2	K600	790

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												
20...	340	95	110	17	140	3.3	11	250	120	200	.3	22
NOV												
17...	410	91	130	21	270	5.8	14	320	190	350	.4	22
DEC												
15...	320	59	98	18	210	5.1	8.0	260	160	270	.3	20
JAN												
13...	660	330	190	45	380	6.4	8.9	330	350	570	.5	16
FEB												
10...	540	270	150	40	320	6.0	7.7	270	310	480	.4	9.6
MAR												
16...	240	150	79	9.3	140	4.0	4.9	88	94	270	.3	9.6
APR												
06...	560	250	160	39	370	6.8	10	310	340	540	.5	15
MAY												
12...	130	0	45	4.4	25	1.0	7.7	140	13	30	.1	21
JUN												
18...	100	22	34	4.2	24	1.0	7.0	80	30	38	.1	16
JUL												
13...	240	71	75	13	36	1.0	3.5	130	47	96	.1	15
AUG												
18...	370	160	110	23	130	3.1	5.8	210	110	240	.2	20
SEP												
14...	170	33	60	5.6	46	1.5	7.8	140	6.0	90	.1	24

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT											
20...	767	771	6	0	--	--	.56	.49	.010	.070	.58
NOV											
17...	1180	1190	12	23	--	--	.20	.18	.210	.380	--
DEC											
15...	944	940	--	--	--	--	.13	.13	.000	.000	.97
JAN											
13...	1770	1760	24	8	--	--	.07	.06	.170	.090	.93
FEB											
10...	1500	1480	--	--	--	--	.42	.42	.100	.110	.83
MAR											
16...	668	661	478	54	--	--	.66	.68	.070	.130	1.5
APR											
06...	1680	1660	31	4	--	--	.44	.44	.190	.180	1.0
MAY											
12...	252	230	25	9	--	--	.25	.10	--	.020	--
JUN											
18...	194	202	192	4	--	--	.32	.32	.150	.160	1.4
JUL											
13...	422	365	227	45	1.4	.040	1.4	1.4	.070	.110	.88
AUG											
18...	797	769	15	1	--	--	.90	.90	.100	.100	.81
SEP											
14...	365	324	49	14	--	--	.05	.06	.070	.080	1.1

DATE	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
20...	.70	.59	.77	.300	.260	--	29	.3	52	6.2	94
NOV											
17...	.62	--	1.0	.510	.010	7.6	--	--	93	5.0	21
DEC											
15...	.76	.97	.76	.240	.220	18	--	--	30	3.6	96
JAN											
13...	.60	1.10	.69	.140	.100	--	22	.3	109	8.2	40
FEB											
10...	.28	.93	.39	.080	.050	17	--	--	99	11	60
MAR											
16...	.86	1.60	.99	.350	.070	15	--	--	292	311	99
APR											
06...	.92	1.20	1.1	.280	.210	--	14	.6	163	7.5	32
MAY											
12...	.01	--	.03	.300	.020	13	--	--	29	535	89
JUN											
18...	.82	1.50	.98	.370	.210	15	--	--	322	5690	68
JUL											
13...	.61	.95	.72	.180	.070	8.2	--	--	341	1120	70
AUG											
18...	.65	.91	.75	.100	.060	--	3.8	.2	59	13	84
SEP											
14...	1.0	1.20	1.1	.260	.200	11	--	--	50	324	91

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT											
20...	1353	5	0	5	100	0	100	0	0	2	0
JAN											
13...	1322	3	0	3	200	0	200	0	0	0	0
APR											
06...	1130	5	2	3	100	0	200	0	0	0	20
AUG											
18...	1234	5	5	0	0	0	0	0	--	<1	0

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
OCT 20...	0	0	2	0	4	3	1	2	320	300	20
JAN 13...	0	0	0	0	0	3	2	1	330	300	30
APR 06...	0	20	0	0	0	4	2	2	480	460	20
AUG 18...	0	0	0	--	<3	4	2	2	660	--	<10

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
OCT 20...	4	1	3	60	30	30	.3	.2	.1	7	3
JAN 13...	4	4	0	100	20	80	.1	.0	.3	40	40
APR 06...	0	0	3	170	80	90	.3	.2	.1	5	4
AUG 18...	4	4	0	60	50	12	.0	.0	.0	1	0

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT 20...	4	0	0	0	0	0	0	20	10	7
JAN 13...	0	0	0	0	0	0	1	10	0	10
APR 06...	1	0	0	0	0	0	0	10	0	20
AUG 18...	2	0	0	0	0	0	0	20	--	<3

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
NOV 17...	1502	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19...	1328	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)
NOV 17...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 17,80	MAR 16,81	MAY 12,81	JUN 18,81
TIME	1502	1500	1555	1305
TOTAL CELLS/ML	230	2100	2600	4100
DIVERSITY: DIVISION	1.1	0.7	1.3	1.0
.CLASS	1.1	0.7	1.3	1.0
..ORDER	2.0	2.6	1.5	2.2
...FAMILY	2.1	2.7	2.4	2.3
....GENUS	2.1	2.8	2.9	2.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)								
.BACILLARIOPHYCEAE								
..ACHNANTHALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	70	3	--	-	--	-
....COCCONEIS	--	-	70	3	--	-	--	-
..BACILLARIALES								
...NITZSCHIACEAE								
....HANTZSCHIA	--	-	--	-	--	-	*	0
....NITZSCHIA	13	6	560#	27	90	4	210	5
..EPITHEMIALES								
...EPITHEMIACEAE								
....RHOPALODIA	--	-	140	7	--	-	--	-
..EUPODISCALES								
...COSCINODISCACEAE								
....CYCLOTELLA	13	6	210	10	77	3	120	3
..FRAGILARIALES								
...FRAGILARIACEAE								
....SYNEDRA	--	-	140	7	--	-	--	-
..NAVICULALES								
...CYMBELLACEAE								
....CYMBELLA	13	6	70	3	--	-	--	-
...NAVICULACEAE								
....NAVICULA	13	6	420#	20	--	-	41	1
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....SCHROEDERIA	--	-	--	-	--	-	--	-
...DICTYOSPHAERIACEAE								
....DICTYOSPHAERIUM	--	-	--	-	310	12	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	77	3	69	2
....OOCYSTIS	52#	22	--	-	430#	17	83	2
....SELENASTRUM	--	-	--	-	39	2	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	100	4	--	-
....CRUCIGENIA	--	-	--	-	460#	18	--	-
....SCENEDESMUS	--	-	--	-	77	3	170	4
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	120#	50	--	-	64	3	55	1
CHRYSOPHYTA								
.XANTHOPHYCEAE								
..MISCHOCOCCALES								
...SCIADACEAE								
....OPHIOCYTIUM	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	13	6	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	810#	32	1400#	33
..NOSTOCALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	280	7
..OSCILLATORIALES								
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	660#	16
....OSCILLATORIA	--	-	420#	20	--	-	990#	24
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	28	1
....PHACUS	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	13	1	28	1

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

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE TIME	JUL 13,81 1206		AUG 18,81 1234		SEP 14,81 1447	
TOTAL CELLS/ML	140		310		500	
DIVERSITY: DIVISION	1.2		1.4		1.2	
.CLASS	1.2		1.4		1.2	
..ORDER	1.2		2.2		1.8	
...FAMILY	1.2		2.2		2.7	
....GENUS	1.4		2.4		2.9	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..ACHNANTHALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-
..BACILLARIALES						
...NITZSCHIACEAE						
....HANTZSCHIA	--	-	--	-	--	-
....NITZSCHIA	98#	70	44	14	28	6
..EPITHEMIALES						
...EPITHEMIACEAE						
....RHOPALODIA	--	-	--	-	--	-
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	15	5	14	3
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	--	-
..NAVICULALES						
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	--	-
...NAVICULACEAE						
....NAVICULA	--	-	150#	48	--	-
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	14	10	--	-	--	-
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	--	-	--	-	56	11
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	15	5	28	6
....OOCYSTIS	--	-	--	-	42	8
....SELENASTRUM	--	-	--	-	14	3
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	170#	33
....SCENEDESMUS	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	15	5	--	-
....CHLAMYDOMONAS	--	-	--	-	28	6
CHRYSOPHYTA						
.XANTHOPHYCEAE						
..MISCHOCOCCALES						
...SCIADACEAE						
....OPHIOCYTIUM	--	-	15	5	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	--	-	56	11
..NOSTOCALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	--	-
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	70	14
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	29	10	--	-
....PHACUS	14	10	--	-	--	-
....TRACHELOMONAS	14	10	29	10	--	-

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

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	5018	786	451	6110	120	1650	84	1130	230
NOV.	1980	2128	1270	735	4230	220	1250	140	822	350
DEC.	1980	1380	1700	994	3700	310	1140	200	738	450
JAN.	1981	1646	2320	1380	6130	470	2080	290	1290	560
FEB.	1981	1032	2560	1530	4260	530	1480	330	908	600
MAR.	1981	2105	1640	965	5480	310	1740	200	1110	430
APR.	1981	8975	897	522	12600	160	3800	100	2480	240
MAY	1981	95967	418	237	61300	58	15100	42	10900	130
JUNE	1981	223000	364	206	124000	50	30000	36	21800	120
JULY	1981	68291	532	302	55800	76	14000	54	9990	170
AUG.	1981	7374	947	545	10800	150	2990	100	2030	280
SEPT	1981	34665	494	281	26300	72	6730	51	4750	150
TOTAL		451581	**	**	321000	**	82000	**	57900	**
WTD. AVG.		1237	462	263	**	67	**	47	**	140

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	292	340	380	369	386	417	445	483	513	330	392	398
2	293	360	374	372	389	465	444	465	512	328	391	400
3	295	350	379	375	390	428	443	466	497	331	386	399
4	294	360	370	374	390	419	433	470	502	332	387	410
5	294	370	364	392	522	418	436	500	490	339	388	413
6	292	360	365	397	417	423	449	513	488	340	390	409
7	291	360	365	389	428	423	450	534	483	346	396	410
8	302	360	365	386	406	439	446	488	472	345	395	415
9	304	350	384	397	402	425	448	520	469	344	393	417
10	308	370	378	393	398	424	440	546	468	347	416	419
11	324	390	382	394	408	430	448	541	462	350	450	418
12	298	360	385	445	411	421	449	547	464	349	395	423
13	310	380	374	388	406	458	449	551	461	350	392	425
14	340	370	365	405	404	433	448	557	462	354	400	436
15	301	380	380	386	404	431	448	557	466	367	392	440
16	308	360	388	387	407	431	449	556	463	365	394	443
17	313	360	383	390	496	439	447	553	464	372	400	456
18	309	390	380	391	412	422	453	555	458	371	403	470
19	321	380	377	388	404	436	453	566	460	369	407	465
20	328	380	391	392	407	439	453	562	454	368	403	458
21	332	380	389	393	423	431	452	563	454	379	405	459
22	325	380	384	392	438	431	462	562	448	381	412	462
23	326	380	383	390	415	436	457	551	442	370	407	462
24												
25												
27	332	370	390	393	420	442	457	551	366	373	408	473
28	329	390	388	391	421	435	507	548	345	375	408	472
29	328	400	387	388	---	436	459	542	337	378	411	472
30	345	390	388	400	---	438	466	521	335	373	408	473
31	357	---	375	403	---	440	---	503	---	371	402	---
MEAN	316	372	380	392	416	434	453	533	449	359	402	440

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
					---	23.0	26.5	28.0	28.5	---	---
					---	22.0	24.0	28.0	---	---	30.0
					---	22.0	24.0	28.0	---	29.5	29.0
					---	22.5	24.5	27.5	---	30.0	29.0
					---	22.0	---	29.0	---	30.0	29.0
					---	23.0	25.0	28.5	---	30.0	29.5
					---	22.0	25.0	29.0	---	30.0	30.0
					---	22.5	25.0	---	---	29.5	30.5
					---	23.0	---	---	28.0	30.0	30.0
					---	23.0	---	28.5	29.0	30.5	31.0
					---	23.0	23.0	28.0	29.0	30.5	31.0
					---	24.0	23.5	28.0	28.5	29.5	31.0
					---	24.0	26.0	28.0	28.5	30.0	31.0
					---	24.0	26.0	27.5	28.5	30.5	31.0
					---	24.5	---	28.5	29.0	30.5	31.0
					---	24.5	26.0	28.5	28.5	31.0	30.0
					---	24.5	26.0	28.5	29.5	31.5	29.0
					---	24.0	27.0	---	29.5	32.5	29.0
					---	24.0	27.0	---	30.0	31.0	28.0
					---	25.0	27.0	---	30.0	30.0	28.0
					18.0	24.0	27.0	---	30.0	30.0	27.0
					19.0	24.5	27.0	---	30.0	30.0	27.5
					19.0	23.0	27.0	---	30.0	30.0	27.0
					21.0	24.0	27.0	---	30.0	30.0	27.0
					19.0	24.5	26.5	28.5	30.0	30.0	29.0
					19.0	24.5	27.0	28.0	29.5	30.0	28.5
					19.0	25.0	27.0	28.5	30.0	32.0	29.5
					21.0	25.0	27.5	28.5	30.0	29.0	29.0
					---	25.5	27.0	28.5	30.0	28.0	26.0
					---	25.0	---	28.5	30.0	28.5	27.5
					21.0	---	---	---	---	---	---
					19.5	23.5	26.0	28.5	29.5	30.0	29.0

08210400 LAGARTO CREEK NEAR GEORGE WEST, TX

LOCATION.--Lat 28°03'34", long 98°05'48", Live Oak County, Hydrologic Unit 12110111, near right bank 75 ft (23 m) downstream from bridge on U.S. Highway 281, 0.6 mi (1.0 km) upstream from Dix Hollow, and 19.3 mi (31.1 km) south of George West.

DRAINAGE AREA.--155 mi^2 (401 km^2).

PERIOD OF RECORD.--April 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 197.77 ft (60.280 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known regulation or diversion.

AVERAGE DISCHARGE.--9 years, 2.20 ft^3/s (0.062 m^3/s), 1,590 acre-ft/yr (1.96 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,350 ft^3/s (180 m^3/s) Aug. 11, 1980, gage height, 16.50 ft (5.029 m); no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1887, 25.1 ft (7.65 m), discharge 33,500 ft^3/s (949 m^3/s) Oct. 17, 1971. Second highest stage, 24.3 ft (7.41 m), discharge 29,500 ft^3/s (835 m^3/s) occurred Sept. 12, 1971. The third and fourth highest floods occurred in 1914 and September 1967 (stages unknown).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s (1.42 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 2	1800	*648	18.4	9.37	2.856
May 3	1100	648	18.4	9.37	2.856
July 7	unknown	283	8.01	unknown	---

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
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	.81	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	184	.32	.28	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	437	32	.08	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	134	8.0	.01	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	38	1.8	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	10	.58	12	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	2.4	.19	160	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.70	.04	108	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.23	.00	33	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.04	.00	11	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.0	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.5	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.50	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.98	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	1.9	.07	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.18	14	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.01	12	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.01	4.9	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.01	2.0	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	809.46	75.90	331.48	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	26.1	2.53	10.7	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	437	32	160	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	1610	151	657	.00	.00

CAL YR 1980	TOTAL	5314.27	MEAN 14.5	MAX 3820	MIN .00	AC-FT	10540	
WTR YR 1981	TOTAL	1216.84	MEAN 3.33	MAX 437	MIN .00	AC-FT	2410	

08210500 LAKE CORPUS CHRISTI NEAR MATHIS, TX

LOCATION.--Lat 28°02'17", long 97°52'15", San Patricio-Jim Wells County line, Hydrologic Unit 12110111, on right upstream corner of outlet tower at right end of Wesley E. Seale Dam on Nueces River, 0.6 mi (1.0 km) upstream from bridge on State Highway 359, and 4.5 mi (7.2 km) southwest of Mathis.

DRAINAGE AREA.--16,656 mi² (43,139 km²).

PERIOD OF RECORD.--September 1948 to current year. Prior to October 1960, monthend records only. The Soil Conservation Service, U.S. Department of Agriculture, in cooperation with the Texas Board of Water Engineers (now Texas Department of Water Resources), collected fragmentary gage-height records in connection with sedimentation studies from Feb. 2, 1942, to July 10, 1947.

REVISED RECORDS.--WSP 1923: 1953(M), 1957(M).

GAGE.--Nonrecording gage read twice daily. Supplemental water-stage recorder operated by city of Corpus Christi. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1957, nonrecording gage at various sites 0.2 mi (0.3 km) upstream at datum 0.52 ft (0.158 m) higher. Oct. 1, 1957, to Apr. 3, 1961, nonrecording gage near left end of Mathis Dam 0.2 mi (0.3 km) upstream at present datum.

REMARKS.--Mathis Dam was completed and storage began July 24, 1934. The original capacity at spillway crest (elevation, 74.5 ft or 22.71 m) was 54,000 acre-ft (66.6 hm³), but by March 1948 had decreased to 39,400 acre-ft (48.6 hm³) because of sedimentation. Wesley E. Seale Dam was completed and deliberate impoundment began on Apr. 26, 1958, submerging the old Mathis Dam. Wesley E. Seale Dam is a rolled earthfill dam, 5,930 ft (1,810 m) long, including two spillways. The 1,320-foot (402 m) north spillway has 33 gates that are operated by movable hydraulic lifts. The 1,080-foot (329 m) south spillway has 27 gates that are electrically operated from the control tower. The gates were repaired and modified in August 1966. All gates in both spillways are 37.5 by 8.75 ft (11.4 by 2.67 m) wide. Water for municipal supply for the city of Corpus Christi is released downstream through a 4.0-foot-diameter (1.2 m) cylinder valve and three 2.5- by 4.0-foot (0.8 by 1.2 m) rectangular openings. The releases are diverted from the river at Calallen 35 mi (56 km) downstream for domestic, municipal, irrigation, mining, and industrial uses in the Corpus Christi area. The city of Alice withdrew 3,030 acre-ft (3.74 hm³) from the lake during the current year for municipal use. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	106.0	-
Top of north spillway gates	94.3	278,200
Top of south spillway gates	93.8	268,500
Crest of spillways	88.0	170,200
Lowest gated outlet (invert)	55.5	646

COOPERATION.--The capacity curve is from an October 1972 survey. Elevation record furnished by the city of Corpus Christi and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 320,000 acre-ft (395 hm³) Sept. 22, 1967, and Sept. 12, 1971; maximum elevation, 94.82 ft (28.901 m) Sept. 22, 1967; minimum contents, 14,740 acre-ft (18.2 hm³) May 5, 1951, elevation, 67.62 ft (20.611 m).

EXTREMES (at 0600) FOR CURRENT YEAR.--Maximum contents, 276,200 acre-ft (341 hm³) May 30, June 13, and July 6, elevation, 94.2 ft (28.71 m); minimum, 230,000 acre-ft (284 hm³) Apr. 17, 18, 22, elevation, 91.7 ft (27.95 m).

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

91.0	217,900	94.0	272,400
92.0	235,300	95.0	292,100
93.0	253,400		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0600

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	272400	259000	253400	249700	247900	242400	237000	244200	272400	272400	270400	272400
2	272400	259000	253400	249700	246100	242400	237000	251600	272400	272400	270400	272400
3	272400	259000	255300	249700	246100	240600	235300	268500	272400	272400	270400	272400
4	270400	259000	255300	249700	246100	240600	237000	272400	272400	272400	270400	272400
5	270400	259000	253400	249700	247900	242400	235300	272400	272400	272400	270400	272400
6	270400	259000	253400	247900	247900	240600	235300	272400	272400	276200	268500	272400
7	272400	257100	253400	247900	247900	240600	235300	272400	272400	272400	268500	272400
8	272400	257100	251600	247900	247900	240600	233500	272400	272400	272400	268500	272400
9	272400	257100	257100	247900	247900	242400	233500	272400	272400	272400	268500	272400
10	272400	257100	255300	247900	247900	240600	231700	274300	272400	274300	268500	272400
11	272400	257100	253400	247900	253400	240600	231700	272400	272400	272400	268500	272400
12	272400	257100	253400	247900	246100	244200	231700	272400	272400	272400	268500	272400
13	270400	257100	253400	247900	246100	244200	231700	272400	276200	274300	268500	274300
14	270400	257100	253400	247900	246100	242400	231700	272400	274300	274300	268500	272400
15	268500	257100	253400	247900	246100	242400	231700	272400	272400	272400	266600	274300
16	270400	255300	253400	247900	244200	242400	231700	272400	272400	272400	264700	272400
17	270400	257100	253400	247900	246100	242400	230000	272400	274300	272400	264700	274300
18	268500	253400	251600	246100	244200	242400	230000	272400	274300	272400	264700	270400
19	270400	253400	251600	247900	244200	244200	231700	272400	272400	272400	266600	268500
20	268500	253400	253400	249700	244200	242400	231700	272400	272400	272400	264700	268500
21	266600	251600	251600	249700	242400	240600	231700	270400	272400	274300	264700	268500
22	266600	253400	251600	249700	246100	242400	230000	270400	274300	272400	264700	268500
23	266600	253400	251600	247900	242400	238800	231700	270400	272400	272400	264700	268500
24	268500	253400	251600	247900	242400	238800	231700	270400	272400	272400	262800	268500
25	264700	253400	251600	246100	242400	238800	231700	270400	272400	272400	264700	268500
26	262800	257100	249700	246100	242400	238800	231700	272400	274300	272400	264700	266600
27	260900	253400	251600	247900	242400	237000	231700	272400	274300	272400	266600	266600
28	268500	253400	249700	247900	242400	237000	235300	272400	274300	272400	266600	266600
29	262800	253400	249700	246100	---	238800	237000	272400	272400	272400	266600	266600
30	260900	253400	249700	247900	---	237000	240600	276200	272400	272400	268500	266600
31	260900	---	249700	247900	---	237000	---	272400	---	270400	272400	---
MAX	272400	259000	257100	249700	253400	244200	240600	276200	276200	276200	272400	274300
MIN	260900	251600	249700	246100	242400	237000	230000	244200	272400	270400	262800	266600
(†)	93.4	93.0	92.8	92.7	92.4	92.1	92.3	94.0	94.0	93.9	94.0	93.7
(‡)	-11500	-7500	-3700	-1800	-5500	-5400	+3600	+31800	0	-2000	+2000	-5800

CAL YR 1980 MAX 274300 MIN 196500 ‡ +36800
WTR YR 1981 MAX 276200 MIN 230000 ‡ - 5800

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

08211000 NUECES RIVER NEAR MATHIS, TX

LOCATION.--Lat 28°02'17", long 97°51'36", San Patricio-Jim Wells County line, Hydrologic Unit 12110111, on left bank 6 ft (2 m) downstream from pier of bridge on State Highway 359, 200 ft (61 m) downstream from Texas and New Orleans Railroad Co. bridge, 0.6 mi (1.0 km) downstream from Wesley E. Seale Dam, 4 mi (6 km) southwest of Mathis, and at mile 46.7 (75.1 km).

DRAINAGE AREA.--16,660 mi^2 (43,150 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 27.53 ft (8.391 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is regulated by Lake Corpus Christi (station 08210500) 0.6 mi (1.0 km) upstream. Upstream from Lake Corpus Christi, flow is affected by recharge to permeable formations, small diversions, and minor regulation. Water for municipal and industrial uses at Corpus Christi is released from Lake Corpus Christi above gage and is diverted from river at Calallen 34 mi (55 km) downstream.

AVERAGE DISCHARGE.--42 years, 859 ft^3/s (24.33 m^3/s), 622,300 acre-ft/yr (767 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft^3/s (3,910 m^3/s) Sept. 24, 1967, gage height, 47.7 ft (14.54 m), from floodmark; minimum daily, 6.8 ft^3/s (0.19 m^3/s) Aug. 15, 1940.
Maximum stage since at least 1888, that of Sept. 24, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of about 40 ft (12 m) occurred Sept. 20, 1919, from information by Texas and New Orleans Railroad Co. and is the second highest known.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,600 ft^3/s (527 m^3/s) June 27 at 0430 hours, gage height, 30.20 ft (9.205 m); minimum daily, 83 ft^3/s (2.35 m^3/s) Mar. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	277	99	95	110	114	107	112	122	2330	8390	285	3190
2	264	99	97	106	99	107	111	198	3110	8170	275	1560
3	240	99	96	105	96	107	113	3530	5190	7930	247	841
4	176	100	96	105	92	113	114	8100	2780	7340	203	2270
5	173	99	96	106	92	109	113	6630	2400	6520	200	2040
6	177	98	98	103	92	104	123	5430	2180	12600	187	1360
7	212	96	98	100	91	104	133	3720	2910	8040	181	1490
8	260	96	100	125	91	104	134	3670	3600	4800	184	1150
9	263	100	105	97	91	104	124	4030	4020	3310	182	897
10	237	139	109	97	117	103	119	4910	4860	2060	170	1090
11	237	127	94	96	148	104	119	5130	4890	1570	192	1850
12	204	111	94	96	101	103	121	6360	4720	742	189	3700
13	175	112	93	96	99	86	121	5870	7520	1400	182	3760
14	170	117	94	97	99	85	128	5490	7970	1400	169	3900
15	168	124	93	96	99	85	136	3750	6480	1140	169	2340
16	166	139	94	102	99	84	136	3010	6950	794	168	476
17	164	287	93	105	99	83	134	2660	8010	357	166	427
18	197	130	95	96	102	124	132	2780	5690	377	161	271
19	247	96	121	106	114	124	133	1770	6790	389	171	188
20	166	95	117	101	109	123	133	182	6840	389	166	180
21	154	95	97	99	109	125	134	141	7700	396	163	175
22	145	100	96	98	117	161	136	134	10400	373	161	163
23	140	95	96	99	109	128	124	130	11400	357	151	160
24	221	95	106	99	108	125	126	133	12900	368	150	156
25	133	143	100	99	109	122	127	250	14200	347	148	150
26	128	217	97	99	109	112	128	182	17100	343	147	148
27	127	111	97	99	109	112	129	152	17100	363	143	148
28	299	96	97	99	109	114	127	142	14400	344	143	144
29	247	95	97	100	---	113	126	984	11800	331	146	137
30	107	95	97	99	---	113	123	6190	8700	312	164	132
31	100	---	94	99	---	113	---	3300	---	295	1670	---
TOTAL	5974	3505	3052	3134	2923	3401	3769	89080	224940	81547	7033	34493
MEAN	193	117	98.5	101	104	110	126	2874	7498	2631	227	1150
MAX	299	287	121	125	148	161	136	8100	17100	12600	1670	3900
MIN	100	95	93	96	91	83	111	122	2180	295	143	132
AC-FT	11850	6950	6050	6220	5800	6750	7480	176700	446200	161700	13950	68420

CAL YR 1980	TOTAL	283516	MEAN	775	MAX	19200	MIN 93	AC-FT	562400
WTR YR 1981	TOTAL	462851	MEAN	1268	MAX	17100	MIN 83	AC-FT	918100

08211000 NUECES RIVER NEAR MATHIS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1947 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1947 to current year.
WATER TEMPERATURES: October 1947 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,580 micromhos Apr. 19, 20, 1977; minimum daily, 216 micromhos Sept. 19, 1971.
WATER TEMPERATURES (1947-76, 1980): Maximum daily, 36.0°C Aug. 8, 1964; minimum daily, 3.0°C Jan. 19, 1968.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 566 micromhos May 19; minimum daily, 291 micromhos Oct. 7.
WATER TEMPERATURES: Maximum daily, 32.5°C Aug. 18.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
DEC									
18...	1150	99	380	16.0	130	15	46	4.8	26
FEB									
03...	1630	99	390	--	130	9	44	4.6	27
04...	1130	97	379	--	130	2	45	4.7	29
MAR									
15...	1610	85	432	--	140	12	48	5.4	31
MAY									
03...	1600	5400	465	24.0	150	21	51	5.7	35
JUL									
06...	1600	13400	342	--	130	8	44	4.4	18
AUG									
31...	1225	1800	402	30.0	150	14	52	5.8	21

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
DEC								
18...	1.0	6.6	120	32	34	.2	19	241
FEB								
03...	1.0	6.6	120	29	32	.2	17	232
04...	1.1	6.5	130	32	30	.2	18	244
MAR								
15...	1.1	6.3	130	34	38	.2	17	258
MAY								
03...	1.2	7.1	130	46	47	.1	17	287
JUL								
06...	.7	6.9	120	20	29	.1	18	212
AUG								
31...	.8	6.7	140	20	34	.1	19	243

08211000 NUECES RIVER NEAR MATHIS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	5974	313	180	2900	29	469	26	419	100
NOV.	1980	3505	371	213	2010	37	351	31	289	120
DEC.	1980	3052	380	218	1790	38	316	31	258	120
JAN.	1981	3134	391	224	1900	40	338	32	272	120
FEB.	1981	2923	416	238	1880	44	346	34	268	130
MAR.	1981	3401	434	248	2280	47	428	35	325	130
APR.	1981	3769	453	259	2630	50	506	37	375	140
MAY	1981	89080	525	299	71900	62	15000	42	10200	160
JUNE	1981	224940	428	244	148000	46	27900	35	21200	130
JULY	1981	81547	341	195	43000	33	7200	28	6200	110
AUG.	1981	7033	401	230	4360	42	788	33	625	130
SEPT	1981	34493	422	241	22500	45	4170	35	3210	130
TOTAL		462851	**	**	306000	**	57800	**	43700	**
WTD. AVG.		1268	428	245	**	46	**	35	**	130

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	292	340	380	369	386	417	445	483	513	330	392	398
2	293	360	374	372	389	465	444	465	512	328	391	400
3	295	350	379	375	390	428	443	466	497	331	386	399
4	294	360	370	374	390	419	433	470	502	332	387	410
5	294	370	364	392	522	418	436	500	490	339	388	413
6	292	360	365	397	417	423	449	513	488	340	390	409
7	291	360	365	389	428	423	450	534	483	346	396	410
8	302	360	365	386	406	439	446	488	472	345	395	415
9	304	350	384	397	402	425	448	520	469	344	393	417
10	308	370	378	393	398	424	440	546	468	347	416	419
11	324	390	382	394	408	430	448	541	462	350	450	418
12	298	360	385	445	411	421	449	547	464	349	395	423
13	310	380	374	388	406	458	449	551	461	350	392	425
14	340	370	365	405	404	433	448	557	462	354	400	436
15	301	380	380	386	404	431	448	557	466	367	392	440
16	308	360	388	387	407	431	449	556	463	365	394	443
17	313	360	383	390	496	439	447	553	464	372	400	456
18	309	390	380	391	412	422	453	555	458	371	403	470
19	321	380	377	388	404	436	453	566	460	369	407	465
20	328	380	391	392	407	439	453	562	454	368	403	458
21	332	380	389	393	423	431	452	563	454	379	405	459
22	325	380	384	392	438	431	462	562	448	381	412	462
23	326	380	383	390	415	436	457	551	442	370	407	462
24	333	380	385	391	417	432	458	548	435	371	409	463
25	331	370	386	393	420	462	456	542	427	379	410	475
26	339	380	392	395	407	439	471	547	383	368	413	475
27	332	370	390	393	420	442	457	551	366	373	408	473
28	329	390	388	391	421	435	507	548	345	375	408	472
29	328	400	387	388	---	436	459	542	337	378	411	472
30	345	390	388	400	---	438	466	521	335	373	408	473
31	357	---	375	403	---	440	---	503	---	371	402	---
MEAN	316	372	380	392	416	434	453	533	449	359	402	440

WTR YR 1981 MEAN 412 MAX 566 MIN 291

08211000 NUECES RIVER NEAR MATHIS, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	23.0	26.5	28.0	28.5	---	---
2						---	22.0	24.0	28.0	---	---	30.0
3						---	22.0	24.0	28.0	---	29.5	29.0
4						---	22.5	24.5	27.5	---	30.0	29.0
5						---	22.0	---	29.0	---	30.0	29.0
6						---	23.0	25.0	28.5	---	30.0	29.5
7						---	22.0	25.0	29.0	---	30.0	30.0
8						---	22.5	25.0	---	---	29.5	30.5
9						---	23.0	---	---	28.0	30.0	30.0
10						---	23.0	---	28.5	29.0	30.5	31.0
11						---	23.0	23.0	28.0	29.0	30.5	31.0
12						---	24.0	23.5	28.0	28.5	29.5	31.0
13						---	24.0	26.0	28.0	28.5	30.0	31.0
14						---	24.0	26.0	27.5	28.5	30.5	31.0
15						---	24.5	---	28.5	29.0	30.5	31.0
16						---	24.5	26.0	28.5	28.5	31.0	30.0
17						---	24.5	26.0	28.5	29.5	31.5	29.0
18						---	24.0	27.0	---	29.5	32.5	29.0
19						---	24.0	27.0	---	30.0	31.0	28.0
20						---	25.0	27.0	---	30.0	30.0	28.0
21						18.0	24.0	27.0	---	30.0	30.0	27.0
22						19.0	24.5	27.0	---	30.0	30.0	27.5
23						19.0	23.0	27.0	---	30.0	30.0	27.0
24						21.0	24.0	27.0	---	30.0	30.0	27.0
25						19.0	24.5	26.5	28.5	30.0	30.0	29.0
26						19.0	24.5	27.0	28.0	29.5	30.0	28.5
27						19.0	25.0	27.0	28.5	30.0	32.0	29.5
28						21.0	25.0	27.5	28.5	30.0	29.0	29.0
29						---	25.5	27.0	28.5	30.0	28.0	26.0
30						---	25.0	---	28.5	30.0	28.5	27.5
31						21.0	---	---	---	---	---	---
MEAN						19.5	23.5	26.0	28.5	29.5	30.0	29.0

WTR YR 1981 MEAN 27.0 MAX 32.5 MIN 18.0

08211520 OSO CREEK AT CORPUS CHRISTI, TX

LOCATION.--Lat 27°42'40", long 97°30'06", Nueces County, Hydrologic Unit 12110202, on left downstream end of bridge on Farm Road 763, 1.5 mi (2.4 km) south of intersection of Farm Roads 763 and 665, 1.6 mi (2.6 km) downstream from mouth of West Oso Creek, and 1.9 mi (3.1 km) southwest of intersection of Farm Road 665 and State Highway 357.

DRAINAGE AREA.--90.3 mi² (233.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1.91 ft (0.582 m) below National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No known diversions above station. An undetermined amount of water from oilfield operations enters stream upstream at various points. Recording rain gage is located at station.

AVERAGE DISCHARGE.--9 years, 37.3 ft³/s (1.056 m³/s), 27,020 acre-ft/yr (33.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft³/s (343 m³/s) Aug. 10, 1980, gage height, 29.37 ft (8.952 m); minimum, 0.25 ft³/s (0.07 m³/s) Aug. 26, 27, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of about 24.5 ft (7.47 m) occurred in May 1968, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 3	2100	1,340	37.9	17.65	5.380
May 30	0300	1,030	29.2	16.11	4.910
July 6	1900	*1,540	43.6	18.50	5.639

Minimum discharge, 0.52 ft³/s (0.015 m³/s) Aug. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	500	2.2	5.8	2.4	2.9	3.2	4.0	3.8	97	7.5	2.4	189
2	174	2.2	4.5	2.5	2.5	3.5	4.1	299	31	4.7	2.2	74
3	57	2.2	3.8	2.5	2.3	3.6	6.0	834	52	5.8	2.4	29
4	23	2.2	3.7	2.5	13	3.4	4.5	962	199	4.0	2.7	16
5	12	2.2	3.5	2.6	89	3.3	3.7	312	110	2.8	2.0	9.9
6	7.2	2.3	3.4	2.7	101	3.5	3.7	94	44	558	1.1	7.2
7	5.2	2.2	3.4	2.5	32	3.7	3.7	29	21	1250	1.4	5.9
8	4.2	2.2	3.6	2.7	14	3.8	4.2	15	10	610	3.2	4.5
9	3.4	2.3	3.4	2.9	9.6	3.9	4.6	10	5.4	270	1.8	3.4
10	3.1	2.4	3.2	2.9	7.2	4.9	4.7	7.1	3.6	126	1.5	2.8
11	2.9	2.6	3.1	2.9	5.3	8.6	4.2	5.3	3.4	49	1.5	2.7
12	2.7	2.4	3.0	2.9	4.2	15	4.1	4.6	8.0	23	1.6	2.9
13	2.6	2.2	2.9	2.9	3.8	23	4.1	4.0	5.1	18	1.9	3.0
14	2.8	2.8	2.9	2.9	3.6	21	4.1	3.8	5.3	18	2.2	2.6
15	41	2.3	3.2	2.9	3.5	13	4.0	3.6	4.1	8.9	2.2	2.9
16	35	2.3	3.1	2.9	3.2	9.1	3.9	3.8	2.7	5.0	2.4	3.4
17	11	2.2	2.9	2.9	3.2	6.9	3.9	3.4	23	3.8	2.2	3.5
18	5.7	2.1	2.9	3.0	3.1	5.4	4.8	3.2	193	3.3	1.9	2.7
19	3.9	2.1	2.9	37	3.1	4.6	5.0	3.1	82	3.0	1.9	2.6
20	3.6	2.1	2.7	107	3.1	4.3	4.9	2.9	23	2.6	1.9	2.6
21	3.6	2.2	2.5	69	3.0	4.2	4.5	3.0	9.2	2.6	2.0	2.7
22	3.2	3.2	2.5	24	2.9	4.0	5.5	3.1	3.8	2.8	1.8	2.8
23	3.2	3.3	2.6	13	2.6	3.8	5.7	3.2	2.2	2.6	1.8	2.9
24	2.8	3.3	2.6	7.9	2.6	3.7	6.9	3.4	1.8	2.4	2.2	2.9
25	2.6	72	2.6	5.7	2.8	3.9	6.5	6.5	3.7	2.5	2.3	2.2
26	2.6	182	2.6	4.7	2.8	3.9	7.3	4.9	45	3.3	2.9	2.4
27	2.5	100	2.6	4.2	3.0	4.7	9.0	4.4	38	3.0	2.0	2.4
28	3.2	31	2.6	3.6	3.0	5.8	9.0	3.9	143	3.0	2.2	2.5
29	2.5	15	2.6	3.4	---	4.3	6.3	164	43	3.2	15	2.2
30	2.2	8.5	2.6	3.2	---	3.9	4.4	831	15	2.6	275	2.2
31	2.0	---	2.4	3.1	---	3.9	---	344	---	2.4	299	---
TOTAL	930.7	466.0	96.1	335.3	332.3	193.8	151.3	3975.0	1227.3	3003.8	646.6	395.8
MEAN	30.0	15.5	3.10	10.8	11.9	6.25	5.04	128	40.9	96.9	20.9	13.2
MAX	500	182	5.8	107	101	23	9.0	962	199	1250	299	189
MIN	2.0	2.1	2.4	2.4	2.3	3.2	3.7	2.9	1.8	2.4	1.1	2.2
AC-FT	1850	924	191	665	659	384	300	7880	2430	5960	1280	785

CAL YR 1980 TOTAL 18647.77 MEAN 51.0 MAX 6160 MIN .73 AC-FT 36990
WTR YR 1981 TOTAL 11754.00 MEAN 32.2 MAX 1250 MIN 1.1 AC-FT 23310

08211520 OSO CREEK AT CORPUS CHRISTI, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
OCT 07...	1138	5.2	3500	7.8	24.0	--	1.5	7.8	92	2.5	680
NOV 17...	1545	2.1	4720	7.9	14.0	--	22	12.8	123	1.3	800
JAN 06...	1130	2.8	4700	8.0	17.5	--	29	11.3	118	3.7	840
FEB 09...	1530	9.0	1880	7.4	13.5	20	--	8.9	86	4.0	340
MAR 16...	1645	8.5	1990	7.6	19.7	--	63	7.7	83	5.0	340
MAY 05...	1310	333	268	7.5	27.5	--	180	6.6	83	2.9	82
JUN 26...	0945	2.6	4100	7.5	27.0	--	30	5.9	73	3.1	740
JUL 28...	1058	3.0	4600	7.3	29.0	--	34	5.2	67	2.5	770
SEP 15...	1017	2.2	4520	7.4	29.0	--	29	4.4	57	3.6	760

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 (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 07...	520	220	32	470	7.8	12	160	130	1000	.3	22
NOV 17...	660	250	42	600	9.2	25	140	220	1300	.4	16
JAN 06...	700	260	47	720	11	15	140	250	1500	.4	9.0
FEB 09...	220	110	17	240	5.6	7.6	120	95	460	.3	15
MAR 16...	220	110	17	260	6.1	8.6	120	96	490	.3	15
MAY 05...	0	28	2.8	24	1.2	6.1	93	22	16	.2	17
JUN 26...	600	240	35	570	9.1	15	140	160	1300	.2	20
JUL 28...	610	240	42	860	13	13	160	220	1700	.2	20
SEP 15...	610	240	38	650	10	17	150	200	1400	.3	23

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 07...	1980	68	--	1.2	.090	1.3	.120	.98	1.1	.920	11
NOV 17...	2540	32	--	12	.100	12	.190	1.7	1.9	5.100	8.8
JAN 06...	2890	50	--	13	.230	13	.350	.65	1.0	5.600	16
FEB 09...	1020	32	10	5.0	.270	5.3	.480	.48	.96	.650	13
MAR 16...	1070	88	--	5.3	.300	5.6	.400	1.4	1.8	1.600	12
MAY 05...	172	344	--	2.2	.060	2.3	.000	1.5	1.5	.540	8.2
JUN 26...	2420	37	--	4.1	.090	4.2	.380	1.2	1.6	2.000	8.0
JUL 28...	3190	56	--	3.8	.180	4.0	.480	1.6	2.1	3.000	9.3
SEP 15...	2660	17	--	5.2	.280	5.5	.720	1.4	2.1	3.100	9.4

08211520 OSO CREEK AT CORPUS CHRISTI, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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...	1545	14	200	10	0	0	40
FEB 09...	1530	45	200	<1	0	18	40
MAY 05...	1310	60	200	6	0	0	290
JUL 28...	1058	17	300	0	0	50	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 17...	100	260	.3	0	0	20
FEB 09...	<10	160	.2	0	0	20
MAY 05...	0	40	.1	0	0	20
JUL 28...	0	310	.2	0	0	40

DATE	TIME	PCB TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)
FEB 09...	1530	<.10	3	<.1	<.01	<.1	<.1	2	<.01	2.1	<.01
JUL 28...	1058	.00	--	.0	.00	--	.0	--	.00	--	.00

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)
FEB 09...	5.2	<.01	<.1	.01	<.01	<.1	<.01	<.01	<.1	<.01
JUL 28...	--	.00	--	.55	.00	--	.00	.00	--	.00

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, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
FEB 09...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	.05
JUL 28...	.00	--	.00	--	.01	--	.01	.00	--	.00

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)
FEB 09...	<.01	<.01	<.1	<.01	<0	<1	<.01	<.01	.01	<.01
JUL 28...	.00	.00	--	.00	0	--	.00	.02	.00	.00

08211800 SAN DIEGO CREEK AT ALICE, TX

LOCATION.--Lat 27°45'59", long 98°04'31", Jim Wells County, Hydrologic Unit 12110204, at bridge on Edith Drive in Alice, 540 ft (165 m) downstream from Texas and New Orleans Railroad Co. bridge, and 3.2 mi (5.1 km) upstream from confluence with Chiltipin Creek.

DRAINAGE AREA.--319 mi^2 (826 km^2).

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

REVISED RECORDS.--WRD TX-72-1: 1971.

GAGE.--Water-stage recorder. Datum of gage is 189.60 ft (57.790 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is affected at times by discharge from the flood-detention pools of ten floodwater-retarding structures with a combined detention capacity of 35,980 acre-ft (44.4 hm^3). These structures control runoff from 170 mi^2 (440 km^2) in the San Diego-Rosita drainage basins. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 9.92 ft^3/s (0.281 m^3/s), 7,190 acre-ft/yr (8.87 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft^3/s (544 m^3/s) Oct. 17, 1971, gage height, 17.70 ft (5.395 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1928, 18.2 ft (5.55 m) April 1949, equivalent gage height in channel modified in 1955, 17.2 ft (5.24 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 364 ft^3/s (10.3 m^3/s) June 3 at 1800 hours, gage height, 6.03 ft (1.838 m), no other peak above base of 250 ft^3/s (7.08 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	.03	.17	.04	.08	.17	.23	.13	.00	.32	.00	8.3
2	6.1	.02	.15	.03	.07	.21	.21	.58	.09	.22	.00	.20
3	1.9	.00	.14	.03	.06	.22	.11	2.2	76	.16	.00	.00
4	.91	.00	.13	.03	.23	.25	.03	.88	36	.13	.00	.00
5	.56	.00	.11	.03	.73	.14	.00	1.1	7.2	.16	.00	.00
6	.42	.00	.07	.05	.66	.10	.00	1.4	1.3	4.2	.00	.00
7	.29	.00	.07	.05	.47	.14	.00	.46	.43	2.0	.00	.00
8	.22	.00	.10	.04	.35	.12	.03	.19	.23	1.2	.00	.00
9	.51	.02	.17	.06	.35	.08	.09	.04	.16	.90	.00	.00
10	.94	.01	.12	.06	.37	.09	.03	.00	.08	.74	.00	.00
11	.64	.02	.08	.05	.18	.77	.00	.00	.04	17	.00	.00
12	.37	.01	.07	.05	.19	4.4	.04	.00	.06	43	.00	.00
13	.29	.00	.07	.05	.17	10	.03	.00	16	8.0	.00	.00
14	.23	.00	.06	.08	.19	10	.02	.00	20	1.7	.00	.00
15	.17	.00	.09	.08	.18	2.9	.03	.00	8.9	.85	.00	.00
16	.11	.00	.07	.08	.13	1.0	.02	.00	8.1	.66	.00	.00
17	.06	.00	.05	.09	.12	.80	.03	.00	16	.42	.00	.00
18	.18	.00	.05	.22	.12	.69	.38	.00	3.4	.29	.00	.00
19	.18	.00	.03	2.7	.17	.49	.15	.00	1.3	.27	.00	.00
20	.14	.00	.02	3.4	.18	.38	.11	.00	.85	.22	.00	.00
21	.16	.04	.01	5.7	.19	.36	.09	.00	.50	.17	.00	.00
22	.10	.17	.02	2.6	.20	.32	.28	.00	.32	.11	.00	.00
23	.26	.21	.03	.82	.15	.22	.14	.00	.23	.09	.00	.00
24	.26	.12	.02	.34	.09	2.8	.14	.00	.18	.05	.00	.00
25	.17	1.4	.01	.21	.10	.22	.15	.01	.16	.03	.00	.00
26	.14	2.5	.03	.15	.12	.19	.19	.00	.13	.03	.00	.00
27	.12	1.5	.03	.16	.11	.21	.37	.25	.22	.03	.00	.00
28	.06	1.5	.03	.16	.13	.18	.51	.21	.29	.00	.00	.00
29	.03	.42	.03	.14	---	.22	.27	.35	.63	.00	.00	.00
30	.02	.22	.05	.11	---	.19	.15	.59	.60	.00	1.1	.00
31	.03	---	.05	.10	---	.16	---	.00	---	.00	3.7	---
TOTAL	24.17	8.19	2.13	17.71	6.09	38.02	3.83	8.39	199.40	82.95	4.80	8.50
MEAN	.78	.27	.069	.57	.22	1.23	.13	.27	6.65	2.68	.15	.28
MAX	8.6	2.5	.17	5.7	.73	10	.51	2.2	76	43	3.7	8.3
MIN	.02	.00	.01	.03	.06	.08	.00	.00	.00	.00	.00	.00
AC-FT	48	16	4.2	35	12	75	7.6	17	396	165	9.5	17

CAL YR 1980 TOTAL 2137.12 MEAN 5.84 MAX 1200 MIN .00 AC-FT 4240
WTR YR 1981 TOTAL 404.18 MEAN 1.11 MAX 76 MIN .00 AC-FT 802

08211850 LAKE ALICE AT ALICE, TX

LOCATION.--Lat 27°47'25", long 98°03'39", Jim Wells County, Hydrologic Unit 12110204, on right bank just upstream from Alice Dam on Chiltipin Creek, 1.8 mi (2.9 km) upstream from confluence of Chiltipin and San Diego Creeks, and 2.6 mi (4.2 km) northeast of Alice.

DRAINAGE AREA.--150 mi² (388 km²).

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by city of Alice).

REMARKS.--The lake is formed by a rolled earthfill dam, which is 11,525 ft (3,513 m) long. The dam consists of the main embankment 3,470 ft (1,060 m) long and two protective levees. The west protective levee is 4,275 ft (1,303 m) long and the east protective levee is 2,343 ft (714 m) long. Storage began Oct. 26, 1964, and the dam was completed Mar. 16, 1965. The spillway, 1,000 ft (305 m) wide, is located between the main embankment and the west levee. Collapsible flashboards, 3.5 ft (1.1 m) high, were added to the crest of the spillway. The main spillway is 414 ft (126 m) wide with thirteen 30-foot-wide (9 m) slots for gates, but no gates have been installed at the present time. The main spillway is located between the main embankment and the east levee. The spillway is a concrete siphon-type spillway, 22.5 ft (6.9 m) wide with a 3.5-foot (1.1 m) opening, and is in the main enbankment section. The dam is the property of the Alice Water Authority and was built to store water for use by the city of Alice. The area and capacity tables are based on revised maps surveyed in 1963. Flow is affected at times by discharge from flood-detention pools of eight floodwater-retarding structures with combined detention capacity of 10,380 acre-ft (12.8 hm³). These structures control runoff from 131 mi² (339 km²). Records furnished by the city of Alice show that 4,730 acre-ft (5.83 hm³) was diverted during the current year for municipal use. Records furnished by the city of Corpus Christi show that 3,030 acre-ft (3.74 hm³) was diverted to Lake Alice from Lake Corpus Christi 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	205.0	-
Top of west levee	202.0	-
Top of collapsible flashboards	199.5	5,300
Top of east levee	199.0	4,910
Crest of main spillway	196.5	3,110
Crest of spillway	196.0	2,780
Crest of siphon spillway (lowest outlet)	196.0	2,780

COOPERATION.--The area and capacity tables are furnished by the Alice Water Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 4,780 acre-ft (5.89 hm³) Sept. 12, 1971, elevation, 198.83 ft (60.603 m), from floodmark; minimum, 14 acre-ft (17,300 m³) Feb. 3, 1965, elevation, 185.67 ft (56.592 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,260 acre-ft (2.79 hm³) Oct. 1 at 0100 hours, elevation, 195.14 ft (59.479 m); minimum, 268 acre-ft (0.330 hm³) Sept. 29 at 0100 hours, elevation, 190.41 ft (58.037 m).

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

190.0	195	194.0	1,640
191.0	423	195.0	2,180
192.0	754	196.0	2,780
193.0	1,160		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2260	1610	1110	581	423	453	532	601	701	1250	628	591
2	2230	1590	1080	548	423	453	532	621	725	1220	614	591
3	2190	1570	1070	532	394	438	532	655	1120	1200	604	588
4	2160	1530	1060	516	394	423	532	655	1180	1170	594	584
5	2150	1510	1050	519	394	409	532	638	1170	1140	578	588
6	2120	1480	1040	519	394	423	532	621	1150	1190	565	588
7	2110	1460	1010	519	394	423	532	598	1130	1200	565	584
8	2100	1440	997	519	394	423	532	588	1100	1190	545	581
9	2090	1420	997	519	394	423	532	575	1100	1170	516	575
10	2090	1400	968	519	394	423	532	558	1060	1160	507	568
11	2060	1380	947	548	380	423	532	555	1040	1140	503	558
12	2030	1350	935	548	394	516	532	552	1040	1120	497	558
13	2000	1340	923	545	394	532	532	552	1210	1100	497	545
14	1980	1300	915	532	366	581	532	552	1210	1070	497	555
15	1950	1270	899	516	394	581	532	548	1180	1040	497	558
16	1930	1240	880	516	423	581	532	555	1370	1010	491	542
17	1910	1220	868	516	423	591	532	555	1440	988	475	500
18	1880	1220	856	516	423	598	532	542	1430	964	472	475
19	1840	1200	799	500	423	598	532	542	1410	927	466	453
20	1830	1180	784	487	423	614	548	539	1380	903	462	423
21	1820	1170	780	484	453	614	548	532	1360	880	459	394
22	1800	1170	754	481	484	614	581	523	1340	864	459	380
23	1780	1170	747	469	453	614	581	500	1310	829	453	377
24	1740	1150	715	453	453	614	598	500	1320	806	453	361
25	1730	1160	704	438	453	614	598	539	1320	769	444	325
26	1700	1170	697	423	453	614	614	539	1330	754	423	307
27	1700	1170	676	394	453	614	614	539	1320	733	426	305
28	1650	1150	662	394	438	581	594	545	1310	708	447	291
29	1640	1140	641	394	---	581	601	601	1300	680	469	268
30	1640	1120	624	394	---	548	601	614	1270	648	565	271
31	1620	---	608	394	---	532	---	614	---	631	588	---
MAX	2260	1610	1110	581	484	614	614	655	1440	1250	628	591
MIN	1620	1120	608	394	366	409	532	500	701	631	423	268
(†)	193.97	192.90	191.58	190.90	191.05	191.35	191.60	191.00	193.25	191.61	191.27	190.43
(‡)	-640	-500	-512	-214	+44	+94	+69	+13	+656	-639	-43	-317

CAL YR 1980 MAX 3480 MIN 45 ‡ + 68
WTR YR 1981 MAX 2260 MIN 268 ‡ -1609

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

08211900 SAN FERNANDO CREEK AT ALICE, TX

LOCATION.--Lat 27°46'20", long 98°02'00", Jim Wells County, Hydrologic Unit 12110204, on left bank 34 ft (10 m) downstream from downstream bridge of two bridges on State Highways 44 and 359, 0.5 mi (0.8 km) downstream from confluence of San Diego and Chiltipin Creeks, 2.3 mi (3.7 km) upstream from head of Pintas Creek, and 2.7 mi (4.3 km) northeast of Alice.

DRAINAGE AREA.--507 mi^2 (1,313 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 161.68 ft (49.280 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. San Diego Creek joins Chiltipin Creek below Lake Alice to form San Fernando Creek. Flow is regulated by Lake Alice (station 08211850) 2.3 mi (3.7 km) upstream from Chiltipin Creek since Oct. 26, 1964. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08211800. Records furnished by city of Alice show that 3,780 acre-ft (4.66 hm^3) of sewage effluent was discharged into San Diego Creek 1.3 mi (2.1 km) upstream, which comprises most of the low flow. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years (water years 1966-81), 27.4 ft^3/s (0.776 m^3/s), 19,850 acre-ft/yr (24.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,800 ft^3/s (759 m^3/s) Sept. 12, 1971, gage height, 16.51 ft (5.032 m); no flow part of each day Aug. 23-26, Sept. 14, 1965, several days in June, July, and August 1967, part of Dec. 27, 1972, Sept. 17, 18, 1978, and Oct. 20-22, 1979.
Maximum stage since at least 1949, that of Sept. 12, 1971. Another high stage for this period was 15.86 ft (4.834 m) Sept. 23, 1967, discharge 16,900 ft^3/s (479 m^3/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Other high stages since at least 1949 are 15.5 ft (4.72 m) Sept. 9, 1962, discharge 14,600 ft^3/s (413 m^3/s) from field estimate, and 14.2 ft (4.33 m) Sept. 14, 1951. Discharge for flood of Sept. 14, 1951, may have exceeded that for 1962 as the highway was raised between 1952 and 1962. Flood in 1951 was higher at site of discontinued station "San Fernando Creek near Alice". Flood in 1962 was higher than that of 1967 at site of discontinued station; there is a diversion into the Pintas Creek basin between the two gaging sites, and apparently this diversion was greater in 1967 than in 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,630 ft^3/s (46.2 m^3/s) June 4 at 0100 hours, gage height, 7.58 ft (2.310 m); minimum, 1.2 ft^3/s (0.034 m^3/s) May 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	2.6	3.1	3.4	3.0	2.6	2.3	2.2	3.0	4.0	3.0	17
2	4.4	2.6	3.1	3.4	2.9	2.5	2.4	2.3	47	3.7	2.9	8.8
3	3.2	2.7	2.8	3.3	2.9	2.8	2.4	3.3	335	3.6	3.0	5.5
4	2.6	2.4	3.0	3.3	3.0	2.6	2.3	10	633	3.3	2.9	4.4
5	2.4	1.9	3.2	3.3	3.6	2.6	2.1	4.1	67	3.5	2.9	3.7
6	2.4	2.0	3.0	3.4	3.5	2.5	2.2	3.0	15	3.5	2.9	3.4
7	2.2	2.2	3.2	3.4	3.2	2.7	2.2	2.7	8.0	3.5	2.8	3.3
8	2.1	2.1	3.2	3.3	3.2	2.5	2.3	2.4	6.1	3.5	3.1	3.2
9	2.2	2.1	3.2	3.5	3.1	2.4	2.2	2.1	5.0	3.5	3.0	3.1
10	2.2	2.2	3.3	3.4	3.0	2.5	2.1	2.1	4.5	3.4	2.9	3.2
11	2.2	2.1	3.3	3.2	2.9	3.0	2.2	1.9	4.4	3.5	3.0	3.2
12	2.4	2.2	3.3	3.1	2.7	13	2.2	1.8	4.5	3.5	3.1	3.1
13	2.4	2.2	3.4	3.1	2.8	6.2	2.2	1.6	179	3.5	3.5	3.4
14	2.3	2.2	3.4	3.1	2.9	5.0	2.3	1.7	73	3.5	3.4	3.3
15	2.4	2.2	3.4	3.0	2.9	3.8	2.3	1.6	17	3.5	3.3	4.0
16	2.4	2.3	3.5	3.0	2.9	3.1	2.3	1.8	68	3.5	2.9	3.3
17	2.5	2.3	3.8	3.0	2.9	2.7	2.4	1.7	209	3.5	2.9	3.1
18	2.6	2.3	3.6	3.2	2.9	2.7	3.0	1.8	34	3.5	3.0	3.2
19	2.5	2.3	3.4	5.1	2.9	2.5	2.7	1.7	9.6	3.5	3.0	3.0
20	2.5	2.6	3.2	7.7	2.9	2.6	2.3	1.5	6.3	4.5	3.1	3.1
21	2.6	2.9	3.2	4.8	2.7	2.7	2.3	1.5	5.1	3.2	3.2	3.1
22	2.5	2.8	3.3	4.3	2.3	2.4	2.5	1.7	4.3	2.9	3.1	3.1
23	2.6	2.7	3.3	3.9	2.6	2.4	2.4	1.8	4.0	3.1	3.0	3.0
24	2.5	2.9	3.5	3.4	2.8	2.5	2.4	1.7	4.5	2.9	3.3	2.8
25	2.6	3.6	3.2	3.4	2.7	2.7	2.4	3.0	7.9	2.6	3.8	2.9
26	2.6	5.9	3.2	3.2	2.5	2.4	2.4	2.5	15	3.0	3.8	2.8
27	2.8	4.1	3.2	3.2	2.6	2.5	2.4	2.3	9.6	3.1	3.4	2.8
28	2.7	3.6	3.4	3.1	2.6	2.5	2.3	2.1	6.5	3.1	3.6	2.8
29	2.5	3.5	3.4	3.2	---	2.4	2.2	10	5.1	2.9	4.0	2.8
30	2.4	3.1	3.4	3.2	---	2.5	2.2	34	4.7	2.9	19	2.9
31	2.6	---	3.5	3.1	---	2.4	---	6.8	---	3.0	28	---
TOTAL	83.4	80.6	102.0	110.0	80.9	97.7	69.9	118.7	1795.1	104.2	138.8	117.3
MEAN	2.69	2.69	3.29	3.55	2.89	3.15	2.33	3.83	59.8	3.36	4.48	3.91
MAX	7.1	5.9	3.8	7.7	3.6	13	3.0	34	633	4.5	28	17
MIN	2.1	1.9	2.8	3.0	2.3	2.4	2.1	1.5	3.0	2.6	2.8	2.8
AC-FT	165	160	202	218	160	194	139	235	3560	207	275	233

CAL YR 1980 TOTAL 13865.98 MEAN 37.9 MAX 9210 MIN .42 AC-FT 27500
WTR YR 1981 TOTAL 2898.60 MEAN 7.94 MAX 633 MIN 1.5 AC-FT 5750

08212400 LOS OLMOS CREEK NEAR FALFURRIAS, TX
(National stream-quality accounting network)

LOCATION.--Lat 27°15'51", long 98°08'08", Brooks County, Hydrologic Unit 12110205, at downstream side of bridge on U.S. Highway 281 and 2.6 mi (4.2 km) north of Falfurrias.

DRAINAGE AREA.--480 mi² (1,243 km²), of which 4.5 mi² (11.7 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and V-notch weir low-water control. Datum of gage is 116.58 ft (35.534 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. La Gloria Oil Refinery no longer releases waste during low-flow periods.

AVERAGE DISCHARGE.--14 years, 5.38 ft³/s (0.152 m³/s), 3,900 acre-ft/yr (4.81 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,300 ft³/s (150 m³/s) Sept. 13, 1971, gage height, 12.66 ft (3.859 m); no flow at times in 1970-81.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1929, 15.0 ft (4.57 m) Sept. 13, 1951, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 31	2200	126	3.57	4.72	1.439	July 8	1500	324	9.18	6.88	2.097
June 5	1400	*376	10.6	7.29	2.222	Sept. 1	1300	324	9.18	6.88	2.097
June 17	1500	222	6.29	5.93	1.807	Sept. 17	1200	114	3.23	4.55	1.387

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.00	.07	.00	.00	.00	.00	.00	67	.00	.00	272
2	.04	.00	.04	.00	.00	.00	.00	.00	15	.00	.00	80
3	.01	.00	.01	.00	.00	.00	.00	.00	103	.00	.00	13
4	.00	.00	.00	.00	.00	.00	.00	.00	179	.00	.00	3.8
5	.00	.00	.00	.00	.00	.00	.00	.00	337	.00	.00	1.4
6	.00	.00	.00	.00	.00	.00	.00	.00	124	7.2	.00	.47
7	.00	.00	.00	.00	.00	.00	.00	.00	19	26	.00	.17
8	.00	.00	.00	.00	.00	.00	.00	.00	6.3	262	.00	.07
9	.00	.00	.00	.00	.00	.00	.00	.00	2.4	109	.00	.03
10	.00	.00	.00	.00	.00	.00	.00	.00	1.4	17	.00	.02
11	.00	.00	.00	.00	.00	.00	.00	.00	.55	5.1	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.35	2.0	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	1.3	.72	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	5.4	.35	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	7.6	.14	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	16	.08	.00	.50
17	.00	.00	.00	.00	.00	.00	.00	.00	171	.05	.00	78
18	.00	.00	.00	.00	.00	.00	.00	.00	85	.03	.00	19
19	.00	.00	.00	.00	.00	.00	.00	.00	25	.00	.00	5.4
20	.00	.00	.00	.00	.00	.00	.00	.00	10	.00	.00	1.6
21	.00	.00	.00	.00	.00	.00	.00	.00	3.0	.00	.00	.46
22	.00	.00	.00	.00	.00	.00	.00	.00	1.3	.00	.00	.15
23	.00	.00	.00	.00	.00	.00	.00	.00	.81	.00	.00	.06
24	.00	.00	.00	.00	.00	.00	.00	.00	.58	.00	.00	.03
25	.00	.17	.00	.00	.00	.00	.00	.00	.28	.00	.00	.02
26	.00	.85	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00
27	.00	1.2	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00
28	.00	.48	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00
29	.00	.18	.00	.00	---	.00	.00	.00	.03	.00	4.3	.00
30	.00	.09	.00	.00	---	.00	.00	4.1	.02	.00	95	.00
31	.00	---	.00	.00	---	.00	---	89	---	.00	168	---
TOTAL	.15	2.97	.12	.00	.00	.00	.00	93.10	1182.58	429.67	267.30	476.18
MEAN	.005	.099	.004	.000	.000	.000	.000	3.00	39.4	13.9	8.62	15.9
MAX	.10	1.2	.07	.00	.00	.00	.00	89	337	262	168	272
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
AC-FT	.3	5.9	.2	.00	.00	.00	.00	185	2350	852	530	945

CAL YR 1980 TOTAL 1998.80 MEAN 5.46 MAX 1020 MIN .00 AC-FT 3960
WTR YR 1981 TOTAL 2452.07 MEAN 6.72 MAX 337 MIN .00 AC-FT 4860

08212400 LOS OLMOS CREEK NEAR FALFURRIAS, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,380 micromhos July 5, 1976; minimum daily, 58 micromhos Apr. 21, 1979.
WATER TEMPERATURES (1974-77): Maximum daily, 33.0°C July 29, Aug. 1, 1976, May 30, 1977; minimum daily, 3.0°C Nov. 28, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 215 micromhos Dec. 3; minimum daily, 75 micromhos June 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JUN 05...	1916	372	108	7.3	31.0	46	4.0	52	2.9	940	7100
JUL 15...	1419	.10	137	7.1	32.0	30	6.0	79	3.7	440	1200

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)
JUN 05...	40	0	13	1.9	2.6	.2	7.9	43	15	3.0	.1
JUL 15...	48	0	15	2.5	2.2	.1	11	60	4.4	4.2	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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)
JUN 05...	13	95	82	--	--	1.5	.00	.100	.130	1.7
JUL 15...	15	116	90	.01	.030	.04	.05	.120	.170	1.5

DATE	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED 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
JUN 05...	.30	1.80	.43	1.00	.910	5.9	.7	21	21	81
JUL 15...	.93	1.60	1.1	.860	.770	15	.1	--	--	--

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)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)
JUN 05...	1916	1	0	2	100	0	100	0	<1	10	0
JUL 15...	1419	3	0	3	100	0	100	0	<1	20	10

08212400 LOS OLMOS CREEK NEAR FALFURRIAS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
JUN 05...	10	1	<3	7	4	3	1000	830	170	13
JUL 15...	10	1	<1	6	6	0	930	710	220	0

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
JUN 05...	12	1	20	20	3	.1	.0	.1	4	3
JUL 15...	0	2	40	30	10	.2	.1	.1	3	0

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
JUN 05...	1	0	0	0	0	0	0	40	20	20
JUL 15...	3	0	0	0	0	0	0	30	20	6

08212400 LOS OLMOS CREEK NERA FALFURRIAS, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO JULY 1981

DATE	JUL 15,81
TIME	1419
TOTAL CELLS/ML	2800
DIVERSITY: DIVISION	1.4
.CLASS	1.4
..ORDER	2.1
...FAMILY	2.8
....GENUS	3.5

ORGANISM	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)		
.BACILLARIOPHYCEAE		
..EUPODISCALES		
...COSCINODISCACEAE		
....CYCLOTELLA	52	2
..NAVICULALES		
...NAVICULACEAE		
....NAVICULA	*	0
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...CHLOROCOCCACEAE		
....TETRAEDRON	*	0
...DICTYOSPHAERIACEAE		
....DICTYOSPHAERIUM	77	3
...MICRACTINIACEAE		
....MICRACTINIUM	52	2
...OOCYSTACEAE		
....ANKISTRODESMUS	130	5
....KIRCHNERIELLA	26	1
....OOCYSTIS	120	4
....SELENASTRUM	270	10
....TREUBARIA	*	0
...SCENEDESMACEAE		
....CRUCIGENIA	100	4
....SCENEDESMUS	330	12
....TETRASTRUM	100	4
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	220	8
...PHACOTACEAE		
....PTEROMONAS	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....ANACYSTIS	610#	21
..OSCILLATORIALES		
...OSCILLATORIACEAE		
....OSCILLATORIA	540#	19
EUGLENOPHYTA (EUGLENOIDS)		
.EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....EUGLENA	52	2
....TRACHELOMONAS	120	4

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

08212400 LOS OLMOS CREEK NEAR FALFURRIAS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	0.15	179	114	0.05	27	0.01	39	0.02	30
NOV.	1980	2.97	160	101	0.8	24	0.2	34	0.3	27
DEC.	1980	0.12	205	130	0.04	31	0.01	44	0.01	34
JAN.	1981	0.00	*	*	0.00	*	0.00	*	0.00	*
FEB.	1981	0.00	*	*	0.00	*	0.00	*	0.00	*
MAR.	1981	0.00	*	*	0.00	*	0.00	*	0.00	*
APR.	1981	0.00	*	*	0.00	*	0.00	*	0.00	*
MAY	1981	93.10	121	77	19	18	4.6	26	6.5	20
JUNE	1981	1182.58	96	61	194	14	46	21	66	16
JULY	1981	429.67	96	61	71	14	17	21	24	16
AUG.	1981	267.30	105	67	48	16	11	23	16	18
SEPT	1981	476.18	90	57	73	14	17	19	25	15
TOTAL		2452.07	**	**	406	**	97	**	138	**
WTD. AVG.		6.7	97	61	**	15	**	21	**	16

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170	---	200					---	115	---	---	80
2	195	---	210					---	130	---	---	95
3	205	---	215					---	95	---	---	115
4	---	---	---					---	88	---	---	125
5	---	---	---					---	75	---	---	133
6	---	---	---					---	94	165	---	145
7	---	---	---					---	120	130	---	155
8	---	---	---					---	135	85	---	160
9	---	---	---					---	155	105	---	170
10	---	---	---					---	165	112	---	173
11	---	---	---					---	180	118	---	---
12	---	---	---					---	200	125	---	---
13	---	---	---					---	190	130	---	---
14	---	---	---					---	180	135	---	---
15	---	---	---					---	175	137	---	---
16	---	---	---					---	165	150	---	180
17	---	---	---					---	100	155	---	100
18	---	---	---					---	115	162	---	115
19	---	---	---					---	125	---	---	135
20	---	---	---					---	135	---	---	145
21	---	---	---					---	150	---	---	160
22	---	---	---					---	158	---	---	180
23	---	---	---					---	163	---	---	187
24	---	---	---					---	167	---	---	193
25	---	195	---					---	170	---	---	195
26	---	170	---					---	180	---	---	---
27	---	145	---					---	186	---	---	---
28	---	155	---					---	190	---	---	---
29	---	175	---					---	193	---	160	---
30	---	190	---					145	195	---	120	---
31	---	---	---					120	---	---	95	---

WTR YR 1981 MEAN 150 MAX 215 MIN 75

08364000 RIO GRANDE AT EL PASO, TX

LOCATION.--Lat 31°48'10", long 106°32'25", El Paso County, Hydrologic Unit 13030102, at gaging station on the downstream side of the Courchesne Bridge, 5.6 mi (9.0 km) upstream from the Santa Fe Street-Juarez Avenue bridge between El Paso, Tex., and Cd. Juarez, Mex., and 1.7 mi (2.7 km) upstream from the American Dam.

DRAINAGE AREA.--29,267 mi² (75,802 km²).

PERIOD OF RECORD.--Chemical analyses: February 1930 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 50 and 51.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT										
09...	1030	183	2200	8.2	19.0	1.1	7.6	2800	190	2300
15...	0820	158	2127	8.4	17.0	--	--	--	--	--
NOV										
18...	0740	129	2260	8.1	15.0	--	--	--	--	--
DEC										
18...	0915	124	2380	8.2	7.0	--	--	--	--	--
JAN										
08...	1100	61	2100	8.3	10.0	57	--	--	930	2500
23...	1000	49	2520	8.2	5.5	--	--	--	--	--
FEB										
18...	1220	133	1790	8.1	14.0	--	--	--	--	--
MAR										
05...	1100	630	900	8.4	9.0	--	9.8	--	400	8400
18...	1100	615	897	7.9	11.0	--	--	--	--	--
APR										
14...	1630	590	1060	7.5	20.0	--	--	--	--	--
MAY										
06...	0900	440	1200	8.4	18.5	73	7.4	--	80	460
21...	0845	688	899	7.8	20.0	--	--	--	--	--
JUN										
15...	0800	743	925	7.7	23.0	--	--	--	--	--
JUL										
01...	1400	1210	800	8.3	26.0	120	6.4	--	400	1300
15...	0800	632	994	7.7	24.5	--	--	--	--	--
AUG										
20...	0855	460	1300	7.9	--	--	--	--	--	--
SEP										
06...	1400	951	1000	8.2	23.5	160	7.2	--	1570	430
15...	1320	1030	1000	7.9	23.5	--	--	--	--	--

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)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT										
09...	470	200	140	30	300	6.0	12	270	520	270
15...	480	220	140	31	280	5.6	11	260	500	250
NOV										
18...	500	230	150	31	320	6.2	15	270	520	270
DEC										
18...	510	220	150	33	350	6.7	11	290	530	290
JAN										
08...	450	180	130	31	360	7.4	9.3	--	500	280
23...	490	220	140	34	380	7.5	10	270	620	330
FEB										
18...	370	130	110	24	250	5.6	8.0	240	350	210
MAR										
05...	--	--	--	--	--	--	--	--	--	--
18...	240	70	73	14	110	3.1	5.4	170	--	--
APR										
14...	260	79	79	15	120	3.2	7.2	180	200	95
MAY										
06...	320	--	98	19	160	3.9	7.8	--	270	130
21...	230	61	71	13	94	2.7	6.3	170	180	68
JUN										
15...	250	67	76	14	100	2.8	6.4	180	190	76
JUL										
01...	240	--	71	14	87	2.5	6.6	--	180	65
15...	260	77	78	15	110	3.1	7.3	180	200	83
AUG										
20...	320	110	96	19	160	4.1	9.0	210	270	140
SEP										
06...	250	--	76	15	110	3.0	7.1	--	210	88
15...	260	77	78	15	110	3.1	7.0	180	210	89

08364000 RIO GRANDE AT EL PASO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
09...	1.50	.69	.170	.090	--	8.1	.9	65	32	67
15...	--	--	--	--	--	--	--	--	--	--
NOV										
18...	--	--	--	--	--	--	--	--	--	--
DEC										
18...	--	--	--	--	--	--	--	--	--	--
JAN										
08...	1.00	.41	.310	.030	13	--	--	91	15	82
23...	--	--	--	--	--	--	--	--	--	--
FEB										
18...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	497	845	50
18...	--	--	--	--	--	--	--	--	--	--
APR										
14...	--	--	--	--	--	--	--	--	--	--
MAY										
06...	1.20	1.3	.430	.260	--	6.5	1.1	152	181	98
21...	--	--	--	--	--	--	--	--	--	--
JUN										
15...	--	--	--	--	--	--	--	--	--	--
JUL										
01...	1.20	.75	.390	.110	7.2	--	--	226	738	99
15...	--	--	--	--	--	--	--	--	--	--
AUG										
20...	--	--	--	--	--	--	--	--	--	--
SEP										
06...	1.30	.46	.360	.150	--	3.9	.9	284	729	91
15...	--	--	--	--	--	--	--	--	--	--

08371500 RIO GRANDE ABOVE RIO CONCHO NEAR PRESIDIO, TX

LOCATION.--Lat 29°37'15", long 104°28'50", Presidio County, Hydrologic Unit 13040201, at gaging station 7.8 mi (12.6 km) upstream from the junction of Rio Conchos, about 10 mi (16 km) northwest of Presidio, Tex., and Ojinaga, Chihuahua, Mex., and 285.7 mi (459.7 km) downstream from the American Dam at El Paso.

DRAINAGE AREA.--34,966 mi² (90,562 km²), United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: February 1935 to current year. Prior to 1964, published as "Rio Grande at Upper Presidio".

REMARKS.--Records of specific conductance and discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 50 and 51.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 20...	1220	106	2640	7.8	15.5	510	340	160	28
NOV 19...	1045	60	4270	7.8	7.0	750	530	210	54
DEC 15...	1145	55	4240	8.1	10.0	720	490	200	54
JAN 20...	1425	53	4380	8.0	6.5	790	560	220	59
FEB 18...	1500	73	4680	7.7	17.0	870	660	240	66
MAR 16...	1325	31	4450	7.8	14.5	860	640	240	63
APR 20...	1400	33	4240	8.0	--	1100	880	320	65
MAY 18...	1245	23	3370	7.6	24.0	650	470	190	42
JUN 17...	1250	9.2	1950	7.6	--	420	240	130	24
JUL 21...	1230	22	1740	7.7	21.0	380	230	120	20
AUG 19...	1445	900	684	7.5	27.0	170	22	57	7.1
SEP 23...	0924	420	2100	7.7	24.0	420	230	130	23

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 20...	350	6.7	11	170	510	450	11	1620
NOV 19...	640	10	18	220	760	800	11	2630
DEC 15...	640	10	12	230	730	800	6.1	2580
JAN 20...	680	11	12	230	780	920	12	2820
FEB 18...	690	10	11	210	830	960	11	2930
MAR 16...	660	9.8	11	220	800	910	17	2830
APR 20...	520	6.9	12	190	900	780	18	2730
MAY 18...	500	8.6	11	180	680	630	17	2180
JUN 17...	250	5.3	7.6	180	480	230	28	1260
JUL 21...	230	5.4	7.9	150	430	200	27	1130
AUG 19...	75	2.6	7.9	150	120	50	11	418
SEP 23...	270	5.7	11	190	340	370	12	1270

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX
(National stream-quality accounting network)

LOCATION.--Lat 29°46'50", long 101°45'20", Val Verde County, Hydrologic Unit 13040212, at gaging station 0.1 mi (0.2 km) downstream from Terrell-Val Verde County line, 16.9 mi (27.2 km) from Langtry, and 597.2 mi (960.9 km) downstream from the American Dam at El Paso.

DRAINAGE AREA.--80,742 mi² (209,122 km²), United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: April 1944 to current year. Chemical and biochemical analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

REMARKS.--Records of and discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 50 and 51. 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, 2,110 micromhos Dec. 4, 1974; minimum daily, 225 micromhos May 2, 1981.
WATER TEMPERATURES: Maximum daily, 32.0°C June 13, 1977, July 25, 26 1979, July 4, 1980, and June 8, 1981; minimum daily, 9.0°C Jan. 12, 1975, Jan. 8, 1976, and Jan. 18, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,690 micromhos Feb. 7; minimum daily, 225 micromhos May 2.
WATER TEMPERATURES: Maximum daily, 32.0°C June 8; minimum daily, 9.0°C Jan. 18.

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 08...	1315	3490	1078	7.2	24.0	5.3	8.3	101	3.5	8000	8800
NOV 05...	1305	884	1320	7.4	21.0	47	8.5	98	1.6	8400	8800
DEC 03...	1340	846	1270	7.8	14.0	46	8.4	83	2.9	140	130
JAN 14...	1450	457	1220	7.6	14.0	1.1	8.5	84	1.0	120	110
FEB 11...	1315	970	1220	7.7	3.5	64	9.2	71	.8	78	72
MAR 11...	1430	2220	1200	7.4	15.0	68	9.0	97	2.2	74	81
APR 08...	1310	1900	1110	7.8	22.0	48	9.4	109	1.3	80	84
MAY 06...	1420	3830	1380	7.8	25.0	48	8.5	106	1.2	2600	3000
JUN 03...	1420	978	1200	7.7	27.5	52	9.0	118	3.7	160	170
JUL 08...	1315	1450	895	7.8	27.0	3300	8.8	114	3.0	540	560
AUG 05...	1440	1340	806	7.7	31.0	4100	8.7	121	2.0	440	480
SEP 09...	1330	2570	1080	7.7	27.5	8500	7.8	103	1.3	4300	4600

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 08...	270	110	87	12	130	3.5	6.7	160	280	50	1.8
NOV 05...	330	180	99	20	150	3.6	7.8	150	330	120	1.3
DEC 03...	330	230	96	21	160	3.9	7.7	160	330	130	1.4
JAN 14...	300	150	90	18	150	3.8	4.7	150	310	99	1.4
FEB 11...	300	140	91	17	150	3.8	5.3	160	310	92	1.5
MAR 11...	290	120	88	17	140	3.6	5.6	170	310	76	1.6
APR 08...	270	130	82	17	140	3.7	6.1	140	340	69	1.8
MAY 06...	340	200	110	16	160	3.8	6.5	140	390	110	1.6
JUN 03...	290	170	82	20	140	3.6	5.8	120	320	99	1.3
JUL 08...	250	140	79	12	95	2.6	5.1	120	270	49	1.2
AUG 05...	200	80	65	9.2	100	3.2	4.9	120	230	40	1.3
SEP 09...	240	120	77	12	120	3.5	6.8	120	290	73	1.2

08377200 RIO GRANDE AT FOSTER RANCH NR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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)
OCT											
08...	26	660	691	1.1	.000	1.1	1.1	.000	.010	1.6	.72
NOV											
05...	25	855	844	--	--	.63	.11	.000	.000	.78	.52
DEC											
03...	24	867	833	--	--	1.0	.99	.010	.030	.54	.54
JAN											
14...	25	805	793	--	--	1.1	1.1	.010	.040	.53	.37
FEB											
11...	25	818	793	--	--	1.2	1.2	.000	.010	1.2	.64
MAR											
11...	26	785	767	--	--	1.0	1.0	.020	.000	.74	.59
APR											
08...	27	758	772	--	--	.98	1.0	.010	.050	.75	.67
MAY											
06...	25	927	907	--	--	.98	.88	.110	.060	2.4	1.0
JUN											
03...	24	753	768	--	--	.75	.79	.050	.000	.64	.45
JUL											
08...	23	610	607	--	--	1.3	1.4	.270	.120	5.9	2.1
AUG											
05...	22	541	549	--	--	1.1	.91	.270	.130	2.6	.56
SEP											
09...	23	690	679	--	--	1.1	.89	.120	.150	11	.95

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
08...	1.60	.73	.680	.100	--	8.8	5.6	1320	12400	85
NOV										
05...	.78	.52	.200	.050	7.3	--	--	126	301	100
DEC										
03...	.55	.57	.020	.000	2.7	--	--	111	254	97
JAN										
14...	.54	.41	.080	.010	--	2.8	1.1	137	169	99
FEB										
11...	1.20	.65	.160	.020	11	--	--	337	883	92
MAR										
11...	.76	.59	.070	.010	11	--	--	217	1300	98
APR										
08...	.76	.72	.070	.010	8.8	--	--	141	722	98
MAY										
06...	2.50	1.1	.560	.030	--	6.0	.3	2890	29900	97
JUN										
03...	.69	.45	.080	.020	5.3	--	--	126	333	100
JUL										
08...	6.20	2.2	2.10	.030	30	--	--	5280	20700	100
AUG										
05...	2.90	.69	4.10	.030	--	3.2	.1	6860	24800	100
SEP										
09...	11.0	1.1	3.30	.040	63	--	--	11000	76300	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)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)
OCT											
08...	1315	15	4	11	600	300	300	1	<1	30	30
JAN											
14...	1450	16	1	15	100	0	100	0	<1	0	0
MAY											
06...	1420	20	13	7	800	700	100	0	<1	50	40
AUG											
05...	1440	24	19	5	800	700	80	0	<1	80	70

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
OCT 08...	0	7	<3	18	16	2	20000	--	<10	28
JAN 14...	0	0	<3	5	0	7	2900	--	<10	8
MAY 06...	10	14	<3	37	36	1	39000	39000	10	51
AUG 05...	10	24	<3	79	76	3	5800	5800	26	68

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
OCT 08...	26	2	670	--	<1	.3	.2	.1	21	19
JAN 14...	8	0	80	--	<1	.3	.2	.1	0	0
MAY 06...	50	1	1100	--	<1	.6	.5	.1	42	37
AUG 05...	64	4	2400	2400	25	.1	.0	.2	60	60

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT 08...	2	1	0	2	0	0	0	170	20	150
JAN 14...	0	1	0	1	1	1	0	40	20	20
MAY 06...	5	2	0	2	1	1	0	260	140	120
AUG 05...	0	4	3	1	0	0	0	390	260	130

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
NOV 15...	1305	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)
NOV 15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO JUNE 1981

DATE	NOV 5,80		MAR 11,81		MAY 6,81		JUN 3,81	
TIME	1305		1430		1420		1420	
TOTAL CELLS/ML	4600		5600		880		40000	
DIVERSITY: DIVISION	1.3		0.3		1.1		1.0	
.CLASS	1.3		0.6		1.1		1.0	
..ORDER	1.9		1.5		1.5		1.2	
...FAMILY	2.4		2.3		2.5		2.2	
....GENUS	3.2		2.6		2.7		2.3	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...DICTYOSPHAERIACEAE								
....DICTYOSPHAERIUM	--	-	--	-	220#	25	2100	5
...OOCYSTACEAE								
....ANKISTRODESMUS	610	13	49	1	84	10	810	2
....OOCYSTIS	31	1	--	-	--	-	--	-
....SELENASTRUM	61	1	--	-	--	-	--	-
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	4800	12
...SCENEDESMACEAE								
....COELASTRUM	310	7	--	-	--	-	5400	13
....CRUCIGENIA	550	12	--	-	--	-	--	-
....SCENEDESMUS	550	12	200	4	170#	19	1100	3
....TETRASTRUM	120	3	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	120	3	98	2	--	-	270	1
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	1100#	23	2600#	46	56	6	1100	3
....MELOSIRA	61	1	98	2	42	5	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	790	14	--	-	540	1
....COCCONEIS	--	-	98	2	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	--	-	200	4	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	92	2	--	-	--	-	--	-
....SYNEDRA	31	1	--	-	--	-	21000#	52
...NAVICULACEAE								
....ENTOMONEIS	--	-	98	2	14	2	--	-
....NAVICULA	--	-	440	8	56	6	--	-
...NITZSCHIACEAE								
....NITZSCHIA	640	14	740	13	220#	25	3000	7
.CHRYSOPHYCEAE								
..OCHROMONADALES								
...DINOBRYACEAE								
....DINOBRYON	--	-	200	4	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	370	8	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	270	1
....TRACHELOMONAS	--	-	--	-	14	2	--	-

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

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	79610	978	639	137000	60	12800	260	56000	270
NOV.	1980	28199	1310	842	64100	110	8700	330	25000	330
DEC.	1980	26557	1350	870	62400	120	8950	340	24100	340
JAN.	1981	37334	1260	814	82100	110	10600	320	32200	320
FEB.	1981	43165	1230	797	92900	100	11800	310	36500	320
MAR.	1981	55010	1140	739	110000	81	12100	300	43900	300
APR.	1981	73910	924	605	121000	53	10600	250	49600	250
MAY	1981	52535	868	567	80500	52	7440	230	32900	240
JUNE	1981	45818	1080	703	87000	72	8890	280	35100	290
JULY	1981	42515	1010	662	76000	63	7270	270	30900	270
AUG.	1981	82480	955	626	139000	54	12000	260	57300	260
SEPT	1981	163380	956	627	276000	54	23800	260	113700	260
TOTAL		730513	**	**	1329000	**	135000	**	537000	**
WTD. AVG.		2001	1030	674	**	68	**	270	**	280

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	633	1240	1320	1340	1100	1150	1120	387	1190	1010	1270	1110
2	718	1260	1310	1350	1110	1150	1110	225	1180	1260	947	1120
3	824	1280	1320	1360	1120	1120	1110	822	1170	905	1140	1140
4	878	1300	1310	1350	1150	1140	1100	1060	1230	961	982	1230
5	1020	1310	1310	1360	1320	1120	1110	1160	1210	1050	1000	1160
6	1080	1310	1300	1380	1480	1130	1120	1300	1000	1120	1040	876
7	1090	1310	1300	1400	1690	1140	1120	1260	1040	1080	1010	950
8	1080	1310	1290	1520	1590	1150	1110	388	1110	952	984	1040
9	1090	1300	1300	1470	1380	1140	1120	683	1050	1100	700	1050
10	1080	1300	1310	1300	1360	1130	1150	709	1120	561	1090	1370
11	1100	1290	1300	1330	1220	1150	1130	775	1030	990	1150	1100
12	1080	1290	1310	1240	1210	1150	1120	732	1190	1080	1120	730
13	1110	1290	1310	1220	1220	1160	1090	978	1010	950	551	779
14	1080	1290	1320	1230	1210	1150	1040	971	1030	1120	1070	741
15	959	1310	1310	1240	1200	1140	416	981	1150	1100	950	862
16	1080	1280	1300	1220	1200	1130	1050	1030	1000	1030	790	950
17	1070	1300	1290	1210	1190	1120	450	1070	905	1090	982	1040
18	1070	1320	1270	1210	1180	1130	850	1060	1000	1050	886	1050
19	1080	1300	1260	1220	1170	1120	1010	1050	1100	1080	884	1000
20	1130	1340	1270	1210	1180	1110	919	1080	1110	936	869	1040
21	1150	1320	1260	1220	1160	1120	918	1160	1080	1090	783	1030
22	1180	1330	1300	1220	1140	1130	933	1300	1040	1140	810	1010
23	1190	1330	1350	1230	1150	1140	750	1360	1120	1060	833	1000
24	1230	1320	1430	1200	1160	1140	1100	1350	1080	1180	936	979
25	1260	1340	1500	1210	1150	1150	1000	752	1070	1140	1000	953
26	1300	1340	1580	1200	1150	1130	988	737	1080	1120	1040	898
27	1310	1340	1610	1180	1170	1140	1150	648	1060	1100	1070	839
28	1320	1330	1500	1150	1150	1150	1100	750	1050	1080	1080	855
29	1320	1330	1480	1120	---	1140	826	1150	1080	1060	1100	860
30	1310	1320	1440	1110	---	1120	637	1140	1070	1110	1110	871
31	1270	---	1400	1090	---	1130	---	1120	---	826	1140	---
MEAN	1100	1310	1350	1260	1230	1140	988	942	1090	1040	978	988

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

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

08407500 PECOS RIVER AT RED BLUFF, NM
(National stream-quality accounting network station)

LOCATION.--Lat 32°04'30", long 104°02'21", in SW1/4NW1/4NE1/4 sec.1, T.26 S., R.28 E., Eddy County, Hydrologic Unit 13060011, on right bank at Red Bluff, 0.2 mi (0.3 km) downstream from Red Bluff Draw, 1.6 mi (2.6 km) northwest of the El Paso Natural Gas (Pecos River) compressor station, 5.2 mi (8.4 km) north of the New Mexico-Texas State line, 5.5 mi (8.8 km) upstream from Delware River, and 411.2 mi (661.6 km) upstream from mouth. Water-quality sampling site 1.4 mi (2.3 km) downstream at mile 409.8 (659.4 km).

DRAINAGE AREA.--19,540 mi² (50,610 km²), approximately (contributing area).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1937 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,850.05 ft (868.695 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow regulated by storage in Santa Rosa Lake, Lake Sumner, Lake McMillan, Lake Avalon, and by several small diversion dams that divert for power or irrigation. Diversions and ground-water withdrawals above station for irrigation of about 202,000 acres (820 km²), 1959 determination.

AVERAGE DISCHARGE.--44 years (1938-81), 169 ft³/s (4.786 m³/s), 122,400 acre-ft/yr (151 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 111,000 ft³/s (3,140 m³/s) Aug. 23, 1966, gage height, 33.32 ft (10.156 m), from rating curve extended above 30,000 ft³/s (850 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.19 ft³/s (0.005 m³/s) Aug. 1, 1966.
The flood of Aug. 23, 1966, exceeded all floods at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1904 reached a stage of 28.0 ft (8.53 m), from information by Panhandle and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,770 ft³/s (50.1 m³/s) Aug. 13, gage height, 7.46 ft (2.274 m), no peak above base of 1,800 ft³/s (51.0 m³/s); minimum, 12 ft³/s (0.34 m³/s) Apr. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	73	85	78	71	55	28	43	37	18	39	35
2	132	84	82	78	71	56	22	43	50	20	31	30
3	106	76	84	78	72	51	18	52	50	20	26	30
4	95	73	81	77	65	45	16	49	43	27	27	31
5	89	76	81	78	58	48	14	42	39	44	23	34
6	81	76	81	80	57	54	13	43	35	32	18	31
7	78	75	85	80	56	49	13	47	35	27	50	39
8	85	76	85	80	56	43	13	50	37	22	39	45
9	88	76	85	70	54	53	13	46	39	85	21	47
10	81	75	82	66	55	76	13	39	40	175	19	43
11	77	75	81	69	55	154	12	35	40	328	22	43
12	78	75	78	73	69	171	12	32	36	140	55	40
13	76	73	81	76	67	140	13	33	31	67	884	37
14	75	70	82	80	69	112	103	33	26	39	252	34
15	81	70	82	77	71	98	61	35	26	30	158	31
16	80	78	82	76	71	91	184	33	26	27	117	31
17	72	82	81	75	71	86	82	27	22	30	56	30
18	66	88	82	78	65	80	53	27	20	31	115	28
19	60	86	81	81	53	80	48	30	20	30	67	27
20	71	81	80	81	50	75	56	31	20	27	80	26
21	71	82	78	78	49	76	55	30	18	24	66	28
22	64	84	77	76	47	75	45	28	19	24	52	28
23	65	82	78	75	46	72	45	23	22	27	45	25
24	67	81	80	75	45	62	46	22	22	24	44	24
25	69	93	81	75	43	65	53	19	18	24	43	30
26	81	96	81	75	44	66	46	22	16	25	42	50
27	84	105	80	75	47	67	45	22	18	21	41	46
28	92	95	80	73	52	71	44	17	20	323	40	38
29	77	88	81	73	---	69	43	21	20	135	40	37
30	72	85	81	72	---	51	44	24	18	104	38	37
31	78	---	80	73	---	36	---	28	---	53	37	---
TOTAL	2471	2429	2518	2351	1629	2327	1253	1026	863	2003	2587	1035
MEAN	79.7	81.0	81.2	75.8	58.2	75.1	41.8	33.1	28.8	64.6	83.5	34.5
MAX	132	105	85	81	72	171	184	52	50	328	884	50
MIN	60	70	77	66	43	36	12	17	16	18	18	24
AC-FT	4900	4820	4990	4660	3230	4620	2490	2040	1710	3970	5130	2050

CAL YR 1980 TOTAL 32798.3 MEAN 89.6 MAX 10300 MIN 7.4 AC-FT 65060
WTR YR 1981 TOTAL 22492.0 MEAN 61.6 MAX 884 MIN 12 AC-FT 44610

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1937 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1937 to current year.
WATER TEMPERATURES: October 1952 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 51,400 micromhos June 20, 1972; minimum daily, 268 micromhos Sept. 18, 1946.
WATER TEMPERATURES: Maximum daily, 36.0°C July 31, 1966, July 13, 1970; minimum daily, 1.0°C Jan. 10, 11, 1962, Jan. 13, 1963, Dec. 19, 1980.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 20,500 micromhos July 11; minimum daily, 3,690 micromhos Aug. 19.
WATER TEMPERATURES: Maximum daily, 34.0°C July 20; minimum daily, 1.0°C Dec. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT										
24...	1030	67	13000	7.3	15.0	1.1	8.7	0	0	--
NOV										
20...	1300	81	10100	8.4	7.5	3.1	11.8	2	2	2100
DEC										
17...	1100	81	11200	8.3	9.0	13	7.6	2	2	2100
JAN										
26...	1100	75	11200	7.9	9.5	3.4	15.4	0	0	2000
FEB										
24...	1330	45	13200	8.7	14.0	10	14.6	9	8	2000
MAR										
17...	1000	86	9170	8.5	14.0	14	11.9	13	23	1700
APR										
23...	1200	45	13300	8.7	17.0	33	9.8	40	K64	2200
MAY										
28...	0820	17	17700	8.2	24.5	8.6	7.2	3	10	2600
JUN										
20...	1000	20	--	--	28.0	--	--	--	--	--
24...	1000	22	15800	8.1	28.0	2.0	7.2	K0	K12	2600
JUL										
28...	1030	323	14500	8.0	26.0	45	4.8	310	1200	2200
AUG										
20...	1100	80	8000	8.4	27.0	13	9.6	K49	K16	1500
SEP										
17...	1000	30	12400	7.9	21.0	1.9	--	K0	150	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)
OCT										
24...	--	--	--	--	--	--	160	--	--	--
NOV										
20...	2000	490	220	1600	15	59	--	1500	2700	.3
DEC										
17...	2000	500	210	1700	16	42	--	1600	2700	.6
JAN										
26...	1800	470	200	1700	17	42	--	1700	2900	.7
FEB										
24...	--	430	230	2400	23	58	--	1800	3700	.2
MAR										
17...	--	390	180	1400	15	32	--	1600	2200	.7
APR										
23...	--	500	240	2200	20	57	--	1400	4100	.7
MAY										
28...	--	560	280	3200	28	31	--	2200	5200	.7
JUN										
20...	--	--	--	--	--	--	--	--	--	--
24...	--	570	290	3200	27	92	--	2200	5800	.8
JUL										
28...	--	510	230	3000	28	68	--	2000	4500	.6
AUG										
20...	--	340	150	1200	14	33	--	1200	2100	.5
SEP										
17...	--	480	230	2100	20	57	--	1900	3300	.9

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
OCT 24...	--	--	--	--	1.3	1.5	.780	.500	.52	.47
NOV 20...	--	6.0	8320	6670	1.7	1.7	1.30	.300	.40	.53
DEC 17...	--	11	6920	6870	1.9	1.9	.100	.100	1.4	.72
JAN 26...	--	13	7250	7120	1.8	.18	.190	.110	1.3	.89
FEB 24...	--	20	8710	8670	.27	.30	.120	.110	2.4	1.6
MAR 17...	--	.7	6160	5910	.34	.32	.150	.150	2.5	.95
APR 23...	--	1.1	9150	8530	.02	.03	.110	.110	2.7	.49
MAY 28...	.10	4.3	12200	11500	.03	.07	.060	.130	1.0	.75
JUN 20...	--	--	--	--	--	--	--	--	--	--
24...	--	3.5	12700	12200	.07	.09	.180	.200	1.4	.75
JUL 28...	--	3.8	9740	10300	.24	.16	.900	.460	.90	1.2
AUG 20...	--	6.1	5230	5090	.12	.12	.140	<.060	1.1	.14
SEP 17...	--	6.0	8630	8130	.26	.21	.120	.410	1.2	.79

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 24...	1.30	.97	.040	.010	9.0	--	--	44	8.0	81
NOV 20...	1.70	.83	.040	.020	--	4.5	2.8	33	7.2	92
DEC 17...	1.50	.82	.090	.050	11	--	--	49	11	98
JAN 26...	1.50	1.0	.190	.020	13	--	--	79	16	96
FEB 24...	2.50	1.7	.190	.030	--	3.3	1.6	58	7.0	99
MAR 17...	2.60	1.1	.180	.030	15	--	--	82	19	98
APR 23...	2.80	.60	.170	.020	22	--	--	68	8.3	90
MAY 28...	1.10	.88	.080	.020	--	4.6	--	30	1.4	97
JUN 20...	--	--	--	--	--	--	--	23	1.2	96
24...	1.60	.95	.070	.020	10	--	--	--	--	--
JUL 28...	1.80	1.7	.150	.110	8.7	--	--	260	227	95
AUG 20...	1.20	.72	.030	.050	--	6.8	.4	76	16	98
SEP 17...	1.30	1.2	.050	.010	6.6	--	--	138	11	90

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
NOV 20...	1300	2	1	1	200	100	100	3	3	0	0
FEB 24...	1330	1	0	1	200	100	100	0	0	1	20
MAY 28...	0820	3	1	2	300	100	200	0	0	0	20
AUG 20...	1100	3	1	2	100	100	0	0	0	0	10

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
NOV 20...	0	0	1	0	1	4	3	1	160	120	40
FEB 24...	10	10	1	1	0	3	1	2	770	730	40
MAY 28...	0	20	0	0	1	8	8	0	560	490	70
AUG 20...	0	10	1	1	0	3	1	2	550	520	30

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV 20...	7	5	2	70	30	40	.2	.2	.0	2	2
FEB 24...	1	0	2	190	80	110	.2	.2	.0	0	0
MAY 28...	1	0	2	110	50	60	2.4	2.4	.0	2	0
AUG 20...	8	5	3	130	110	20	.3	.3	.0	3	0

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 20...	0	2	0	2	0	0	0	20	0	20
FEB 24...	0	2	0	2	0	0	0	40	0	40
MAY 28...	2	1	0	2	0	0	0	30	0	30
AUG 20...	3	1	0	1	0	0	0	40	10	30

DATE	TIME	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
NOV 20...	--	ND	--	ND	ND	ND	ND	ND	ND
20...	1300	.00	.00	.00	.00	.00	.00	.00	.01

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
NOV 20...	ND	--	ND	ND	ND	ND	ND	ND	ND
20...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 20...	ND	ND	--	ND	ND	ND	--	--	--
20...	.00	.00	.00	.00	0	.00	.08	.00	.00

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8430	10600	10100	10300	10700	12300	11600	13400	17900	19500	7680	10900
2	9620	10900	10100	10100	12200	12100	11600	13200	17300	19600	10500	11300
3	11900	10900	10100	10100	11500	12400	12100	13700	17200	20000	13600	11500
4	11600	11100	10200	10200	10800	12400	13000	13800	17800	20000	5700	11600
5	11500	11000	10200	10200	10600	12400	13400	13400	17600	20000	13500	11800
6	11900	11200	10200	10500	10600	12600	13000	13600	16000	20000	13200	11900
7	12100	11300	10300	10200	10500	13300	14000	13900	15200	18700	11400	12200
8	12300	11300	10300	10200	11000	13400	14700	13400	14400	19400	13600	12500
9	12000	11400	10300	10500	11500	12000	18000	13700	14500	5390	13800	12700
10	11700	11400	10300	10300	11500	12400	18100	14000	14500	12000	13500	12800
11	11700	11700	10500	10400	11700	10100	12500	17200	15100	20500	13100	12800
12	11800	11300	10100	10500	11700	8550	12500	13400	15200	11300	10100	12700
13	12200	11400	10000	10900	13000	9340	19200	13400	14700	9280	14900	12800
14	11700	11400	10000	10900	11500	8530	18200	13800	15100	8530	8000	12600
15	11800	11500	10000	10600	11000	8530	19300	14500	15100	8510	5660	12500
16	11800	11700	10300	10600	10600	8530	19300	14600	15100	8580	3900	12500
17	11600	11400	10000	10400	10700	9170	13300	14400	15100	8800	4940	12600
18	11600	11100	10100	10400	10400	9080	14200	14800	15400	13700	6910	12500
19	11700	11200	9900	10800	10400	9430	11900	14800	15600	10000	3690	12600
20	11900	10900	9900	10200	10400	11000	12500	15100	15900	10500	8290	12900
21	12000	10600	10200	10300	10600	10400	17300	15100	16000	11400	9030	13200
22	11900	10600	10200	10300	11800	10300	12900	15700	16400	12100	9290	13300
23	12200	10700	10000	10200	11100	10100	13000	15900	16600	13700	9100	13600
24	12000	10600	9900	10300	11500	10700	13100	16000	17000	10900	8870	14600
25	12300	10500	9900	10400	12200	10600	12700	16200	17600	14600	8990	14200
26	12200	10700	10000	10400	12000	10400	12700	16700	18200	14600	9060	14100
27	11800	10300	9900	10500	12300	10600	12600	16800	18600	4070	9420	14500
28	11400	10200	9900	10700	12000	10700	12600	17100	18800	14600	9810	14500
29	11100	10300	10000	10600	---	10800	12800	17400	18800	14700	10000	14300
30	11400	10000	10000	10500	---	10700	12900	17700	19000	10000	10500	14200
31	11000	---	10000	10600	---	10800	---	17600	---	8290	10800	---
MEAN	11600	11000	10100	10400	11300	10800	14200	15000	16400	13300	9700	12900

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.5	14.5	9.5	10.0	10.0	17.5	19.5	24.0	28.0	29.5	31.5	26.5
2	22.5	14.5	10.0	10.0	10.0	17.5	20.0	24.5	28.0	31.0	32.5	28.5
3	23.5	15.0	10.0	9.5	9.5	17.0	18.0	26.0	29.0	31.0	32.0	27.5
4	24.5	15.5	10.5	9.5	9.0	15.0	18.5	27.0	28.0	30.0	31.0	27.0
5	25.0	16.0	11.0	10.0	9.5	14.5	19.0	25.0	30.0	30.5	33.5	26.0
6	24.5	17.0	12.0	10.5	11.0	15.0	17.0	26.0	30.0	31.5	33.0	28.0
7	24.0	17.0	13.0	9.5	11.0	15.0	19.0	26.5	30.5	29.5	28.0	27.0
8	25.0	17.0	11.5	9.0	10.5	14.5	20.0	27.0	32.0	30.0	29.5	24.5
9	25.0	11.5	10.5	7.5	11.0	13.0	21.0	24.5	33.0	23.5	30.5	25.0
10	23.5	17.0	10.5	8.5	10.5	12.0	23.5	25.0	31.5	31.5	29.5	26.0
11	22.5	17.0	10.0	8.5	10.0	12.0	23.0	25.0	31.0	29.5	28.0	28.5
12	22.5	16.5	9.0	7.0	9.5	13.0	23.0	25.0	30.5	30.5	29.5	29.0
13	23.0	16.5	8.5	5.0	11.0	13.5	23.0	26.0	30.0	31.0	25.5	29.5
14	23.0	14.5	9.0	5.5	10.5	15.0	20.0	25.0	31.0	32.0	28.5	28.5
15	22.5	12.5	10.0	6.0	11.5	15.5	15.5	25.5	27.0	33.5	30.0	28.0
16	22.0	12.0	6.0	5.5	13.0	15.0	16.0	24.5	27.5	32.0	28.0	26.5
17	21.0	7.0	7.5	5.0	14.0	15.0	20.0	25.0	28.0	32.0	29.5	26.0
18	21.0	7.5	8.5	2.0	14.0	16.0	21.5	26.5	29.5	33.0	29.5	25.5
19	18.5	8.5	1.0	6.5	14.5	16.5	23.5	24.0	29.0	32.5	28.0	25.0
20	17.5	9.0	3.5	3.5	14.5	15.5	22.0	25.0	31.5	34.0	29.5	25.5
21	19.0	9.5	5.0	7.0	14.0	14.5	22.5	24.5	32.5	31.5	29.5	25.0
22	19.0	10.0	7.0	8.0	14.5	16.0	21.5	25.5	32.5	32.0	29.5	24.5
23	17.5	11.5	8.0	10.0	15.0	16.5	20.5	25.5	30.0	32.5	30.0	26.0
24	17.5	10.0	8.0	10.0	15.0	14.5	20.5	25.5	31.0	31.5	28.0	26.5
25	17.0	8.0	8.5	10.0	15.5	14.5	21.5	27.0	29.0	30.0	30.0	26.0
26	16.0	7.0	8.5	10.5	16.0	16.5	23.5	27.0	29.0	30.0	30.5	25.5
27	16.5	7.5	10.0	11.0	16.5	19.5	25.0	28.5	29.5	29.0	29.5	28.0
28	13.5	8.0	10.5	11.5	16.0	17.5	26.0	25.0	30.0	24.5	30.0	27.0
29	12.5	8.5	11.0	12.5	---	17.0	25.0	25.5	28.5	26.5	30.5	26.5
30	8.5	10.0	10.5	11.5	---	18.0	27.0	26.0	29.5	29.5	30.5	26.5
31	13.5	---	10.0	10.5	---	19.0	---	24.0	---	30.5	30.0	---
MEAN	20.0	12.0	9.0	8.5	12.5	15.5	21.0	25.5	30.0	30.5	30.0	26.5

08408500 DELAWARE RIVER NEAR RED BLUFF, NM

LOCATION.--Lat 32°01'23", long 104°03'15", in NE1/4SW1/4SE1/4 sec.23, T.26 S., R.28 E., Eddy County, Hydrologic Unit 13070002, near center of channel on downstream side of pier of bridge on U.S. Highway 285, 2.1 mi (3.4 km) north of the New Mexico-Texas State line, 3.6 mi (5.8 km) southwest of Red Bluff, 3.7 mi (6.0 km) upstream from mouth, 14 mi (23 km) south of Malaga, and 405.6 mi (652.6 km) upstream from mouth.

DRAINAGE AREA.--689 mi^2 (1,785 km^2).

PERIOD OF RECORD.--April 1912 to September 1913, May 1914 to June 1915, October 1937 to current year. Published as "near Malaga, N. Mex." 1912-13, and as "near Angeles, Tex." 1914-15.

GAGE.--Water-stage recorder. Datum of gage is 2,900.66 ft (884.121 m) National Geodetic Vertical Datum of 1929. Prior to May 1914, at site 3.0 mi (4.8 km) upstream at different datum. May 1914 to June 1915 at site 2.5 mi (4.0 km) downstream at different datum.

REMARKS.--Records fair. One small upstream diversion. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--44 years (water years 1938-81), 13.4 ft^3/s (0.379 m^3/s), 9,710 acre-ft/yr (12.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,400 ft^3/s (2,310 m^3/s) Oct. 2, 1955, gage height, 27.0 ft (8.23 m), from floodmarks, from rating curve extended above 1,500 ft^3/s (42.5 m^3/s) on basis of slope-area measurements at gage heights 8.65, 12.84, 18.00, and 27.0 ft (2.637, 3.914, 5.486, and 8.230 m); no flow for many days most years.
Maximum discharge since at least 1911, that of Oct. 2, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 712 ft^3/s (20.2 m^3/s) July 9, gage height, 5.47 ft (1.667 m), no peak above base of 1,700 ft^3/s (48.1 m^3/s); no flow June 25-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	5.3	5.5	4.8	4.9	14	4.9	4.0	2.0	8.0	7.2	.91
2	10	5.2	4.9	4.7	4.9	10	5.0	5.3	1.2	11	13	1.5
3	8.9	5.0	4.9	4.9	4.9	7.4	4.5	13	17	6.4	12	1.2
4	8.5	4.8	5.0	4.9	4.9	6.0	4.0	6.8	15	4.5	7.2	1.8
5	7.6	4.5	5.6	4.9	5.3	5.9	3.7	5.6	2.4	6.8	9.8	90
6	6.4	4.7	5.6	4.9	5.3	5.8	4.0	4.8	18	3.7	4.9	74
7	5.6	4.5	6.0	4.9	5.6	5.9	4.4	4.5	16	2.7	3.4	39
8	5.3	4.5	5.8	5.2	5.3	5.6	4.5	4.2	6.8	11	11	83
9	5.3	4.2	5.4	5.3	5.0	5.8	4.3	2.9	4.5	166	26	97
10	4.9	3.7	5.2	5.3	4.5	6.4	4.2	2.2	4.1	49	8.9	25
11	4.5	4.0	5.0	5.1	4.1	7.4	4.0	2.8	3.7	15	6.8	13
12	4.5	4.1	5.3	5.9	4.1	7.5	4.0	3.3	3.4	11	20	9.3
13	4.5	4.5	5.6	6.4	4.3	7.2	3.8	2.5	3.4	7.6	8.5	7.6
14	4.1	4.4	5.2	7.6	4.9	6.7	8.0	3.6	3.4	6.8	25	6.4
15	3.7	4.3	4.9	6.8	5.1	6.3	8.9	2.9	2.7	7.6	16	5.6
16	3.4	6.1	4.9	5.8	5.3	6.0	7.5	3.6	2.0	15	43	5.1
17	3.4	6.0	4.7	6.0	5.3	6.3	6.3	3.0	2.0	11	36	4.7
18	3.4	5.7	4.6	6.5	5.0	6.0	6.0	2.9	2.0	6.8	14	4.4
19	3.4	5.3	4.1	6.7	4.9	5.6	4.9	2.7	2.4	5.3	63	4.3
20	4.5	5.1	4.2	6.4	4.9	5.6	4.3	3.2	2.4	4.5	24	4.3
21	4.9	4.9	4.2	6.0	5.1	5.3	4.2	3.1	2.0	4.1	11	4.3
22	5.3	5.2	4.6	5.6	4.9	5.3	4.1	3.0	1.5	3.3	6.8	4.3
23	4.9	5.0	4.9	5.3	4.9	5.6	4.1	2.4	.40	2.8	4.9	4.3
24	4.9	4.9	4.7	5.4	5.1	5.5	4.5	2.4	.16	2.0	4.1	4.3
25	4.9	6.3	4.5	5.3	5.3	5.6	4.5	3.0	.00	1.3	3.0	6.0
26	4.5	6.3	4.5	5.2	5.3	5.6	4.2	2.7	.00	.82	2.7	5.4
27	4.1	6.0	4.9	5.1	5.8	5.6	3.8	2.4	.00	.60	2.0	3.1
28	4.5	6.1	4.9	4.9	7.3	5.3	4.9	1.8	.16	74	1.8	2.7
29	4.9	5.8	4.9	4.8	---	5.0	4.8	2.0	1.5	68	1.5	3.0
30	4.9	5.7	4.8	4.5	---	4.8	4.9	4.5	35	25	1.2	3.0
31	5.2	---	4.6	4.9	---	4.9	---	4.9	---	8.5	.91	---
TOTAL	166.9	152.1	153.9	170.0	142.2	195.9	145.2	116.0	155.12	550.12	399.61	518.51
MEAN	5.38	5.07	4.96	5.48	5.08	6.32	4.84	3.74	5.17	17.7	12.9	17.3
MAX	12	6.3	6.0	7.6	7.3	14	8.9	13	35	166	63	97
MIN	3.4	3.7	4.1	4.5	4.1	4.8	3.7	1.8	.00	.60	.91	.91
AC-FT	331	302	305	337	282	389	288	230	308	1090	793	1030

CAL YR 1980 TOTAL 4758.26 MEAN 13.0 MAX 1200 MIN .00 AC-FT 9440
WTR YR 1981 TOTAL 2865.56 MEAN 7.85 MAX 166 MIN .00 AC-FT 5680

08410000 RED BLUFF RESERVOIR NEAR ORLA, TX

LOCATION.--Lat 31°54'04", long 103°54'35", Reeves County, Hydrologic Unit 13070001, at right end of Red Bluff Dam on the Pecos River, 2.8 mi (4.5 km) upstream from Salt Creek, and 5.2 mi (8.4 km) north of Orla.

DRAINAGE AREA.--20,720 mi² (53,660 km²), approximately (contributing area).

PERIOD OF RECORD.--February 1937 to current year. Monthly contents only for some periods, published in WSP 1312.

GAGE.--Nonrecording gage. Datum of gage is 0.43 ft (0.131 m) below National Geodetic Vertical Datum of 1929.

REMARKS.--The reservoir is formed by a rock-faced earthfill dam 9,200 ft (2,800 m) long. The dam was completed and storage began in September 1936. The dam and reservoir are owned and operated by the Red Bluff Water Power Control District. The water is used for power development and for irrigation from Mentone to Grandfalls. The uncontrolled emergency spillway, 790 ft (241 m) wide, is a cut through natural ground located to the right of right end of dam. The controlled service spillway is equipped with 12 tainter gates that are 25 by 15 ft (8 by 5 m) high. Inflow is partly regulated by storage in Lake Sumner, Lake McMillan, and Lake Avalon, total combined capacity 154,400 acre-ft (190 hm³), and by several small diversion dams that divert water for power or irrigation. The capacity curve is based on Geological Survey topographic map, survey of 1925. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam	2,856.0	-
Crest of spillway	2,845.0	340,000
Top of gates (top of conservation pool)	2,842.0	310,000
Crest of spillway	2,827.0	166,500
Lowest gated outlet (invert)	2,764.0	3,000

COOPERATION.--Gage-height records and capacity curve were furnished by the Red Bluff Water Power and Control District.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents observed, 352,000 acre-ft (434 hm³) Sept. 27, 28, 1941, gage height, 2,846.2 ft (867.52 m), observed on nonrecording gage at service spillway (affected by variable drawdown due to flow through tainter gates); minimum observed, 11,080 acre-ft (13.7 hm³) May 13, 1948, gage height, 2,781.4 ft (847.77 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents observed, 78,650 acre-ft (97.0 hm³) Feb. 17-21, gage height, 2,811.7 ft (857.01 m); minimum observed, 51,500 acre-ft (63.5 hm³) Sept. 30, gage height, 2,804.5 ft (854.81 m).

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

2,804.0	50,000
2,808.0	63,500
2,812.0	80,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67500	68300	69900	72700	77300	73900	73100	76400	71900	60350	55800	55800
2	67900	68300	69900	73100	77300	73100	73100	76400	71900	59650	55800	55800
3	68300	68300	70300	73100	77300	72700	73100	76400	71500	58950	55450	55450
4	68300	68300	70300	73100	77300	72300	73100	76400	71500	58250	55450	55100
5	68300	68300	70300	73100	77300	71500	73100	76400	71500	57550	55100	55100
6	67900	68300	70700	73500	77300	70700	73100	76400	71500	56850	55100	55100
7	67900	68300	70700	73500	77750	70300	73100	76400	71100	56150	55100	55100
8	67900	68300	70700	73500	77750	70300	73100	76400	70700	55450	54750	55100
9	67900	68300	71100	73900	77750	70300	73100	75950	70700	55100	54750	54400
10	67900	68700	71100	73900	77750	70700	73100	75950	70700	55800	54750	54050
11	67900	68700	71100	74300	77750	70700	73100	75950	70300	55800	54750	53700
12	67900	68700	71500	74300	78200	71100	73100	75500	69900	56150	54400	53700
13	67900	68700	71500	74300	78200	71500	73100	75500	69500	56150	55100	53350
14	67900	68700	71500	74700	78200	71500	73100	75100	69100	56150	55800	53350
15	68300	68700	71500	74700	78200	71500	74700	75100	68700	55800	55800	53000
16	68300	68700	71500	75100	78200	71900	74700	74700	68300	55800	55800	53000
17	68300	69100	71500	75100	78650	72300	75100	74300	67900	55800	55800	53000
18	68300	69100	71500	75500	78650	72300	75100	74300	67500	55450	55800	52700
19	68300	69100	71500	75500	78650	72300	75500	73900	67100	55450	56150	52700
20	68300	69100	71500	75500	78650	72300	75500	73900	66700	55100	56150	52700
21	68300	69100	71500	75950	78650	72700	75500	73500	66300	55100	56500	52400
22	68300	69100	71500	75950	78200	72700	75950	73500	65900	55100	56500	52400
23	68300	69100	71500	75950	77300	73100	75950	73500	64700	54750	56500	52400
24	68300	69500	71900	76400	76850	73100	75950	73100	63900	54750	56500	52100
25	68300	69500	71900	76400	76400	73100	75950	73100	63150	54400	56500	52100
26	68300	69500	72300	76400	75500	73100	75950	73100	62450	54400	56500	52100
27	68300	69500	72300	76400	74700	73100	75950	72700	61750	54050	56500	51800
28	68300	69900	72300	76850	74300	73100	75950	72700	60700	54050	56150	51800
29	68300	69900	72700	76850	---	73100	75950	72300	61400	55800	56150	51800
30	68300	69900	72700	76850	---	73100	76400	72300	60700	55800	56150	51500
31	68300	---	72700	76850	---	73100	---	72300	---	55800	56150	---
MAX	68300	69900	72700	76850	78650	73900	76400	76400	71900	60350	56500	55800
MIN	67500	68300	69900	72700	74300	70300	73100	72300	60700	54050	54400	51500
(†)	2809.2	2809.6	2810.3	2811.3	2810.7	2810.4	2811.2	2810.2	2807.2	2805.8	2805.9	2804.5
(‡)	+1200	+1600	+2800	+4150	-2550	-1200	+3300	-4100	-11600	-4900	+350	-4650

CAL YR 1980 MAX 85400 MIN 33980 ‡ -5500
WTR YR 1981 MAX 78650 MIN 51500 ‡ -15600

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

08412500 PECOS RIVER NEAR ORLA, TX

LOCATION.--Lat 31°52'21", long 103°49'52", Reeves County, Hydrologic Unit 13070001, on right bank at bridge on Farm Road 652, 5.5 mi (8.8 km) downstream from Salt Creek (Screw Bean Arroyo), 5.9 mi (9.5 km) northeast of Orla, and 8.5 mi (13.7 km) downstream from Red Bluff Reservoir.

DRAINAGE AREA.--21,210 mi² (54,930 km²), approximately (contributing area).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1937 to current year.

REVISED RECORDS.--WSP 928: 1937.

GAGE.--Water-stage recorder. Datum of gage is 2,730.86 ft (832.366 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 16, 1969, at site 6.9 mi (11.1 km) downstream at datum 12.81 ft (3.904 m) lower.

REMARKS.--Water-discharge records fair. Most of flow is released from storage in Red Bluff Reservoir (station 08410000). Occasional runoff from draws between dam and station. Many diversions above Red Bluff Reservoir for irrigation.

AVERAGE DISCHARGE.--44 years (water years 1938-81), 167 ft³/s (4.729 m³/s), 121,000 acre-ft/yr (149 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,700 ft³/s (671 m³/s) Sept. 29, 1941, gage height, 20.74 ft (6.322 m), site and datum then in use; no flow at times in 1946 and 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 588 ft³/s (16.7 m³/s) July 29 at 1130 hours, gage height, 7.54 ft (2.298 m); minimum daily, 6.9 ft³/s (0.20 m³/s) Apr. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	54	47	15	12	390	8.4	11	108	369	109	80
2	46	54	46	14	12	392	8.4	13	108	368	103	81
3	71	55	46	14	11	385	8.4	15	109	350	100	81
4	68	53	46	14	11	384	7.9	23	109	341	99	82
5	66	53	47	14	11	356	7.9	26	109	341	99	85
6	65	54	46	14	11	358	7.9	55	109	340	97	88
7	62	54	47	13	11	313	7.9	62	110	341	99	134
8	60	55	48	15	11	18	7.9	61	108	335	105	181
9	58	54	49	17	11	14	7.9	58	110	101	112	356
10	55	53	49	18	11	14	7.9	58	140	94	103	350
11	52	52	48	16	11	15	7.4	78	162	89	103	305
12	51	53	47	17	10	15	6.9	96	164	89	130	100
13	50	54	47	21	9.4	15	8.4	96	163	90	165	93
14	50	54	47	30	10	15	248	96	161	91	163	91
15	49	54	47	22	11	14	57	96	159	91	177	88
16	47	57	47	17	12	13	31	96	160	94	167	83
17	46	61	46	16	14	13	21	96	160	104	168	68
18	46	60	46	17	14	12	18	96	160	105	78	67
19	47	55	45	19	12	11	16	96	160	100	46	67
20	48	53	44	19	72	11	14	83	160	99	30	66
21	49	52	44	18	381	11	13	57	170	99	23	65
22	50	50	40	16	385	11	13	57	319	99	21	64
23	49	48	18	16	386	11	12	66	332	98	17	65
24	50	48	17	15	386	10	13	57	335	95	13	63
25	51	51	16	14	385	11	13	57	339	94	10	54
26	52	55	16	14	382	11	13	64	336	92	15	56
27	52	54	16	14	380	11	12	99	337	89	46	53
28	51	52	16	13	382	11	11	103	348	105	54	52
29	52	49	15	13	---	11	11	106	424	465	55	53
30	53	48	15	12	---	10	11	107	424	380	62	165
31	54	---	15	12	---	8.9	---	109	---	139	79	---
TOTAL	1637	1599	1163	499	3354.4	2874.9	630.2	2193	6093	5687	2648	3236
MEAN	52.8	53.3	37.5	16.1	120	92.7	21.0	70.7	203	183	85.4	108
MAX	71	61	49	30	386	392	248	109	424	465	177	356
MIN	37	48	15	12	9.4	8.9	6.9	11	108	89	10	52
AC-FT	3250	3170	2310	990	6650	5700	1250	4350	12090	11280	5250	6420

CAL YR 1980 TOTAL 30886.8 MEAN 84.4 MAX 1230 MIN 9.1 AC-FT 61260
WTR YR 1981 TOTAL 31614.5 MEAN 86.6 MAX 465 MIN 6.9 AC-FT 62710

08412500 PECOS RIVER NEAR ORLA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1937 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1937 to current year.
WATER TEMPERATURES: March 1953 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, 29,400 micromhos May 16, 1978; minimum daily, 1,610 micromhos June 2, 1948.
WATER TEMPERATURES (1953-61, 1968-81): Maximum daily, 31.0°C Aug. 13, 1978; minimum daily, 0.5°C Jan. 6, 1971, Jan. 11, 1973, and Dec. 11, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 25,000 micromhos May 5; minimum daily, 6,260 micromhos July 29.
WATER TEMPERATURES: Maximum daily, 29.5°C Aug. 1; minimum daily, 3.0°C Jan. 18.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 09...	1120	57	14700	--	21.0	2800	2700	720	240
FEB 26...	1415	3.8	8700	--	13.0	1600	1500	400	150
JUN 25...	1245	336	9360	--	24.0	1900	1800	460	180
AUG 13...	1500	166	10900	7.3	26.0	2100	2000	530	180
SEP 16...	1505	87	10600	--	24.0	2100	2000	540	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 09...	2400	20	62	110	2200	4200	.8	10	9900
FEB 26...	1400	15	32	100	1400	2200	.8	2.2	5650
JUN 25...	1400	14	41	100	1600	2600	.5	6.2	6350
AUG 13...	1800	17	42	100	1800	3100	.7	7.3	7520
SEP 16...	1600	15	41	85	1700	3000	.7	7.5	7120

08412500 PECOS RIVER NEAR ORLA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1980	1637	14800	9950	44000	4100	18200	2200	9870	*
NOV.	1980	1599	13700	9230	39800	3800	16300	2100	9100	*
DEC.	1980	1163	13600	9160	28800	3800	11800	2100	6520	*
JAN.	1981	499	22200	15400	20800	6800	9220	3000	4060	*
FEB.	1981	3354.4	10000	6660	60300	2700	24200	1600	14300	*
MAR.	1981	2874.9	9900	6580	51100	2600	20400	1600	12200	1800
APR.	1981	630.2	18900	13000	22100	5700	9610	2700	4510	*
MAY	1981	2193	11000	7320	43300	2900	17400	1700	10300	*
JUNE	1981	6093	9810	6480	107000	2500	41900	1600	26100	1800
JULY	1981	5687	9740	6440	98900	2500	39000	1600	24100	1800
AUG.	1981	2648	11400	7570	54200	3000	21700	1800	12900	*
SEPT	1981	3236	10800	7170	62700	2900	24900	1700	15100	*
TOTAL		31614.5	**	**	632000	**	255000	**	149000	**
WTD. AVG.		87	11100	7410	**	3000	**	1700	**	**

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15400	14400	12600	22900	23100	8800	23400	23000	11000	9810	9710	10500
2	16900	14300	12600	22900	23200	9030	23400	23200	10600	9840	9920	10600
3	14500	14300	12500	23000	23400	8650	23500	23200	11000	9430	10100	10500
4	14600	14300	12600	23000	23400	8580	23600	21900	10800	9430	10300	10600
5	14700	14000	12700	23000	23400	8470	23500	25000	10500	9510	10500	10800
6	14700	14000	12800	23000	23400	8420	23500	14300	10300	9560	10500	11000
7	14700	14000	12900	23100	23500	8370	23800	12800	10400	9490	10500	13100
8	14700	14100	13000	22800	23600	9940	23800	12900	10400	9720	10700	12900
9	14800	14000	13000	22700	23800	16500	23900	12700	10300	9810	13000	10000
10	14800	13800	13100	23000	23800	19000	24100	11900	10100	10000	12200	9910
11	14800	13700	12800	23300	23800	19900	24200	11700	9700	10200	11400	10000
12	14700	13700	12700	22900	23600	20900	24300	10000	9670	10500	10500	10500
13	14800	13800	12600	22800	23900	21400	24200	9940	9580	10500	10900	10600
14	14800	13800	12800	17500	23400	21600	16200	9850	9610	10400	10600	10700
15	14800	13800	12700	15700	23500	21900	8250	9770	9550	10500	10700	10600
16	14800	13600	12600	23100	23600	21800	22400	9750	9480	10400	12000	10600
17	14600	14100	12600	22900	23900	21700	23300	9560	9510	13900	15200	10700
18	14500	13400	12600	22500	23900	21900	22100	9550	9480	14300	13000	10800
19	14500	14400	12600	22500	23800	21900	21400	9600	9490	13500	11000	10900
20	14600	14400	11800	22800	23800	22300	20900	9560	9530	12700	12000	11000
21	14700	14100	12200	23000	9000	22300	21100	10300	9540	12400	14300	11000
22	14900	13700	12300	22900	8700	22300	21500	11300	9330	12000	15000	11100
23	14900	13600	12600	22900	8650	22300	21900	10600	9380	11700	15500	11200
24	14800	13200	15000	22800	8680	22600	22400	10900	9360	11300	15900	11300
25	14700	12800	21500	22900	8680	22700	22700	11000	9370	11100	16200	11500
26	14700	12000	22400	23000	8700	22700	23000	11000	9430	10800	16500	13400
27	14800	13800	22800	22700	8640	22800	23200	9800	9460	10600	11000	12100
28	14700	13400	22800	22600	8710	23100	23200	9840	9470	10500	10800	11700
29	14600	13200	22900	22500	---	23400	23200	9660	9120	6260	10800	11500
30	14100	12400	22800	22600	---	23200	23300	9780	11900	7150	10800	10200
31	14500	---	23000	22600	---	23400	---	10300	---	8300	10500	---
MEAN	14800	13700	15000	22400	19300	18400	22300	12700	9910	10500	12000	11000

08412500 PECOS RIVER NEAR ORLA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

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

08414500 REEVES COUNTY WATER IMPROVEMENT DISTRICT NO. 2 CANAL NEAR MENTONE, TX

LOCATION.--Lat 31°37'57", long 103°34'30", Loving County, Hydrologic Unit 13070001, on right bank 173 ft (53 m) downstream from headgate, 5.3 mi (8.5 km) south of Mentone, and 15 mi (24 km) northwest of Pecos.

PERIOD OF RECORD.--February 1922 to July 1925, August 1939 to May 1941, March 1942 to September 1957, and March 1964 to current year. Records from August 1939 to October 1940, not equivalent because diversion was not included. Published as "Farmers Independent Canal near Porterville" 1922-25.

GAGE.--Water-stage recorder. Concrete weir since Mar. 1, 1964. Altitude of gage is 2,640 ft (805 m), from topographic map. Prior to July 22, 1925, at site 250 ft (76 m) downstream at different datum. Mar. 10, 1939, to Oct. 4, 1940, at site 2.5 mi (4.0 km) downstream at different datum. Oct. 5, 1940, to Feb. 19, 1943, at site 123 ft (37 m) upstream at datum 1.10 ft (0.335 m) higher. Feb. 20, 1943, to Mar. 1, 1954, at site 123 ft (37 m) upstream at present datum.

REMARKS.--Records good. Local runoff is deleted from daily discharge record. Water is diverted from right bank of Pecos River and is used for irrigation between Mentone and Pecos. An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--35 years (water years 1923-24, 1940, 1943-57, 1965-81), 8.41 ft^3/s (0.238 m^3/s), 6,090 acre-ft/yr (7.51 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 160 ft^3/s (4.53 m^3/s) June 14, 1922; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.07	.09	.02	.14	.14	.00	.00	15	4.1	.70	11
2	.02	.07	.14	.02	.14	.14	2.0	.00	13	5.2	.70	11
3	.03	.07	.13	.03	.14	.14	1.3	.00	13	3.8	.56	11
4	.02	.07	.14	.07	.14	.07	.07	.00	13	.03	.56	11
5	.02	.07	.14	.07	.14	.07	.07	.00	10	.03	.70	11
6	.04	.07	.13	.07	.14	.07	.07	.00	.07	.02	.70	11
7	.07	.07	.13	.07	.14	.07	.07	.00	.04	.02	.70	11
8	.07	.07	.14	.07	.14	.07	.07	.00	.02	.01	.70	11
9	.07	.07	.13	.07	.14	.07	.07	.02	.02	.02	.56	3.6
10	.07	.07	.14	.07	.14	.07	.02	.02	.02	.00	.34	.07
11	.07	.07	.14	.07	.14	.07	.02	.02	.02	.00	.34	.07
12	.07	.07	.13	.07	.14	.07	.02	.02	.02	.00	.34	.07
13	.07	.07	.13	.07	.14	.07	.02	.02	.00	.94	.16	.07
14	.14	.07	.14	.07	.14	.07	.02	.00	.00	4.8	.07	.02
15	.14	.07	.14	.07	.14	.07	.02	.00	.00	6.1	.07	.02
16	.14	.07	.14	.07	.14	.07	.02	.00	.00	5.7	.53	.02
17	.07	.07	.12	.07	.14	4.4	.02	.00	.00	5.5	.03	.02
18	.07	.07	.07	.07	.14	3.8	.02	.00	.00	5.4	.02	.02
19	.07	.07	.07	.07	.14	.14	.02	.00	.00	5.4	.02	.02
20	.07	.07	.07	.07	.14	.14	.02	.00	.00	6.2	.02	.02
21	.07	.07	.07	.07	.14	.02	.02	.00	.00	6.8	.02	.02
22	.07	.07	.07	.07	.14	.02	.02	.00	.00	7.1	.06	.02
23	.07	.07	.07	.07	.14	.07	.00	.00	.28	6.6	.03	.02
24	.07	.08	.07	.07	.14	.07	.00	.00	5.1	6.6	.02	.02
25	.07	.08	.07	.14	.14	.07	.00	.00	4.6	7.1	.06	.02
26	.07	.07	.07	.14	.14	.07	.00	.30	4.6	7.1	.03	.02
27	.07	.07	.07	.14	.14	.07	.00	1.4	4.3	7.5	.04	.02
28	.07	.07	.07	.14	.14	.00	.00	2.6	3.9	7.5	.05	.02
29	.07	.09	.07	.14	---	.00	.00	6.7	3.6	7.5	.03	.02
30	.07	.10	.07	.14	---	.00	.00	7.7	3.6	8.4	.07	.02
31	.07	---	.04	.14	---	.00	---	10	---	7.5	2.6	---
TOTAL	2.11	2.17	3.20	2.52	3.92	10.20	3.98	28.80	94.19	132.97	10.83	92.22
MEAN	.068	.072	.10	.081	.14	.33	.13	.93	3.14	4.29	.35	3.07
MAX	.14	.10	.14	.14	.14	4.4	2.0	10	15	8.4	2.6	11
MIN	.02	.07	.04	.02	.14	.00	.00	.00	.00	.00	.02	.02
AC-FT	4.2	4.3	6.3	5.0	7.8	20	7.9	57	187	264	21	183

CAL YR 1980 TOTAL 1205.05 MEAN 3.29 MAX 19 MIN .00 AC-FT 2390
WTR YR 1981 TOTAL 387.11 MEAN 1.06 MAX 15 MIN .00 AC-FT 768

08415000 WARD COUNTY WATER IMPROVEMENT DISTRICT NO. 3 CANAL NEAR BARSTOW, TX

LOCATION.--Lat 31°34'28", long 103°30'04", Ward County, Hydrologic Unit 13070001, on left bank 96 ft (29 m) upstream from concrete culvert that crosses canal, 2 mi (3 km) downstream from headgate, and 10.5 mi (16.9 km) northwest of Barstow.

PERIOD OF RECORD.--August 1939 to May 1941, August to September 1941, December 1941 to September 1957, and March 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,600 ft (792 m), from topographic map. Prior to Dec. 14, 1940, at site 1.75 mi (2.82 km) upstream at datum 2.98 ft (0.908 m) higher. Dec. 14, 1940, to May 26, 1941, at site 1.4 mi (2.3 km) upstream at datum 1.72 ft (0.524 m) higher.

REMARKS.--Records fair. Local runoff is deleted from daily discharge record. Water is diverted from the left bank of Pecos River, and is used for irrigation in the vicinity of Barstow. An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--33 years (water years 1940, 1943-57, 1965-81), 8.99 ft^3/s (0.255 m^3/s), 6,510 acre-ft/yr (8.03 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 189 ft^3/s (5.35 m^3/s) Sept. 28, 1978; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	11	4.4	.00	.00	.00	.00	3.9	6.2	12	.00	50
2	14	11	4.4	.00	.00	.00	.00	.28	6.9	12	.00	53
3	7.1	12	4.4	.00	.00	.00	.00	.13	16	12	19	53
4	11	13	4.4	.00	.00	.00	.00	.11	17	13	32	53
5	17	14	3.9	.00	.00	.00	.00	.10	17	13	30	50
6	17	14	3.9	.00	.00	.00	.00	.08	17	13	30	44
7	16	15	3.9	.00	.00	.00	.00	.05	17	14	35	41
8	15	12	3.9	.00	.00	.00	.00	.04	17	14	42	29
9	12	5.8	3.4	.00	.00	.00	.00	.03	18	15	44	.11
10	12	5.6	3.0	.00	.00	.00	.00	.02	18	14	45	4.4
11	11	7.2	3.0	.00	.00	.00	.00	.01	18	12	49	61
12	9.3	8.9	2.6	.00	.00	.00	.00	.05	18	14	41	43
13	11	8.6	2.6	.00	.00	.00	.00	.08	18	17	29	15
14	11	7.4	1.9	.00	.00	.00	.00	.12	18	51	32	.04
15	9.3	6.2	1.9	.00	.00	.00	.00	.13	18	55	36	3.3
16	12	6.2	1.3	.00	.00	.00	14	.11	18	55	38	16
17	17	5.6	1.3	.00	.00	.00	13	.08	18	56	17	16
18	17	5.5	1.3	.00	.00	.00	11	.27	15	59	.12	13
19	16	5.5	1.1	.00	.00	.00	6.2	.40	14	61	.10	17
20	16	5.1	.88	.00	.00	.00	3.9	7.7	13	54	13	18
21	15	4.7	.70	.00	.00	.00	8.4	16	11	48	28	19
22	15	4.6	.16	.00	.00	.00	6.9	16	11	41	19	20
23	14	4.7	.13	.00	.00	.00	6.9	8.4	11	35	17	20
24	14	4.4	.10	.00	.00	.00	6.2	4.8	13	34	19	21
25	13	4.4	.07	.00	.00	.00	5.5	14	14	36	25	22
26	13	4.4	.04	.00	.00	.00	5.0	20	14	36	20	23
27	12	4.4	.02	.00	.00	.00	4.4	16	14	36	17	23
28	12	4.4	.00	.00	.00	.00	4.4	17	15	36	13	24
29	12	4.4	.00	.00	---	.00	5.0	17	15	33	9.0	24
30	11	4.4	.00	.00	---	.00	4.4	5.5	16	26	25	25
31	10	---	.00	.00	---	.00	---	6.2	---	.00	50	---
TOTAL	413.7	224.4	58.70	.00	.00	.00	105.20	154.59	452.1	927.00	774.22	800.85
MEAN	13.3	7.48	1.89	.000	.000	.000	3.51	4.99	15.1	29.9	25.0	26.7
MAX	22	15	4.4	.00	.00	.00	14	20	18	61	50	61
MIN	7.1	4.4	.00	.00	.00	.00	.00	.01	6.2	.00	.00	.04
AC-FT	821	445	116	.00	.00	.00	209	307	897	1840	1540	1590

CAL YR 1980 TOTAL 3860.28 MEAN 10.5 MAX 66 MIN .00 AC-FT 7660
WTR YR 1981 TOTAL 3910.76 MEAN 10.7 MAX 61 MIN .00 AC-FT 7760

08418000 WARD COUNTY IRRIGATION DISTRICT NO. 1 CANAL NEAR BARSTOW, TX

LOCATION.--Lat 31°32'26", long 103°29'42", Ward County, Hydrologic Unit 13070001, on left bank 0.6 mi (1.0 km) downstream from headgate and 7.9 mi (12.7 km) northwest of Barstow.

PERIOD OF RECORD.--February 1922 to September 1925 (published as "Barstow Canal near Barstow"), August 1939 to May 1941, October 1941 to September 1957, and March 1964 to current year.

GAGE.--Water-stage recorder. Concrete weir since Nov. 20, 1968. Altitude of gage is 2,600 ft (792 m) from topographic map. Prior to Aug. 15, 1939, at site about 3,000 ft (910 m) upstream at different datum.

REMARKS.--Records good. Local runoff is deleted from daily discharge record. Water is diverted from left bank of Pecos River and is used for irrigation in the vicinity of Barstow. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--37 years (water years 1923-25, 1940, 1942-57, 1965-81), 27.9 ft^3/s (0.790 m^3/s), 20,210 acre-ft/yr (24.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 385 ft^3/s (10.9 m^3/s) Aug. 30, 1923; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	.10	1.4	.10	.09	.10	.00	.00	.24	13	.20	.00
2	35	.10	1.4	.10	.10	.10	.00	.00	.20	42	.20	.54
3	26	.10	1.4	.10	.20	.10	.00	.00	.20	34	.20	4.6
4	.20	.10	1.1	.10	.20	.04	.00	.00	.20	24	.10	20
5	.20	.10	.84	.10	.24	.00	.00	.00	.20	26	.10	4.2
6	.20	.10	.54	.10	.30	.00	.00	.00	.20	8.8	.10	.00
7	.20	.10	.54	.10	.26	.00	.00	.00	.20	1.1	.10	.00
8	7.2	.10	.54	.10	.20	.00	.00	.00	.20	1.0	.10	.00
9	15	.10	.54	.10	.16	.00	.00	.00	.10	1.1	.10	.00
10	15	5.0	.54	.10	.14	.00	.00	.00	2.9	1.1	.10	.00
11	18	19	.54	.10	.20	.00	.00	.00	21	.98	.10	.00
12	22	17	.54	.10	.20	.00	.00	7.7	35	.84	.10	.00
13	23	6.2	.54	.10	.20	.00	.00	17	37	.84	.10	.00
14	25	.20	.54	.10	.20	.00	.00	23	29	.84	28	6.6
15	22	.20	.54	.10	.10	.00	.00	22	39	.84	42	23
16	15	.20	.20	.10	.10	.00	.00	19	37	.84	34	21
17	5.4	.20	.20	.10	.10	.00	.00	21	39	.84	14	14
18	.10	.20	.20	.10	.16	.00	.00	20	42	.84	1.9	26
19	.10	.20	.20	.05	.27	.00	.00	9.4	17	.84	.00	33
20	.10	.20	.20	.00	.34	.00	.00	.30	1.9	.84	.00	9.4
21	19	.20	.20	.00	.36	.00	.00	.30	1.6	.84	.00	1.6
22	13	.20	.20	.00	.20	.00	.00	1.4	31	.84	.00	1.6
23	.10	.20	.20	.00	.38	.00	.00	5.9	36	.84	.00	4.8
24	.10	.20	.20	.00	.67	.00	.00	18	26	12	.00	23
25	.10	.20	.20	.00	.20	.00	.00	13	44	24	.00	21
26	.10	.20	.20	.00	.20	.00	.00	.44	1.0	18	.00	18
27	.10	.20	.20	.00	.16	.00	.00	.30	1.0	14	.00	12
28	.10	.20	.20	.05	.10	.00	.00	.30	1.0	.10	.00	1.4
29	.10	1.4	.20	.09	---	.00	.00	.51	1.1	.10	.00	1.4
30	.10	1.4	.10	.16	---	.00	.00	.30	1.3	.10	.00	1.1
31	.10	---	.10	.13	---	.00	---	.30	---	.20	.00	---
TOTAL	294.60	53.90	14.54	2.28	6.03	.34	.00	180.15	446.54	231.66	121.50	248.24
MEAN	9.50	1.80	.47	.074	.22	.011	.000	5.81	14.9	7.47	3.92	8.27
MAX	35	19	1.4	.16	.67	.10	.00	23	44	42	42	33
MIN	.10	.10	.10	.00	.09	.00	.00	.00	.10	.10	.00	.00
AC-FT	584	107	29	4.5	12	.7	.00	357	886	459	241	492

CAL YR 1980 TOTAL 3602.66 MEAN 9.84 MAX 52 MIN .00 AC-FT 7150
WTR YR 1981 TOTAL 1599.78 MEAN 4.38 MAX 44 MIN .00 AC-FT 3170

08431700 LIMPIA CREEK ABOVE FORT DAVIS, TX
(Hydrologic bench-mark station)

LOCATION.--Lat 30°36'48", long 104°00'04", Jeff Davis County, Hydrologic Unit 13070005, on left downstream side of bridge on State Highway 118, about 1,400 ft (430 m) upstream from Jones Creek, and 6.8 mi (10.9 km) west of Fort Davis.

DRAINAGE AREA.--52.4 mi^2 (135.7 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 5,175.00 ft (1,577.340 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1979, at site 600 ft (183 m) upstream at datum 3.71 ft (1.131 m) higher.

REMARKS.--Water-discharge records fair. No diversion above station. Recording rain gage at station.

AVERAGE DISCHARGE.--16 years, 2.81 ft^3/s (0.0796 m^3/s), 0.73 in/yr (19 mm/yr), 2,040 acre-ft/yr (2.52 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,420 ft^3/s (96.9 m^3/s) Sept. 25, 1978, gage height, 12.63 ft (3.850 m), present datum, from rating curve extended above 150 ft^3/s (4.25 m^3/s) on basis of slope-area measurements of 1,130, 1,560, and 2,630 ft^3/s (32.0, 44.2, and 74.5 m^3/s); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1925, about 13.7 ft (4.18 m) in 1939, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,580 ft^3/s (44.7 m^3/s) Sept. 7 at 1700 hours, gage height, 5.78 ft (1.762 m), from floodmark, no other peak above base of 1,000 ft^3/s (28.3 m^3/s); no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.4
2	13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.4
3	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.4
4	9.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.1
5	6.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	9.2
6	5.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	26
7	3.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	267
8	2.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	195
9	2.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	82
10	1.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	49
11	1.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	27
12	1.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	92	21
13	1.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	21	14
14	1.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	10	11
15	1.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	9.2	7.6
16	1.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	10	6.2
17	.82	.00	.00	.00	.00	.00	.00	.00	.00	.00	35	6.2
18	.82	.00	.00	.00	.00	.00	.00	.00	.00	.00	27	5.0
19	.82	.00	.00	.00	.00	.00	.00	.00	.00	.00	44	4.4
20	2.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	24	3.9
21	1.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	15	3.4
22	.82	.00	.00	.00	.00	.00	.00	.00	.00	.00	11	3.1
23	.68	.00	.00	.00	.00	.00	.00	.00	.00	.00	9.2	2.4
24	.68	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.6	2.4
25	.68	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.0	2.2
26	.68	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.4	1.9
27	.34	.00	.00	.00	.00	.00	.00	.00	.00	.00	8.0	1.6
28	.34	.00	.00	.00	.00	.00	.00	.00	.00	.00	11	1.4
29	.24	.00	.00	.00	---	.00	.00	.00	.00	.00	6.9	1.2
30	.24	.00	.00	.00	---	.00	.00	.00	.00	.00	4.4	1.0
31	.10	---	.00	.00	---	.00	---	.00	---	.00	3.9	---
TOTAL	89.96	.00	.00	.00	.00	.00	.00	.00	.00	.00	358.60	765.4
MEAN	2.90	.000	.000	.000	.000	.000	.000	.000	.000	.000	11.6	25.5
MAX	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	92	267
MIN	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.0
CFSM	.06	.000	.000	.000	.000	.000	.000	.000	.000	.000	.22	.49
IN.	.06	.00	.00	.00	.00	.00	.00	.00	.00	.00	.25	.54
AC-FT	178	.00	.00	.00	.00	.00	.00	.00	.00	.00	711	1520
(††)	0	.02	0	.44	.73	.51	1.22	1.17	1.48	1.70	6.23	1.80

CAL YR 1980 TOTAL 472.26 MEAN 1.29 MAX 254 MIN .00 CFSM .03 IN .34 AC-FT 937 †† 9.99
WTR YR 1981 TOTAL 1213.96 MEAN 3.33 MAX 267 MIN .00 CFSM .06 IN .86 AC-FT 2410 †† 15.30

†† Rainfall, in inches.

08431700 LIMPIA CREEK ABOVE FORT DAVIS, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	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...	1655	59	120	7.1	21.0	--	--	44	8	14	2.2	6.3
17...	1600	26	137	7.3	23.0	8.2	101	49	0	15	2.7	7.4
18...	0910	17	146	7.3	21.0	--	--	54	2	17	2.7	7.5
SEP												
07...	1630	1700	83	7.3	19.0	--	--	42	6	14	1.8	2.9
23...	1730	2.3	155	7.4	25.0	10.0	145	66	0	21	3.4	8.7

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	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)
AUG											
12...	.4	3.3	36	3.0	18	.4	31	125	102	.39	.010
17...	.5	3.2	52	5.0	3.2	.4	34	127	102	.14	.000
18...	.5	3.2	52	2.0	15	.4	35	124	114	.17	.010
SEP											
07...	.2	3.2	36	12	2.5	.3	14	91	72	--	--
23...	.5	3.4	89	5.0	4.6	.5	35	136	135	--	--

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (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)
AUG											
12...	.40	.41	.100	.110	.74	.87	.84	.98	.190	.180	9.0
17...	.14	.15	.070	.070	.55	.43	.62	.50	.170	.160	4.5
18...	.18	.18	.080	.050	.78	.51	.86	.56	.160	.160	5.4
SEP											
07...	<.10	<.10	.310	.340	2.7	1.6	3.0	1.9	.280	.190	36
23...	<.10	<.10	.070	.060	.26	.42	.33	.48	.150	.160	3.3

08433000 BARRILLA DRAW NEAR SARAGOSA, TX

LOCATION.--Lat 30°57'28", long 103°27'33", Reeves County, Hydrologic Unit 13070005, on right bank at downstream side of bridge on U.S. Highway 290 (Interstate 10), 12.2 mi (19.6 km) east of Saragosa, 17.0 mi (27.4 km) east of Balmorhea, and 34.4 mi (55.3 km) west of Fort Stockton.

DRAINAGE AREA.--612 mi^2 (1,585 km^2).

PERIOD OF RECORD.--December 1924 to July 1926, June to September 1932 (published as "Barrilla Creek"), October 1975 to current year.

REVISED RECORDS.--WSP 1312: 1925.

GAGE.--Water-stage recorder. Datum of gage is 3,078.36 ft (938.284 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1975, water-stage recorder at site 600 ft (180 m) upstream at 6.07-foot (1.850 m) higher datum.

REMARKS.--Records poor. Considerable diversion for irrigation by spreader dams above station.

AVERAGE DISCHARGE.--6 years, 4.51 ft^3/s (0.128 m^3/s), 3,270 acre-ft/yr (4.03 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft^3/s (439 m^3/s) Aug. 30, 1932, gage height, 10.45 ft (3.185 m), site and datum then in use; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,200 ft^3/s (62.3 m^3/s) Sept. 8 at 1400 hours, gage height, 7.95 ft (2.423 m), from floodmark; no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
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	.50
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.18
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	653
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	235
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	110
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	27
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	50
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	34
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.41
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.91	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.00	.94	.00	1110.09
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.030	.000	37.0
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.91	.00	653
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.9	.00	2200

CAL YR 1980 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00
WTR YR 1981 TOTAL 1111.03 MEAN 3.04 MAX 653 MIN .00 AC-FT 2200

08436500 PECOS COUNTY WATER IMPROVEMENT DISTRICT NO. 2 (UPPER DIVERSION) CANAL NEAR GRANDFALLS, TX

LOCATION.--Lat 31°18'43", long 102°55'10", Ward County, Hydrologic Unit 13070001, on left bank about 2.5 mi (4.0 km) upstream from bridge on State Highway 18, 4.6 mi (7.4 km) southwest of Grandfalls, and 12.5 mi (20.1 km) downstream from headgate of canal.

PERIOD OF RECORD.--March 1922 to July 1925 (published as "Imperial Highline Canal near Grandfalls"), August 1939 to September 1957, and March 1964 to current year.

GAGE.--Water-stage recorder. Concrete weir since Dec. 8, 1947. Altitude of gage is 2,455 ft (748 m), from topographic map. Prior to Aug. 21, 1939, water-stage recorder at site 8.5 mi (13.7 km) upstream at different datum. Aug. 21 to Oct. 3, 1939, and May 25 to Aug. 4, 1941, staff gage, and Oct. 4, 1939, to May 21, 1941, and Aug. 5, 1941, to Sept. 30, 1957, water-stage recorder at site 2.5 mi (4.0 km) downstream at different datum.

REMARKS.--Records good. Local runoff is deleted from daily discharge record. Water is diverted from right bank of Pecos River and is used for irrigation and to supply water for Imperial Reservoir. Water is released from Imperial Reservoir into Pecos County Water Improvement District No. 2 canal and into Pecos County Water Improvement District No. 3 canal for irrigation.

AVERAGE DISCHARGE.--36 years (water years 1924, 1940-57, 1965-81), 30.9 ft^3/s (0.875 m^3/s), 22,390 acre-ft/yr (27.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 368 ft^3/s (10.4 m^3/s) Sept. 18, 1923; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	.00	.00	.00	.00	212	.00	.00	.00	159	.00	.00
2	145	.00	.00	.00	.00	219	.00	.00	.00	165	.00	.00
3	141	.00	.00	.00	.00	222	.00	.00	.00	171	.00	.00
4	82	.00	.00	.00	.00	226	.00	.00	.00	177	.00	.00
5	42	.00	.00	.00	.00	238	.00	.00	.00	182	.00	.00
6	38	.00	.00	.00	.00	242	.00	.00	.00	184	.00	.00
7	31	.00	.00	.00	.00	243	.00	.00	.00	185	.00	.00
8	3.2	.00	.00	.00	.00	243	.00	.00	.00	186	.00	.00
9	.12	.00	.00	.00	.00	243	.00	.00	.00	189	.00	.38
10	.00	.00	.00	.00	.00	244	.00	.00	.00	191	.00	1.8
11	.00	.00	.00	.00	.00	237	.00	.00	.00	192	.00	.92
12	.00	.00	.00	.00	.00	159	.00	.00	.00	194	.00	.43
13	.00	.00	.00	.00	.00	88	.00	.00	.00	189	.00	.16
14	.00	.00	.00	.00	.00	61	.00	.00	.00	151	.00	.00
15	.00	.00	.00	.00	.00	4.0	.00	.00	.00	83	.00	.00
16	.00	.00	.00	.00	.00	.10	.00	.00	.00	4.8	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	15	.00	.00	.00
28	.00	.00	.00	.00	47	.00	.00	.00	120	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	141	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	154	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	526.32	.00	.00	.00	47.00	2881.10	.00	.00	430.00	2602.88	.00	3.69
MEAN	17.0	.000	.000	.000	1.68	92.9	.000	.000	14.3	84.0	.000	.12
MAX	145	.00	.00	.00	47	244	.00	.00	154	194	.00	1.8
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	1040	.00	.00	.00	93	5710	.00	.00	853	5160	.00	7.3

CAL YR 1980 TOTAL 7019.62 MEAN 19.2 MAX 196 MIN .00 AC-FT 13920
WTR YR 1981 TOTAL 6490.99 MEAN 17.8 MAX 244 MIN .00 AC-FT 12870

08437500 PECOS COUNTY WATER IMPROVEMENT DISTRICT NO. 2 CANAL NEAR IMPERIAL, TX

LOCATION.--Lat 31°16'38", long 102°43'54", Pecos County, Hydrologic Unit 13070001, on left bank about 2.4 mi (3.9 km) west of Imperial and 7.7 mi (12.4 km) downstream from Imperial Reservoir.

PERIOD OF RECORD.--April 1940 to May 1941, March 1942 to September 1957, and March 1964 to current year. Records since March 1942 are equivalent to earlier records if diversions to Pecos County Water Improvement District No. 3 canal near Imperial (station 08437600) are added to flow past station.

GAGE.--Water-stage recorder. Wooden weir June 1, 1943, to Feb. 29, 1964, and concrete weir since Mar. 1, 1964. Altitude of gage is about 2,400 ft (732 m), from topographic map. Prior to July 11, 1940, at site 1.5 mi (2.4 km) upstream at different datum. July 12, 1940, to Mar. 23, 1942, at site 2.5 mi (4.0 km) upstream at datum 3.36 ft (1.024 m) higher. Mar. 24, 1942, to May 31, 1943, at site 0.5 mi (0.8 km) upstream at datum 0.70 ft (0.213 m) higher.

REMARKS.--Records good. Local runoff is deleted from daily discharge record. Water is diverted from Imperial Reservoir (on right bank of Pecos River) for irrigation in the vicinity of Imperial, and at times includes water diverted from the Pecos River through Cut Around Canal. The total flow at this station does not include 117 acre-ft (144,000 m^3) diverted from canal 75 ft (23 m) upstream, or water diverted into Pecos County Improvement District No. 3 canal (see station 08437600) 0.6 mi (1.0 km) upstream.

AVERAGE DISCHARGE.--32 years (water years 1943-57, 1965-81), 12.1 ft^3/s (0.343 m^3/s), 8,770 acre-ft/yr (10.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 144 ft^3/s (4.08 m^3/s) July 27, 28, 31, Aug. 1, 1945; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.94	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	38
3	.65	.00	.00	.00	.00	.00	.00	.00	8.9	.00	.00	50
4	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	40
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	36
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	13
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	.00
14	.00	.00	.00	.00	.00	.00	38	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	5.4	.00	35	43	.00	.00
16	.00	.00	.00	.00	.00	.00	2.0	.00	38	55	.00	.00
17	.00	.00	.00	.00	.00	.00	1.8	.00	35	54	.00	.00
18	.00	.00	.00	.00	.00	.00	1.8	.00	50	53	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	61	41	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	56	38	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	46	42	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	21	51	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	20	29	.00	.00
24	.00	.00	.00	.00	.00	.00	.14	.00	21	24	.00	.00
25	.00	.00	.00	.00	.00	.00	.08	.00	14	30	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	30	.07	26	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	36	.00	8.3	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	29	.00	.05	.00	18
29	.00	.00	.00	.00	---	.00	.00	43	.00	.00	.00	18
30	.00	.00	.00	.00	---	.00	.00	38	.00	.00	.00	16
31	.00	---	.00	.00	---	.00	---	4.1	---	.00	.00	---
TOTAL	3.64	.00	.00	.00	.00	.00	49.22	180.10	405.97	494.35	.00	229.00
MEAN	.12	.000	.000	.000	.000	.000	1.64	5.81	13.5	15.9	.000	7.63
MAX	2.0	.00	.00	.00	.00	.00	38	43	61	55	.00	50
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	7.2	.00	.00	.00	.00	.00	98	357	805	981	.00	454

CAL YR 1980 TOTAL 2429.53 MEAN 6.64 MAX 66 MIN .00 AC-FT 4820
WTR YR 1981 TOTAL 1362.28 MEAN 3.73 MAX 61 MIN .00 AC-FT 2700

08437600 PECOS COUNTY WATER IMPROVEMENT DISTRICT NO. 3 CANAL NEAR IMPERIAL, TX

LOCATION.--Lat 31°16'51", long 102°44'26", Pecos County, Hydrologic Unit 13070001, on left bank about 220 ft (67 m) upstream from bridge on Farm Road 11, 0.3 mi (0.5 km) downstream from headgate (Pecos No. 2 canal), and 2.9 mi (4.7 km) west of Imperial.

PERIOD OF RECORD.--March 1940 to September 1941, March 1942 to September 1957, and March 1964 to current year.

GAGE.--Water-stage recorder. Concrete weir since Mar. 7, 1944. Altitude of gage is 2,390 ft (728 m), from topographic map. Prior to Jan. 10, 1941, at site 350 ft (107 m) downstream at datum 6.79 ft (2.070 m) lower. Jan. 10, 1941, to Mar. 29, 1942, at site 200 ft (61 m) downstream at datum 3.65 ft (1.113 m) lower.

REMARKS.--Records good. Local runoff is deleted from daily discharge record. Water is diverted from Imperial Reservoir (on right bank of Pecos River), 7.6 mi (12.2 km) upstream, for irrigtion in the vicinity of Imperial, and at times includes water diverted from the Pecos River by Cut Around Canal.

AVERAGE DISCHARGE.--33 years (water years 1941, 1943-57, 1965-81), 9.11 ft^3/s (0.258 m^3/s), 6,600 acre-ft/yr (8.14 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 175 ft^3/s (4.96 m^3/s) Aug. 11, 1940; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	1.8	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.18	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	11	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	1.4	.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	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	17	16	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	19	19	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	18	19	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	4.6	19	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	18	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	18	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	20	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	24	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	25	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	33	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	1.1	.00	31	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	18	.00	.81	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	19	.00	.64	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	19	.00	.35	.00	20
29	.00	.00	.00	.00	---	.00	.00	19	.00	.00	.00	22
30	.00	.00	.00	.00	---	.00	.00	12	.00	.00	.00	22
31	.00	---	.00	.00	---	.00	---	.00	---	.42	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	88.10	72.98	244.22	.00	64.00
MEAN	.000	.000	.000	.000	.000	.000	.000	2.84	2.43	7.88	.000	2.13
MAX	.00	.00	.00	.00	.00	.00	.00	19	19	33	.00	22
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	175	145	484	.00	127

CAL YR 1980 TOTAL 747.58 MEAN 2.04 MAX 26 MIN .00 AC-FT 1480
WTR YR 1981 TOTAL 469.30 MEAN 1.29 MAX 33 MIN .00 AC-FT 931

08437700 WARD COUNTY WATER IMPROVEMENT DISTRICT NO. 2 CANAL NEAR GRANDFALLS, TX

LOCATION.--Lat 31°22'13", long 103°00'24", Ward County, Hydrologic Unit 13070001, on left bank 1,550 ft (477 m) upstream from Farm Road 1776, 2.3 mi (3.7 km) downstream from headgate, and 9.5 mi (15.3 km) west of Grandfalls.

PERIOD OF RECORD.--August 1939 to September 1941, November 1941 to September 1957, and March 1964 to current year.

GAGE.--Water-stage recorder. Concrete weir since Feb. 17, 1947. Altitude of gage is 2,460 ft (750 m), from topographic map. Prior to Jan. 10, 1941, at site 1.75 mi (2.82 km) downstream at different datum. Jan. 11, 1941, to Feb. 16, 1947, at site 50 ft (15 m) downstream at present datum.

REMARKS.--Records good. Local runoff is deleted from the discharge record. Water is diverted from the left bank of the Pecos River for irrigation in the vicinity of Grandfalls. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--33 years (water years 1940, 1943-57, 1965-81), 19.2 ft^3/s (0.544 m^3/s), 13,910 acre-ft/yr (17.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 198 ft^3/s (5.61 m^3/s) Apr. 9, 1947; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	.00	.00	.00	.00	.00	.00	.00	.00	5.2	38	17
2	112	.00	.00	.00	.00	.00	.00	.00	.00	4.8	113	20
3	102	.00	.00	.00	.00	.00	.00	.00	1.1	5.2	128	20
4	76	.00	.00	.00	.00	.00	.00	.00	38	8.1	96	20
5	54	.00	.00	.00	.00	.00	.00	.00	37	11	60	19
6	50	.00	.00	.00	.00	.00	.00	.00	34	12	7.5	20
7	52	.00	.00	.00	.00	.00	.00	.00	32	12	8.1	32
8	46	.00	.00	.00	.00	.00	.00	.00	19	11	8.7	19
9	17	.00	.00	.00	.00	.00	.00	.00	30	12	8.0	19
10	16	.00	.00	.00	.00	.00	.00	.00	45	12	6.9	17
11	16	.00	.00	.00	.00	.00	.00	.00	37	13	7.1	16
12	14	.00	.00	.00	.00	.00	.00	.00	41	13	7.1	17
13	13	.00	.00	.00	.00	.00	.00	.00	33	13	7.5	17
14	13	.00	.00	.00	.00	.00	.00	.00	24	9.0	7.8	17
15	12	.00	.00	.00	.00	.00	.00	.00	21	8.2	7.6	16
16	12	.00	.00	.00	.00	.00	.00	.00	34	78	7.6	16
17	11	.00	.00	.00	.00	.00	.00	.00	41	55	7.1	16
18	12	.00	.00	.00	.00	.00	.00	.00	25	54	7.8	15
19	8.6	.00	.00	.00	.00	.00	.00	.00	9.9	52	8.5	15
20	7.6	.00	.00	.00	.00	.00	.00	.00	9.1	48	9.7	15
21	7.4	.00	.00	.00	.00	.00	.00	.00	9.7	44	5.8	14
22	.39	.00	.00	.00	.00	.00	.00	.00	9.8	39	11	12
23	.00	.00	.00	.00	.00	.00	.00	.00	9.1	35	45	6.7
24	.00	.00	.00	.00	.00	.00	.00	.00	12	31	7.2	.39
25	.00	.00	.00	.00	.00	.00	.00	.00	15	30	31	.40
26	.00	.00	.00	.00	.00	.00	.00	.00	16	28	33	.41
27	.00	.00	.00	.00	.00	.00	.00	.00	17	25	29	.42
28	.00	.00	.00	.00	.00	.00	.00	.00	13	24	26	.49
29	.00	.00	.00	.00	---	.00	.00	.00	11	22	21	.54
30	.00	.00	.00	.00	---	.00	.00	.00	6.8	23	18	.62
31	.00	---	.00	.00	---	.00	---	.00	---	52	15	---
TOTAL	770.99	.00	.00	.00	.00	.00	.00	.00	630.50	789.5	794.0	398.97
MEAN	24.9	.000	.000	.000	.000	.000	.000	.000	21.0	25.5	25.6	13.3
MAX	119	.00	.00	.00	.00	.00	.00	.00	45	78	128	32
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.8	5.8	.39
AC-FT	1530	.00	.00	.00	.00	.00	.00	.00	1250	1570	1570	791

CAL YR 1980 TOTAL 3134.44 MEAN 8.56 MAX 119 MIN .00 AC-FT 6220
WTR YR 1981 TOTAL 3383.96 MEAN 9.27 MAX 128 MIN .00 AC-FT 6710

08446500 PECOS RIVER NEAR GIRVIN, TX

LOCATION.--Lat 31°06'47", long 102°25'02", Pecos County, Hydrologic Unit 13070008, on right bank 2.1 mi (3.4 km) upstream from Comanche Creek, 3.8 mi (6.1 km) northwest of Girvin, and 7.2 mi (11.6 km) upstream from bridge on U.S. Highway 67. Water-quality sampling site on left bank 7.2 mi (11.6 km) downstream.

DRAINAGE AREA.--29,560 mi² (76,560 km²), approximately for contributing area of supplementary gage 7.2 mi (11.6 km) downstream.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder with concrete control and measuring flume. Datum of gage not determined. Supplementary water-stage recorder, used as regular gage prior to July 17, 1951, is now used only for peaks exceeding about 400 ft³/s (11.3 m³/s), 7.2 mi (11.6 km) downstream at datum 2,269.65 ft (691.789 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. Flow is largely regulated by Red Bluff Reservoir (station 08410000). Numerous diversions above station for irrigation.

AVERAGE DISCHARGE.--42 years, 87.1 ft³/s (2.467 m³/s), 63,100 acre-ft/yr (77.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s (566 m³/s) Oct. 5, 1941, gage height, 20.49 ft (6.245 m), at supplementary gage; minimum daily, 2.2 ft³/s (0.062 m³/s) July 18, 1964.
Maximum stage since at least 1932, that of Oct. 5, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 281 ft³/s (7.96 m³/s) Sept. 13 at 0300 hours, gage height, 3.49 ft (1.064 m); minimum daily, 7.4 ft³/s (0.27 m³/s) July 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	265	77	77	68	48	49	44	22	102	46	13	20
2	214	77	77	64	47	78	43	20	81	57	11	15
3	131	77	77	60	46	159	42	18	78	57	10	12
4	90	75	77	58	46	155	41	16	64	43	8.7	11
5	110	75	78	56	46	100	40	16	58	36	8.6	10
6	118	75	78	54	46	76	39	16	53	28	8.3	9.4
7	108	75	77	53	46	65	39	18	58	26	9.5	8.7
8	92	74	77	54	45	59	40	20	83	23	62	8.7
9	75	74	89	55	44	56	38	18	93	21	64	9.4
10	67	74	89	54	44	52	36	16	78	22	33	20
11	63	73	87	55	43	49	35	16	66	22	33	23
12	59	72	86	56	44	48	32	15	57	21	52	75
13	76	72	85	54	43	49	30	14	51	19	51	247
14	89	72	83	54	43	48	29	15	46	18	50	145
15	88	72	83	54	42	48	30	32	41	17	46	90
16	85	76	83	52	42	46	32	31	34	16	44	65
17	82	78	83	51	42	42	32	22	31	15	43	76
18	78	75	84	52	42	37	36	20	29	13	47	103
19	75	74	85	53	42	35	32	19	28	12	55	131
20	74	74	85	54	42	51	28	33	25	12	54	130
21	74	75	85	54	42	62	29	46	20	11	55	96
22	73	75	85	56	42	63	30	39	16	10	50	66
23	72	75	85	55	42	61	89	32	14	9.4	44	54
24	73	75	84	54	40	62	142	32	11	8.0	56	50
25	74	76	83	53	40	59	64	33	10	7.4	74	47
26	75	78	83	52	40	53	41	55	24	11	64	42
27	76	79	83	51	40	51	33	62	51	10	43	39
28	74	78	82	50	42	49	28	84	61	12	28	40
29	71	77	81	50	---	48	24	109	66	11	19	42
30	73	77	77	50	---	46	24	131	57	9.4	15	43
31	76	---	72	50	---	45	---	160	---	11	23	---
TOTAL	2850	2256	2540	1686	1211	1901	1222	1180	1486	634.2	1174.1	1728.2
MEAN	91.9	75.2	81.9	54.4	43.3	61.3	40.7	38.1	49.5	20.5	37.9	57.6
MAX	265	79	89	68	48	159	142	160	102	57	74	247
MIN	59	72	72	50	40	35	24	14	10	7.4	8.3	8.7
AC-FT	5650	4470	5040	3340	2400	3770	2420	2340	2950	1260	2330	3430

CAL YR 1980 TOTAL 14896.6 MEAN 40.7 MAX 278 MIN 3.2 AC-FT 29550
WTR YR 1981 TOTAL 19868.5 MEAN 54.4 MAX 265 MIN 7.4 AC-FT 39410

08446500 PECOS RIVER NEAR GIRVIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1939 to June 1941, October 1946 to September 1947, October 1953 to current year. Pesticide analyses: October 1968 to September 1974.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1939 to June 1941, October 1946 to September 1947, October 1953 to current year.
WATER TEMPERATURES: October 1953 to January 1959, March 1964 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, 38,900 micromhos Aug. 6, 1965; minimum daily, 790 micromhos Apr. 26, 1957.
WATER TEMPERATURES (1953-59, 1964-81): Maximum daily, 35.0°C July 16, Sept. 6, 1969, July 26, Aug. 18, 27, 1978; minimum daily, 3.0°C Feb. 3, 4, 1956, Jan. 9, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 25,400 micromhos July 1; minimum daily, 4,480 micromhos Oct. 5.
WATER TEMPERATURES: Maximum daily, 34.0°C Aug. 5, 6; minimum daily, 7.0°C Jan. 19, 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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)
JAN 06...	1620	15	16700	--	11.0	3000	2900	660	340	2900
FEB 25...	0950	40	22400	--	13.0	3900	3800	800	470	4100
APR 14...	1100	28	17900	--	22.0	3300	3200	690	390	3100
MAY 19...	1015	16	19200	--	23.0	3500	3500	710	420	3600
AUG 12...	0850	55	19400	7.2	26.0	4000	3900	860	440	3500
SEP 15...	0915	92	16000	--	26.0	3300	3200	750	340	2700

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)	PHOS-PHORUS, TOTAL (MG/L AS P)
JAN 06...	23	42	130	2700	4700	1.2	1.7	11400	--
FEB 25...	28	41	140	3300	6600	1.8	.4	15400	.060
APR 14...	23	50	77	3000	5400	1.6	16	12700	--
MAY 19...	26	46	52	3300	5800	1.8	20	13900	.050
AUG 12...	24	53	90	3500	5800	1.9	1.2	14200	.050
SEP 15...	21	39	94	2500	5000	1.4	3.5	11400	--

08446500 PECOS RIVER NEAR GIRVIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	2850	11000	7420	57100	3000	23000	1800	14100	*
NOV.	1980	2256	15900	11000	66700	4500	27100	2700	16200	*
DEC.	1980	2540	14700	10100	69000	4100	28000	2500	16800	*
JAN.	1981	1686	17400	12100	54900	4900	22400	2900	13200	*
FEB.	1981	1211	21600	15300	50100	6300	20700	3600	11900	*
MAR.	1981	1901	17500	12200	62400	5000	25500	2900	15000	*
APR.	1981	1222	15900	10900	36100	4400	14700	2700	8750	*
MAY	1981	1180	19700	13800	44100	5700	18100	3300	10500	*
JUNE	1981	1486	21300	15000	60300	6200	24900	3600	14300	*
JULY	1981	634.2	22300	15900	27200	6600	11200	3800	6420	*
AUG.	1981	1174.1	17100	11900	37600	4800	15400	2900	9060	*
SEPT	1981	1728.2	11200	7530	35100	3000	14100	1900	8670	*
TOTAL		19868.5	**	**	601000	**	245000	**	145000	**
WTD. AVG.		54	16200	11200	**	4600	**	2700	**	**

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11200	16600	15200	14900	19000	21200	15200	17300	20500	25400	23300	12600
2	7250	16400	15200	15500	19300	21700	15500	18100	21400	24700	23200	12700
3	4690	16300	15300	15800	19600	20500	16000	18500	21100	23400	22800	12600
4	4600	16200	15300	16100	20400	21000	16200	18800	21000	22000	22900	12800
5	4480	16200	15100	16400	20700	21100	16500	19000	20300	21400	22700	12700
6	5150	16100	15200	16600	21100	21000	16700	19300	19600	21200	22600	12900
7	5630	16200	15100	16900	21300	21300	17000	19400	19300	20900	22800	13000
8	6090	16300	14800	16800	21500	18700	17100	19500	20000	20800	22000	13200
9	7480	16200	15000	17000	21600	15600	17300	19800	19100	20400	21000	13300
10	10200	16100	14600	17100	21700	14200	17400	19700	19700	20500	20800	13500
11	12200	16200	14900	17200	21900	14000	17600	19800	20400	20300	19300	14000
12	13500	16200	14300	17300	22000	13900	17800	20400	20500	20500	16500	14300
13	13000	16100	14500	17300	22100	14100	17900	19800	20500	20300	18200	14000
14	12400	16000	14600	17500	22000	14300	17600	20000	20800	20500	18000	14400
15	11300	16100	14500	17600	22100	14500	17200	19800	21200	20900	17400	16000
16	11400	15600	14500	17800	22200	15100	17400	20100	21300	21000	17500	12400
17	11800	15700	14400	18000	22300	15700	17100	19900	21600	21300	17600	8760
18	11600	15700	14400	17800	22400	15900	17200	20000	22000	21500	18400	7280
19	13600	15800	14500	17700	22400	16200	17500	19000	22100	21800	19000	7370
20	15000	15800	14600	18000	22500	16300	17800	18800	22400	22500	18100	5150
21	14900	15900	14700	18200	22500	16600	18000	19000	22600	23100	17700	5910
22	14700	15800	14600	18200	22600	16700	16400	19400	23000	23000	16700	8960
23	14800	15700	14500	18500	22500	16300	15200	19600	23200	23300	15600	10300
24	15200	15600	14400	18300	22600	16200	14400	19500	23400	23500	14300	11000
25	15300	15500	14500	18200	22500	15700	11300	19700	23500	23700	12900	11400
26	15400	15400	14500	18300	22300	15400	12600	20000	23300	24200	12100	12300
27	15500	15600	14500	18300	22400	15800	13800	20100	23600	24300	11500	13000
28	15800	15700	14600	18500	21600	15300	14900	20000	23500	23600	12000	13400
29	16300	15500	14600	18400	---	14800	15300	19500	24500	23500	12300	12900
30	16500	15300	14800	18500	---	14700	16000	19800	25000	23400	12500	12800
31	16600	---	15100	18600	---	14800	---	20700	---	23500	12600	---
MEAN	11700	15900	14700	17500	21700	16700	16300	19500	21700	22300	17900	11800

08446500 PECOS RIVER NEAR GIRVIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	15.0	12.0	14.0	13.0	20.0	---	25.0	26.0	29.0	28.0	30.0
2	23.0	---	10.0	13.0	11.0	18.0	---	24.0	27.0	28.0	32.0	29.0
3	25.0	18.0	12.0	13.0	8.0	18.0	---	25.0	27.0	28.0	32.0	25.0
4	24.0	16.0	12.0	12.0	11.0	17.0	---	27.0	26.0	30.0	32.0	28.0
5	17.0	16.0	11.0	11.0	10.0	15.0	---	26.0	27.0	30.0	34.0	29.0
6	23.0	21.0	14.0	13.0	11.0	15.0	---	24.0	28.0	30.0	34.0	29.0
7	25.0	22.0	15.0	10.0	10.0	15.0	---	24.0	28.0	29.0	29.0	29.0
8	22.0	22.0	12.0	11.0	15.0	15.0	---	25.0	27.0	29.0	29.0	26.0
9	21.0	18.0	12.0	12.0	13.0	11.0	---	23.0	30.0	28.0	29.0	27.0
10	25.0	12.0	12.0	11.0	13.0	12.0	---	23.0	30.0	29.0	29.0	27.0
11	25.0	19.0	13.0	11.0	9.0	13.0	23.0	25.0	30.0	30.0	27.0	27.0
12	24.0	17.0	12.0	9.0	9.0	13.0	24.0	25.0	25.0	31.0	25.0	28.0
13	20.0	20.0	14.0	8.0	11.0	17.0	25.0	25.0	28.0	29.0	28.0	---
14	23.0	15.0	11.0	12.0	13.0	17.0	17.0	25.0	---	27.0	30.0	29.0
15	23.0	12.0	13.0	11.0	15.0	18.0	15.0	27.0	---	29.0	28.0	27.0
16	23.0	10.0	13.0	9.0	15.0	16.0	20.0	22.0	---	32.0	---	27.0
17	23.0	10.0	14.0	8.0	13.0	19.0	20.0	---	---	31.0	28.0	25.0
18	20.0	10.0	15.0	---	17.0	13.0	20.0	27.0	---	32.0	28.0	23.0
19	19.0	10.0	10.0	7.0	13.0	12.0	24.0	27.0	28.0	32.0	28.0	24.0
20	18.0	12.0	8.0	10.0	9.0	10.0	25.0	25.0	29.0	32.0	29.0	25.0
21	19.0	10.0	8.0	12.0	9.0	8.0	22.0	23.0	28.0	31.0	29.0	25.0
22	18.0	12.0	10.0	7.0	15.0	---	23.5	27.0	27.0	28.0	28.0	25.0
23	20.0	10.0	10.0	9.0	15.0	---	21.0	26.0	28.0	30.0	28.0	23.0
24	18.0	10.0	8.0	11.0	17.0	---	20.0	25.0	28.0	30.0	28.0	26.0
25	19.0	8.0	11.0	11.0	19.0	---	21.0	28.0	28.0	29.0	28.0	27.0
26	18.0	8.0	10.0	14.0	18.0	---	24.0	26.0	29.0	30.0	27.0	28.0
27	19.0	11.0	14.0	13.0	19.0	---	23.0	29.0	28.0	27.0	28.0	27.0
28	13.0	12.0	9.0	16.0	18.0	---	25.5	27.0	29.0	27.0	28.0	27.0
29	13.0	11.0	8.0	15.0	---	---	27.0	29.0	28.0	29.0	26.0	27.0
30	12.0	11.0	9.0	12.0	---	---	---	25.0	27.0	31.0	30.0	23.0
31	11.0	---	9.0	15.0	---	---	---	27.0	---	31.0	30.0	---
MEAN	20.0	13.5	11.5	11.5	13.0	15.0	22.0	25.5	28.0	29.5	29.0	26.5

08447020 INDEPENDENCE CREEK NEAR SHEFFIELD, TX

LOCATION.--Lat 30°27'07", long 101°43'58", Terrell County, Hydrologic Unit 13070010, on left bank 0.5 mi (0.8 km) downstream from Joe Chandler Ranch Headquarters, 1.0 mi (1.6 km) upstream from mouth, 6 mi (10 km) downstream from bridge on Farm Road 1217, and 17 mi (27 km) southeast of Sheffield.

DRAINAGE AREA.--763 mi^2 (1,976 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 1,883 ft (574 m) National Geodetic Vertical Datum of 1929, by topographic division plane table survey.

REMARKS.--Records good. The Chandler Estate and the Roden Ranch have permits to divert 243 acre-ft (300,000 m^3) and 530 acre-ft (653,000 m^3) annually, respectively. Rain gage and gage-height satellite telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years, 31.1 ft^3/s (0.881 m^3/s), 22,530 acre-ft/yr (27.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,100 ft^3/s (2,210 m^3/s) Sept. 20, 1974, gage height, 16.74 ft (5.102 m), from rating curve extended above 130 ft^3/s (3.68 m^3/s) on basis of slope-area measurement of peak flow; minimum, 13 ft^3/s (0.37 m^3/s) July 26, 1974, and Nov. 16, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, about 22 ft (6.7 m) June 28, 1954, from information by local resident.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 17	1700	3,330	94.3	5.21	1.588
May 2	0815	*4,800	136	6.06	1.847

Minimum daily discharge, 19 ft^3/s (0.54 m^3/s) for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	19	20	21	23	26	21	46	33	29	23	28
2	23	19	20	21	23	24	21	774	40	28	23	30
3	22	19	20	22	23	25	22	71	35	28	23	28
4	20	19	20	22	23	23	21	53	40	28	23	29
5	20	19	20	23	23	22	19	50	39	28	23	29
6	19	19	20	23	23	22	19	47	36	28	24	27
7	19	19	20	23	23	23	19	46	33	28	23	25
8	19	19	23	26	23	23	19	43	32	27	39	24
9	19	19	23	26	23	23	19	40	33	27	29	24
10	19	19	21	25	23	23	20	39	33	27	27	24
11	19	19	21	24	24	30	20	38	33	26	26	24
12	19	19	21	24	24	30	20	34	33	26	25	24
13	19	19	22	24	24	27	20	34	33	26	25	24
14	19	19	22	24	23	25	96	35	33	26	25	24
15	20	19	22	23	23	23	94	35	36	25	25	24
16	19	24	21	23	23	20	47	34	41	25	25	24
17	19	23	21	24	23	20	449	31	36	25	29	24
18	19	22	21	25	23	20	84	31	35	24	35	24
19	19	21	21	25	24	20	62	30	33	24	31	23
20	19	21	21	25	23	20	58	30	32	24	29	23
21	20	21	21	24	23	20	53	30	31	24	29	23
22	19	21	21	23	23	20	48	30	31	24	29	23
23	19	21	21	23	23	20	63	30	31	25	28	23
24	19	20	21	23	22	20	55	29	31	23	27	23
25	19	23	21	23	21	22	50	29	32	23	27	23
26	19	22	21	23	21	22	48	29	31	23	27	23
27	19	21	21	23	21	22	47	29	31	24	27	23
28	19	20	21	23	22	22	47	30	29	24	27	22
29	19	20	21	23	---	21	46	53	29	24	26	22
30	19	20	21	23	---	20	47	39	29	23	26	22
31	19	---	21	23	---	20	---	37	---	23	26	---
TOTAL	606	605	651	727	640	698	1654	1906	1004	789	831	733
MEAN	19.5	20.2	21.0	23.5	22.9	22.5	55.1	61.5	33.5	25.5	26.8	24.4
MAX	25	24	23	26	24	30	449	774	41	29	39	30
MIN	19	19	20	21	21	20	19	29	29	23	23	22
AC-FT	1200	1200	1290	1440	1270	1380	3280	3780	1990	1560	1650	1450

CAL YR 1980 TOTAL 7553 MEAN 20.6 MAX 47 MIN 16 AC-FT 14980
WTR YR 1981 TOTAL 10844 MEAN 29.7 MAX 774 MIN 19 AC-FT 21510

08447410 PECOS RIVER NEAR LANGTRY, TX
(National stream-quality accounting network)

LOCATION.--Lat 29°48'10", long 101°26'45", Val Verde County, Hydrologic Unit 13040212, at gaging station 7.4 mi (12.1 km) east of Langtry, 15.0 mi (24.1 km) upstream from confluence with the Rio Grande, and 638.2 mi (1,026.9 km) downstream from the American Dam at El Paso.

DRAINAGE AREA.--35,179 mi² (91,114 km²).

PERIOD OF RECORD.--Chemical analyses: October 1954 to current year. Chemical and biochemical analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1980 to September 1981.
WATER TEMPERATURES: November 1980 to September 1981.

INSTRUMENTATION.--Beginning November 1980, specific conductance and temperature are recorded continuously at this station.

REMARKS.--Specific conductance and water temperature during October 1980 were measured once daily. 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. Records of discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 50 and 51.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,000 micromhos Mar. 21, 22; minimum daily, 470 micromhos Apr. 17.
WATER TEMPERATURES: Minimum daily, 7.0°C Dec. 22, Jan. 19, 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
08...	1045	428	2680	7.3	23.0	.40	8.2	99	2.0	33	24
NOV											
05...	0950	235	2890	8.4	19.0	1.5	8.3	92	2.7	35	26
DEC											
03...	0940	246	4360	7.7	13.5	.60	8.2	81	2.5	K13	20
JAN											
14...	1010	235	5200	7.7	10.0	.40	8.7	79	.4	K14	K14
FEB											
11...	0950	201	4870	7.8	11.5	1.4	8.4	79	.7	20	26
MAR											
11...	1010	221	4860	7.3	14.0	1.4	8.5	84	1.6	34	42
APR											
08...	0915	169	5470	7.9	20.0	1.0	9.3	107	1.5	21	20
MAY											
06...	0915	825	2400	7.7	21.0	2.6	8.4	98	.9	23	26
JUN											
03...	0930	428	2600	7.6	25.0	.90	8.4	105	2.5	K11	26
JUL											
08...	1010	294	2240	7.8	26.0	1.0	8.6	110	3.4	22	29
AUG											
05...	1030	225	2460	7.7	28.0	.70	8.5	112	1.7	21	23
SEP											
09...	1015	246	3080	7.6	27.0	3.3	8.6	113	1.2	24	21

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT											
08...	550	390	130	54	360	6.7	8.0	160	310	630	.7
NOV											
05...	590	440	140	58	370	6.6	9.3	150	330	630	.8
DEC											
03...	940	830	220	94	670	9.5	15	110	620	1200	.9
JAN											
14...	1000	860	240	100	800	11	10	150	790	1300	.8
FEB											
11...	930	770	210	98	750	11	10	160	720	1200	.7
MAR											
11...	930	760	210	98	680	9.7	10	170	660	1200	.8
APR											
08...	960	820	220	100	790	11	11	140	790	1300	.9
MAY											
06...	490	310	120	46	300	5.9	6.0	170	300	490	.8
JUN											
03...	510	350	120	51	330	6.4	6.6	150	300	520	.8
JUL											
08...	470	320	110	47	310	6.2	6.0	130	290	490	.7
AUG											
05...	460	320	110	45	340	6.9	6.9	130	300	560	.7
SEP											
09...	610	460	140	64	420	7.4	9.3	130	400	720	.8

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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)
OCT											
08...	15	1660	1610	1.9	.000	1.9	1.8	.000	.010	.63	.50
NOV											
05...	14	1730	1640	--	--	1.3	1.1	.000	.000	.67	.65
DEC											
03...	11	2940	2900	--	--	1.4	1.3	.020	.050	.57	.11
JAN											
14...	9.8	3450	3350	--	--	1.4	1.3	.040	.090	.69	.47
FEB											
11...	12	3030	3100	--	--	1.3	1.3	.000	.020	.49	.46
MAR											
11...	12	3120	2950	--	--	1.1	1.1	.040	.020	.59	.49
APR											
08...	12	3430	3310	--	--	.95	.94	.060	.090	1.2	1.0
MAY											
06...	15	1460	1390	--	--	1.8	2.0	.030	.030	1.4	1.2
JUN											
03...	16	1390	1440	--	--	2.3	1.9	.070	.000	.80	.98
JUL											
08...	17	1370	1360	--	--	1.6	1.6	.040	.050	.84	1.4
AUG											
05...	17	1470	1460	--	--	1.1	1.2	.140	.120	.55	.53
SEP											
09...	17	1910	1850	--	--	1.1	1.1	.060	.080	.77	.54

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
08...	.63	.51	.010	.010	--	7.2	.6	24	28	48
NOV										
05...	.67	.65	.070	.040	4.9	--	--	9	5.7	72
DEC										
03...	.59	.16	.020	.020	2.0	--	--	20	13	30
JAN										
14...	.73	.56	.030	.010	--	2.7	.2	4	2.5	85
FEB										
11...	.49	.48	.030	.010	2.4	--	--	20	11	52
MAR										
11...	.63	.51	.020	.020	4.3	--	--	17	10	60
APR										
08...	1.30	1.1	.010	.020	2.5	--	--	11	5.0	68
MAY										
06...	1.40	1.2	.030	.020	--	4.2	.6	42	94	70
JUN										
03...	.87	.98	.020	.010	3.7	--	--	24	28	74
JUL										
08...	.88	1.4	.020	.020	.8	--	--	17	13	73
AUG										
05...	.69	.65	.000	.000	--	2.8	--	15	9.1	88
SEP										
09...	.83	.62	.010	.020	1.6	--	--	29	19	75

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 08...	1045	1	0	1	700	600	100	0	0	0	0
JAN 14...	1010	1	0	1	200	0	200	0	0	0	10
MAY 06...	0915	2	1	1	200	100	100	0	0	0	20
AUG 05...	1030	1	0	1	100	0	100	1	0	1	10

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 08...	0	0	0	0	0	13	13	0	100	80	20
JAN 14...	10	0	0	0	0	3	0	4	2600	2600	40
MAY 06...	10	10	26	26	0	3	2	1	150	110	40
AUG 05...	0	10	0	0	0	3	2	1	50	20	30

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
OCT 08...	4	2	2	10	0	10	.2	.1	.1	3	1
JAN 14...	5	5	0	10	0	10	.5	.2	.3	0	0
MAY 06...	5	5	0	10	10	0	.3	.2	.1	29	25
AUG 05...	2	0	3	10	10	0	.4	.2	.2	2	2

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 08...	2	1	0	1	0	0	0	120	0	140
JAN 14...	0	1	0	1	0	0	0	40	10	30
MAY 06...	4	1	0	1	0	0	0	20	0	30
AUG 05...	0	0	0	1	0	0	0	100	0	100

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 5,80		MAR 11,81		MAY 6,81		JUN 3,81	
TIME	0950		1010		0915		0930	
TOTAL CELLS/ML	180		64		350		660	
DIVERSITY: DIVISION	0.9		0.0		1.2		1.5	
.CLASS	0.9		0.0		1.2		1.5	
..ORDER	1.1		0.7		1.7		1.8	
...FAMILY	1.3		1.4		1.9		1.9	
....GENUS	1.3		1.9		1.9		2.3	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	210#	31
....SCENEDESMUS	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	90#	26	26	4
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	13	7	13#	20	170#	48	100#	16
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	13	2
...CYMBELLACEAE								
....CYMBELLA	--	-	13#	20	--	-	--	-
...NAVICULACEAE								
....NAVICULA	13	7	--	-	13	4	--	-
...NITZSCHIACEAE								
....DENTICULA	--	-	13#	20	--	-	--	-
....NITZSCHIA	26	14	26#	40	52	15	13	2
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	210#	31
....ANACYSTIS	130#	71	--	-	26	7	90	14
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	--	-	--	-

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

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	JUL 8,81	AUG 5,81	SEP 9,81
TIME	1010	0000	1015
TOTAL CELLS/ML	90	72	14
DIVERSITY: DIVISION	1.4	0.0	0.0
.CLASS	1.4	0.0	0.0
..ORDER	1.4	0.0	0.0
...FAMILY	1.7	1.0	0.0
....GENUS	1.7	1.5	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	--	-
....SCENEDESMUS	51#	57	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	--	-
...CYMBELLACEAE						
....CYMBELLA	13	14	--	-	--	-
...NAVICULACEAE						
....NAVICULA	--	-	29#	40	--	-
...NITZSCHIACEAE						
....DENTICULA	--	-	14#	20	--	-
....NITZSCHIA	13	14	29#	40	14#	100
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	13	14	--	-	--	-

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1980	9673	2650	1540	40200	580	15000	330	8610	530
NOV.	1980	7057	3590	2120	40300	810	15400	460	8810	700
DEC.	1980	7449	5120	3080	62000	1200	24400	690	13900	960
JAN.	1981	6944	5330	3220	60400	1300	23900	730	13600	1000
FEB.	1981	5432	4910	2950	43200	1200	17000	660	9670	930
MAR.	1981	6138	5300	3200	53000	1300	21000	720	11900	990
APR.	1981	26199	2120	1230	87300	460	32900	270	18800	420
MAY	1981	23221	2040	1180	73700	440	27300	250	15700	420
JUNE	1981	12619	2380	1370	46700	510	17400	290	9960	480
JULY	1981	8214	2450	1420	31400	530	11700	300	6700	500
AUG.	1981	10990	2000	1150	34100	420	12600	240	7220	410
SEPT	1981	7567	3150	1840	37600	700	14200	400	8140	630
TOTAL		131503	**	**	610000	**	233000	**	133000	**
WTD. AVG.		360	2920	1720	**	660	**	370	**	570

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1			2000	---	---	2770	4590	4550	4570	5630	5590	5600
2			2100	---	---	2780	4630	4580	4600	5680	5590	5620
3			2350	---	---	2790	4690	4360	4650	5670	5620	5640
4			2600	---	---	2800	4720	4670	4690	5690	5650	5670
5			2600	---	---	2800	4760	4720	4730	5690	5680	5680
6			2600	---	---	2900	4800	4740	4770	5700	5680	5690
7			2650	3120	3030	3090	4820	4790	4800	5710	5670	5690
8			2680	3210	3110	3170	4840	4800	4820	5690	5670	5680
9			2700	3270	3210	3240	4840	4820	4830	5710	5670	5680
10			2700	3330	3250	3280	4860	4810	4830	5670	5600	5630
11			2710	3350	3290	3320	4950	4870	4920	5600	5580	5590
12			2710	3390	3330	3360	5030	4950	4980	5580	5530	5560
13			2710	3440	3380	3410	5100	5030	5070	5530	5450	5490
14			2750	3500	3440	3470	5130	5070	5100	5450	5200	5420
15			2750	3570	3510	3540	5160	5120	5140	5390	5340	5370
16			2740	3630	3560	3590	5260	5150	5180	5350	5300	5320
17			2740	3630	3620	3630	5260	5190	5220	5300	5220	5260
18			2760	3720	3620	3660	5260	5220	5240	5220	5140	5180
19			2780	3850	3740	3800	5240	5220	5220	5130	5040	5080
20			2750	3940	3860	3900	5270	5240	5250	5070	5040	5050
21			2740	4000	3940	3980	5290	5270	5290	5070	5050	5060
22			2750	4050	4000	4030	5310	5280	5300	5070	5040	5060
23			2760	4100	4050	4070	5360	5320	5340	5070	5020	5040
24			2770	4190	4100	4140	5410	5360	5380	5030	5000	5010
25			2760	4260	4190	4220	5440	5410	5420	5010	4980	4990
26			2750	4310	4260	4290	5490	5440	5460	5000	4970	4980
27			2760	4350	4090	4280	5490	5460	5480	4990	4950	4970
28			2770	4440	4350	4390	5500	5470	5490	4970	4940	4960
29			2770	4500	4440	4470	5540	5500	5520	4980	4950	4960
30			2780	4550	4500	4530	5580	5540	5550	4970	4910	4960
31			2760	---	---	---	5610	5570	5580	4960	4950	4960
MONTH			2670	4550	3030	3590	5610	4360	5110	5710	4910	5320

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	4990	4920	4970	4920	4870	4890	5700	5600	5630			2200
2	4990	4970	4980	4890	4840	4860	5650	5590	5620			900
3	5000	4980	4990	4870	4710	4810	5670	5560	5610			1200
4	5010	5000	5010	4900	4700	4800	5600	5540	5570			1800
5	5010	4990	5010	4750	4640	4700	5550	5510	5530			2100
6	5010	4980	5000	4910	4630	4780	5550	5490	5510			2400
7	5000	4970	4980	5070	4910	5000	5560	5510	5530			2450
8	5010	4970	4990	5120	5050	5070	5550	5350	5440			2440
9	5000	4690	4950	5110	4250	4820	5400	5280	5370			2450
10	4950	4630	4820	5200	4520	4880	5300	5190	5270			2400
11	5900	4730	4750	5210	3900	4870	5290	5160	5230			2450
12	4800	4760	4780	4870	4730	4850	5200	5100	5140			2470
13	4890	4810	4860	4860	4760	4820	5140	5090	5120			2490
14	4880	4860	4870	4990	4770	4900	5140	4600	4980			2500
15	4870	4840	4860	5220	5000	5110	4590	3800	4380			2480
16	4870	4820	4850	5440	5230	5340	4250	3330	3820			2470
17	4880	4830	4850	5590	5440	5520	3330	470	2240			2450
18	4920	4840	4870	5680	5560	5630	1090	570	731			2460
19	4940	4860	4890	5800	5670	5750	2020	950	1560			2480
20	4910	4860	4880	5940	5810	5880	2100	1840	1930			2500
21	4910	4830	4870	6000	5910	5950	2730	2140	2440			2510
22	4920	4870	4890	6000	5930	5960	2790	1550	2060			2530
23	4950	4870	4910	5980	5900	5950	---	---	1900			2520
24	4990	4910	4940	5940	5880	5910	---	---	1700			2520
25	5000	4940	4960	5900	5850	5880	---	---	1800			2530
26	5010	4940	4970	5850	5810	5840	---	---	1850			2540
27	4980	4930	4960	5840	5650	5800	---	---	1900			2550
28	4960	4850	4920	5790	5710	5750	---	---	2000			2560
29	---	---	---	5730	5660	5700	---	---	2200			2570
30	---	---	---	5690	5610	5660	---	---	2300			2560
31	---	---	---	5660	5600	5630	---	---	---			2580
MONTH	5900	4630	4910	6000	3900	5330	5700	470	3680			2360

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	2590	2380	2340	2360	2540	2510	2530			2750
2	---	---	2600	2380	2320	2360	2520	2500	2510			2800
3	2600	2470	2520	2360	2330	2350	2510	2480	2500			2820
4	2470	2200	2330	2340	2310	2330	2490	2470	2480			2850
5	2190	2150	2170	2330	2300	2320	2510	2460	2500			2900
6	2290	2160	2210	2310	2260	2290	2500	2480	2490			2950
7	2760	2250	2400	2290	2260	2280	2480	2460	2470			3000
8	3710	2820	3420	2280	2240	2270	2450	680	1600			3050
9	3320	2400	2750	2290	2250	2270	1070	680	851			3080
10	2380	2160	2240	2300	2240	2270	1370	1080	1190			3090
11	2140	2050	2090	2320	2260	2290	1780	1390	1620			3100
12	2060	2010	2040	2350	2290	2320	1870	1730	1780			3120
13	2160	2020	2090	2370	2330	2350	1920	1810	1870			3140
14	2290	2150	2220	2410	2350	2380	1980	1880	1930			3150
15	2380	1590	2300	2450	2390	2420	2030	1950	1980			3170
16	2190	820	1840	2490	2430	2460	2030	1950	1990			3200
17	2310	2120	2230	2520	2470	2500	2060	2000	2010			3210
18	2410	2310	2360	2570	2520	2540	2020	---	1950			3230
19	2470	2410	2440	2610	2560	2580	---	---	2000			3250
20	2430	2380	2390	2640	2590	2610	---	---	2100			3270
21	2440	2360	2410	2650	2610	2630	---	---	2200			3290
22	2470	2430	2450	2670	2620	2640	---	---	2250			3300
23	2460	2430	2440	2670	2640	2650	---	---	2300			3320
24	2460	2420	2440	2670	2640	2660	---	---	2350			3340
25	2450	2420	2430	2670	2650	2660	---	---	2400			3350
26	2430	2400	2410	2660	2630	2650	---	---	2450			3370
27	2440	2390	2410	2650	2610	2630	---	---	2500			3380
28	2420	2370	2390	2620	2580	2600	---	---	2550			3400
29	2420	2300	2350	2580	2540	2560	---	---	2600			3410
30	2370	2320	2350	2550	2510	2530	---	---	2650			3420
31	---	---	---	2540	2510	2530	---	---	2700			
MONTH	3710	820	2380	2670	2240	2460	2540	680	2170			3160

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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

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

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX

LOCATION.--Lat 29°40'35", long 101°00'00", Val Verde County, Hydrologic Unit 13040302, on left bank 10 mi (16 km) east of Comstock, and 25.5 mi (16.1 km) upstream from mouth.

DRAINAGE AREA.--3,961 mi² (10,259 km²).

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1978 to current year.
WATER TEMPERATURES: February 1978 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 instruments. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 501 micromhos Nov. 19, 1980; minimum daily, 183 micromhos Sept. 25, 1980.
WATER TEMPERATURES (1978-80): Maximum daily, 30.0°C on many days during summer months; minimum daily, 4.0°C Jan. 14, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 501 micromhos Nov. 19; minimum daily, 201 micromhos May 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV											
04...	1155	280	380	7.3	19.0	2.7	10.2	112	1.8	31	28
JAN											
13...	1150	247	420	7.6	11.0	.50	11.2	104	.6	K17	K18
MAR											
10...	1140	220	422	7.6	16.0	2.4	10.2	105	1.1	K18	K19
MAY											
05...	1115	556	340	7.5	24.0	11	9.8	119	1.2	24	26
JUL											
07...	1140	362	380	7.7	25.0	2.5	9.4	115	2.6	22	24
SEP											
08...	1350	362	350	7.7	28.5	1.8	9.3	124	1.7	33	29

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 (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV										
04...	190	13	56	13	8.4	.3	1.4	180	11	16
JAN										
13...	210	28	60	14	8.7	.3	1.4	180	9.7	14
MAR										
10...	200	5	55	14	9.4	.3	1.3	190	10	14
MAY										
05...	160	33	53	7.5	5.3	.2	1.8	150	9.0	15
JUL										
07...	190	16	53	13	8.4	.3	1.5	170	5.8	13
SEP										
08...	170	1	47	13	7.7	.3	1.5	170	5.0	15

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
NOV										
04...	.3	13	193	229	1.6	1.6	.000	.020	.64	.70
JAN										
13...	.3	13	227	231	2.1	2.0	.010	.040	.63	.51
MAR										
10...	.3	11	231	231	1.7	1.6	.030	.000	.75	.73
MAY										
05...	.7	13	206	197	1.2	1.3	.060	.050	.82	.57
JUL										
07...	.3	16	208	214	1.4	1.4	.050	.050	.89	.94
SEP										
08...	.3	16	193	209	1.3	1.2	.060	<.060	.71	.65

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 04...	.64	.72	.080	.050	--	12	.7	24	18	94
JAN 13...	.64	.55	.030	.010	--	3.0	--	17	11	55
MAR 10...	.78	.73	.020	.030	4.1	--	--	41	24	69
MAY 05...	.88	.62	.050	.030	--	6.6	.5	39	59	91
JUL 07...	.94	.99	.020	.020	--	3.3	1.2	24	23	95
SEP 08...	.77	.75	.010	.020	1.0	--	--	16	16	74

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL (UG/L AS CR)
NOV 04...	1155	1	0	1	100	0	200	0	0	1	0
JAN 13...	1150	1	0	1	200	0	200	0	--	<1	0
MAY 05...	1115	2	1	1	300	200	100	0	--	<1	20
JUL 07...	1140	1	0	1	100	0	200	1	--	<1	0

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL (UG/L AS PB)
NOV 04...	0	0	1	<3	3	1	2	100	--	<10	3
JAN 13...	0	0	0	<3	3	0	5	1300	--	<10	3
MAY 05...	20	0	0	<3	3	2	1	210	190	20	3
JUL 07...	0	10	1	<3	3	2	1	90	80	10	1

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV 04...	1	2	10	9	1	.2	.2	.0	6	1
JAN 13...	3	0	10	--	<1	.2	.0	.2	0	0
MAY 05...	3	0	10	--	<1	.2	.1	.1	3	1
JUL 07...	0	2	10	6	4	.1	.0	.1	3	0

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 04...	5	0	0	0	0	0	0	30	0	30
JAN 13...	0	1	1	0	0	0	0	40	20	20
MAY 05...	2	0	0	0	0	0	0	40	10	30
JUL 07...	5	0	0	0	0	0	0	90	0	90

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 4,80		MAR 10,81		MAY 5,81		JUL 7,81		SEP 8,81	
TIME	1155		1140		1115		1140		1350	
TOTAL CELLS/ML	760		400		1800		1100		710	
DIVERSITY: DIVISION	1.0		1.4		0.9		1.5		0.3	
.CLASS	1.0		1.4		0.9		1.5		0.3	
..ORDER	1.7		2.5		1.2		2.5		1.2	
...FAMILY	1.7		2.5		1.2		2.5		1.2	
....GENUS	1.7		2.6		1.3		2.6		1.3	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)										
.BACILLARIOPHYCEAE										
..ACHNANTHALES										
...ACHNANTHACEAE										
....ACHNANTHES	13	2	--	-	--	-	--	-	--	-
..BACILLARIALES										
...NITZSCHIACEAE										
....NITZSCHIA	52	7	51	13	13	1	52	5	--	-
..EUPODISCALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	--	-	26	1	13	1	--	-
....MELOSIRA	--	-	--	-	26	1	--	-	--	-
..FRAGILARIALES										
...FRAGILARIACEAE										
....FRAGILARIA	--	-	39	10	120	7	340#	30	--	-
....SYNEDRA	--	-	13	3	--	-	26	2	--	-
..NAVICULALES										
...CYMBELLACEAE										
....CYMBELLA	39	5	--	-	13	1	--	-	--	-
...NAVICULACEAE										
....NAVICULA	--	-	26	6	64	4	52	5	14	2
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	210#	18	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	--	-	--	-	14	2
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	51	13	51	3	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	13	2	13	3	13	1	26	2	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	13	2	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE										
....CRYPTOMONAS	13	2	--	-	13	1	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	--	-	450#	63
....ANACYSTIS	90	12	51	13	13	1	140	13	14	2
..NOSTOCALES										
...NOSTOCACEAE										
....ANABAENA	--	-	150#	39	--	-	--	-	--	-
..OSCILLATORIALES										
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	--	-	220#	31
....OSCILLATORIA	520#	68	--	-	1400#	80	280#	25	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	13	2	--	-	--	-	--	-	--	-

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

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	10215	391	219	6040	15	419	10	276	190
NOV.	1980	8565	435	233	5400	17	384	11	256	200
DEC.	1980	8083	392	219	4790	15	332	10	219	190
JAN.	1981	7842	391	219	4640	15	322	10	212	190
FEB.	1981	6580	389	218	3880	15	269	10	177	190
MAR.	1981	6994	401	223	4200	16	293	10	194	190
APR.	1981	9320	376	214	5370	15	370	9.7	243	180
MAY	1981	17813	338	197	9480	13	643	8.7	420	170
JUNE	1981	17457	316	188	8850	13	593	8.2	386	160
JULY	1981	11567	359	207	6480	14	442	9.3	289	180
AUG.	1981	10852	355	206	6030	14	410	9.2	268	170
SEPT	1981	10642	359	207	5950	14	406	9.2	266	180
TOTAL		125930	**	**	71100	**	4880	**	3210	**
WTD. AVG.		345	367	209	**	14	**	9.4	**	180

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	376	358	370	406	392	397	401	389	395	395	384	389
2	392	373	384	460	388	423	399	385	392	395	384	389
3	401	383	393	456	384	413	397	387	391	398	384	390
4	405	388	397	401	388	396	397	389	393	395	383	389
5	405	385	397	397	375	387	399	390	394	392	384	389
6	402	380	393	468	379	437	398	383	391	397	386	391
7	400	379	391	471	374	426	393	380	386	396	385	391
8	399	375	389	463	383	436	393	372	382	396	386	390
9	396	374	387	462	376	432	390	378	384	397	387	392
10	395	372	385	473	374	433	394	381	387	397	387	392
11	434	366	404	463	374	439	395	384	389	400	390	395
12	393	370	383	486	378	455	395	386	390	399	393	396
13	479	376	427	493	373	445	398	386	391	399	391	396
14	473	368	416	486	374	441	395	388	392	402	389	396
15	391	366	380	479	444	468	399	382	391	401	390	394
16	390	364	379	455	420	432	396	384	389	398	388	393
17	395	364	378	464	428	452	399	384	390	393	384	389
18	389	365	376	476	453	459	395	383	389	392	385	389
19	390	370	383	501	394	443	394	385	389	399	388	394
20	396	375	388	482	389	434	396	389	393	400	390	395
21	396	376	387	480	439	467	399	393	396	398	388	394
22	409	377	389	474	436	458	400	395	397	397	385	392
23	396	375	387	479	393	451	403	396	399	399	387	393
24	393	375	385	483	442	462	402	392	398	397	385	391
25	394	377	387	462	392	448	404	392	397	398	384	389
26	397	385	390	461	380	436	403	392	397	393	383	389
27	419	379	394	476	412	453	403	389	397	394	376	386
28	442	380	413	467	394	435	402	387	394	393	379	386
29	396	385	390	404	392	398	396	385	390	396	378	385
30	402	390	396	401	390	396	396	384	389	389	379	385
31	405	392	398	---	---	---	395	385	390	388	378	384
MONTH	479	358	391	501	373	435	404	372	392	402	376	391

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	399	382	390	406	352	391	441	360	409	393	367	382
2	392	382	387	414	380	400	430	385	411	392	203	286
3	394	383	388	428	372	407	429	373	402	266	201	223
4	399	387	393	449	360	408	442	371	404	301	269	286
5	399	388	393	420	364	380	444	364	400	331	303	320
6	398	385	393	371	362	367	431	366	397	401	335	363
7	399	385	391	381	360	370	436	365	382	410	353	377
8	395	380	388	372	360	366	378	362	372	414	357	383
9	388	379	384	402	362	374	375	362	369	419	356	387
10	389	371	381	427	379	397	375	364	369	386	360	370
11	387	371	381	454	375	423	376	356	366	380	360	370
12	389	381	385	390	371	381	372	358	365	422	364	375
13	391	385	388	407	379	388	372	359	366	437	375	404
14	392	386	390	433	387	413	372	360	365	427	368	396
15	395	383	389	434	373	406	366	353	359	427	355	387
16	393	378	387	432	376	410	378	363	371	430	363	383
17	388	381	384	433	366	410	378	345	365	448	348	384
18	388	377	383	436	363	414	397	355	383	430	362	383
19	386	373	380	442	380	413	390	352	369	436	355	390
20	385	369	376	445	403	428	364	336	352	377	358	369
21	418	359	390	450	371	425	369	342	353	464	360	398
22	406	367	388	448	395	421	382	359	371	456	342	394
23	418	381	398	441	375	419	374	365	370	446	358	395
24	416	375	396	444	388	419	386	369	380	435	336	382
25	412	366	398	421	363	383	385	362	377	426	339	387
26	415	380	397	442	369	408	383	364	376	436	365	401
27	424	374	398	438	374	410	381	364	374	443	345	391
28	415	360	395	447	367	404	381	368	375	437	354	392
29	---	---	---	455	371	411	395	367	379	421	347	396
30	---	---	---	444	385	413	401	366	381	427	352	392
31	---	---	---	447	368	400	---	---	---	448	329	402
MONTH	424	359	389	455	352	402	444	336	377	464	201	373

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	439	342	390			356	---	---	366	352	335	345
2	439	349	372			356	---	---	366	356	336	347
3	370	350	361			356	---	---	366	357	333	346
4	369	346	355			358	---	---	366	360	335	347
5	371	354	362			353	---	---	366	361	333	348
6	374	357	366			354	---	---	366	373	334	347
7	417	352	371			358	---	---	365	358	340	351
8	369	343	360			360	---	---	363	330	320	363
9	365	340	356			360	---	---	360	339	314	361
10	363	338	353			360	---	---	363	348	315	361
11	361	336	352			360	---	---	363	339	316	361
12	361	342	352			360	385	288	368	342	317	361
13	362	340	352			360	361	343	352	343	322	361
14	364	343	354			359	362	335	352	342	315	359
15	436	325	373			358	362	337	350	---	---	357
16	263	---	234			359	363	308	343	---	---	361
17	---	---	266			360	367	327	348	---	---	363
18	---	---	325			360	365	331	352	---	---	363
19	---	---	329			360	363	335	350	---	---	363
20	---	---	348			360	360	341	351	---	---	363
21	---	---	350			360	362	332	351	---	---	363
22	---	---	351			360	358	335	350	---	---	363
23	---	---	351			361	357	338	348	---	---	363
24	---	---	353			363	356	333	348	---	---	363
25	---	---	353			363	356	329	346	---	---	363
26	---	---	353			363	355	333	346	---	---	363
27	---	---	354			360	374	341	348	---	---	363
28	---	---	355			361	363	333	349	---	---	363
29	---	---	356			361	357	329	346	---	---	363
30	---	---	356			361	367	328	352	---	---	363
31	---	---	---			366	366	339	353	---	---	---
MONTH	439	325	349			360	385	288	355	373	314	359

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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

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

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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

08450900 RIO GRANDE BELOW AMISTAD DAM NEAR DEL RIO, TX

LOCATION.--Lat 29°25'30", long 101°27'00", Val Verde County, Hydrologic Unit 13080001, 2.2 mi (3.5 km) downstream from Amistad Dam and 10 mi (16 km) northwest of Del Rio.

DRAINAGE AREA.--123,143 mi² (318,940 km²).

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

REMARKS.--The flow is controlled largely by releases from Amistad Reservoir. Records of daily mean discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 50 and 51.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 15...	0740	56	999	8.1	24.0	250	140	71	18
NOV 19...	0830	1990	982	8.2	16.0	240	120	70	17
DEC 19...	0820	56	984	8.2	--	250	130	72	17
JAN 26...	1420	1830	1010	8.2	13.0	260	140	76	18
FEB 23...	1515	1640	1030	8.2	14.0	260	130	76	18
MAR 18...	0815	47	1010	8.1	16.0	270	130	77	18
APR 15...	0820	2280	1020	8.0	18.0	270	140	78	18
MAY 20...	0725	20	1030	8.0	21.0	270	140	78	18
JUN 22...	1236	660	1030	8.2	24.5	260	120	78	17
JUL 15...	0715	2370	1050	7.9	--	270	150	76	19
AUG 19...	0720	204	1030	7.9	26.0	260	140	72	19
SEP 16...	0720	8400	1050	8.0	25.5	240	130	68	18

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 15...	110	3.0	5.2	120	230	110	17	630
NOV 19...	100	2.8	6.3	120	220	100	17	602
DEC 19...	100	2.8	4.6	120	230	100	17	613
JAN 26...	110	2.9	4.7	120	240	110	17	648
FEB 23...	110	2.9	4.6	130	230	110	16	643
MAR 18...	100	2.7	4.6	120	230	110	16	628
APR 15...	110	2.9	4.6	130	230	110	16	645
MAY 20...	110	2.9	4.7	130	230	110	16	645
JUN 22...	110	2.9	4.5	140	220	110	17	641
JUL 15...	120	3.4	4.8	120	230	120	17	659
AUG 19...	120	3.5	5.1	120	240	120	17	665
SEP 16...	120	3.6	5.0	110	230	130	17	654

08459000 RIO GRANDE AT LAREDO, TX
(National stream-quality accounting network)

LOCATION.--Lat 27°29'45", long 99°29'30", Webb County, Hydrologic Unit 13080002, at gaging station 1.1 mi (1.8 km) downstream from the highway bridge between Laredo and Nuevo Laredo, Tamaulipas, Mex., and 891.0 mi (1.433.6 km) downstream from the American Dam at El Paso.

DRAINAGE AREA.--132,578 mi² (343,377 km²), United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: July 1955 to current year. Chemical, biochemical, and sediment analyses: January 1973 to current year.

PERIOD OF DAILY RECORED.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to curent year.

REMARKS.--Records of discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 50 and 51. 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 chemcial 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, 1,690 micromhos June 1, 1963; minimum daily, 214 micromhos Sept. 26, 1964.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,040 micromhos Mar. 13, Aug. 29; minimum daily, 329 micromhos Apr. 16.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 21...	0807	2800	802	8.1	22.0	27	4.7	53	2.1	4000	730
NOV 18...	0930	3400	801	8.3	11.5	36	10.4	94	1.0	800	320
DEC 16...	0830	3000	838	8.2	15.0	17	9.6	95	2.1	580	170
JAN 14...	1131	2750	888	8.3	12.5	.80	10.3	97	.9	1000	K240
FEB 17...	1823	2110	990	8.2	14.0	4.9	10.6	102	.9	2400	320
MAR 17...	0900	2200	941	8.0	17.0	32	8.0	83	1.0	K550	180
APR 07...	0815	2150	979	8.3	20.5	31	8.1	90	.4	310	K100
MAY 12...	0815	3200	713	8.1	23.5	24	7.6	87	1.4	560	120
JUN 16...	0900	3600	595	7.6	27.0	170	6.8	84	1.7	2000	740
JUL 14...	0850	3100	915	7.9	29.0	32	7.0	90	1.0	K320	84
AUG 14...	0940	2030	870	7.8	29.0	30	6.5	83	1.2	2300	430
SEP 15...	0847	4800	955	7.9	28.0	2.1	6.9	88	.4	K400	190

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 21...	230	100	69	14	73	2.1	4.0	130	160	74	.7
NOV 18...	230	100	68	15	86	2.5	4.7	130	160	72	.7
DEC 16...	260	120	77	16	82	2.2	3.5	140	180	84	.7
JAN 14...	260	120	79	16	87	2.3	3.7	140	200	78	.8
FEB 17...	290	160	83	19	99	2.6	3.9	130	230	100	.7
MAR 17...	270	180	81	17	94	2.5	3.7	89	220	100	.7
APR 07...	280	150	81	19	100	2.6	3.9	130	210	100	.7
MAY 12...	250	110	75	14	54	1.5	2.5	140	130	60	.3
JUN 16...	180	83	55	11	52	1.7	4.7	100	110	54	.4
JUL 14...	260	150	74	18	90	2.4	3.8	110	200	100	.6
AUG 14...	250	120	74	16	86	2.5	3.9	130	180	87	.6
SEP 15...	250	130	72	18	100	2.9	5.1	120	210	110	.8

08459000 RIO GRANDE AT LAREDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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)
OCT											
21...	14	490	490	--	--	.67	.68	.030	.040	.44	.31
NOV											
18...	13	522	497	--	--	.80	--	.030	.050	.39	--
DEC											
16...	14	533	545	--	--	.78	.78	.000	.000	.90	.51
JAN											
14...	12	559	564	--	--	.64	.66	.080	.000	.51	1.1
FEB											
17...	13	608	630	--	--	.68	.66	.010	.030	1.6	.37
MAR											
17...	15	613	588	--	--	.68	.71	.060	.080	.81	.46
APR											
07...	13	622	608	--	--	.40	.41	.050	.060	.58	.55
MAY											
12...	13	453	433	--	--	.04	--	.050	.000	--	--
JUN											
16...	12	363	359	--	--	.47	--	.070	--	1.1	.79
JUL											
14...	16	584	571	.49	.010	.50	.54	.100	.120	.62	.41
AUG											
14...	17	544	543	--	--	.53	.41	.120	.050	.54	.43
SEP											
15...	17	599	605	--	--	.34	.36	.080	<.060	.34	--

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM, % FINER THAN .062 MM
OCT										
21...	.47	.35	.210	.050	--	4.8	.4	56	423	95
NOV										
18...	.42	--	.060	--	5.4	--	--	62	569	93
DEC										
16...	.90	.51	.040	.050	5.6	--	--	39	316	86
JAN										
14...	.59	1.1	.040	.040	--	3.9	.3	42	312	94
FEB										
17...	1.60	.40	.060	.030	11	--	--	47	268	92
MAR										
17...	.87	.54	.090	.020	4.7	--	--	87	517	80
APR										
07...	.63	.61	.060	.030	--	2.7	.5	106	615	98
MAY										
12...	--	--	.080	.020	12	--	--	92	795	94
JUN										
16...	1.20	.95	.150	.040	6.1	--	--	200	1940	95
JUL										
14...	.72	.53	.060	.020	3.3	--	--	99	829	94
AUG										
14...	.66	.48	.030	.010	--	1.9	.8	77	422	73
SEP										
15...	.42	.22	.070	<.010	--	--	--	93	1210	89

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)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)
OCT											
21...	0807	2	0	2	100	20	80	0	<1	0	0
JAN											
14...	1131	2	0	2	100	10	90	0	<1	0	0
APR											
07...	0815	2	0	2	100	0	100	0	<1	20	10
AUG											
14...	0940	3	0	3	100	20	80	0	<1	0	0

08459000 RIO GRANDE AT LAREDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
OCT 21...	0	1	<3	3	1	2	640	--	<10	17
JAN 14...	0	0	<3	5	4	1	290	--	<10	36
APR 07...	10	1	<3	0	0	1	720	700	20	8
AUG 14...	10	1	<3	5	3	2	430	--	<10	9

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
OCT 21...	14	3	30	--	<1	1.1	.9	.2	6	3
JAN 14...	36	0	10	--	<1	.3	.3	.0	10	10
APR 07...	8	0	40	40	2	.1	.0	.1	2	2
AUG 14...	9	0	30	30	1	.1	.1	.0	1	0

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT 21...	3	1	1	0	0	0	0	20	--	<3
JAN 14...	0	1	0	1	1	0	1	90	90	4
APR 07...	0	0	0	0	1	1	0	10	6	4
AUG 14...	14	1	0	1	0	0	0	20	20	5

08459000 RIO GRANDE AT LAREDO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

DATE	NOV 18,80		MAR 17,81		MAY 12,81		JUN 16,81		JUL 14,81		SEP 15,81	
TIME	0930		0900		0815		0900		0850		0847	
TOTAL CELLS/ML	990		560		3900		3800		580		98	
DIVERSITY: DIVISION	1.3		1.1		1.7		1.3		0.8		1.0	
.CLASS	1.3		1.1		1.7		1.3		0.8		1.0	
..ORDER	2.7		2.6		2.2		2.3		0.9		1.4	
...FAMILY	2.8		3.0		2.2		2.5		0.9		1.4	
....GENUS	2.9		3.2		2.7		2.7		0.9		1.4	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)												
.BACILLARIOPHYCEAE												
..ACHNANTHALES												
...ACHNANTHACEAE												
....ACHNANTHES	41	4	56	10	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	70	13	--	-	31	1	--	-	--	-
..BACILLARIALES												
...NITZSCHIACEAE												
....NITZSCHIA	260#	26	130#	22	220	6	500	13	120#	20	28#	29
..EUPODISCALES												
...COSCINODISCACEAE												
....CYCLOTELLA	28	3	--	-	240	6	1800#	48	13	2	14	14
....MELOSIRA	--	-	--	-	120	3	62	2	--	-	--	-
....STEPHANODISCUS	--	-	--	-	990#	26	--	-	--	-	--	-
..FRAGILARIALES												
...FRAGILARIACEAE												
....DIATOMA	--	-	70	13	--	-	--	-	--	-	--	-
....SYNEDRA	97	10	--	-	20	1	--	-	--	-	--	-
..NAVICULALES												
...CYMBELLACEAE												
....CYMBELLA	--	-	14	2	--	-	31	1	--	-	--	-
...GOMPHONEMACEAE												
....GOMPHONEMA	14	1	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....DIPLONEIS	14	1	--	-	--	-	--	-	--	-	--	-
....NAVICULA	69	7	--	-	--	-	93	2	--	-	--	-
..SURIRELLALES												
...SURIRELLACEAE												
....SURIRELLA	--	-	28	5	--	-	--	-	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHLOROCOCCACEAE												
....SCHROEDERIA	14	1	--	-	--	-	--	-	--	-	--	-
...DICTYOSPHAERIACEAE												
....DICTYOSPHAERIUM	--	-	56	10	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	--	-	160	4	--	-	--	-
....CHODATELLA	--	-	14	2	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	--	-	--	-	160	4	120	3	--	-	--	-
....SCENEDESMUS	28	3	56	10	280	7	370	10	450#	78	56#	57
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	55	6	56	10	440	11	220	6	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	14	2	20	1	--	-	--	-	--	-
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	--	-	20	1	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	1300#	33	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	40	1	160	4	--	-	--	-
....COCCOCHLORIS	83	8	--	-	--	-	--	-	--	-	--	-
..NOSTOCALES												
...HAMMATOIDEACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	120	3	--	-	--	-
..OSCILLATORIALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	290#	29	--	-	--	-	31	1	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	20	1	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	62	2	--	-	--	-

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

08459000 RIO GRANDE AT LAREDO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	100550	738	454	123000	70	18900	140	37700	230
NOV.	1980	85780	859	528	122000	86	20000	170	38900	250
DEC.	1980	90800	875	538	132000	89	21700	170	42100	250
JAN.	1981	80980	917	564	123000	95	20800	180	40000	260
FEB.	1981	63800	967	595	102000	100	17800	200	33800	270
MAR.	1981	61760	992	610	102000	110	17900	200	33900	270
APR.	1981	173360	775	477	223000	76	35500	150	69800	230
MAY	1981	121670	732	451	148000	68	22500	140	45000	220
JUNE	1981	158180	761	468	200000	73	31200	140	61800	230
JULY	1981	100830	910	560	152000	94	25600	180	49300	260
AUG.	1981	97080	951	585	153000	100	26400	190	50300	270
SEPT	1981	182070	977	601	295000	110	51600	200	98000	270
TOTAL		1316860	**	**	1877000	**	310000	**	601000	**
WTD. AVG.		3608	858	528	**	87	**	170	**	250

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	503	850	886	872	919	1010	990	847	765	942	947	1010
2	557	845	874	888	932	1010	997	807	774	925	936	961
3	610	852	880	886	946	1030	1000	688	757	932	923	752
4	625	853	881	897	951	1020	1000	676	712	911	931	504
5	662	849	873	886	954	1030	1010	720	698	920	944	858
6	679	847	864	888	953	1020	1010	737	819	913	955	948
7	709	850	877	872	950	995	1010	735	851	901	950	921
8	717	852	870	893	958	1000	1020	732	892	719	939	975
9	752	850	874	891	945	986	1020	765	759	866	913	988
10	762	841	875	899	938	981	1020	702	818	926	892	982
11	766	844	876	908	934	996	1030	591	908	932	865	1000
12	788	846	875	909	956	1000	1020	718	898	925	875	1000
13	794	848	867	919	969	1040	1020	719	876	939	843	973
14	793	855	858	910	972	1020	1020	729	711	948	879	945
15	794	849	868	885	978	1030	945	696	475	948	880	978
16	781	854	865	926	984	987	329	725	596	913	923	985
17	805	859	858	907	991	857	789	756	649	922	914	987
18	803	861	867	938	994	973	718	732	628	916	929	1000
19	798	884	900	944	964	942	913	742	634	925	908	1020
20	805	879	884	941	967	971	850	708	635	933	896	1020
21	804	851	873	922	997	987	815	716	783	936	939	1020
22	808	853	876	946	985	973	714	752	844	887	978	1010
23	807	856	878	1020	996	994	805	771	900	918	997	1010
24	812	859	878	987	1010	986	835	786	940	926	1010	1010
25	826	884	880	930	998	975	618	779	943	937	888	1010
26	818	880	874	941	1000	996	617	748	937	936	1010	1020
27	820	863	877	912	1000	987	643	690	878	948	1010	1020
28	826	870	857	930	1010	986	697	782	911	951	1030	1020
29	840	882	876	928	---	997	772	805	945	944	1040	1010
30	829	877	886	926	---	984	817	806	946	954	1020	1020
31	850	---	888	920	---	992	---	777	---	943	1000	---
MEAN	759	858	875	917	970	992	868	740	796	921	941	965

08459200 RIO GRANDE AT PIPELINE CROSSING BELOW LAREDO, TX

LOCATION.--Lat 27°24'09", long 99°29'18", Webb County, Hydrologic Unit 13080002, 8.7 mi (14.0 km) downstream from Texas-Mexican Railway Bridge near Laredo, and at mile 352.69 (567.48 km).

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
OCT											
21...	1300	2800	793	8.0	22.0	7.0	80	2.0	210000	23000	47
NOV											
18...	1230	3400	801	8.0	13.0	10.0	94	1.2	28000	5000	50
DEC											
16...	1225	3000	834	8.4	16.0	8.0	81	1.1	53000	K6600	36
JAN											
14...	1438	2800	904	8.2	13.5	10.5	101	1.6	23000	4500	16
FEB											
18...	0846	2140	974	8.0	14.0	9.0	87	1.5	180000	18000	9
MAR											
17...	1050	2200	950	8.1	18.5	8.0	86	1.4	760000	20000	57
APR											
07...	1045	2150	987	8.2	21.0	7.5	84	1.4	K360000	25000	57
MAY											
12...	1045	3200	713	8.0	24.0	7.6	88	2.2	110000	17000	52
JUN											
16...	1050	4000	565	7.6	27.0	6.8	84	2.4	56000	19000	170
JUL											
14...	1005	3100	934	7.6	29.5	6.5	83	1.1	110000	10000	72
AUG											
14...	0850	2030	896	7.7	29.0	5.3	68	2.2	K1400000	38000	6
SEP											
15...	1100	4800	955	8.3	--	6.6	85	.9	48000	5600	90

08461200 INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX

LOCATION.--Lat 26°33'25", long 99°10'05", Starr County, Hydrologic Unit 13080003, on upstream side of Falcon Dam in International Falcon Reservoir, about 1 mi (2 km) west of Falcon Heights, 75 mi (121 km) downstream from Laredo, and at mile 274.81 (442.17 km).

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

263351099105701 INTERNATIONAL FALCON RESERVOIR SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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...	1330	1.00	1000	7.8	14.0	9.2	89
18...	1331	10.0	1000	7.8	14.0	9.4	91
18...	1333	20.0	1000	7.8	13.5	9.4	90
18...	1334	30.0	1000	7.8	13.5	9.3	89
18...	1335	40.0	1000	7.8	13.5	9.2	88
18...	1336	46.0	1000	7.8	13.5	9.2	88
MAY							
28...	1555	1.00	946	8.3	27.5	7.3	91
28...	1557	10.0	942	8.3	27.0	7.1	88
28...	1559	20.0	936	8.2	27.0	6.6	81
28...	1601	30.0	946	8.1	26.5	6.4	78
28...	1603	40.0	966	7.7	26.0	3.9	47
28...	1604	50.0	967	7.6	25.5	3.4	41
AUG							
13...	1114	1.00	837	7.9	29.0	7.3	95
13...	1115	10.0	837	7.8	29.0	6.9	90
13...	1117	20.0	837	7.8	29.0	6.8	88
13...	1118	30.0	838	7.8	28.5	6.8	87
13...	1119	40.0	838	7.8	28.5	6.8	87
13...	1120	54.0	841	7.6	28.5	5.4	69

263337099100101 INTERNATIONAL FALCON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)
FEB										
18...	1256	1.00	1000	7.9	14.0	2.00	9.8	95	260	160
18...	1257	3.30	--	--	--	--	--	--	--	--
18...	1300	10.0	1000	7.9	14.0	--	9.8	95	--	--
18...	1302	20.0	1000	7.9	13.5	--	9.6	92	--	--
18...	1304	30.0	1000	7.8	13.5	--	9.4	90	--	--
18...	1306	40.0	1000	7.8	13.5	--	9.4	90	--	--
18...	1308	50.0	1000	7.8	13.5	--	9.3	89	--	--
18...	1310	60.0	1000	7.8	13.0	--	9.3	89	--	--
18...	1313	70.0	1000	7.8	13.0	--	9.3	89	--	--
18...	1316	80.0	1010	7.8	13.0	--	9.2	88	--	--
18...	1319	90.0	1010	7.7	13.0	--	8.8	84	--	--
18...	1322	100	1010	7.5	13.0	--	6.8	65	260	160
MAY										
28...	1615	1.00	950	8.2	27.0	1.20	7.2	89	250	150
28...	1616	2.00	--	--	--	--	--	--	--	--
28...	1619	10.0	950	8.2	27.0	--	6.8	84	--	--
28...	1621	20.0	952	8.1	26.5	--	6.0	74	--	--
28...	1623	30.0	957	7.8	26.0	--	4.9	60	--	--
28...	1625	40.0	970	7.7	25.5	--	4.3	52	--	--
28...	1628	50.0	970	7.7	25.5	--	3.7	44	--	--
28...	1630	60.0	975	7.5	24.5	--	2.2	26	--	--
28...	1633	70.0	989	7.4	23.5	--	.6	7	--	--
28...	1635	80.0	996	7.4	23.0	--	.5	6	--	--
28...	1637	90.0	1000	7.4	22.5	--	.5	6	--	--
28...	1639	97.0	1000	7.4	22.0	--	.5	6	260	140
AUG										
13...	1040	1.00	838	7.9	29.0	1.40	7.4	96	230	130
13...	1043	10.0	838	7.9	28.5	--	7.2	92	--	--
13...	1045	20.0	838	7.8	28.5	--	6.9	88	--	--
13...	1047	30.0	838	7.8	28.5	--	6.8	87	--	--
13...	1050	40.0	838	7.8	28.5	--	6.7	86	--	--
13...	1053	50.0	838	7.8	28.5	--	6.6	85	--	--
13...	1055	60.0	838	7.8	28.5	--	6.4	82	--	--
13...	1058	70.0	842	7.6	28.0	--	5.6	71	--	--
13...	1100	80.0	842	7.6	28.0	--	5.1	64	--	--
13...	1103	90.0	845	7.3	28.0	--	3.2	40	--	--
13...	1106	98.0	847	7.1	28.0	--	1.1	14	240	130

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263337099100101 INTERNATIONAL FALCON RESERVOIR SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
FEB										
18...	70	20	110	3.0	4.6	100	230	110	.6	11
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	72	20	110	3.0	4.5	100	240	110	--	11
MAY										
28...	69	19	98	2.7	4.4	100	230	100	.6	9.9
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	73	20	110	2.9	4.6	120	230	100	--	12
AUG										
13...	66	17	82	2.5	4.3	100	200	88	.5	11
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	67	17	82	2.5	4.5	110	200	89	--	12

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
18...	616	.12	--	--	--	.63	.75	.090	<10	<1
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	.17	--	--	--	.61	.78	.120	30	0
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	628	.10	--	--	--	1.20	1.3	.150	--	--
MAY										
28...	591	.02	--	.040	.74	.78	.80	.010	<10	1
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	.22	.21	--	--	.62	.84	.030	40	10
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	622	.04	--	--	--	.86	.90	.050	40	180
AUG										
13...	529	.01	--	.130	.74	.87	.88	.030	<10	1
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	.12	--	--	--	.85	.97	.040	20	0
13...	532	.11	--	--	--	1.20	1.3	.060	<10	18

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263326099092201 INTERNATIONAL FALCON RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
18...	1240	1.00	1000	7.9	14.0	9.5	92
18...	1242	10.0	1000	7.8	14.0	9.5	92
18...	1244	20.0	1000	7.8	13.5	9.4	90
18...	1246	30.0	1000	7.8	13.5	9.3	89
18...	1248	40.0	1000	7.8	13.5	9.3	89
18...	1250	54.0	1000	7.8	13.5	9.2	88
MAY							
28...	1648	1.00	951	8.2	27.0	6.9	85
28...	1650	10.0	951	8.2	27.0	6.7	83
28...	1651	20.0	952	8.1	26.5	6.3	77
28...	1653	30.0	961	7.9	26.0	5.2	63
28...	1654	40.0	964	7.7	26.0	4.0	49
28...	1655	47.0	967	7.7	26.0	3.8	46
AUG							
13...	1130	1.00	838	7.9	28.5	7.2	92
13...	1131	10.0	838	7.8	28.5	6.7	86
13...	1133	20.0	838	7.8	28.5	6.6	85
13...	1134	30.0	839	7.8	28.5	6.5	83
13...	1135	40.0	839	7.8	28.5	6.4	82
13...	1136	48.0	840	7.8	28.5	6.4	82

263815099124901 INTERNATIONAL FALCON RESERVOIR SITE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
18...	1404	1.00	1000	8.1	15.0	10.9	108
18...	1405	10.0	1000	8.1	14.5	10.9	107
18...	1406	20.0	1000	8.0	14.0	10.1	98
18...	1408	30.0	1000	7.8	13.5	9.3	89
18...	1409	40.0	1000	7.8	13.5	9.0	87
18...	1410	50.0	1000	7.7	13.5	8.1	78
MAY							
28...	1509	1.00	912	8.3	28.0	7.6	95
28...	1511	10.0	904	8.3	27.5	7.2	89
28...	1513	20.0	904	8.2	27.5	6.9	86
28...	1515	30.0	911	8.2	27.5	7.0	87
28...	1516	40.0	911	8.2	27.5	6.8	84
28...	1517	51.0	915	8.1	27.0	6.4	79
AUG							
13...	1236	1.00	826	8.0	29.5	7.7	101
13...	1238	10.0	826	7.9	29.0	7.3	95
13...	1239	20.0	826	7.9	29.0	7.0	91
13...	1241	30.0	826	7.9	29.0	7.0	91
13...	1243	40.0	826	7.9	29.0	7.0	91
13...	1244	53.0	826	7.8	29.0	6.3	82

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263815099111901 INTERNATIONAL FALCON RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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...	1348	1.00	1000	8.1	15.0	10.8	107
18...	1350	10.0	1000	8.1	14.0	11.1	108
18...	1352	20.0	1000	8.0	14.0	10.4	101
18...	1354	30.0	1000	7.9	14.0	10.1	98
18...	1356	40.0	1000	7.8	13.5	9.2	88
18...	1358	50.0	1000	7.8	13.5	9.1	88
18...	1400	60.0	1000	7.8	13.5	9.1	88
18...	1402	70.0	1000	7.8	13.5	8.9	86
18...	1404	79.0	1000	7.8	13.5	8.6	83
MAY							
28...	1445	1.00	912	8.3	28.0	7.7	96
28...	1447	10.0	912	8.3	27.5	7.7	96
28...	1449	20.0	912	8.2	27.5	7.1	88
28...	1451	30.0	917	8.2	27.0	7.0	86
28...	1453	40.0	917	8.2	27.0	7.0	86
28...	1455	50.0	886	8.0	26.5	5.7	70
28...	1457	60.0	904	7.5	24.5	.8	9
28...	1459	70.0	976	7.6	24.0	.6	7
AUG							
13...	1247	1.00	828	8.0	30.0	7.5	99
13...	1249	10.0	828	8.0	29.5	7.5	99
13...	1250	20.0	828	7.9	29.5	6.9	91
13...	1252	30.0	828	7.9	29.5	6.9	91
13...	1253	40.0	828	7.9	29.0	7.0	91
13...	1255	50.0	828	7.8	29.0	6.5	84
13...	1256	60.0	833	7.5	29.0	4.7	61
13...	1258	70.0	844	7.2	28.5	1.4	18
13...	1259	80.0	845	7.2	28.0	1.6	20
13...	1300	94.0	852	7.0	28.0	.2	2

264002099101701 INTERNATIONAL FALCON RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)
FEB										
18...	1421	1.00	1000	8.0	15.5	2.30	10.8	108	--	--
18...	1423	10.0	1000	8.1	15.0	--	10.9	108	--	--
18...	1425	20.0	1000	8.0	14.5	--	10.5	103	--	--
18...	1426	30.0	1000	7.9	14.0	--	9.8	95	--	--
18...	1428	40.0	1000	7.8	14.0	--	9.1	88	--	--
18...	1430	50.0	1010	7.8	13.5	--	8.6	83	--	--
18...	1432	65.0	1010	7.8	13.5	--	8.4	81	--	--
MAY										
28...	1526	1.00	901	8.3	28.0	1.00	7.7	96	--	--
28...	1527	10.0	923	8.3	27.5	--	7.1	88	--	--
28...	1529	20.0	952	8.2	27.5	--	6.9	86	--	--
28...	1531	30.0	952	8.1	27.0	--	6.3	78	--	--
28...	1533	40.0	952	8.1	27.0	--	6.2	77	--	--
28...	1534	50.0	956	7.6	26.0	--	3.3	40	--	--
28...	1535	60.0	976	7.4	25.5	--	.6	7	--	--
28...	1536	68.0	999	7.4	24.5	--	.6	7	--	--
AUG										
13...	1310	1.00	846	8.0	30.5	--	7.8	104	230	130
13...	1312	10.0	845	8.0	29.5	--	7.8	103	--	--
13...	1314	20.0	843	7.9	29.5	--	7.1	93	--	--
13...	1315	30.0	840	7.9	29.0	--	7.0	91	--	--
13...	1317	40.0	836	7.9	29.0	--	6.8	88	--	--
13...	1318	50.0	838	7.8	29.0	--	6.2	80	--	--
13...	1319	60.0	853	7.4	29.0	--	3.2	42	--	--
13...	1321	71.0	860	7.1	28.5	--	.2	3	230	120

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

264002099101701 INTERNATIONAL FALCON RESERVOIR SITE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
FEB										
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
MAY										
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
AUG										
13...	65	17	87	2.6	4.6	100	200	87	11	532
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	64	17	84	2.6	4.5	110	200	84	12	532

DATE	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, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + 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...	.14	--	--	--	.61	.75	.110	20	0
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	.12	--	--	--	.81	.93	.140	20	0
MAY									
28...	.05	--	.060	.76	.82	.87	.020	0	0
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	.00	.00	--	--	1.20	1.2	.060	70	140
AUG									
13...	.01	--	--	--	.83	.84	.030	<10	5
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	.01	--	--	--	1.20	1.2	.040	13	49

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

264328099123101 INTERNATIONAL FALCON RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
FEB											
18...	1443	1.00	1000	8.1	15.0	1.90	10.7	106	260	150	71
18...	1445	10.0	998	8.1	14.5	--	10.8	106	--	--	--
18...	1447	20.0	998	8.0	14.5	--	10.6	104	--	--	--
18...	1449	30.0	998	7.9	14.0	--	9.4	91	--	--	--
18...	1451	40.0	998	7.8	13.5	--	9.0	87	--	--	--
18...	1453	50.0	1000	7.8	13.5	--	8.8	85	--	--	--
18...	1455	60.0	1000	7.8	13.5	--	8.6	83	--	--	--
18...	1457	70.0	1000	7.8	13.5	--	8.6	83	--	--	--
18...	1458	82.0	1000	7.7	13.5	--	7.9	76	270	150	75
MAY											
28...	1141	1.00	812	--	27.5	1.10	6.9	86	230	130	65
28...	1143	10.0	812	8.1	27.5	--	6.8	84	--	--	--
28...	1146	20.0	812	8.1	27.5	--	6.8	84	--	--	--
28...	1148	30.0	804	8.1	27.5	--	6.6	82	--	--	--
28...	1151	40.0	801	8.0	27.5	--	6.2	77	--	--	--
28...	1153	50.0	800	8.0	27.0	--	5.8	72	--	--	--
28...	1156	60.0	775	7.8	26.5	--	4.8	59	--	--	--
28...	1158	70.0	880	7.4	24.5	--	.6	7	--	--	--
28...	1201	82.0	955	7.4	23.5	--	.6	7	260	140	73
AUG											
13...	1338	1.00	824	8.0	31.0	1.40	7.9	105	220	120	62
13...	1340	10.0	824	8.0	30.0	--	7.4	97	--	--	--
13...	1342	20.0	824	7.9	30.0	--	7.1	93	--	--	--
13...	1344	30.0	824	7.9	29.5	--	6.6	87	--	--	--
13...	1346	40.0	824	7.8	29.5	--	6.2	82	--	--	--
13...	1348	50.0	824	7.7	29.5	--	5.5	72	--	--	--
13...	1350	60.0	822	7.7	29.5	--	5.4	71	--	--	--
13...	1352	70.0	822	7.7	29.5	--	5.4	71	--	--	--
13...	1354	80.0	830	7.6	29.0	--	5.3	69	--	--	--
13...	1357	84.0	824	8.0	29.0	--	7.9	105	230	130	64

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
FEB										
18...	20	110	3.0	4.4	110	240	110	11	633	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	20	100	2.7	4.0	120	240	100	10	621	--
MAY										
28...	16	77	2.2	4.2	100	--	--	--	--	.07
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	18	94	2.6	4.5	120	--	--	--	--	.08
AUG										
13...	17	79	2.4	4.3	100	190	81	11	504	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	17	79	2.4	4.2	100	190	85	11	510	--

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

264328099123101 INTERNATIONAL FALCON RESERVOIR SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC 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, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB										
18...	--	.16	--	--	--	.87	1.0	.080	<10	<1
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	.26	--	--	--	.67	.93	.040	20	0
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	.23	--	--	--	.70	.93	.100	10	9
MAY										
28...	.000	.07	--	.050	.63	.68	.75	.040	20	<1
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	.05	.05	--	--	.82	.87	.040	30	10
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	.16	--	.260	.62	.88	1.0	.030	40	120
28...	.000	.08	--	.070	.82	.89	.97	.050	60	210
AUG										
13...	--	.00	--	--	--	.79	.79	.030	<10	<1
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	.02	--	--	--	.87	.89	.050	20	0
13...	--	--	--	--	--	--	--	--	--	--
13...	--	.03	--	--	--	1.10	1.1	.090	<10	12

264858099154201 INTERNATIONAL FALCON RESERVOIR SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
18...	1515	1.00	1000	8.1	15.5	10.9	109
18...	1517	10.0	998	8.1	14.5	11.1	109
18...	1518	20.0	1000	8.0	14.0	10.3	100
18...	1520	30.0	1010	7.9	14.0	9.3	90
18...	1521	40.0	1010	7.9	13.5	9.3	89
18...	1523	50.0	1030	7.9	13.5	8.9	86
18...	1524	63.0	1200	7.7	13.5	7.7	74
MAY							
28...	1024	1.00	723	8.2	28.0	7.0	88
28...	1025	10.0	723	8.2	28.0	7.0	88
28...	1026	20.0	723	8.2	28.0	6.9	86
28...	1028	30.0	714	8.2	28.0	6.8	85
28...	1030	40.0	718	8.2	27.5	6.7	83
28...	1032	50.0	695	8.0	27.5	6.1	76
28...	1034	60.0	698	7.9	27.5	5.6	70
AUG							
13...	0938	1.00	823	7.9	29.5	7.3	96
13...	0940	10.0	824	7.9	29.5	7.0	92
13...	0942	20.0	826	7.9	29.5	6.9	91
13...	0944	30.0	826	7.8	29.5	6.8	89
13...	0946	40.0	826	7.8	29.5	6.7	88
13...	0948	50.0	831	7.7	29.0	6.0	78
13...	0950	58.0	833	7.6	29.0	5.5	71

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265224099160701 INTERNATIONAL FALCON RESERVOIR SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)
FEB									
18...	1135	1.00	1000	8.1	14.5	1.10	11.0	108	--
18...	1138	10.0	1000	8.0	14.5	--	10.6	104	--
18...	1141	20.0	1000	8.0	14.0	--	10.4	101	--
18...	1145	30.0	997	7.9	13.5	--	9.1	88	--
18...	1149	39.0	995	7.8	13.5	--	8.4	81	--
MAY									
28...	0822	1.00	686	8.2	29.0	1.00	8.2	105	--
28...	0826	10.0	686	8.2	29.0	--	8.1	104	--
28...	0829	20.0	712	8.2	28.5	--	7.6	96	--
28...	0832	30.0	740	7.8	27.5	--	6.6	82	--
28...	0835	37.0	830	7.6	27.0	--	3.2	40	--
AUG									
13...	0811	1.00	818	8.0	30.0	--	7.3	96	230
13...	0816	10.0	818	8.0	30.0	--	7.3	96	--
13...	0820	20.0	818	7.9	29.5	--	7.1	93	--
13...	0824	30.0	812	7.6	29.5	--	5.3	70	--
13...	0828	41.0	810	7.2	29.0	--	1.6	21	220

DATE	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
FEB									
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
MAY									
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
AUG									
13...	130	63	17	80	2.5	4.0	100	190	87
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	120	64	15	81	2.4	4.2	100	190	87

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (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, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB									
18...	--	--	.28	--	.72	1.0	.100	30	0
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	.26	--	1.20	1.5	.110	40	0
MAY									
28...	--	--	.02	.01	1.20	1.2	.050	60	0
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	.00	.01	1.10	1.1	.070	10	0
AUG									
13...	11	512	.01	--	.91	.92	.030	16	1
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	11	512	.01	--	1.30	1.3	.070	<10	21

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265014099190601 INTERNATIONAL FALCON RESERVOIR SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
FEB									
18...	1604	1.00	1060	8.1	15.0	1.00	11.1	110	.35
18...	1606	10.0	1040	8.1	14.0	--	10.8	105	--
18...	1608	20.0	1040	8.0	14.0	--	10.1	98	--
18...	1610	30.0	1190	7.9	13.5	--	9.2	88	--
18...	1612	43.0	1730	7.6	13.0	--	7.7	73	1.2
MAY									
28...	0947	1.00	677	8.1	27.5	.70	6.9	86	.14
28...	0948	10.0	677	8.1	27.5	--	6.8	84	--
28...	0949	20.0	677	8.1	27.5	--	6.3	78	--
28...	0951	30.0	677	7.8	27.0	--	4.9	60	--
28...	0953	42.0	681	7.6	--	--	4.2	--	.12
AUG									
13...	0907	1.00	845	7.8	29.0	--	6.8	88	.01
13...	0910	10.0	845	7.8	28.5	--	6.7	86	--
13...	0913	20.0	845	7.8	28.5	--	6.5	83	--
13...	0916	30.0	848	7.7	28.5	--	6.0	77	--
13...	0919	40.0	895	7.2	28.0	--	2.1	26	--
13...	0922	46.0	895	7.2	28.0	--	1.9	24	.11

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
FEB								
18...	--	--	--	.63	.98	.130	40	0
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	--	--	--	.75	2.0	.050	30	0
MAY								
28...	.13	--	--	.81	.95	.060	0	10
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	.34	.010	1.6	1.60	1.7	.060	60	0
AUG								
13...	--	--	--	.82	.83	.040	--	--
13...	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--
13...	--	--	--	1.20	1.3	.080	--	--

265213099190801 INTERNATIONAL FALCON RESERVOIR SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	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)
FEB									
18...	1540	1.00	1010	8.1	15.5	1.00	10.9	109	270
18...	1541	1.60	--	--	--	--	--	--	--
18...	1544	10.0	1010	8.1	14.0	--	11.1	108	--
18...	1546	20.0	1010	8.0	14.0	--	10.5	102	--
18...	1548	30.0	987	8.0	13.5	--	10.0	96	--
18...	1549	40.0	993	7.8	13.5	--	8.9	86	--
18...	1550	50.0	1590	7.6	13.5	--	7.7	74	490
MAY									
28...	0908	1.00	678	8.1	28.0	.50	6.9	86	210
28...	0909	.90	--	--	--	--	--	--	--
28...	0910	10.0	678	8.1	28.0	--	6.9	86	--
28...	0912	20.0	678	8.1	28.0	--	6.8	85	--
28...	0914	30.0	678	8.0	28.0	--	6.0	75	--
28...	0916	40.0	679	7.9	28.0	--	5.7	71	--
28...	0918	48.0	694	8.0	27.5	--	6.1	76	210
AUG									
13...	0837	1.00	850	7.9	29.5	.70	7.0	92	240
13...	0841	10.0	850	7.9	29.5	--	7.0	92	--
13...	0845	20.0	848	7.9	29.0	--	7.0	92	--
13...	0850	30.0	844	7.8	29.0	--	6.8	88	--
13...	0855	40.0	835	7.8	29.0	--	6.8	88	--
13...	0900	49.0	835	7.8	29.0	--	6.5	84	230

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265213099190801 INTERNATIONAL FALCON RESERVOIR SITE HC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
FEB									
18...	150	77	20	100	2.6	4.0	120	240	100
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	350	130	40	160	3.1	3.5	140	460	150
MAY									
28...	100	64	13	53	1.6	3.7	110	140	60
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	100	63	13	57	1.7	3.8	110	150	62
AUG									
13...	140	66	18	84	2.5	4.0	100	200	89
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	130	64	17	75	2.3	3.9	100	190	68

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB								
18...	9.8	623	.26	.63	.89	.090	20	1
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	--	--	.48	.65	1.1	.120	40	10
18...	11	1040	.94	.89	1.8	.120	10	8
MAY								
28...	.1	400	.16	.88	1.0	.050	<10	<1
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	--	--	.15	.94	1.1	.070	40	0
28...	9.6	425	.15	.88	1.0	.080	20	7
AUG								
13...	11	532	.01	.73	.74	.040	<10	<1
13...	--	--	--	--	--	--	--	--
13...	--	--	.01	.81	.82	.050	10	0
13...	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--
13...	11	489	.01	.94	.95	.070	10	4

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263337099100101 INTERNATIONAL FALCON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SAMP-LING DEPTH (FT)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)
FEB							
18...	1256	1.00	1	100	<1	0	<10
18...	1313	70.0	--	--	--	--	--
MAY							
28...	1615	1.00	2	200	<1	0	<10
28...	1630	60.0	--	--	--	--	--
28...	1639	97.0	3	200	<1	0	<10
AUG							
13...	1040	1.00	2	100	<1	0	<10
13...	1103	90.0	--	--	--	--	--
13...	1106	98.0	3	80	<1	10	<10

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
FEB							
18...	<10	<10	<1	.4	0	0	8
18...	30	--	0	--	--	--	--
MAY							
28...	<10	23	1	.1	1	0	<3
28...	40	--	10	--	--	--	--
28...	40	25	180	.1	0	0	7
AUG							
13...	<10	<10	1	.0	0	0	9
13...	20	--	0	--	--	--	--
13...	<10	<10	18	.0	0	0	10

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263337099100101 INTERNATIONAL FALCON RESERVOIR SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	FEB 18,81		MAY 28,81		AUG 13,81	
TIME	1257		1616		1045	
TOTAL CELLS/ML	3300		350000		700000	
DIVERSITY: DIVISION	1.4		0.1		0.1	
.CLASS	1.4		0.1		0.1	
..ORDER	2.0		0.3		0.7	
...FAMILY	2.4		0.3		0.7	
....GENUS	2.7		0.4		0.8	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..ACHNANTHALES						
...ACHNANTHACEAE						
....COCCONEIS	190	6	--	-	--	-
..BACILLARIALES						
...NITZSCHIACEAE						
....NITZSCHIA	--	-	*	0	--	-
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	*	0	--	-
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	*	0	--	-	*	0
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....TETRAEDRON	*	0	*	0	--	-
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	52	2	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	2900	1	3600	1
....CHODATELLA	26	1	--	-	--	-
....OOCYSTIS	240	7	*	0	--	-
....SELENASTRUM	150	5	--	-	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	39	1	--	-	*	0
....SCENEDESMUS	260	8	*	0	4300	1
....TETRASTRUM	52	2	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	*	0	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	52	2	--	-	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	170	5	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	3400	1	10000	1
....ANACYSTIS	670#	20	7200	2	23000	3
..NOSTOCALES						
...NOSTOCACEAE						
....APHANIZOMENON	--	-	--	-	27000	4
....CYLINDROSPERMUM	--	-	--	-	*	0
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	5400	1
....OSCILLATORIA	1400#	42	330000#	95	620000#	89
....PHORMIDIUM	--	-	*	0	--	-

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

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265213099190801 INTERNATIONAL FALCON RESERVOIR SITE HC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	FEB 18,81	MAY 28,81	AUG 13,81
TIME	1541	0909	0845
TOTAL CELLS/ML	25000	370000	560000
DIVERSITY: DIVISION	1.2	0.2	0.2
.CLASS	1.2	0.2	0.2
..ORDER	2.2	0.7	1.2
...FAMILY	2.4	0.7	1.4
....GENUS	3.0	0.7	2.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..ACHNANTHALES						
...ACHNANTHACEAE						
....COCCONEIS	*	0	--	-	--	-
..BACILLARIALES						
...NITZSCHIACEAE						
....NITZSCHIA	290	1	*	0	--	-
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	1300	5	*	0	3600	1
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	--	-	*	0	--	-
..NAVICULALES						
...GOMPHONEMACEAE						
....GOMPHONEMA	--	-	*	0	--	-
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....TETRAEDRON	--	-	*	0	--	-
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	--	-	*	0	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	690	3	--	-	8600	2
....CHODATELLA	340	1	--	-	--	-
....KIRCHNERIELLA	--	-	*	0	*	0
....OOCYSTIS	340	1	*	0	--	-
....SELENASTRUM	1100	5	--	-	--	-
....TREUBARIA	--	-	*	0	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	*	0	--	-
....SCENEDESMUS	2700	11	2500	1	*	0
....TETRASTRUM	230	1	*	0	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	*	0	--	-
....CHLAMYDOMONAS	--	-	*	0	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....EUASTRUM	--	-	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	340	1	*	0	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	*	0	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	5500#	22	3000	1	--	-
....ANACYSTIS	3100	12	33000	9	--	-
....GOMPHOSPHAERIA	--	-	--	-	54000	10
..NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	--	-	29000	5
...NOSTOCACEAE						
....APHANIZOMENON	1200	5	--	-	--	-
....CYLINDROSPERMUM	--	-	--	-	54000	10
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	200000#	35
....OSCILLATORIA	7700#	31	320000#	88	210000#	37
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..DINOKONTAE						
...GLENODINIACEAE						
....GLENODINIUM	*	0	*	0	--	-

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

08461300 RIO GRANDE BELOW FALCON DAM, TX

LOCATION.--Lat 26°33'25", long 99°10'05", Starr County, Hydrologic Unit 13090001, U.S. Tailrace at Falcon Dam.

DRAINAGE AREA.--159,270 mi² (412,509 km²), United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECOD.--Chemical analyses: July 1955 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 50 and 51.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 16...	0825	4520	1030	7.8	25.0	260	160	70	20
NOV 17...	0930	2100	1020	8.1	18.5	260	170	71	21
DEC 15...	1000	73	1020	7.9	15.0	260	160	71	20
JAN 26...	1530	194	1020	7.9	12.0	260	160	70	20
FEB 17...	1040	2040	1020	8.0	12.0	270	160	72	21
MAR 17...	1050	267	1010	7.7	14.5	260	140	72	20
APR 14...	0950	3570	1020	7.9	20.0	270	160	73	21
MAY 18...	0900	14200	1010	7.6	23.5	260	150	73	20
JUN 15...	1115	6520	965	7.5	24.5	240	130	68	18
JUL 13...	0910	11700	868	7.7	26.5	230	130	64	17
AUG 17...	0945	2050	859	7.5	28.0	240	130	66	18
SEP 21...	1010	6570	864	7.7	26.5	230	130	65	17

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 16...	110	3.0	5.6	97	270	110	12	656
NOV 17...	110	2.9	6.9	98	270	100	--	--
DEC 15...	110	3.0	4.9	100	250	110	11	637
JAN 26...	110	3.0	4.8	100	250	110	11	636
FEB 17...	110	2.9	4.7	110	240	110	11	635
MAR 17...	110	3.0	4.6	120	240	110	11	640
APR 14...	110	2.9	4.8	110	250	110	10	645
MAY 18...	110	2.9	4.6	110	240	110	11	635
JUN 15...	94	2.6	4.4	110	210	99	11	571
JUL 13...	84	2.6	4.5	98	200	82	10	521
AUG 17...	83	2.5	4.6	110	200	82	11	531
SEP 21...	85	2.6	4.5	100	200	92	12	536

08464700 RIO GRANDE AT FORT RINGGOLD, RIO GRANDE CITY, TX

LOCATION.--Lat 26°22'05", long 98°48'20", Starr County, Hydrologic Unit 13090001, at gaging station about 1 mi (2 km) downstream from Rio Grande City, 3.9 mi (6.3 km) downstream from mouth of Rio San Juan, and 1,014.3 mi (1,632.0 km) downstream from the American Dam at El Paso.

DRAINAGE AREA.--174,362 mi² (451,598 km²), United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

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

REMARKS.--Records of specific conductance and discharge for water year 1981 are given in International Boundry and Water Commission Water Bulletins Nos. 50 and 51.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 14...	1530	4730	1040	7.7	26.5	250	150	67	20
NOV 17...	1610	1790	1050	7.9	16.0	270	170	72	21
DEC 15...	1245	438	1320	7.9	16.5	340	230	87	29
JAN 19...	1330	1150	1240	7.8	9.5	290	170	79	22
FEB 17...	1410	2930	1100	7.8	15.0	270	160	75	21
MAR 17...	1030	167	2260	7.7	18.0	550	350	150	43
APR 24...	1130	6360	1020	7.7	19.0	270	160	74	20
MAY 21...	1330	13300	1000	7.5	23.0	260	150	72	20
JUN 15...	1505	4300	984	7.5	28.0	270	150	77	19
JUL 24...	0945	3660	935	7.6	28.0	250	140	69	18
AUG 17...	0848	5520	865	7.6	28.0	240	130	67	18
SEP 16...	1100	4800	913	7.5	22.0	240	130	67	18

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 14...	120	3.3	6.5	98	260	120	12	664
NOV 17...	120	3.2	7.0	100	250	120	12	662
DEC 15...	150	3.6	4.9	110	280	180	10	807
JAN 19...	150	3.8	4.7	120	280	160	11	779
FEB 17...	130	3.4	4.7	110	280	130	9.7	717
MAR 17...	270	5.0	6.0	200	400	400	14	1400
APR 24...	110	2.9	4.8	110	250	100	10	635
MAY 21...	110	3.0	4.7	110	230	110	11	624
JUN 15...	100	2.6	4.4	120	220	110	12	615
JUL 24...	92	2.7	4.4	110	210	100	11	571
AUG 17...	85	2.5	4.6	110	210	82	11	544
SEP 16...	95	2.8	4.7	110	200	110	11	572

08466300 RIO GRANDE NEAR LOS EBANOS, TX

LOCATION.--Lat 26°14'15", long 98°33'49", Hidalgo County, Hydrologic Unit 13090001, on Farm Road 886 at U.S. Border Port of Entry near Los Ebanos and at mile 204.37 (328.83 km).

PERIOD OF RECORD.--Chemical analyses: June 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 14...	1625	4020	1094	7.7	26.5	260	160	71	21
NOV 17...	1655	1000	1260	8.0	14.5	310	190	84	24
DEC 15...	1330	500	1810	7.7	18.5	440	280	120	34
JAN 19...	1415	795	1390	7.6	9.5	330	200	91	25
FEB 17...	1500	618	1690	7.8	15.0	380	240	100	31
MAR 17...	1133	180	1880	7.6	19.0	400	250	110	31
APR 24...	1215	6560	1000	7.7	20.0	260	150	71	19
MAY 21...	1420	13600	1000	7.5	23.5	260	150	72	20
JUN 15...	1620	5800	993	7.6	28.0	260	140	73	19
JUL 24...	1036	2600	959	7.5	28.0	250	130	69	18
AUG 17...	1530	4990	947	7.6	30.0	260	150	72	19
SEP 16...	1200	3020	954	7.4	23.0	250	130	69	18

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 14...	120	3.2	6.6	100	260	130	13	683
NOV 17...	150	3.7	7.1	120	280	170	12	799
DEC 15...	220	4.6	5.4	160	370	270	12	1130
JAN 19...	170	4.1	5.0	130	300	190	12	871
FEB 17...	210	4.7	5.2	140	340	250	10	1030
MAR 17...	240	5.2	5.2	150	340	300	12	1130
APR 24...	100	2.7	4.6	110	240	100	10	611
MAY 21...	110	3.0	4.6	110	240	110	10	633
JUN 15...	100	2.7	4.5	120	220	110	11	610
JUL 24...	97	2.9	4.6	120	210	97	11	579
AUG 17...	96	2.8	4.9	110	220	98	11	587
SEP 16...	97	2.9	4.5	120	210	80	11	562

08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX

LOCATION.--Lat 26°08'00", long 98°20'05", Hidalgo County, Hydrologic Unit 13090002, at gaging station 0.5 mi (0.8 km) downstream from Anzalduas Dam, 12.2 mi (19.6 km) from Hidalgo, and 1,077.1 mi (1,733.1 km) downstream from the American Dam at El Paso.

DRAINAGE AREA.--176,112 mi² (456,130 km²), United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: March 1959 to current year. Pesticide analyses: October 1968 to September 1971.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1977 to current year.

REMARKS.--Records of and discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 50 and 51. 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, 2,880 micromhos Feb. 21, 1978; minimum daily, 517 micromhos Sept. 13, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,500 micromhos Mar. 27; minimum daily, 763 micromhos May 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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 16...	0740	1290	1121	7.6	25.0	270	160	72	21
NOV 14...	0830	1050	1240	7.9	24.0	290	170	78	23
DEC 08...	1140	300	2440	8.0	21.0	590	400	160	47
JAN 20...	1130	300	1300	7.7	12.0	300	180	82	24
FEB 17...	1000	1140	2040	--	16.0	490	330	130	41
MAR 17...	1310	300	1320	7.8	20.0	310	190	83	24
APR 21...	1200	3300	1080	7.6	25.5	270	160	74	21
MAY 21...	1545	5600	1070	7.6	27.0	270	160	77	20
JUN 16...	1530	5200	1020	7.7	28.0	270	160	74	20
JUL 28...	0950	2950	1070	7.5	29.5	290	170	78	22
AUG 17...	1445	1700	972	7.6	30.0	250	140	70	19
SEP 17...	1430	2970	1000	7.5	28.0	260	150	71	21

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)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 16...	130	3.5	6.0	102	270	130	13	703
NOV 14...	140	3.6	7.3	120	290	140	12	769
DEC 08...	310	5.5	5.9	190	440	460	17	1550
JAN 20...	150	3.7	5.1	120	280	190	12	815
FEB 17...	260	5.1	5.5	160	400	330	11	1270
MAR 17...	160	4.0	4.8	120	280	190	9.9	824
APR 21...	120	3.2	5.1	110	260	120	11	677
MAY 21...	120	3.2	4.7	110	250	130	11	679
JUN 16...	120	3.2	4.5	110	220	120	12	637
JUL 28...	110	3.0	4.6	120	230	120	12	649
AUG 17...	110	3.2	5.1	110	220	100	11	601
SEP 17...	110	3.2	4.6	110	230	110	11	624

08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	30721	1190	717	59500	150	12600	240	20000	290
NOV.	1980	25567	1480	904	62400	210	14400	290	20300	360
DEC.	1980	19078	1740	1070	54900	260	13600	340	17300	410
JAN.	1981	22145	1420	864	51700	200	11700	280	16900	340
FEB.	1981	21092	1680	1030	58500	250	14300	330	18600	400
MAR.	1981	19264	1530	933	48500	220	11400	300	15700	370
APR.	1981	69366	1110	667	125000	140	25700	230	42400	270
MAY	1981	241860	1060	638	417000	130	84700	220	142000	260
JUNE	1981	293240	1030	621	492000	130	99100	210	168000	250
JULY	1981	228790	975	586	362000	120	71900	200	124400	240
AUG.	1981	60598	1030	620	102000	130	20500	210	34700	250
SEPT	1981	152200	965	580	238000	110	47200	200	81900	240
TOTAL		1183921	**	**	2070000	**	427000	**	702000	**
WTD. AVG.		3244	1070	648	**	130	**	220	**	260

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	1450	1350	1270	1720	1170	1410	1080	1050	1000	1010	1240
2	1250	1490	1390	1280	1740	1180	1320	1050	1030	1000	1050	1180
3	1300	1580	1410	1310	1800	1210	1220	1060	1090	1010	1060	1200
4	1390	1700	1480	1310	1860	1290	1180	1150	1050	949	1080	1070
5	1410	1770	1590	1410	1910	1320	1200	1020	1110	934	1030	963
6	1560	1990	1850	1450	1930	1320	1200	763	1120	931	1040	1220
7	1460	1990	2110	1600	1950	1360	1150	1010	1090	968	1000	1220
8	1630	2140	2380	1870	1980	1310	1120	1070	1110	940	1050	1130
9	1680	1940	2370	1900	2010	1310	1130	1060	1020	953	952	1010
10	1340	1880	2330	1500	2030	1300	1150	1130	1030	921	956	1060
11	1150	1570	2280	1250	2010	1300	1120	1090	1110	974	920	930
12	1100	1300	2300	1160	2050	1330	1090	1090	1110	924	938	917
13	1100	1240	2320	1090	2070	1380	1090	1060	1100	898	952	905
14	1110	1270	2270	1090	2160	1400	1080	1060	1130	891	972	918
15	1120	1230	2280	1100	2160	1360	1090	1070	1130	895	945	917
16	1080	1180	2320	1120	2070	1330	1070	1070	1080	930	1020	940
17	1060	1150	2250	1150	2030	1330	1070	1080	1060	970	966	985
18	1050	1180	2160	1150	2020	1310	1060	1070	870	1030	989	974
19	1050	1270	1970	1180	2040	1300	1050	1050	842	1120	990	924
20	1120	1300	1480	1260	1890	1290	1050	1070	1000	1160	984	973
21	1090	1330	1240	1320	1390	1280	1010	1070	1040	1280	999	912
22	1080	1310	1190	1400	1180	1290	980	1070	1040	1140	979	906
23	1080	1320	1240	1460	1160	1360	1070	1080	1060	1110	1040	919
24	1100	1300	1250	1660	1150	1510	1100	1080	1060	1100	1060	914
25	1090	1290	1280	1850	1140	1710	1160	1080	1050	1120	1130	905
26	1130	1310	1290	1860	1150	2120	1110	1090	1040	1070	1130	903
27	1150	1310	1310	1860	1150	2500	1110	1080	1030	1080	1050	908
28	1160	1320	1320	1800	1160	2400	1150	1110	1010	1090	1050	906
29	1180	1370	1280	1760	---	1990	1080	1110	999	1070	1040	911
30	1240	1370	1270	1720	---	1770	1150	1120	1010	1070	1070	919
31	1300	---	1270	1700	---	1560	---	889	---	1060	1350	---
MEAN	1220	1460	1740	1450	1750	1470	1130	1060	1050	1020	1030	993

08470200 NORTH FLOODWAY NEAR SEBASTIAN, TX

LOCATION.--Lat 26°18'51", long 97°46'36", Cameron County, Hydrologic Unit 12110208, at International Boundary and Water Commission gaging station on U.S. Highway 77 and approximately 2 mi (3 km) south of Sebastian.

PERIOD OF RECORD.--Sediment records: February 1966 to current year.

REMARKS.--Records of discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 50 and 51.

MONTHLY AND ANNUAL SUMMARY OF WATER AND SUSPENDED-SEDIMENT DISCHARGE
WATER YEAR, OCTOBER 1980 TO SEPTEMBER 1981

DATE	DISCHARGE (CFS-DAYS)	MEAN WEIGHTED SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS)
OCT. 1980	8971	204	4940
NOV.....	6646	142	2550
DEC.....	5463	124	1830
JAN. 1981	5760	73	1140
FEB.....	4898	119	1580
MAR.....	6381	197	3390
APR.....	12592	264	8970
MAY.....	17738	294	14100
JUNE.....	6859	200	3700
JULY.....	6856	137	2530
AUG.....	6321	197	3360
SEP.....	5203	162	2270
TOTAL....	93688	199	50400

08470300 ARROYO COLORADO FLOODWAY AT EL FUSTES SIPHON, SOUTH OF MERCEDES, TX

LOCATION.--Lat 26°07'45", long 97°54'45", Hidalgo County, Hydrologic Unit 12110208, at International Boundary and Water Commission gaging station, 50 ft (15 m) upstream from Mercedes Canal and Fuste Siphon on Arroyo Colorado, approximately, 1.4 mi (2.3 km) downstream from Arroyo Colorado heading on the main floodway and 1.5 mi (2.4 km) south of Mercedes.

PERIOD OF RECORD.--Chemical analyses: November 1967 to February 1968. Pesticide analyses: May 1968 to September 1973, October 1975 to current year. Sediment records: February 1966 to current year.

REMARKS.--Records of discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 50 and 51.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDE, TOTAL (UG/L)
JAN 15...	1726	.00	0	.00	.00	.0	.00	1.0	.00	.7	.01
JUL 14...	1414	.00	2	.00	.00	.0	.00	7.0	.00	5.3	.02

DATE	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHION, TOTAL (UG/L)
JAN 15...	11	.00	.0	.55	.00	.1	.00	.00	.0	.00
JUL 14...	34	.00	.0	.02	.02	.8	.00	.00	.9	.00

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)
JAN 15...	.00	.0	.00	.0	.00	.0	.05	.00	.0	.00
JUL 14...	.00	.0	.00	.4	.01	.0	.08	.00	.0	.10

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 15...	.00	.00	.0	.02	0	.0	.00	.03	.01	.00
JUL 14...	.00	.00	.0	.02	0	.0	.00	.02	.00	.00

08470300 ARROYO COLORADO FLOODWAY AT EL FUSTES SIPHON, SOUTH OF MERCEDES, TX--Continued

MONTHLY AND ANNUAL SUMMARY OF WATER AND SUSPENDED-SEDIMENT DISCHARGE
WATER YEAR, OCTOBER 1980 TO SEPTEMBER 1981

DATE	DISCHARGE (CFS-DAYS)	MEAN WEIGHTED SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS)
OCT. 1980	6015	163	2640
NOV.....	4715	112	1420
DEC.....	3705	76	763
JAN. 1981	3896	104	1090
FEB.....	3453	104	972
MAR.....	5174	122	1700
APR.....	6408	165	2850
MAY.....	12289	200	6620
JUNE.....	7393	154	3070
JULY.....	7799	174	3660
AUG.....	6148	167	2770
SEP.....	4998	122	1650
TOTAL....	71993	150	29200

08474550 RIO GRANDE AT U.S. HIGHWAY 77 AT BROWNSVILLE, TX

LOCATION.--Lat 25°53'54", long 97°29'51", Cameron County, Hydrologic Unit 12110208, on upstream side of bridge on U.S. Highway 77 in Brownsville and at mile 55.67 (89.57 km).

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH FIELD (UNITS)	TEMPERATURE, WATER (DEG C)	COLOR (PLATINUM COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ALKALINITY (MG/L AS CACO3)
OCT												
22...	1215	1344	6.7	21.0	30	8.4	8.4	93	3.1	600	--	--
NOV												
19...	0915	1890	8.0	14.0	15	18	10.3	98	3.6	84	--	--
DEC												
17...	1145	1900	8.1	19.0	10	2.9	11.2	117	4.9	140	--	--
JAN												
15...	1015	1540	8.4	15.0	30	1.0	10.8	106	2.4	1000	--	--
FEB												
20...	0748	2110	7.8	19.0	10	24	10.6	113	4.4	K320	--	--
MAR												
18...	1030	1430	8.4	20.0	10	42	9.4	102	3.8	K40	--	--
APR												
08...	0730	1940	8.0	24.0	5	44	6.5	76	2.4	2800	--	180
MAY												
13...	1005	1050	7.7	24.0	10	990	6.1	71	1.9	K400	--	--
JUN												
17...	1200	1160	7.8	29.0	5	93	7.2	91	4.4	--	--	--
JUL												
14...	1635	905	8.0	30.0	--	--	6.5	83	1.6	K200	--	--
AUG												
19...	0825	1030	8.1	30.0	5	16	6.5	84	2.2	K190	--	--
SEP												
16...	0750	895	8.0	29.5	5	180	6.6	86	1.9	K100	200	--

DATE	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT												
22...	280	170	--	823	147	16	.00	--	--	3.9	.170	7.1
NOV												
19...	360	300	--	1180	30	23	.00	--	--	.90	.100	--
DEC												
17...	370	340	--	1120	49	17	--	--	--	--	--	69
JAN												
15...	320	240	--	1010	24	16	.52	.010	.99	1.0	.030	13
FEB												
20...	420	360	.3	1330	63	14	.00	--	--	.97	.050	9.5
MAR												
18...	290	210	--	890	72	16	.12	--	--	1.2	.120	8.0
APR												
08...	340	300	--	1240	52	7	.06	--	--	1.2	.020	14
MAY												
13...	260	130	--	684	818	35	.30	--	--	1.4	.420	10
JUN												
17...	250	150	--	739	245	15	.01	.070	1.2	1.3	.230	7.8
JUL												
14...	190	100	--	567	--	--	--	--	--	--	--	--
AUG												
19...	230	120	--	643	18	0	<.09	--	--	.93	.060	3.2
SEP												
16...	200	97	--	559	290	13	.22	--	--	1.5	.200	--

08475000 RIO GRANDE NEAR BROWNSVILLE, TX
(National stream-quality accounting network)

LOCATION.--Lat 25°52'35", long 97°27'15", Cameron County, Hydrologic Unit 13090002, at International Boundary and Water Commission gaging station, 1,000 ft (300 m) downstream from El Jardin pumping plant, 6.8 mi (10.9 km) below International Bridge between Brownsville and Matamoros, Tamps., Mex., and 48.8 mi (78.5 km) above the Gulf of Mexico.

DRAINAGE AREA.--176,333 mi² (456,702 km²).

PERIOD OF RECORD.--Chemical analyses: October 1967 to January 1968. Chemical and biochemical analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1967 to current year.
WATER TEMPERATURES: October 1966 to current year.
SUSPENDED-SEDIMENT DISCHARGE: February 1966 to current year.

REMARKS.--Records of discharge furnished by International Boundary and Water Commission. 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, 4,130 micromhos May 29, 1972; minimum daily, 337 micromhos Sept. 3, 1967.
WATER TEMPERATURES (1966-69, 1970-75, 1977-81): Maximum daily, 34.0°C Sept. 7, 1981; minimum daily, 8.0°C Jan. 10, 1967.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,560 mg/L Sept. 16, 1971; minimum daily mean, 4 mg/L Apr. 26, 1970, Aug. 16, 18, 24, 27, 1977.
SEDIMENT LOADS: Maximum daily, 83,500 tons Sept. 16, 1971; minimum daily, 0.18 tons July 22, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,850 micromhos Apr. 19; minimum daily, 751 micromhos May 9.
WATER TEMPERATURES: Minimum daily, 12.5°C Jan. 18, 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
22...	1610	922	1360	8.1	21.0	80	8.6	96	2.8	K23000	7000
23...	1230	1810	--	--	23.5	--	--	--	--	--	--
NOV											
19...	1328	210	1790	8.1	14.5	48	10.7	103	2.9	K49	K18
DEC											
17...	0850	388	1730	8.2	18.0	34	9.7	101	4.5	350	80
JAN											
15...	1336	341	1620	8.3	16.0	1.4	12.3	123	3.8	K220	K4
FEB											
19...	1530	351	2050	7.9	19.5	34	10.0	106	3.8	270	K41
MAR											
18...	0822	315	1470	8.2	19.5	50	9.8	106	3.6	490	K48
APR											
08...	0930	51	1930	8.1	23.5	50	8.0	93	2.6	K22	K6
MAY											
13...	1300	10000	1070	7.7	25.0	380	6.3	73	1.8	K300	540
JUN											
17...	1430	2680	1180	8.1	31.0	120	6.2	80	3.9	--	4300
JUL											
15...	1050	11700	878	7.9	29.0	150	6.4	81	1.6	K620	K950
AUG											
19...	0957	424	1040	8.1	30.5	19	6.9	91	2.0	K180	K45
SEP											
16...	1220	464	890	8.2	29.0	--	6.2	79	1.0	K670	--
22...	1937	4410	--	--	27.5	--	--	--	--	--	--
23...	1930	4180	--	--	27.5	--	--	--	--	--	--

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT											
22...	350	200	96	27	150	3.5	6.9	150	300	180	.8
23...	--	--	--	--	--	--	--	--	--	--	--
NOV											
19...	420	260	110	36	250	5.3	8.8	160	350	320	.8
DEC											
17...	410	280	110	34	210	4.5	5.9	130	340	290	.7
JAN											
15...	410	230	110	33	190	4.1	5.5	180	310	230	.8
FEB											
19...	550	340	150	42	250	4.7	6.1	210	370	330	.6
MAR											
18...	350	220	92	28	170	4.0	5.2	130	300	220	.7
APR											
08...	480	300	130	37	220	4.4	6.2	180	340	300	.7
MAY											
13...	270	170	75	20	120	3.2	4.8	100	260	130	.7
JUN											
17...	290	180	78	22	140	3.6	5.1	110	260	160	.6
JUL											
15...	240	150	68	17	87	2.4	4.3	90	200	97	.5
AUG											
19...	290	150	80	22	110	3.0	5.1	140	230	120	.5
SEP											
16...	230	140	64	18	93	2.8	5.1	97	200	99	.5
22...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)
OCT											
22...	14	853	865	--	--	.00	.00	.020	.060	1.1	.24
23...	--	--	--	--	--	--	--	--	--	--	--
NOV											
19...	14	1170	1190	--	--	.00	.00	.010	.040	1.2	.82
DEC											
17...	11	997	1080	--	--	.00	.00	.000	.000	.99	.15
JAN											
15...	11	1010	999	--	--	.00	.00	.080	.020	.56	.55
FEB											
19...	12	1290	1290	--	--	.19	.19	.030	.040	1.2	.51
MAR											
18...	10	922	904	--	--	.00	.00	.070	.090	1.0	.33
APR											
08...	14	1240	1160	--	--	.02	.01	.040	.050	1.1	1.2
MAY											
13...	10	688	682	--	--	.35	.29	.220	.160	1.5	.60
JUN											
17...	12	742	744	--	--	.02	.02	.070	.120	1.2	.88
JUL											
15...	11	560	539	.03	.020	.05	.07	.080	.090	.86	.51
AUG											
19...	14	659	666	--	--	<.09	.09	.080	.060	.78	.79
SEP											
16...	11	540	549	--	--	.23	--	.190	--	1.1	--
22...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
22...	1.10	.30	.270	.060	--	12	1.3	283	704	45
23...	--	--	--	--	--	--	--	618	3020	95
NOV										
19...	1.20	.86	.060	.000	7.1	--	--	79	45	82
DEC										
17...	.99	.15	.090	.060	12	--	--	81	85	62
JAN										
15...	.64	.57	.070	.040	--	8.2	.9	74	68	88
FEB										
19...	1.20	.55	.100	.030	11	--	--	116	110	90
MAR										
18...	1.10	.42	.120	.010	12	--	--	93	79	98
APR										
08...	1.10	1.2	.100	.020	--	7.1	1.2	109	15	96
MAY										
13...	1.70	.76	.040	.030	20	--	--	798	21500	99
JUN										
17...	1.30	1.0	.160	.040	9.0	--	--	481	3480	67
JUL										
15...	.94	.60	.140	.040	5.5	--	--	520	16400	72
AUG										
19...	.86	.85	.050	<.010	--	3.7	.3	49	56	70
SEP										
16...	1.30	--	.230	--	--	--	--	536	672	85
22...	--	--	--	--	--	--	--	1380	16400	98
23...	--	--	--	--	--	--	--	1630	18400	81

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)
OCT											
22...	1610	3	0	3	100	0	100	0	<1	0	0
JAN											
15...	1336	3	1	2	100	0	100	0	<1	0	0
APR											
08...	0930	4	2	2	100	0	100	0	<1	30	10
MAY											
13...	1300	--	--	--	--	--	--	--	--	--	--
AUG											
19...	0957	4	0	4	100	0	100	0	<1	10	10

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
OCT										
22...	0	1	<3	5	3	2	2100	2100	10	8
JAN										
15...	0	0	<3	5	5	0	450	--	<10	12
APR										
08...	20	1	<3	6	4	2	1700	1700	10	4
MAY										
13...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	0	0	<3	5	4	1	580	--	<10	4

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
OCT 22...	5	3	220	--	<1	.3	.0	.3	7	3
JAN 15...	10	2	70	70	3	.3	.2	.1	0	0
APR 08...	2	2	150	150	3	.4	.3	.1	6	5
MAY 13...	--	--	100	--	--	--	--	--	--	--
AUG 19...	3	1	50	50	2	.1	.1	.0	2	1

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 22...	4	1	1	0	0	0	0	20	--	<3
JAN 15...	0	0	0	0	1	0	1	10	--	<3
APR 08...	1	0	0	0	0	0	0	20	20	4
MAY 13...	--	--	--	--	--	--	--	--	--	--
AUG 19...	1	0	0	0	0	0	0	10	--	<3

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE	NOV 19,80		MAR 18,81		MAY 13,81		JUN 17,81		JUL 15,81		AUG 19,81	
TIME	1328		0822		1300		1430		1050		0957	
TOTAL CELLS/ML	240000		87000		21000		91000		250000		460000	
DIVERSITY: DIVISION	0.5		1.4		0.6		1.0		0.2		0.1	
.CLASS	0.5		1.4		0.6		1.0		0.2		0.1	
..ORDER	1.0		1.7		0.9		2.0		0.4		1.0	
...FAMILY	1.1		2.1		0.9		2.2		0.5		1.0	
....GENUS	1.9		3.1		1.4		2.7		0.9		1.2	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)												
.BACILLARIOPHYCEAE												
..ACHNANTHALES												
...ACHNANTHACEAE												
....COCCONEIS	1700	1	--	-	*	0	--	-	--	-	--	-
..BACILLARIALES												
...NITZSCHIACEAE												
....NITZSCHIA	2200	1	*	0	330	2	3700	4	--	-	--	-
..EUPODISCALES												
...COSCINODISCACEAE												
....COSCINODISCUS	*	0	--	-	--	-	*	0	--	-	--	-
....CYCLOTELLA	1700	1	8400	10	*	0	1200	1	*	0	--	-
..FRAGILARIALES												
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	*	0	--	-	--	-	--	-
....SYNEDRA	--	-	*	0	*	0	--	-	*	0	*	0
..NAVICULALES												
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	*	0	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	*	0	*	0	400	2	*	0	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHLOROCOCCACEAE												
....TETRAEDRON	--	-	*	0	--	-	--	-	--	-	--	-
...DICTYOSPHAERIACEAE												
....DICTYOSPHAERIUM	6800	3	--	-	--	-	1400	1	*	0	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	*	0	810	1	*	0	610	1	1300	1	--	-
....CHODATELLA	--	-	540	1	--	-	*	0	*	0	--	-
....FRANCEIA	--	-	--	-	--	-	*	0	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	*	0	--	-	--	-
....OOCYSTIS	*	0	1100	1	--	-	980	1	--	-	*	0
....SELENASTRUM	*	0	4900	6	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	*	0	--	-	--	-	--	-
....COELASTRUM	1700	1	--	-	--	-	6600	7	--	-	2900	1
....CRUCIGENIA	--	-	--	-	--	-	--	-	*	0	--	-
....GLOEOACTINIUM	--	-	--	-	--	-	610	1	--	-	--	-
....SCENEDESMUS	3100	1	14000#	17	480	2	4500	5	1700	1	--	-
....TETRASTRUM	*	0	11000	12	--	-	490	1	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	--	-	--	-	*	0	--	-	--	-	--	-
....CHLAMYDOMONAS	*	0	1600	2	*	0	*	0	*	0	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....STAURASTRUM	--	-	--	-	*	0	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	*	0	*	0	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE												
....CRYPTOMONAS	*	0	--	-	--	-	*	0	--	-	--	-

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

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

DATE TIME	NOV 19,80 1328		MAR 18,81 0822		MAY 13,81 1300		JUN 17,81 1430		JUL 15,81 1050		AUG 19,81 0957	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	100000#	41	17000#	20	--	-	--	-	3400	1	--	-
....ANACYSTIS	100000#	42	6500	7	740	4	38000#	42	7800	3	72000#	16
....GOMPHOSPHAERIA	--	-	17000#	19	--	-	--	-	--	-	--	-
..NOSTOCALES												
...HAMMATOIDEACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	4900	5	--	-	--	-
...NOSTOCACEAE												
....ANABAENOPSIS	--	-	2200	2	--	-	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-	--	-	23000	5
..OSCILLATORIALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	17000	7	340000#	75
....OSCILLATORIA	19000	8	--	-	16000#	77	14000#	15	210000#	86	--	-
....PHORMIDIUM	--	-	--	-	2000	10	12000	14	--	-	13000	3
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	*	0	--	-	--	-	--	-	--	-	--	-
....LEPOCINCLIS	--	-	--	-	*	0	--	-	--	-	--	-
....PHACUS	--	-	--	-	*	0	--	-	--	-	--	-
....TRACHELOMONAS	--	-	*	0	*	0	*	0	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..DINOKONTAE												
...GLENODINIACEAE												
....GLENODINIUM	*	0	--	-	--	-	--	-	--	-	--	-

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

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.	1980	10453	1220	751	21200	160	4510	240	6830	320
NOV.	1980	9915	1690	1050	28000	250	6620	320	8650	430
DEC.	1980	12098	1960	1220	39800	310	10000	370	12000	490
JAN.	1981	7054	1480	915	17400	210	3930	290	5490	380
FEB.	1981	10778	1960	1220	35400	300	8830	370	10700	490
MAR.	1981	6147	1510	934	15500	210	3510	290	4880	390
APR.	1981	9073	1340	830	20300	190	4530	260	6440	350
MAY	1981	179383	985	608	294000	120	59200	200	96700	260
JUNE	1981	219503	1020	632	375000	130	75900	210	122800	270
JULY	1981	200790	930	574	311000	110	61500	190	102700	250
AUG.	1981	16342	1050	648	28600	130	5830	210	9350	280
SEPT	1981	111010	984	607	182000	120	36600	200	59800	260
TOTAL		792546	**	**	1368000	**	281000	**	446000	**
WTD. AVG.		2171	1040	639	**	130	**	210	**	270

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	19.0	18.5	17.0	20.5	22.5	25.5	26.5	---			---
2	27.5	21.0	20.0	19.0	19.5	22.0	24.5	27.5	---			---
3	27.0	22.5	17.5	---	18.0	22.0	24.0	---	---			---
4	28.0	24.5	17.5	20.0	17.5	22.5	25.0	28.5	---			---
5	29.5	22.5	19.5	18.5	17.5	21.5	24.5	28.5	29.0			---
6	29.0	23.0	20.0	18.5	16.5	21.5	22.0	24.5	28.0			---
7	29.0	21.5	22.0	18.5	17.5	21.0	---	24.5	29.0			34.0
8	28.5	23.0	22.0	17.0	19.5	22.0	---	24.5	32.0			27.0
9	28.5	24.0	21.0	17.5	17.5	20.0	---	25.0	32.5			27.0
10	28.5	23.5	16.5	17.5	20.0	---	25.0	---	---			26.5
11	28.0	23.5	18.5	17.0	14.0	---	25.0	---	---			27.0
12	27.5	24.0	16.5	15.0	16.0	18.5	27.0	---	---			27.5
13	27.5	---	17.5	15.0	18.5	18.5	25.0	---	---			---
14	28.0	23.0	19.5	14.5	14.0	20.5	27.5	---	---			28.0
15	28.0	22.0	18.5	17.5	18.5	21.0	25.0	---	---			27.0
16	28.0	19.5	19.5	15.5	19.5	20.0	25.0	---	---			27.5
17	29.0	14.5	21.0	---	18.0	19.5	25.5	---	---			30.0
18	29.0	15.0	21.0	12.5	20.0	20.0	25.0	---	---			25.0
19	26.0	15.0	19.0	---	20.5	19.0	25.0	---	---			25.5
20	23.0	15.0	14.0	14.5	19.5	19.0	25.5	---	---			27.0
21	21.0	13.5	13.0	14.0	20.5	20.5	26.0	---	---			27.0
22	22.0	---	13.5	12.5	21.0	22.0	26.0	---	---			27.5
23	23.5	---	13.0	15.0	19.0	19.0	25.5	---	---			27.5
24	22.0	14.0	15.0	17.5	18.5	19.0	25.5	---	30.0			29.0
25	23.0	15.5	13.5	17.5	20.0	21.0	---	---	29.0			29.0
26	24.0	13.0	15.0	15.5	26.0	21.5	25.0	---	---			28.0
27	24.0	15.0	17.5	17.0	20.5	24.5	25.0	---	---			29.5
28	24.5	16.0	17.5	20.0	24.5	25.0	24.5	---	---			30.0
29	---	17.0	19.0	18.5	---	25.0	24.5	---	---			---
30	16.5	17.5	18.0	19.0	---	26.5	26.0	---	---			28.0
31	19.0	---	18.0	20.0	---	24.0	---	---	---			---
MEAN	26.0	19.0	18.0	17.0	19.0	21.5	25.0	26.0	30.0			28.0

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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	650	122	214	360	55	53	396	60	64
2	434	111	130	349	47	44	403	73	79
3	283	81	62	346	56	52	378	58	59
4	200	49	26	388	42	44	320	43	37
5	201	56	30	307	41	34	290	50	39
6	179	41	20	243	33	22	263	50	36
7	141	58	22	206	30	17	246	44	29
8	120	57	18	168	26	12	281	38	29
9	89	46	11	179	32	15	348	34	32
10	69	42	7.8	139	24	9.0	352	41	39
11	65	51	9.0	516	69	96	303	44	36
12	71	46	8.8	1080	205	598	335	44	40
13	64	48	8.3	925	380	949	310	48	40
14	57	43	6.6	505	56	76	287	52	40
15	65	50	8.8	332	47	42	318	54	46
16	59	75	12	276	44	33	381	50	51
17	56	66	10	257	39	27	388	52	54
18	64	69	12	207	36	20	417	72	81
19	90	50	12	210	38	22	844	88	201
20	110	57	17	166	34	15	975	116	305
21	188	52	26	116	40	13	763	70	144
22	731	392	774	180	43	21	636	59	101
23	1700	683	3130	357	45	43	593	50	80
24	1170	459	1450	392	46	49	505	50	68
25	805	218	474	231	51	32	388	50	52
26	600	167	271	168	44	20	349	44	41
27	494	115	153	244	50	33	295	52	41
28	466	100	126	330	54	48	196	46	24
29	431	75	87	364	50	49	165	46	20
30	420	59	67	374	54	55	156	50	21
31	381	62	64	---	---	---	217	38	22
TOTAL	10453	---	7267.3	9915	---	2543.0	12098	---	1951

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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	204	36	20	201	34	18	169	54	25
2	176	36	17	241	40	26	206	54	30
3	165	36	16	276	40	30	151	60	24
4	174	36	17	245	38	25	189	68	35
5	211	30	17	239	36	23	170	52	24
6	190	34	17	287	39	30	100	64	17
7	137	47	17	275	32	24	91	58	14
8	94	36	9.1	270	33	24	88	53	13
9	82	36	8.0	265	40	29	85	52	12
10	70	25	4.7	259	40	28	120	48	16
11	66	32	5.7	200	48	26	131	42	15
12	90	37	9.0	138	43	16	200	38	21
13	172	42	20	103	34	9.5	336	59	54
14	269	36	26	99	69	18	349	99	93
15	347	48	45	100	37	10	427	86	99
16	456	44	54	110	47	14	434	81	95
17	392	63	67	133	44	16	338	76	69
18	270	32	23	138	56	21	312	81	68
19	260	59	41	291	76	60	264	83	59
20	301	25	20	802	111	240	237	88	56
21	381	28	29	1020	162	446	210	66	37
22	327	31	27	1120	148	448	227	61	37
23	305	30	25	1410	253	963	283	58	44
24	301	34	28	1220	223	735	201	70	38
25	307	34	28	745	107	215	165	65	29
26	295	36	29	349	60	57	136	60	22
27	277	38	28	137	56	21	121	104	34
28	211	50	28	105	57	16	103	96	27
29	149	39	16	---	---	---	88	52	12
30	185	47	23	---	---	---	77	72	15
31	190	36	18	---	---	---	139	90	34
TOTAL	7054	---	732.5	10778	---	3588.5	6147	---	1168

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	235	94	60	413	97	108	8440	---	---
2	193	102	53	335	66	60	8580	---	---
3	134	234	85	445	100	120	8190	---	---
4	66	123	22	1450	507	1980	7840	---	---
5	60	120	19	2710	548	4010	8020	115	2490
6	58	112	18	4800	1020	13200	8020	278	6020
7	54	56	8.2	5650	948	14500	7950	207	4440
8	49	88	12	6320	1550	26400	7910	309	6600
9	44	70	8.3	6640	1020	18300	7520	505	10300
10	37	50	5.0	8090	---	---	6500	---	---
11	25	80	5.4	9750	---	---	4450	---	---
12	24	142	9.2	9890	---	---	2560	---	---
13	72	92	18	9990	---	---	1560	---	---
14	94	105	27	9390	---	---	706	---	---
15	68	114	21	9360	---	---	388	---	---
16	47	128	16	8720	---	---	999	---	---
17	11	138	4.1	8400	---	---	2290	---	---
18	55	135	20	8120	---	---	4770	---	---
19	145	110	43	7700	---	---	8690	---	---
20	312	130	110	6600	---	---	9710	---	---
21	297	68	55	5300	---	---	9820	---	---
22	266	70	50	4410	---	---	9890	---	---
23	145	64	25	4030	---	---	10100	---	---
24	40	45	4.9	4100	---	---	10100	99	2700
25	34	49	4.5	4410	---	---	10100	88	2400
26	1320	444	1580	4730	---	---	10300	---	---
27	2130	441	2540	4980	---	---	10600	---	---
28	1600	318	1370	5160	---	---	10900	---	---
29	925	172	430	4560	---	---	11200	---	---
30	533	112	161	4450	---	---	11400	---	---
31	---	---	---	8480	---	---	---	---	---
TOTAL	9073	---	6784.6	179383	---	78678	219503	---	34950

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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	11400			1010			1910	---	---
2	11300			763			2130	---	---
3	11300			625			1880	---	---
4	11500			696			1680	---	---
5	11400			565			1680	---	---
6	11500			441			1710	---	---
7	10900			300			2220	444	2660
8	9920			318			2630	368	2610
9	8650			318			3260	539	4740
10	8480			424			3850	647	6730
11	8970			565			4060	759	8320
12	10200			600			4660	792	9960
13	11300			494			5790	773	12100
14	11700			424			6360	754	12900
15	11700			353			6070	673	11000
16	10700			424			5120	428	5920
17	8830			491			3850	373	3880
18	4770			501			2800	454	3430
19	1550			424			2500	158	1070
20	1240			353			3390	188	1720
21	1240			335			4450	983	11800
22	1200			318			4660	1520	19100
23	1200			318			4450	1690	20300
24	1200			388			4270	1740	20100
25	1240			456			4170	2440	27500
26	1310			470			4200	323	3660
27	1240			484			4340	952	11200
28	1240			583			4450	1580	19000
29	1200			826			4410	970	11500
30	1170			985			4060	353	3870
31	1240			1090			---	---	---
TOTAL	200790			16342			111010	---	235070
YEAR	792546		372732.9						

NUECES RIVER BASIN

Nueces River Low-Flow Investigation

PURPOSE.--To determine the change in quantity of low-flow in the Nueces River and its tributaries from Cotulla to Simmons, Texas.

REACH.--The investigation began at streamflow station 0819400 Nueces River at Cotulla (mile 221.8) and extended downstream to discontinued streamflow station 08194600 Nueces River at Simmons (mile 113.7). Flow determinations were made on all tributaries in this 108.1-mile reach of the Nueces River.

PREVIOUS INVESTIGATIONS.--None have been made in this reach.

SUMMARY.--Two low-flow investigations were made on July 28-30, and Aug. 11-13, 1981. Because periods of sustained low-flow seldom occur on the Nueces River in this reach, it was necessary to make these investigations on the recessions of storm runoff events. Steady state conditions, then, did not exist and the data should be used with caution.

Location and description of data-collection sites, Nueces River and tributaries, water year 1981

Stream	Location	Date	Miles above mouth	Water temp °C	Discharge		Remarks
					Main stream	tributary	
Nueces River	Lat 28°25'34", long 99°14'23", La Salle County, at gaging station 08194000 Nueces River at Cotulla, Tex.	7-28-81	221.8	29.0	102	-	Channel is silt and loam.
Do.....	Lat 28°22'18", long 99°11'41", La Salle Co., upstream from lake formed by Holland Dam.	7-29-81	214.4	29.0	102	-	.....do.....
Do.....	Lat 28°18'02", long 99°08'21", La Salle Co., at crossing downstream from Holland Dam.	7-28-81	205.6	30.0	77.9	-	Channel is silt loom and gravel.
Do.....	.....do.....	7-29-81	205.6	29.5	82.3	-	.....do.....
Do.....	Lat 28°14'06", long 99°04'06", La Salle Co., downstream from channel dam at Hellje Ranch.	7-29-81	194.4	29.0	89.8	-	.....do.....
Do.....	Lat 28°12'03", long 99°03'21", La Salle Co., at low-water crossing at L.L. Graham Ranch.	7-29-81	190.7	28.5	92.6	-	Channel is silt and loam.
Do.....	Lat 28°09'36", long 99°02'05", La Salle Co, at private bridge on George Strickhausen Ranch.	7-29-81	186.4	30.0	95.0	-	Channel is silt, loam and gravel.
Los Olmos Creek	Lat 28°03'56", long 99°07'38", La Salle Co., at first crossing downstream from State Highway 44.	7-28-81	a181.8	31.0	-	.10	Channel is silt and loam
San Casimiro Creek	Lat 27°57'53", long 98°58'00", Webb Co., at gaging station 08194200 San Casimiro Creek near Freer. Tex.	7-28-81	b174.2	31.0	-	.30	.....do.....
Black Creek	Lat 27°56'29", long 98° 52'45", Webb Co., at State Highway 44.	7-28-81	c172.4	-	-	-	Channel is silt and loam.
Nueces River	Lat 28°11'57", long 98°41'49", Mcmullen Co., downstream from channel dam on San Jose Ranch.	7-30-81	153.4	29.0	94.1	0	.....do.....
Do.....	Lat 28°18'31", long 98°33'25", McMullen Co., at gaging station 08194500 Nueces River near Tilden, Tex.	7-30-81	138.4	29.0	108	-	Channel is silt, loam and gravel.
Do.....	Lat 28°20'13", long 98°26'25", McMullen Co., at bridge on gravel road which is a continuation of Farm Road 1106.	7-30-81	129.1	30.0	105	-	.....do.....
Do.....	Lat 28°25'16", long 98°17'03", Live Oak Co., at discontinued gaging station 08194600 Nueces River at Simmons, Tex.	7-30-81	113.7	30.0	110	-	Channel is sand and loam.

a At first crossing downstream from State Highway 44, 10.1 mi upstream from mouth.
b At State Highway 44, 12.8 mi upstream from mouth.
c At State Highway 44, 13.3 mi upstream from mouth.

Location and description of data-collection sites, Nueces River and tributaries, water year 1981--Continued

Stream	Location	Date	Miles above mouth	Water temp °C	Discharge		Remarks
					Main stream	tributary	
Nueces River	Lat 28°25'34", long 99°14'23", La Salle Co., at gaging station 08194000 Nueces River at Cotulla, Tex.	8-11-81	221.8	29.5	19.4	-	Channel is silt and loam.
Do.....	Lat 28°22'18", long 99°11'41", La Salle Co., upstream from Lake formed by Holland Dam	8-11-81	214.4	30.0	18.9	-	.....do.....
Do.....	Lat 28°18'02", long 99°08'21", La Salle Co., at crossing downstream from Holland Dam.	8-11-81	205.6	29.5	11.9	-	Channel is silt, loam, and gravel.
Do.....	Lat 28°14'06", long 99°04'06", La Salle Co., downstream from channel dam at Hellje Ranch.	8-11-81	194.4	29.5	13.1	-	2.2 ft^3/s being pumped from stream about 200 ft upstream. Channel is silt, loam, and gravel.
Do.....	Lat 28°09'36", long 99°02'05", La Salle Co., at private bridge on George Stringhausen Ranch.	8-11-81	186.4	31.0	17.7	-	Channel is silt, loam, and gravel
Los Olmos Creek	Lat 28°03'56", long 99°07'38", La Salle Co., at first crossing downstream from State Highway 44.	8-13-81	a181.8	-	-	0	Channel is silt and loam.
San Casimiro Creek	Lat 27°57'53", long 98°58'00", Webb Co., at gaging station 08194200 San Casimiro Creek near Freer, Tex.	8-13-81	b174.2	-	-	.01	.....do.....
Black Creek	Lat 27°56'29", long 98°52'45", Webb Co., at State Highway 44.	8-13-81	c172.4	-	-	0	.....do.....
Nueces River	Lat 28°05'47", long 98°51'01", La Salle Co., at Rodriquece Oil Field.	8-12-81	169.3	29.0	17.8	-	.....do.....
Do.....	Lat 28°11'57", long 98°41'49", McMullen Co., downstream from channel dam on San Jose Ranch.	8-12-81	153.4	30.0	20.9	-	.....do.....
Do.....	Lat 28°18'31", long 98°33'25", McMullen Co., at gaging station 08194500 Nueces River near Tilden. Tex.	8-12-81	138.4	30.0	23.2	-	.....do.....
Do.....	Lat 28°20'13", long 98°26'25", McMullen Co., at bridge on gravel road, which is a continuation of Farm Road 1106.	8-12-81	129.1	30.5	29.7	-	.....do.....
Do.....	Lat 28°25'16", long 98°17'03", Live Oak Co., at discontinued gaging station 08194600 Nueces River at Simmons, Tex.	8-12-81	113.7	31.0	28.7	-	Channel is sand and loam.

a At first crossing downstream from State Highway 44, 10.1 mi upstream from mouth.
b At State Highway 44, 12.8 mi upstream from mouth.
c At State Highway 44, 13.3 mi upstream from mouth.

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 groundwater discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will indicate the low-flow potential of the stream. The years listed in the column headed "Period of record" identifies the water years in which measurements were made at the same or at practically the same site.

Discharge measurements made at low-flow partial-record station during water year 1981

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Colorado River basin				
08129500	Dove Creek Spring near Knickerbocker, Tex.	Lat 31°11'06", long 100°43'51", Irion County, at headquarters ranchhouse, 500 ft upstream from Dove Creek, 1.8 mi upstream from Stilson Dam on Dove Creek, and 8.5 mi southwest of Knickerbocker.	(a)	1944-58‡, 1959-81	10-22-80 12- 3-80 1-13-81 2-25-81 4- 2-81 1- 5-81 6-17-81 7-20-81 8-26-81	12.0 11.2 15.4 13.5 15.3 18.2 19.5 17.3 15.3
08131300	South Concho River above Pecan Creek near San Angelo, Tex.	Lat 31°20'13", long 100°28'46", Tom Green County, 1,000 ft upstream from Pecan Creek and about 9 mi south of San Angelo.	(a)	1963-81	10-21-80 12- 4-80 1-13-81 2-26-81 3-30-81 5- 6-81 6-15-81 7-21-81	2.67 3.67 3.28 3.47 3.79 3.48 3.42 2.96
08143900	Springs at Fort McKavett, Tex.	Lat 30°50'03", long 100°05'37", Menard County, at Fort McKavett.	(a)	1902, 1905, 1922, 1942, 1948-49, 1951-52, 1955-56, 1958-81	2-19-81 7-16-81	25.5 20.7
08146500	San Saba Springs, at San Saba, Tex.	Lat 31°11'44", long 98°42'42", San Saba County, 150 ft upstream from bridge on U.S. Highway 190 at San Saba and 0.8 mi east of courthouse.	(a)	1939, 1952, 1957, 1959-81	1-14-81 7-14-81	8.72 6.32
08149400	South Llano River near Telegraph, Tex.	Lat 30°15'43", long 99°56'01", Edwards County, 3.7 mi upstream from Paint Creek, 5.7 mi south of Telegraph, and 18.7 mi southwest of Junction.	(a)	1939, 1952, 1956, 1959-81	7-16-81	33.7
08149500	Seven Hundred Springs near Telegraph, Tex.	Lat 30°16'12", long 99°55'22", Edwards County, about 3 mi upstream from Paint Creek, about 5 mi south of Telegraph, and about 18 mi southwest of Junction.	(a)	1939, 1952, 1955-56, 1959-81	7-16-81	20.5
08153050	Pedernales River near Stonewall, Tex.	Lat 30°14'35", long 98°39'25", Gillespie County, at downstream side of Ranch Road 1623 at Stonewall, 0.6 mi upstream from Salt Banch, and at mile 68.9.	-	1979-81	8-19-81	85.9
08155400	Barton Creek above Barton Springs at Austin, Tex.	Lat 30°15'48", long 97°46'19", Travis County, just upstream from upper dam of Barton Creek swimming pool in Zilker Park and upstream from all springs known as Barton Springs at Austin.	125	1919-81	4- 8-81 7-28-81	25.5 4.65

‡ Operated as a continuous-record station.
a Not applicable.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Guadalupe River basin				
08168000	Hueco Srpings near New Braunfels, Tex.	Lat 29°45'33", long 98°08'23", Comal County, two springs located 400 and 500 ft west of the Guadalupe River, 600 ft downstream from the mouth of Elm Creek, and 4.2 mi north of New Braunfels.	(a)	1944-81	10- 9-80 11-20-80 1- 5-81 2-11-81 3-26-81 5- 6-81 6-22-81 7-29-81 9-10-81	18 20 18 32 45 71 99 82 56
08168600	Blieders Creek at New Braunfels, Tex.	Lat 29°43'14", long 98°07'23", Comal County, at Grove Avenue crossing in northwest New Braunfels and 0.25 mi upstream from mouth.	-	1962-81	1- 6-81 7-28-81	0 0
08168700	Panther Canyon at New Braunfels, Tex.	Lat 29°42'47", long 98°08'14", Comal County, at Landa Park Drive crossing in Landa Park at New Braunfels.	-	1962-81	1- 6-81 7-29-81	0 0
08168800	Dry Comal Creek at New Braunfels, Tex.	Lat 29°41'52", long 98°08'11", Comal County, at Floral Avenue crossing in New Braunfels, 0.6 mi upstream from Missouri Pacific Railroad Co. bridge, and 0.9 mi upstream from mouth.	-	1962-81	1- 6-81 7-28-81	1.4 1.6
		Nueces River basin				
08204000	Leona River spring flow near Uvalde, Tex.	Lat 29°09'15", long 99°44'35", Uvalde County, at old road crossing on White's Ranch, 2.0 mi downstream from Cooks Slough, and 4.7 mi southeast of Uvalde.	(a)	1935-65‡, 1966-81	10-28-80 12-11-80 1-20-81 3- 4-81 4-14-81 5-27-81 7- 8-81 8-19-81	11 14 16 5.7 10 6.8 29 23
		Rio Grande basin				
08425500	Phantom Lake Spring near Toyahvale, Tex.	Lat 30°56'01", long 103°50'43", Jeff Davis County, 375 ft downstream from source of spring, 3.5 mi southwest of Toyahvale, and 7.0 mi southwest of Balmorhea.	(a)	1931-33‡, 1942-66‡, 1967-81	10- 8-80 11-20-80 1- 7-81 2-26-81 5-20-81 6-25-81 8-13-81 9-16-81	23.3 3.55 3.15 2.98 3.55 2.16 19.5 28.2
08427000	Giffin Springs at Toyahvale, Tex.	Lat 30°56'51", long 103°47'19", Reeves County, 2,000 ft northwest of post office in Toyahvale.	(a)	1919, 1922-23, 1925, 1932-33‡, 1941-81	1- 7-81 8-13-81	3.80 4.43
08427500	San Solomon Springs at Toyahvale, Tex.	Lat 30°56'34", long 103°47'16", Reeves County, on South Canal at Toyahvale, 540 ft downstream from headgate at pool of springs, and 4.0 mi southwest of Balmorhea.	(a)	1931-33‡, 1941-65‡, 1966-81	10- 8-80 11-20-80 2-26-81 4-15-81 5-20-81 6-25-81 8-13-81 9-16-81	34.2 28.8 31.9 28.5 30.1 22.7 34.9 58.9
08444500	Comanche Springs at Fort Stockton, Tex.	Lat 30°53'20", long 102°51'59", Pecos County, on outlet canal of Pecos County Water Improvement District No. 1 in Fort Stockton, 0.2 mi upstream from bridge on U.S. Highway 290, and 0.5 mi downstream from head of springs.	(a)	1899- 1935, 1936-64‡, 1965-80	1- 6-81 8-11-81	0 0
08456300 c/	Las Moras Springs at Brackettville, Tex.	Lat 29°18'33", long 100°25'13", Kinney County, in springflow pool at Brackettville, 160 ft south of U.S. Highway 90, and 1,550 ft upstream from bridge on Brackettville-Fort Clark Road.	(a)	1896, 1899- 1900, 1902, 1904-6, 1910, 1912, 1925, 1928, 1951-80	10-14-80 11-12-80 12- 9-80 1-13-81 2-10-81 3-10-81 4-14-81 5-12-81 6- 9-81 7-14-81 8-11-81 9- 9-81	4.2 4.1 7.0 6.4 6.6 10 8.8 34 28 38 42 38

‡ Operated as a continuous-record station.
a Not applicable.
c Records were furnished by the International Boundary and Water Commission.

Crest-stage partial-record stations

The following table contains annual maximum stage and (or) discharge at partial-record stations operated primarily for the purpose of defining the flooding characteristics of the streams. At stations where discharge is given, or is footnoted "to be determined", a stage-discharge relation has been, or will be, defined by discharge measurements obtained by current meter or by indirect procedures. Water-stage recorders are located at these flood-hydrograph stations to facilitate complete hydrograph definition. At stations where only the maximum stage is given (discharge column is dashed), data are generally collected for use in stage-frequency studies of flood-profile definition. Gages at these stations usually consist of a device that will register the peak stage 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 1981

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		Colorado River basin					
08142000	Hords Creek at Coleman, Tex.	Lat 31°50'50", long 99°25'25", Coleman County, on right bank in city park, 1,250 ft downstream from bridge on U.S. Highways 84 and 283 and State Highway 206, 1 mi north of courthouse in Coleman, 3.9 mi downstream from Bachelor Creek, 12 mi downstream from Hords Creek Dam, and at mile 14.3.	107	1941-70‡, 1971-81	5-23-81	3.17	480
08154950	Bee Creek at Westlake Drive, near Austin, Tex.	Lat 30°18'11", long 97°47'43", Travis County, on upstream side of bridge on Westlake Drive.	3.28	1976-81	5-24-81	23.20	11,000
08155550	West Bouldin Creek at Riverside Drive, Austin, Tex.	Lat 30°15'49", long 97°45'17", Travis County, on upstream side of eastbound bridge on Riverside Drive in Austin.	3.12	1975-81	6-13-81	6.12	2,640
08156650	Shoal Creek at Steck Avenue, Austin, Tex.	Lat 30°21'55", long 97°44'11", Travis County, on downstream side of bridge on Steck Avenue in Austin.	3.19	1975-81	5-24-81	10.63	5,100
08156750	Shoal Creek at White Rock Drive, Austin, Tex.	Lat 30°20'21", long 97°44'50", Travis County, on downstream side of bridge on White Rock Drive in Austin.	7.56	1975-81	5-24-81	18.69	15,700
08158100	Walnut Creek at Farm road 1325 near Austin, Tex.	Lat 30°24'35", long 97°42'41", Travis County, on downstream side of bridge on Farm Road 1325 and 9.5 mi north of the State Capitol Building in Austin.	12.6	1975-81	5-24-81	19.46	15,000
08158300	Ferguson Branch at Springdale Road, Austin, Tex.	Lat 30°19'53", long 97°39'12", Travis County, on downstream side of bridge on Springdale Road in Austin.	1.63	1975-81	5-24-81	7.29	906
08158400	Little Walnut Creek at Interstate Highway 35, Austin, Tex.	Lat 30°20'57", long 97°41'34", Travis County, on downstream frontage road bridge on Interstate Highway 35 in Austin.	5.57	1975-81	5-24-81	12.00	7,000
08158500	Little Walnut Creek at Manor Road, Austin, Tex.	Lat 30°18'34", long 97°40'04", Travis County, on downstream side of bridge on Manor Road in Austin.	12.1	1975-81	5-25-81	19.60	14,500
08158820	Bear Creek at Farm Road 1626 near Manchaca, Tex.	Lat 30°08'25", long 97°50'50", Travis County, on upstream side of culvert on Farm Road 1626 and 1.0 mi west of Manchaca.	24.0	1979-81	6-11-81	15.60	16,800
08158880	Boggy Creek (South) at Circle S Road, Austin, Tex.	Lat 30°10'50", long 97°46'55", Travis County, on downstream side of bridge on Circle S Road in Austin.	3.58	1976-81	6-13-81	10.56	2,920
08158930	Williamson Creek at Manchaca Road, Austin, Tex.	Lat 30°13'16", long 97°47'36", Travis County, on downstream side of bridge on Manchaca Road in Austin.	19.0	1975-81	6-11-81	16.00	8,490
		Guadalupe River basin					
08169500	Guadalupe River at New Braunfels, Tex.	Lat 29°41'52", long 98°06'23", Comal County, Comal Mills in New Braunfels and 0.4 mi upstream from Interstate Highway 35.	1,652	1898-1902, 1915-27‡, 1974-81	6-13-81	13.14	8,190
08173900	Guadalupe River at Gonzales, Tex.	Lat 29°29'49", long 97°27'17", Gonzales County, at Gonzales Hydro Station in Gonzales and 1.4 mi upstream from U.S. Highway 183.	-	1977-81	6-15-81	33.47	48,000
08177900	San Antonio River at Navarro Street, San Antonio, Tex.	Lat 29°25'50", long 98°29'24", Bexar County, at bridge on Navarro Street in San Antonio.	-	1973-81	6-13-81	642.91	-

‡ Operated as a continuous-record station.

Annual maximum stage and (or) discharge during water year 1981--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		Guadalupe River basin--Continued					
08177920	San Antonio River at Dolorosa Street, San Antonio, Tex.	Lat 29°25'24", long 98°29'32", Bexar County, just downstream from Dolorosa Street in San Antonio.	-	1980-81	6-26-81	21.54	-
08178100	San Pedro Creek at Santa Rosa Street, San Antonio, Tex.	Lat 29°25'51", long 98°29'49", Bexar County, at bridge on Santa Rosa Street in San Antonio.	-	1973-81	6-13-81	643.10	-
08178350	Martinez Creek at Fredericksburg Road, San Antonio, Tex.	Lat 29°27'22", long 98°31'04", Bexar County, at bridge on Fredericksburg Road in San Antonio.	-	1973-81	6-13-81	682.38	-
08178400	Alazan Creek at West Martin Street, San Antonio, Tex.	Lat 29°25'51", long 98°30'51", Bexar County, at bridge on West Martin Street in San Antonio.	-	1973-81	6-13-81	638.98	-
08178450	Apache Creek at South Zarzamora Street, San Antonio, Tex.	Lat 29°24'47", long 98°31'42", Bexar County, at bridge on South Zarzamora Street in San Antonio.	-	1973-81	6-13-81	633.24	-
08178500	San Pedro Creek at Furnish Street, San Antonio, Tex.	Lat 29°24'22", long 98°30'38", Bexar County, at bridge on Furnish Street in San Antonio.	-	1973-81	6-13-81	612.66	-
08178550	San Antonio River at Ashley Street (Berg's Mill), San Antonio, Tex.	Lat 29°20'04", long 98°27'20", Bexar County, at bridge on Ashley Street in San Antonio.	-	1973-81	6-13-81	518.72	-
08178555	Harlandale Creek at West Harding Boulevard, San Antonio, Tex.	Lat 29°21'05", long 98°29'32", Bexar County, at mid-channel, 71 ft upstream from West Harding Boulevard and 1.3 mi upstream from Sixmile Creek.	2.43	1977-81	6-13-81	13.26	374
08178645	East Elm Creek at San Antonio, Tex.	Lat 29°37'04", long 98°25'41", Bexar County, at mid-channel, 2.1 mi upstream from West Elm Creek, and 2.4 mi upstream from Farm Road 1604.	2.33	1975-81	6-13-81	6.52	267
08178720	Salado Creek at Rittiman Road, San Antonio, Tex.	Lat 29°29'05", long 98°24'59", Bexar County, at bridge on Rittiman Road in San Antonio.	-	1968-81	6-16-81	658.76	-
08178740	Salado Creek at East Houston Street, San Antonio, Tex.	Lat 29°25'27", long 98°25'55", Bexar County, at bridge on East Houston Street in San Antonio.	-	1969-81	6-16-81	603.03	-
08178760	Salado Creek at U.S. Highway 87, San Antonio, Tex.	Lat 29°23'53", long 98°25'35", Bexar County, at bridge on U.S. Highway 87 in San Antonio.	-	1969-81	6-16-81	581.72	-
08178780	Salado Creek at Southcross Boulevard, San Antonio, Tex.	Lat 29°22'28", long 98°25'32", Bexar County, at bridge on Southcross Boulevard in San Antonio.	-	1969-81	6-16-81	554.94	-
		Nueces River basin					
08207220	Rutledge Hollow at 7th Street, Poteet, Tex.	Lat 29°02'07", long 98°34'18", Atascosa County, in city of Poteet at 7th Street and 2.0 mi above Atascosa River.	9.74	1979-81	8-31-81	419.95	-
08207300	Atascosa River at U.S. Highway 281, Pleasanton, Tex.	Lat 28°57'44", long 98°28'51", Atascosa County, at bridge on U.S. Highway 281 in Pleasanton.	-	1973-81	6-13-81	344.52	
		San Fernando Creek basin					
08212300	Tranquitas Creek at Kingsville, Tex.	Lat 27°31'33", long 97°52'02", Kleberg County, at bridge on U.S. Highway 77 Business Route in Kingsville, 4.9 mi above San Fernando Creek, and 5.9 mi downstream from Tranquitas Dam.	48.5	1965-81	5-30-81	4.34	-

< Less than.
d Elevation, in feet, above National Geodetic Vertical Datum of 1929.
e For the period April to September.
f No flow during the year.

Measurements of streamflow at points other than gaging stations of partial-record stations are given in the following table:

Discharge measurements made at miscellaneous sites during water year 1981

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
Guadalupe River basin						
San Antonio Springs	San Antonio River	Lat 29°27'56", long 98°28'04", Bexar County, just below Hildebrandt Street in San Antonio, Tex.	-	1951-52, 1959-62, 1972, 1974-77, 1979-81	9-29-81	16
San Pedro Springs	San Pedro Creek	Lat 29°26'42", long 98°30'06", Bexar County, at San Pedro Park in San Antonio, Tex.	-	1933-35, 1951-52, 1958-61, 1966, 1971, 1974-77, 1979-81	9-29-81	6.4
Rio Grande basin						
Mud Springs 1/	Mud Creek	Lat 29°27'10", long 100°37'30", Kinney County, on Mays Ranch and about 16 mi northwest of Brackettville, Tex.	-	1939-41, 1952-53, 1962, 1965-81	10-14-80	2.5
					11-12-80	1.8
					12- 9-80	.91
					1-13-81	.59
					2-10-81	.25
					3-10-81	.67
					4-14-81	2.0
					5-12-81	7.2
					6- 9-81	10
					7-14-81	18
					8-11-81	17
					9- 9-81	19
Pinto Springs 1/	Pinto Creek	Lat 29°24'10", long 100°27'15", Kinney County, on C. C. Belcher Ranch and 7.5 mi northwest of Brackettville, Tex.	-	1939-41, 1952-53, 1965-81	10-14-80	0
					11-12-80	0
					12- 9-80	0
					1-13-81	0
					2-10-81	0
					3-10-81	0
					4-14-81	0
					5-12-81	0
					6- 9-81	0
					7-14-81	9.8

1/ Measurements by International Boundary and Water Commission.

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October 1, 1978

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

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). 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
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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