Water Resources Data for Texas

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-79-3

WATER YEAR 1979

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

CALENDAR FOR WATER YEAR 1979

1978

OCTOBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
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1979

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AUGUST

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SEPTEMBER

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Water Resources Data for Texas

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-79-3

WATER YEAR 1979

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

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. W. Menard, Director

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

1980

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 I. D. Yost, 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 J. S. Cragwall, Jr., Chief Hydrologist, and Phil Cohen, 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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Surface-water data for the 1979 water year for Texas are presented in three volumes, appropriately identified as to content by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Also included are crest-stage and flood-hydrograph partial-record stations, reconnaissance partial-record stations, and low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. Records for a few pertinent stations in bordering States are also included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Texas.

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CONTENTS

ILLUSTRATION

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

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

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WATER RESOURCES DATA FOR TEXAS, 1979

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 1979 water year are presented in three volumes, appropriately identified by river basins. Data in each 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-79-3." Water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

COOPERATION

Organizations that assisted in the collection of data in this report through joint funding agreements with the Geological Survey in 1979 are:

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

Pecos River Commission, Horace Babcock, Federal Representative and Chairman; R. B. McGowen, Jr., Commissioner for Texas, and J. L. Cathey, Commissioner for New Mexico.

Sabine River Compact Administration, W. H. Robinson, Federal Representative and Chairman; R. J. Palmer and D. V. Cresap for Louisiana; and J. M. Syler and G. M. Smith for Texas.

City of Austin, C. B. Graves, Jr., Director, Engineering Department.

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

City of Fort Worth, J. L. Robinson, Director of Public Works.

City of Garland, F. G. Greene, Director of Public Works.

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

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

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

Corps of Engineers, U.S. Army.

International Boundary and Water Commission, Department of State.

Soil Conservation Service, Department of Agriculture.

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

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

HYDROLOGIC CONDITIONS

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

During the 1979 water year, runoff for index station Guadalupe River near Spring Branch, located in the south-central part of the State continued to be excessive for the eighth consecutive year. The other three index stations, Neches River near Rockland, located in east Texas, North Bosque River near Clifton, located in central Texas, and North Concho River near Carlsbad, located in west Texas, were in the normal runoff range for the year. Figure 1 on page 28 shows a comparison of monthly and annual mean discharges for the index stations. Conservation storage in a selected group of 63 reservoirs, with a combined conservation capacity of 30,252,000 acre-feet, increased from 78 percent of capacity in September 1978, to 86 percent of capacity in September 1979. Records from the 63 reservoirs show that 38 reservoirs increased in contents, 23 decreased, and 2 remained the same.

At the beginning of the 1979 water year, streamflow was in the deficient range in the northeastern part of the State, excessive in the coastal bend and Pecos River basin, and normal in the remainder of the State. At the end of the first quarter of the 1979 water year, streamflow conditions remained basically the same as they were at the beginning of the year, except that the defiecient runoff condition of northeast Texas had expanded to include the north and north-central parts of the State, while the remainder of the State remained near normal.

Spring rainfall provided relief to the deficient parts of the State, and by the end of June streamflow was excessive in the coastal bend area and parts of East Texas, and near normal for the remainder of the State.

The year ended with deficient runoff conditions existing in the northeast, excessive conditions along the Gulf coast, and near-normal conditions in the remainder of the State.

The National Weather Service reported over 100 inches of rainfall durin the 1979 water year at Alvin, Texas, located in the Chocolate Bayou basin. The streamflow station Chocolate Bayou near Alvin recorded 52.55 inches of runoff in 1979 water year. Over 25 inches of rain occurred on July 26, producing a peak discharge at the Chocolate Bayou near Alvin gaging station which exceeded the maximum since about 1939, by 291 percent.

DEFINITION OF TERMS

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

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

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

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

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

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

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

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C + 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/m^2 (milligrams per square meter) to the mass of chlorophyll *a*, in mg/m^2.

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

Cubic foor per second (FT^3/S, ft^3/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 diment, 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 lived.

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 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and

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

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

Other data available

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

Records of discharge collected by agencies other than the Geological Survey

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

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 in the laboratory.

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.

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 continuously recording thermographs are present, the records published consist of maximum and minimum 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.

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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. 1976. 65 p. $1.60.

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. $1.00.

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. $0.35.

3-A3. *Measurement of peak discharge at culverts by indirect methods,* by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 p. $0.40.

3-A4. *Measurement of peak discharge at width contractions by indirect methods,* by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 4 p. $1.00.

3-A5. *Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 p. $0.35.

3-A6. *General procedure for gaging streams,* by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 p. $1.00.

3-A7. *Stage measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 p. $1.40.

3-A8. *Discharge measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 p. $1.25.

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. $1.20.

3-C1. *Fluvial sediment concepts,* by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p. $2.50.

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. $2.50.

3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 p. $2.10.

4-A1. *Some statistical tools in hydrology,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 p. $1.60.

4-A2. *Frequency curves,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 p. $1.20.

4-B1. *Low-flow investigations,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 p. $0.65.

4-B2. *Storage analyses for water supply,* by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 p. $0.75.

4-B3. *Regional analyses of streamflow characteristics,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1975. 15 p. $0.65.

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. $10.00.

5-A2. *Determination of minor elements in water by emision spectroscopy,* by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 p. $0.80.

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. $0.90.

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. $9.25.

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. $5.75.

5-C1. *Laboratory theory and methods for sediment analysis,* by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 p. $2.10.

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. $1.10.

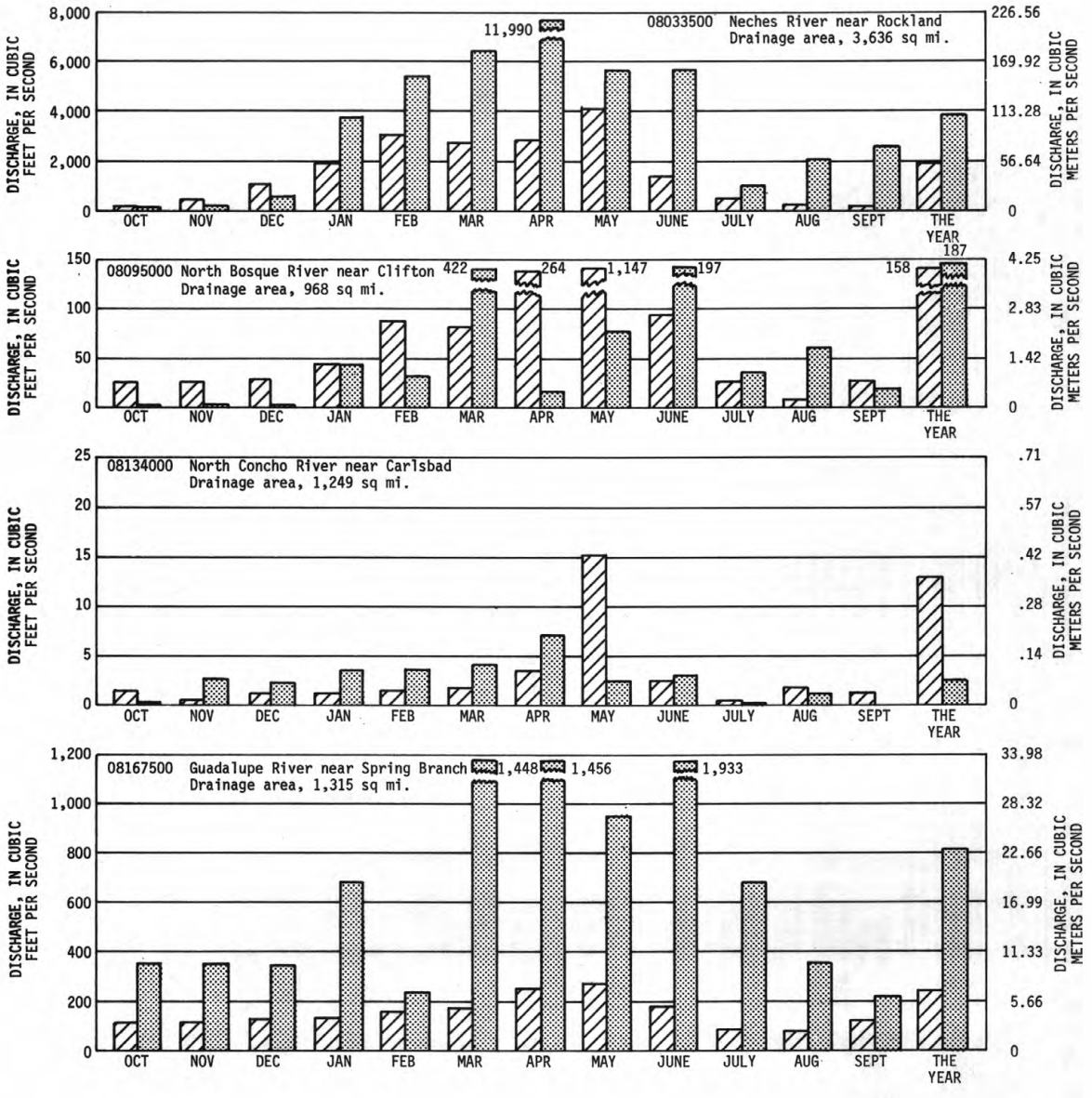

FIGURE 1.--COMPARISON OF DISCHARGE AT FOUR LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 1979 WATER YEAR WITH MEDIAN DISCHARGE FOR THE PERIOD 1941-70

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.--3,524 mi² (9,127 km²), of which 2,590 mi² (6,710 km²) probably is noncontributing. Drainage area includes 426 mi² (1,103 km²) above Bull Creek diversion dam, of which 32 mi² (83 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 ft (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, 26,550 acre-ft (32.7 hm³) July 24-26, elevation, 2,219.96 ft (676.644 m); minimum, 7,750 acre-ft (9.56 hm³) May. 20, elevation, 2,209.10 ft (673.334 m).

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

2,209.0	7,630	2,217.0	20,270
2,213.0	13,150	2,220.0	26,640

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13740	12920	12420	11580	11220	10650	10150	8910	10420	15400	26060	24190
2	13690	12910	12390	11550	11190	10620	10110	8890	10450	15300	26020	24100
3	13610	12890	12340	11520	11180	10600	10060	8860	10750	15260	26020	24000
4	13560	12890	12320	11590	11190	10580	10030	8820	11110	15200	26280	23910
5	13490	12910	12290	11560	11160	10560	10000	8800	11190	15130	26240	23830
6	13410	13000	12260	11550	11150	10530	9950	8740	13930	15020	26150	23740
7	13310	12970	12230	11520	11120	10500	9920	8680	14700	14950	26060	23660
8	13250	12940	12220	11510	11110	10480	9900	8550	14700	14920	25930	23570
9	13200	12910	12190	11480	11090	10450	9870	8490	14680	14850	25840	23490
10	13150	12870	12160	11450	11080	10420	9830	8430	15470	14780	25710	23490
11	13060	12860	12140	11430	11080	10390	9780	8370	16230	14710	25620	23400
12	12940	12810	12110	11420	11060	10330	9740	8310	16510	14650	25750	23110
13	12910	12780	12080	11390	11050	10300	9620	8250	16510	14550	25710	23020
14	12870	12780	12060	11390	11050	10260	9550	8170	16510	14450	25620	22940
15	12810	12750	12050	11380	11020	10220	9530	8070	16480	14360	25530	22750
16	12750	12720	12030	11360	11010	10190	9470	7970	16440	14290	25490	22640
17	12690	12690	12020	11360	11010	10180	9430	7900	16410	14230	25350	22600
18	12660	12680	12000	11350	10990	10160	9390	7850	16270	14190	25260	22510
19	12630	12660	11970	11360	10910	10060	9340	7800	16160	14260	25130	22430
20	12570	12650	11940	11420	10860	9980	9260	7750	16090	16160	25040	22380
21	12540	12610	11910	11430	10820	9960	9230	7830	16030	23780	24950	22260
22	12480	12600	11900	11410	10790	10060	9230	8940	15960	26200	24860	22180
23	12460	12580	11880	11390	10790	10330	9260	10280	15920	26510	24780	22100
24	12690	12570	11850	11380	10780	10330	9220	10480	15780	26550	24730	22020
25	13000	12540	11820	11360	10750	10330	9180	10480	15680	26550	24640	21980
26	13090	12550	11770	11330	10720	10330	9070	10420	15650	26550	24550	21850
27	13090	12600	11730	11330	10700	10300	9030	10390	15610	26510	24460	21770
28	13060	12550	11670	11310	10680	10250	8990	10450	15580	26460	24400	21690
29	13010	12510	11620	11260	---	10300	8950	10480	15540	26420	24310	21590
30	12980	12390	11580	11260	---	10250	8930	10480	15470	26330	24250	21530
31	12950	---	11550	11230	---	10220	---	10450	---	26110	24250	---
MAX	13740	13000	12420	11590	11220	10650	10150	10480	16510	26550	26280	24190
MIN	12460	12390	11550	11230	10680	9960	8930	7750	10420	14190	24250	21530
(†)	2212.87	2212.50	2211.95	2211.73	2211.34	2211.02	2210.05	2211.18	2214.40	2219.76	2218.92	2217.62
(‡)	-840	-560	-840	-320	-550	-460	-1290	+1520	+5020	+10640	-1860	-2720
(††)	577	381	480	411	307	447	422	446	464	659	1380	1310

CAL YR 1978 MAX 16930 MIN 7630 ‡ -5440 †† 10310
WTR YR 1979 MAX 26550 MIN 7750 ‡ +7740 †† 7280

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal, industrial, and mining uses.
NOTE.--Gage-height record from temporary outside gage readings at 0800 by the Colorado River Municipal Water District for the year.

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 1978 TO SEPTEMBER 1979

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
FEB 21...	1500	640	120	0	32	8.8	93	3.8

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
FEB 21...	6.2	190	0	89	61	1.0	2.9	388

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.--3,617 mi² (9,368 km²), of which 2,590 mi² (6,710 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); 21 years (water years 1959-79) partially regulated, 10.1 ft³/s (0.286 m³/s), 7,320 acre-ft/yr (9.03 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; 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, 374 ft³/s (10.6 m³/s) May 28, gage height, 6.17 ft (1.881 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.69	.06	.24	.10	.30	.66	.23	.14	3.7	.00	.00	.82
2	.58	.05	.23	.10	.26	.72	.22	.10	4.4	.00	.00	.19
3	.48	.05	.16	.10	.29	.53	.18	.10	4.4	.00	.00	.06
4	.19	.11	.12	.10	.31	.53	.15	.04	2.0	.00	107	.02
5	.15	.16	.15	.20	.50	.58	.18	.03	5.0	.00	19	.01
6	.08	.19	.18	.20	.67	.58	.28	.02	2.4	.00	3.3	.00
7	.06	.15	.14	.10	.61	.61	.26	.01	2.0	.00	.90	.00
8	.08	.17	.12	.10	.61	.60	.33	.00	1.2	.00	.28	.00
9	.08	.16	.09	.10	.45	.39	.25	.00	1.1	.00	.09	.00
10	.06	.12	.09	.10	.40	.39	.21	.02	.58	.00	.03	.00
11	.06	.12	.10	.10	.32	.39	.08	.01	.31	.00	.43	.00
12	.11	.13	.12	.20	.31	.44	.13	.00	.25	.00	1.5	.00
13	.06	.14	.21	.57	.31	.43	.18	.00	.19	.00	.24	.00
14	.04	.17	.16	.34	.31	.39	.18	.00	.06	.00	.05	.00
15	.03	.15	.23	.39	.41	.48	.21	.00	.01	.00	.02	.00
16	.02	.20	.23	.37	.29	.48	.21	.00	.01	.00	.01	.00
17	.03	.29	.14	.34	.26	.58	.28	.00	.00	.00	.01	.00
18	.02	.29	.15	1.4	.28	.62	.29	.00	.00	.00	.02	.00
19	.03	.31	.22	.68	.33	14	.32	.00	.00	50	.01	.00
20	.03	.32	.20	.60	.37	2.4	.31	.69	.00	66	.00	.00
21	.03	.38	.21	.62	.55	5.8	.20	43	.00	18	.00	.00
22	.06	.39	.24	.51	.58	6.6	.16	89	.00	2.9	.00	.00
23	9.5	.39	.17	.41	.58	2.9	.14	11	.00	.93	.00	.00
24	3.6	.38	.16	.35	.58	1.4	.10	3.7	.00	.31	.00	.00
25	1.4	.38	.18	.25	.61	.82	.09	2.0	.80	.11	.00	.00
26	.54	11	.19	.30	.82	.58	.04	1.1	.41	.08	.00	.00
27	.20	1.4	.15	.25	.79	.39	.02	24	.00	.01	.00	.00
28	.14	.53	.17	.27	.81	.38	.03	179	.00	.01	.00	.00
29	.09	.35	.22	.29	---	.32	.03	20	.00	.00	.00	.00
30	.06	.23	.19	.24	---	.35	.04	5.1	.00	.00	8.9	.00
31	.06	---	.10	.30	---	.31	---	2.9	---	.01	7.5	---
TOTAL	18.56	18.77	5.26	9.98	12.91	45.65	5.33	381.96	28.82	138.36	149.29	1.10
MEAN	.60	.63	.17	.32	.46	1.47	.18	12.3	.96	4.46	4.82	.037
MAX	9.5	11	.24	1.4	.82	14	.33	179	5.0	66	107	.82
MIN	.02	.05	.09	.10	.26	.31	.02	.00	.00	.00	.00	.00
AC-FT	37	37	10	20	26	91	11	758	57	274	296	2.2

CAL YR 1978 TOTAL 729.21 MEAN 2.00 MAX 170 MIN .00 AC-FT 1450
WTR YR 1979 TOTAL 815.99 MEAN 2.24 MAX 179 MIN .00 AC-FT 1620

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, 305 micromhos Sept. 6, 1962.
WATER 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, 40,200 micromhos Oct. 21; minimum daily, 812 micromhos May 22.
WATER TEMPERATURES: Minimum daily, 34.0°C Aug. 10; minimum daily, 0.0°C on many days during December, January, and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 12...	1420	.08	28100	19.5	2400	2300	420	320	7600
NOV 29...	1335	.37	16900	10.0	1400	1300	350	130	3800
DEC 29...	1145	.25	21500	11.0	1600	1400	370	160	5300
JAN 16...	0915	.40	--	2.0	--	--	--	--	--
FEB 21...	1415	.58	19900	9.0	1600	1400	360	160	4400
MAR 26...	0800	.58	15700	11.0	1200	1000	270	120	3200
APR 05...	1245	.14	--	22.0	--	--	--	--	--
MAY 21...	0745	10	2000	18.0	--		81	--	300
JUL 21...	0930	18	1840	24.0	220	140	65	15	290
AUG 08...	1500	.31	6990	33.0	530	450	130	49	1300

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 12...	68	31	100	0	1900	12000	.4	3.1	22300
NOV 29...	44	12	170	0	1300	5700	.2	2.4	11400
DEC 29...	58	14	190	0	1700	8000	.4	2.0	15600
JAN 16...	--	--	--	--	--	--	--	--	--
FEB 21...	49	12	200	0	1500	6500	.4	1.6	13000
MAR 26...	41	10	160	0	1300	4500	.4	.9	9480
APR 05...	--	--	--	--	--	--	--	--	--
MAY 21...	--	7.8	120	0	160	470	.3	6.8	--
JUL 21...	8.4	7.4	100	0	120	460	.3	6.4	1010
AUG 08...	25	13	99	0	370	2100	.4	6.7	4020

08119500 COLORADO RIVER NEAR IRA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	18.56	10600	6650	333	3340	168	720	36	****
NOV. 1978.....	18.77	16100	10200	516	5160	261	1100	56	****
DEC. 1978.....	5.26	22200	14400	204	7360	104	1520	22	****
JAN. 1979.....	9.98	18300	11600	312	5780	156	1260	34	****
FEB. 1979.....	12.91	19400	12300	428	6160	215	1330	46	****
MAR. 1979.....	45.65	12500	7890	973	3970	489	860	106	****
APR. 1979.....	5.33	24600	16000	231	8340	120	1690	24	****
MAY 1979.....	381.96	1400	880	903	440	452	96	99	120
JUNE 1979.....	28.82	7210	4490	349	2240	175	490	38	620
JULY 1979.....	138.36	1800	1120	417	560	208	120	46	160
AUG. 1979.....	149.29	2190	1360	549	680	275	150	61	190
SEPT 1979.....	1.1	13300	8260	24	4120	12	910	2.7	****
TOTAL	815.99	**	**	5240	**	2630	**	571	**
WTD. AVG.	2.2	3780	2400	**	1200	**	260	**	330

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12200	22500	18200	20100	19900	20000	17700	35200	6670	---	---	12800
2	14300	23700	19000	21000	18100	20800	18800	34800	5770	---	---	13800
3	16000	24600	20900	18800	18400	21300	19000	35000	5250	---	---	15900
4	17700	24700	21300	17800	18700	21200	19900	35100	7620	---	1250	17000
5	19800	23500	21000	16700	18100	21100	20700	35200	4990	---	1570	19800
6	21700	24200	22000	17500	17900	20900	21400	35600	7350	---	3070	---
7	25000	24800	23000	17800	17500	20600	22200	35400	7660	---	5040	---
8	25200	25500	25300	19300	17600	21600	22100	---	8020	---	6500	---
9	26500	24900	26500	18500	17700	22400	23100	---	9760	---	8070	---
10	27300	25100	26800	17800	17500	22800	22500	32900	11500	---	12000	---
11	26600	26000	22500	18600	17300	22900	24400	36200	12800	---	13500	---
12	28900	26100	21200	20400	18000	23000	26900	---	14000	---	7490	---
13	29900	25200	21700	21000	18300	23400	26500	---	15500	---	7270	---
14	30500	25900	22500	22500	21000	23800	27300	---	17400	---	8820	---
15	33000	26600	23300	20600	20200	23400	26500	---	20400	---	11500	---
16	34200	25900	23700	19000	21200	22300	27800	---	22400	---	15300	---
17	35500	25100	23600	18900	22300	21600	28000	---	---	---	17600	---
18	36600	23700	23400	16000	22200	21100	28200	---	---	---	18000	---
19	37400	23200	22900	15500	20200	9250	27700	---	---	2000	19800	---
20	37900	22300	23400	18500	19200	11500	27400	20500	---	1500	---	---
21	40200	21700	22300	17800	20000	9500	27000	1960	---	1800	---	---
22	39700	21900	22500	16600	20500	8900	26800	812	---	3060	---	---
23	6780	22400	22500	17300	21700	11200	26600	1980	---	4670	---	---
24	10700	21900	22300	18000	20700	12700	26400	3380	---	6750	---	---
25	13300	21700	21800	18400	21200	13800	26900	5050	16600	9380	---	---
26	15500	12800	22100	18600	19800	14200	27700	7110	22700	12900	---	---
27	16600	13700	22700	19300	18700	14400	29000	3500	---	16100	---	---
28	17400	15600	22100	20100	19400	15000	29100	830	---	19300	---	---
29	18700	16300	21800	19400	---	15400	33000	1700	---	---	---	---
30	19800	17200	22100	19300	---	16300	33600	3170	---	---	5250	---
31	21000	---	21700	20500	---	16900	---	4770	---	21200	10500	---
MEAN	24400	22600	22500	18800	19400	18200	25500	17600	12000	8970	9590	15900

08119500 COLORADO RIVER NEAR IRA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	20.5	6.0	.0	.0	7.0	10.5	16.0	18.0	---	---	23.0
2	28.5	13.0	9.0	.0	4.5	12.0	8.0	19.0	17.5	---	---	25.5
3	16.5	20.5	2.5	.0	5.0	8.5	10.0	16.5	18.0	---	---	25.5
4	18.5	16.0	2.0	1.0	4.0	2.0	7.0	9.5	20.5	---	25.0	20.0
5	19.0	17.0	3.0	.0	.0	4.0	8.0	9.5	22.0	---	24.0	27.0
6	22.5	12.0	3.0	.0	1.0	4.0	11.0	13.0	22.0	---	33.5	---
7	28.5	7.5	4.0	.0	2.0	20.0	12.0	15.0	21.0	---	33.5	---
8	16.0	8.0	.0	.0	13.5	20.0	13.0	---	23.0	---	26.0	---
9	17.0	9.5	.0	.0	.0	8.0	10.0	---	22.0	---	22.0	---
10	15.5	17.0	.0	2.5	16.5	8.0	15.0	17.5	17.0	---	34.0	---
11	16.5	9.0	4.0	2.0	3.0	6.0	7.0	12.5	30.0	---	28.0	---
12	30.0	9.0	.0	6.0	17.5	8.0	7.0	---	17.0	---	20.0	---
13	15.0	13.0	8.0	1.0	9.0	21.0	7.5	---	17.0	---	23.0	---
14	21.0	15.5	4.0	.0	14.5	8.0	9.5	---	18.0	---	22.0	---
15	11.0	6.0	3.0	.0	7.5	8.0	13.0	---	17.5	---	21.5	---
16	17.0	11.0	10.5	2.0	.0	7.0	14.5	---	20.0	---	31.0	---
17	21.0	12.0	3.5	3.5	.0	12.5	17.5	---	---	---	21.0	---
18	11.0	5.0	13.0	9.0	.0	12.0	22.0	---	---	---	22.0	---
19	12.0	12.0	8.5	8.0	7.0	16.5	19.0	---	---	21.0	23.0	---
20	11.0	11.5	9.0	5.0	6.0	12.0	16.0	---	---	21.0	---	---
21	23.5	8.5	4.0	1.0	13.0	12.0	17.0	18.0	---	24.0	---	---
22	15.0	10.0	2.0	3.0	10.5	12.0	15.5	17.0	---	25.0	---	---
23	11.0	17.0	7.0	.0	19.5	7.0	14.0	16.5	---	24.0	---	---
24	12.0	16.0	1.0	.0	9.5	10.0	15.0	18.0	---	24.0	---	---
25	22.0	15.5	11.0	3.0	3.5	8.0	17.0	17.5	25.5	24.0	---	---
26	18.0	13.0	1.5	4.5	4.5	11.0	13.0	16.0	24.0	24.0	---	---
27	22.0	7.5	8.0	3.0	5.0	10.0	14.5	18.5	---	23.0	---	---
28	13.5	13.0	8.5	.0	4.5	15.0	11.5	15.5	---	23.0	---	---
29	13.0	5.0	11.0	1.5	---	15.5	14.0	19.5	---	---	---	---
30	13.5	4.5	2.0	.0	---	12.0	15.0	21.0	---	---	24.0	---
31	13.0	---	.0	.0	---	10.5	---	20.5	---	23.5	23.0	---
MEAN	17.5	12.0	5.0	2.0	6.5	10.5	13.0	16.5	20.5	23.5	25.5	24.0

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 8.6 mi (13.8 km) upstream from mouth.

DRAINAGE AREA.--198 mi² (513 km²), of which 10 mi² (25.9 km²) 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.--Water-discharge records good.

AVERAGE DISCHARGE.--26 years (water years 1954-79), 11.4 ft³/s (0.323 m³/s), 0.82 in/yr (21 mm/yr), 8,260 acre-ft/yr (10.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,700 ft³/s (586 m³/s) Aug. 14, 1972 gage height, 31.28 ft (9.534 m), from floodmarks, from rating curve extended above 12,000 ft³/s (340 m³/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 ft³/s (1,030 m³/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 ft³/s (24.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 28	0245	*1,560	44.2	14.36	4.377
July 19	about 2300	1,390	39.4	a13.32	4.060
Aug. 4	0330	949	26.9	10.36	3.158

a From floodmark.

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	.25	1.6	3.0	2.6	1.0	2.1	18	47	2.1	2.0	.01
2	2.2	.15	1.6	3.0	2.2	.97	2.1	5.3	14	2.0	2.0	.00
3	1.7	.80	1.9	2.6	1.8	1.6	2.3	3.0	10	2.0	2.6	.00
4	.91	2.2	1.7	2.4	1.5	1.1	2.4	1.8	10	2.0	234	.00
5	.34	1.9	1.6	2.8	1.5	.91	2.0	1.2	77	2.0	8.2	.00
6	.30	1.7	1.7	2.7	1.8	.72	1.7	1.2	7.0	1.9	2.6	.00
7	.27	1.6	1.6	2.6	2.7	.56	1.7	1.5	3.3	1.9	1.6	.09
8	.29	1.7	1.4	2.4	3.0	.53	1.9	1.5	2.7	1.9	.75	.06
9	.25	2.4	1.4	2.6	2.4	.60	1.8	1.4	3.3	2.2	.30	.01
10	.27	2.4	1.6	3.0	3.0	1.5	2.2	1.4	5.1	2.2	.07	.00
11	.34	2.8	1.6	3.2	3.5	1.8	2.3	.92	3.3	1.9	3.7	.01
12	.42	2.8	1.6	3.2	2.3	1.9	1.9	.66	3.0	1.9	2.3	.01
13	.25	2.8	1.7	3.7	1.8	1.9	2.0	.91	2.8	1.9	.45	.00
14	.15	2.6	1.7	2.9	1.7	1.5	2.1	.83	2.7	1.9	.04	.00
15	.46	3.2	1.7	2.9	1.6	.96	1.9	.55	2.6	1.9	.04	.00
16	.51	3.8	1.7	3.0	1.3	1.3	1.7	.28	2.6	1.7	.01	.00
17	.32	3.0	1.7	2.8	.91	1.7	1.6	.15	2.6	1.7	.00	.00
18	.22	2.8	1.9	2.8	.80	1.9	2.1	.14	2.6	230	.03	.00
19	.17	2.8	2.0	4.3	.80	25	2.8	.15	2.3	268	.01	.47
20	.13	3.0	2.4	3.6	.80	5.3	2.9	.82	2.4	573	.00	.94
21	.07	2.6	2.2	3.5	.82	3.4	2.7	41	2.4	49	.00	.40
22	.07	2.6	2.4	2.8	.91	37	2.3	17	2.4	7.2	.00	.08
23	8.3	2.0	2.6	2.7	1.1	4.3	2.6	3.1	2.4	3.6	.00	.04
24	5.8	1.4	2.4	2.4	1.7	3.4	2.5	2.0	2.3	2.6	.00	.01
25	1.7	1.4	2.2	2.6	2.9	3.0	2.6	1.9	2.2	2.2	.00	.00
26	1.3	2.8	2.3	3.1	1.5	3.1	2.5	1.3	3.1	2.0	.10	.00
27	.80	2.8	2.3	3.0	1.1	2.9	2.3	52	2.6	2.0	.14	.00
28	.95	2.4	2.6	3.1	.92	3.0	1.9	355	2.2	2.0	.01	.00
29	.80	2.4	2.8	3.1	---	2.9	1.7	7.9	2.2	2.0	.00	.00
30	.40	2.2	2.4	3.0	---	2.7	3.0	3.0	2.2	2.0	.09	.00
31	.25	---	3.6	2.5	---	2.3	---	2.2	---	2.0	.02	---
TOTAL	32.64	67.30	61.9	91.3	48.96	120.75	65.6	528.11	230.3	1180.7	261.06	2.13
MEAN	1.05	2.24	2.00	2.95	1.75	3.90	2.19	17.0	7.68	38.1	8.42	.071
MAX	8.3	3.8	3.6	4.3	3.5	37	3.0	355	77	573	234	.94
MIN	.07	.15	1.4	2.4	.80	.53	1.6	.14	2.2	1.7	.00	.00
CFSM	.005	.01	.01	.02	.009	.02	.01	.09	.04	.19	.04	.000
IN.	.01	.01	.01	.02	.01	.02	.01	.10	.04	.22	.05	.00
AC-FT	65	133	123	181	97	240	130	1050	457	2340	518	4.2

CAL YR 1978 TOTAL 1300.17 MEAN 3.56 MAX 346 MIN .00 CFSM .02 IN .24 AC-FT 2580
WTR YR 1979 TOTAL 2690.75 MEAN 7.37 MAX 573 MIN .00 CFSM .04 IN .51 AC-FT 5340

08120700 COLORADO RIVER NEAR CUTHBERT, TX

LOCATION.--Lat 32°28'41", long 100°56'54", 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 810.6 (1,304.3 km).

DRAINAGE AREA.--4,028 mi² (10,433 km²), of which 2,600 mi² (6,730 km²) 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.--14 years (water years 1966-79), 30.2 ft³/s (0.855 m³/s), 21,880 acre-ft/yr (27.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s (326 m³/s) Aug. 14, 1972, gage height, 25.99 ft (7.922 m); 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, 4,420 ft³/s (125 m³/s) May 28, gage height, 16.74 ft (5.102 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	1.3	4.2	4.5	5.1	3.5	4.3	2.0	166	.25	2.9	1.6
2	3.0	1.0	4.0	5.2	5.0	3.6	3.8	21	86	.19	2.8	1.5
3	2.2	.91	3.8	5.0	5.0	4.0	3.9	8.2	67	.14	2.6	.47
4	1.5	1.0	3.8	5.0	4.8	3.6	4.0	5.4	56	.12	268	.29
5	1.3	1.9	4.0	5.8	5.0	3.7	3.8	4.2	861	.10	133	.19
6	.84	3.0	4.1	6.0	5.9	3.4	3.4	3.7	99	.08	28	.12
7	.61	2.4	4.0	6.0	6.0	3.1	2.9	2.7	34	.08	11	.08
8	.46	2.3	4.0	5.2	6.3	3.0	2.6	2.1	16	.05	6.1	.05
9	.38	2.1	3.7	5.0	6.5	2.7	2.5	2.0	12	.04	4.1	.02
10	.33	1.9	3.5	5.1	5.5	2.6	3.0	1.9	11	1.9	3.0	.01
11	.33	2.5	3.4	5.4	5.3	2.6	3.0	1.7	8.6	.74	3.4	.00
12	.31	2.4	3.6	6.0	6.2	3.3	3.1	1.4	6.0	.22	4.6	.00
13	.25	2.4	3.9	6.7	5.0	3.3	2.6	1.3	5.0	.14	4.4	.00
14	.18	3.5	3.7	6.4	4.4	3.4	2.2	.99	4.0	.06	2.2	.00
15	.16	2.8	3.7	5.8	3.9	3.4	2.1	.76	2.9	.03	1.7	.00
16	.14	2.8	3.8	5.2	3.5	3.4	2.0	.66	2.1	.01	1.1	.00
17	.13	3.2	3.8	5.2	3.4	3.6	1.9	.63	1.8	.14	.47	.00
18	.12	3.1	3.8	5.6	3.4	4.4	1.9	.52	1.6	251	.42	.00
19	.13	2.9	4.0	9.0	3.3	288	2.2	.38	1.4	428	.40	.00
20	.14	2.7	5.2	10	3.1	92	2.8	.29	1.0	1360	.34	.00
21	.13	2.9	5.4	7.3	3.3	38	2.9	168	.91	250	.44	.00
22	.15	3.1	4.9	6.6	3.5	168	2.8	663	.91	75	.36	.00
23	10	3.1	4.7	6.2	3.6	56	2.4	113	.74	30	.33	.00
24	42	2.9	5.0	5.3	4.0	20	2.1	38	.52	17	.33	.00
25	16	2.7	5.0	5.2	4.3	12	1.8	22	.47	11	.28	.00
26	6.0	32	4.8	5.4	5.8	8.5	1.7	16	.59	7.8	.22	.00
27	3.4	18	4.4	5.6	4.5	7.5	1.4	14	.74	6.0	.14	.00
28	2.5	7.9	4.4	5.7	4.0	6.9	1.4	2090	1.2	5.0	.12	.00
29	1.9	5.7	4.6	5.7	---	6.6	1.3	324	.59	4.2	.08	.00
30	1.6	4.5	5.0	5.7	---	5.0	1.2	64	.37	3.5	.05	.00
31	1.6	---	4.2	5.4	---	4.4	---	33	---	3.1	.06	---
TOTAL	100.89	128.91	130.4	182.2	129.6	773.5	77.0	3606.83	1449.44	2455.89	482.94	4.33
MEAN	3.25	4.30	4.21	5.88	4.63	25.0	2.57	116	48.3	79.2	15.6	.14
MAX	42	32	5.4	10	6.5	288	4.3	2090	861	1360	268	1.6
MIN	.12	.91	3.4	4.5	3.1	2.6	1.2	.29	.37	.01	.05	.00
AC-FT	200	256	259	361	257	1530	153	7150	2870	4870	958	8.6

CAL YR 1978 TOTAL 4766.89 MEAN 13.1 MAX 729 MIN .00 AC-FT 9460
WTR YR 1979 TOTAL 9521.93 MEAN 26.1 MAX 2090 MIN .00 AC-FT 18890

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, 290 micromhos Aug. 14, 1972.
WATER TEMPERATURES: Minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,970 micromhos Oct. 26; minimum daily, 350 micromhos May 28.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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									
02...	1400	2.8	3290	23.5	410	280	110	33	550
NOV									
09...	0540	10	1160	19.0	160	100	44	12	170
DEC									
04...	1630	3.8	--	9.0	--	--	--	--	--
06...	1255	16	2250	5.0	420	280	110	35	340
JAN									
08...	1250	5.1	6830	.0	990	720	230	100	1100
FEB									
02...	0925	4.9	5040	4.0	870	620	200	90	750
26...	0920	6.2	--	6.0	--	--	--	--	--
MAR									
28...	1310	6.6	4270	15.5	710	510	170	70	670
APR									
23...	1511	2.3	--	28.0	--	--	--	--	--
MAY									
21...	1315	58	--	24.0	--	--	--	--	--
22...	1730	270	3590	19.0	440	320	120	34	600
JUN									
21...	1400	.91	3980	30.0	680	500	160	68	580
JUL									
20...	1400	1330	546	22.0	140	39	46	5.4	57
AUG									
16...	1040	.86	--	25.0	--	--	--	--	--

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
02...	12	8.1	160	0	280	830	.3	7.3	1900
NOV									
09...	5.9	2.2	72	0	110	260	.3	5.8	640
DEC									
04...	--	--	--	--	--	--	--	--	--
06...	7.2	5.0	170	0	340	500	.5	3.6	1420
JAN									
08...	15	11	320	0	820	1600	.8	11	4030
FEB									
02...	11	9.3	310	0	740	1100	1.4	2.6	3050
26...	--	--	--	--	--	--	--	--	--
MAR									
28...	11	9.3	250	0	680	960	.8	7.3	2690
APR									
23...	--	--	--	--	--	--	--	--	--
MAY									
21...	--	--	--	--	--	--	--	--	--
22...	12	8.7	140	0	380	910	.4	7.2	2130
JUN									
21...	9.7	9.2	220	0	630	840	.5	5.4	2400
JUL									
20...	2.1	5.3	120	0	53	75	.3	8.5	310
AUG									
16...	--	--	--	--	--	--	--	--	--

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	100.89	4550	2790	760	1030	282	620	170	760
NOV. 1978.....	128.91	3930	2410	839	890	309	540	189	660
DEC. 1978.....	130.4	3740	2290	808	840	294	520	182	630
JAN. 1979.....	182.2	5230	3210	1580	1210	596	720	355	880
FEB. 1979.....	129.6	6110	3750	1310	1440	503	840	295	1030
MAR. 1979.....	773.5	2460	1510	3160	520	1090	340	711	410
APR. 1979.....	76	5210	3200	665	1210	251	720	150	870
MAY 1979.....	3606.83	909	550	5400	190	1810	130	1220	150
JUNE 1979.....	1449.44	991	610	2390	210	804	140	536	170
JULY 1979.....	2455.89	741	450	3000	150	1000	100	678	120
AUG. 1979.....	482.94	1130	690	902	240	308	150	201	190
SEPT 1979.....	4.33	5690	3490	41	1330	16	780	9.3	950
TOTAL	9521.91	**	**	20900	**	7260	**	4700	**
WTD.AVG.	26	1320	810	**	280	**	180	**	220

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3260	2700	2900	3390	5120	6250	4940	5510	494	4640	4220	6080
2	3330	2750	3160	3220	5040	6520	4900	3060	1550	4410	4220	5540
3	3600	2810	3490	3040	5210	6510	5030	3100	2580	4540	3650	5050
4	3810	3500	4160	2860	5380	6330	4990	3240	2730	4690	618	5280
5	3900	1660	4210	3850	5530	6370	4940	3350	482	4960	1320	5540
6	3990	1770	3000	4840	5990	6400	5160	3460	1480	5020	1600	5720
7	4230	1790	2310	5860	6450	6440	5330	3580	2370	5510	1950	5860
8	4450	1180	1920	6830	6910	6500	5440	3550	2600	5580	2360	5950
9	4730	1100	2570	6920	6640	6560	5470	3580	2910	5620	3000	5980
10	4910	2200	3230	6840	6390	6640	5400	3710	3120	5870	3580	6020
11	4990	1390	3880	6750	6160	6690	5350	3720	2840	5000	3660	---
12	5510	1280	3950	6620	5970	6340	5290	3740	3200	4740	2910	---
13	5920	1640	4050	6390	6030	6210	5550	3880	3330	4560	2700	---
14	6100	2140	3700	6220	6120	6100	5400	4130	3400	4430	2480	---
15	6420	2200	3330	6110	6200	6100	5290	4360	3480	4570	2310	---
16	6730	2300	3470	6000	6260	5810	5080	4580	3550	4870	2500	---
17	6930	2430	3630	5740	6340	5650	5100	4750	3620	5220	2870	---
18	7180	3400	3790	5690	6410	4920	5260	5050	3700	851	2880	---
19	7430	2310	3910	4170	6490	2020	5100	5540	3690	373	3350	---
20	7680	2420	4050	4640	6560	2480	4850	5510	3830	594	3470	---
21	7770	2040	4200	4800	6540	2490	5010	1860	3860	1030	3580	---
22	7820	3500	4360	4960	6510	1300	5460	1390	3870	1510	4100	---
23	7130	4500	4490	5120	6500	2750	5410	1350	3960	2190	4110	---
24	2500	5370	4630	5340	6550	2430	5250	2270	4040	2690	4120	---
25	7060	5500	4780	5610	6600	3130	5190	2840	4050	2960	4700	---
26	7970	5120	4920	5000	6480	3670	5370	3000	4080	3210	5280	---
27	6540	7500	4500	4380	5220	4140	5440	3320	4290	3310	5300	---
28	5020	3520	3750	5340	6000	4270	5510	350	4670	3380	5360	---
29	4480	2000	3280	5650	---	4260	5570	1350	4780	3420	5400	---
30	4290	2500	3450	5200	---	4910	5510	2580	5100	3950	5580	---
31	4570	---	3570	5160	---	4900	---	3100	---	3860	5590	---
MEAN	5490	2820	3700	5240	6130	5000	5250	3380	3260	3790	3510	5700

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	20.0	---	---	7.0	---	---	22.0	19.0	25.0	23.0	
2	25.0	20.0	---	---	---	17.0	---	22.0	20.0	28.0	23.0	
3	---	19.0	9.0	---	---	13.0	---	18.0	21.0	30.0	23.0	
4	24.0	18.0	10.0	7.0	---	15.0	---	13.0	23.0	25.0	---	
5	---	17.0	13.0	---	3.0	---	---	23.0	20.0	28.0	23.0	
6	20.0	13.0	5.0	---	---	---	---	23.0	25.0	25.0	23.0	
7	---	17.0	5.0	---	---	19.0	---	24.0	27.0	32.0	23.0	
8	19.0	18.0	1.0	---	10.0	---	---	---	26.0	27.0	---	
9	24.0	19.0	---	---	---	---	---	---	25.0	27.0	---	
10	27.0	20.0	---	---	---	---	---	---	22.0	23.0	23.0	
11	26.0	11.0	8.0	---	---	18.0	17.0	---	22.0	27.0	21.0	
12	26.0	12.0	---	---	16.0	---	20.0	---	25.0	28.0	---	
13	---	19.0	7.0	---	---	---	22.0	---	22.0	28.0	28.0	
14	21.0	10.0	---	---	---	15.0	21.0	24.0	25.0	30.0	30.0	
15	23.0	9.0	12.0	---	---	---	21.0	24.0	23.0	---	29.0	
16	22.0	9.0	---	9.0	---	---	24.0	19.0	23.0	---	29.0	
17	20.0	13.0	---	13.0	---	---	21.0	19.0	25.0	---	29.0	
18	---	15.0	---	14.0	---	---	21.0	24.0	25.0	25.0	29.0	
19	22.0	12.0	---	12.0	---	---	20.0	24.0	28.0	24.0	27.0	
20	20.0	12.0	---	8.0	15.0	12.0	20.0	23.0	29.0	21.0	24.0	
21	19.0	10.0	---	---	---	15.0	21.0	23.0	30.0	22.0	24.0	
22	---	---	---	---	---	15.0	21.0	19.0	30.0	28.0	21.0	
23	12.0	---	---	8.0	---	---	22.0	21.0	31.0	27.0	24.0	
24	---	15.0	---	7.0	---	---	23.0	23.0	31.0	28.0	24.0	
25	---	---	---	10.0	---	---	25.0	19.5	37.0	28.0	24.0	
26	---	16.0	8.0	---	---	---	21.0	---	28.0	27.0	25.0	
27	---	14.0	---	8.0	15.0	---	21.0	24.0	30.0	28.0	25.0	
28	---	12.0	---	6.0	---	---	15.0	15.0	28.0	25.0	26.0	
29	---	13.0	13.0	5.0	---	---	21.0	24.0	25.0	25.0	---	
30	---	---	---	6.0	---	---	20.0	25.0	26.0	25.0	---	
31	21.0	---	---	---	---	---	---	21.0	---	25.0	---	
MEAN	22.0	14.5	8.5	8.5	11.0	15.5	21.0	21.5	25.5	26.5	25.0	

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.--4,082 mi² (10,572 km²), of which 2,600 mi² (6,730 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); 27 years (water years 1953-79) regulated, 35.7 ft³/s (1.011 m³/s), 25,860 acre-ft/yr (31.9 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, 24.89 ft (7.586 m) Aug. 14, 1972; 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, 3,200 ft³/s (90.6 m³/s) June 4, gage height, 18.23 ft (5.557 m); no flow May 10-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	.41	.29	.48	.15	.41	.53	5.1	123	.22	.92	.57
2	.21	.41	.29	.14	.19	.41	.39	.60	143	.23	.62	.60
3	.15	.41	.30	.23	.24	.53	.42	1.3	87	.24	.62	.62
4	.15	.61	.24	.34	.24	.46	.41	.49	657	.32	62	.62
5	.18	.62	.24	.44	.62	.28	.36	.25	1740	.37	189	.55
6	.19	.62	.24	.27	.88	.32	.42	.21	291	.48	58	.41
7	.16	.41	.24	.24	.62	.41	.45	.15	92	.40	11	.40
8	.17	.24	.24	.18	.28	.41	.59	.05	51	.32	.41	.41
9	.30	.24	.24	.22	.17	.41	.50	.02	39	.31	.21	.41
10	.41	.24	.21	.30	.15	.41	.68	.00	29	.36	.18	.41
11	.24	.15	.24	.41	.17	.41	.22	.00	25	.25	.38	.41
12	.24	.25	.24	.41	.18	.41	.14	.00	13	.30	.24	.41
13	.23	.41	.33	.52	.24	.41	.19	.00	1.5	.11	.24	.54
14	.15	.41	.41	.19	.24	.41	.43	.00	1.1	.08	.24	.41
15	.15	.41	.41	.19	.18	.41	.92	.00	.74	.07	.22	.41
16	.18	.41	.41	.24	.15	.48	.72	.00	.57	.07	.22	.41
17	.19	.24	.39	.22	.15	.62	.69	.00	.54	.57	2.1	.48
18	.24	.24	.25	.27	.15	.92	.94	.00	.51	190	.79	.54
19	.24	.24	.41	.26	.15	9.7	.75	.00	.54	531	.36	.24
20	.24	.41	.50	.22	.20	155	.81	.00	.43	1120	1.7	.09
21	.24	.41	.24	.11	.24	94	.48	87	.37	523	1.4	.10
22	.29	.41	.35	.11	.31	152	.41	576	.31	151	.41	.13
23	10	.41	.48	.18	.41	99	.48	144	.23	70	.36	.17
24	1.5	.41	.24	.12	.41	36	.41	60	.24	44	.33	.15
25	.92	.62	.24	.19	.41	22	.34	30	.35	13	.41	.15
26	.51	.62	.24	.37	.41	14	.09	20	.41	.92	.45	.15
27	.41	.41	.24	.23	.41	2.5	.12	16	.41	.62	.49	.17
28	.41	.24	.33	.15	.41	1.6	.18	982	.33	.62	.50	.13
29	.41	.24	.49	.17	---	.64	.67	678	.24	.62	.53	.09
30	.41	.32	.41	.24	---	.47	.62	122	.21	.62	.59	.14
31	.41	---	.89	.16	---	.40	---	60	---	.62	.72	---
TOTAL	19.83	11.47	10.27	7.80	8.36	595.43	14.36	2783.17	3299.03	2650.72	335.64	10.32
MEAN	.64	.38	.33	.25	.30	19.2	.48	89.8	110	85.5	10.8	.34
MAX	10	.62	.89	.52	.88	155	.94	982	1740	1120	189	.62
MIN	.15	.15	.21	.11	.15	.28	.09	.00	.21	.07	.18	.09
AC-FT	39	23	20	15	17	1180	28	5520	6540	5260	666	20
(†)	285	328	335	436	348	433	246	258	292	342	319	17

CAL YR 1978 TOTAL 2555.07 MEAN 7.00 MAX 410 MIN .00 AC-FT 5070 † 3930
WTR YR 1979 TOTAL 9746.40 MEAN 26.7 MAX 1740 MIN .00 AC-FT 19330 † 3640

† 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 (1946-54, 1956-69, 1971-79): Maximum daily, 67,400 micromhos May 14, 17, 1961; minimum daily, 245 micromhos May 14, 1957.
WATER TEMPERATURES (1956-69, 1971-78): Maximum daily, 37.0°C July 29, 1960, July 9, 1965, and July 1, 1973; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 19,300 micromhos Dec. 9; minimum daily, 546 micromhos July 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
12...	0945	.21	11100	--	940	830	180	120	2300
NOV									
29...	1140	.21	17600	10.0	1700	1500	380	180	3800
JAN									
17...	1025	.22	--	7.0	--	--	--	--	--
27...	1700	.42	15200	4.0	1600	1400	300	210	3200
FEB									
22...	1400	.36	--	15.0	--	--	--	--	--
MAR									
22...	1030	95	1900	13.5	250	190	69	20	290
APR									
05...	1100	.37	8290	17.0	920	750	270	60	1500
05...	1140	.37	--	--	--	--	--	--	--
MAY									
27...	0800	10	4220	19.0	520	410	130	48	750
JUN									
05...	1130	1280	922	24.0	210	100	59	15	95
05...	1730	1270	--	24.0	--	--	--	--	--
06...	0850	199	--	20.0	--	--	--	--	--
27...	1410	.36	--	33.0	--	--	--	--	--
JUL									
20...	1210	1230	--	22.0	--	--	--	--	--
22...	1800	128	2810	--	370	310	99	29	450
AUG									
08...	1140	.42	--	29.0	--	--	--	--	--
SEP									
19...	1145	.30	11600	24.0	1100	910	240	130	2300

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
12...	33	13	140	0	970	3400	.6	1.4	7050
NOV									
29...	40	10	220	0	1700	5600	.5	.6	11800
JAN									
17...	--	--	--	--	--	--	--	--	--
27...	35	16	290	0	1700	4600	.5	2.3	10200
FEB									
22...	--	--	--	--	--	--	--	--	--
MAR									
22...	7.9	5.1	84	0	230	420	.3	4.3	1080
APR									
05...	22	11	210	0	1600	1600	.7	1.1	5150
05...	--	--	--	--	--	--	--	--	--
MAY									
27...	14	8.9	140	0	430	1100	.4	6.7	2540
JUN									
05...	2.9	6.1	130	0	190	100	.3	8.4	538
05...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUL									
20...	--	--	--	--	--	--	--	--	--
22...	10	8.0	71	0	290	680	.4	8.6	1600
AUG									
08...	--	--	--	--	--	--	--	--	--
SEP									
19...	30	15	270	0	1500	3000	.7	6.9	7330

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	19.83	9790	6170	330	2580	138	1010	54	1210
NOV. 1978.....	11.47	15400	10000	310	4500	139	1580	49	****
DEC. 1978.....	10.27	18300	11900	330	5570	154	1880	52	****
JAN. 1979.....	7.8	17100	11200	235	5150	109	1760	37	****
FEB. 1979.....	8.36	16500	10800	243	4920	111	1700	39	****
MAR. 1979.....	595.43	2720	1720	2760	730	1170	280	451	340
APR. 1979.....	14.36	9630	6030	233	2510	97	990	38	1190
MAY 1979.....	2783.17	1480	920	6940	380	2880	150	1140	180
JUNE 1979.....	3299.03	1240	780	6910	320	2880	130	1130	150
JULY 1979.....	2650.72	1180	730	5260	310	2190	120	863	150
AUG. 1979.....	335.64	2830	1770	1600	740	669	290	264	350
SEPT 1979.....	10.32	9870	6210	173	2600	72	1020	28	1220
TOTAL	9746.39	**	**	25300	**	10600	**	4140	**
WTD. AVG.	27	1540	960	**	400	**	160	**	190

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9900	13700	17500	17900	16800	17200	7450	6910	1220	11800	7230	7790
2	9030	13800	17600	18400	17200	17300	7600	7060	1130	12000	7550	7940
3	9860	13900	17700	18000	16900	17400	7740	6530	1850	12200	7800	8060
4	9760	13500	17600	17500	16800	17500	8000	8570	1300	12300	3550	8230
5	10000	13200	17600	17200	16200	17600	8210	10500	922	12500	1850	8450
6	10100	14000	17800	18100	15900	17600	8330	10900	1150	11000	3900	8610
7	10200	13900	18000	18300	16000	17600	8450	11000	1870	11200	4530	8760
8	10200	14200	18300	18600	15700	17700	8610	11400	2600	11300	5910	8900
9	10600	14500	19300	17800	16000	17600	8790	11800	3310	11400	5980	9050
10	10700	14700	19100	17500	16500	17700	9000	---	4030	11200	6270	9560
11	11000	14900	18800	17200	15900	17800	9220	---	4750	11300	6620	10100
12	11100	15000	18700	16800	15700	17800	9700	---	5570	10800	7060	10200
13	11200	15100	18200	16600	16100	17800	10000	---	7500	11000	7560	10300
14	11300	15800	18300	17500	15900	17800	10200	---	8310	11100	7650	10500
15	11700	15600	18500	17700	16000	17800	10400	---	8370	11200	7780	10400
16	11600	16000	18400	16400	16100	18000	10000	---	8410	11300	8060	10600
17	11700	15900	18200	17000	16200	18200	9950	---	8830	10400	7550	10700
18	11700	16000	18700	16400	16400	18000	9840	---	8710	5270	6790	11000
19	12000	16000	18500	16600	16300	15500	9760	---	9000	648	6000	11300
20	12100	16300	18300	17300	16400	2410	9950	---	9250	546	5090	11600
21	12200	16100	18200	17400	16800	2650	10200	4250	10000	950	4820	11800
22	12300	16700	18300	17200	16600	1880	10600	1420	10300	1300	5280	11900
23	8250	16500	18400	17000	16500	2000	11000	2500	10700	2810	5750	12000
24	10000	16600	18500	16800	16300	2400	11100	3420	10600	3280	6000	12700
25	11200	16500	18400	16400	17400	2610	11000	3370	10500	3750	6240	13400
26	12600	16600	18600	15300	17300	3520	11200	3760	10400	4520	6370	13600
27	12900	16700	18800	15200	17500	4440	11300	4190	10300	4800	6500	13500
28	12800	17000	18600	17900	17700	5000	11000	1010	10700	5050	6970	13700
29	13000	17500	18100	17700	---	5670	10900	1150	11000	5870	7470	13700
30	13100	17400	18400	16700	---	6200	10700	1470	11500	6660	7480	13800
31	13200	---	17800	16500	---	6850	---	1750	---	6890	7460	---
MEAN	11200	15500	18300	17200	16500	12200	9670	5650	6800	7950	6290	10700

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.5	21.0	15.5	---	9.5	17.0	22.0	18.0	---	26.5	---	30.0
2	27.5	17.5	11.5	---	8.0	18.0	19.0	30.0	---	26.0	---	26.0
3	23.0	20.5	8.0	---	10.5	11.5	15.0	24.5	---	24.5	---	25.0
4	24.0	16.5	8.5	---	7.0	8.0	12.5	17.5	---	30.0	---	29.5
5	19.0	15.5	10.5	---	6.0	7.0	14.0	15.0	---	27.0	---	25.5
6	19.5	---	4.0	---	7.0	9.0	20.0	18.0	---	---	---	26.0
7	21.0	---	1.0	---	9.0	8.5	11.0	20.5	---	26.0	---	25.0
8	18.5	---	---	---	11.5	12.0	24.0	22.5	---	31.0	---	24.0
9	26.5	---	---	---	9.5	13.0	20.0	25.0	---	28.5	---	24.5
10	27.0	---	---	---	5.0	9.0	22.5	---	---	---	---	30.0
11	28.0	10.0	---	.0	8.5	7.0	21.0	---	29.0	---	---	29.5
12	19.5	11.0	7.5	.0	12.5	13.5	15.5	---	23.5	---	---	30.0
13	28.0	21.0	8.0	.0	9.5	12.5	14.0	---	22.0	---	---	27.0
14	28.5	10.0	7.0	.0	8.0	10.0	25.5	---	22.5	---	---	21.0
15	25.5	8.5	7.5	.0	7.5	8.5	20.0	---	23.5	---	---	15.0
16	26.0	11.0	7.0	9.0	5.0	8.0	21.5	---	21.5	27.0	---	21.5
17	23.0	12.5	6.0	.0	1.5	7.5	20.5	---	34.0	---	---	16.5
18	22.0	17.0	14.0	13.0	2.5	14.5	20.0	---	35.0	---	---	23.5
19	24.0	13.0	13.0	14.0	11.5	16.0	19.0	---	35.0	---	---	17.0
20	22.5	13.0	10.0	8.5	7.0	11.5	27.5	---	36.5	---	33.0	17.5
21	22.5	9.5	9.0	6.0	8.5	11.0	21.5	---	34.0	---	30.0	16.0
22	19.0	10.0	8.5	11.0	10.5	13.5	25.0	19.0	27.0	---	32.5	16.5
23	---	9.5	7.5	7.5	11.0	12.0	28.5	26.5	34.0	---	29.0	16.5
24	---	14.5	6.0	8.5	8.0	19.0	26.5	27.5	24.5	---	26.0	17.0
25	---	15.0	7.5	7.0	9.5	14.5	24.0	24.0	28.5	---	28.0	22.5
26	---	17.0	5.0	5.0	11.0	21.5	26.0	26.0	23.5	---	26.0	17.0
27	---	14.5	7.0	4.0	13.0	15.5	28.0	19.0	22.0	---	27.5	15.5
28	---	13.0	7.5	3.5	11.5	17.5	24.0	---	36.0	---	25.5	16.5
29	22.0	14.0	8.5	2.5	---	13.0	20.0	---	37.0	---	24.0	15.0
30	21.0	14.5	7.0	5.0	---	24.0	21.0	---	27.0	---	25.0	16.5
31	17.0	---	---	5.5	---	25.5	---	---	---	---	26.5	---
MEAN	23.0	14.0	8.0	5.0	8.5	13.0	21.0	22.0	29.0	27.5	28.0	22.0

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.--322 mi² (834 km²), of which 32 mi² (83 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-in (762 mm) valve-controlled concrete pipe. Records furnished by the Texas Electric Service Co. indicate that 3,050 acre-ft (3.76 hm³) was pumped 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	31,640
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, 18,500 acre-ft (22.8 hm³) July 22, elevation, 2,060.46 ft (628.028 m); minimum, 14,740 acre-ft (18.2 hm³) Nov. 29, Dec. 1, elevation, 2,056.94 ft (626.955 m).

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

2,056.0	13,820
2,059.0	16,880
2,061.0	19,120

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16000	15330	14750	15400	15820	15470	17130	16490	15550	17150	18180	17340
2	16000	15310	14760	15460	15810	15470	17090	16460	15570	17080	18130	17300
3	15980	15270	14760	15460	15800	15400	17070	16450	15550	17030	18110	17270
4	15950	15260	14780	15460	15800	15390	17050	16410	17570	16970	18090	17220
5	15900	15250	14790	15460	15830	15380	17030	16390	18260	16960	18260	17200
6	15860	15200	14790	15460	15820	15370	17000	16310	18270	16930	18250	17160
7	15820	15180	14800	15460	15820	15380	16990	16270	18250	16900	18200	17120
8	15770	15160	14800	15460	15770	15360	16950	16230	18210	16850	18160	17080
9	15740	15130	14800	15460	15760	15330	16940	16190	18180	16810	18100	17050
10	15720	15090	14800	15460	15750	15310	16910	16170	18120	16770	18070	17000
11	15690	15050	14800	15460	15740	15300	16840	16120	18090	16730	18030	16940
12	15660	15050	14900	15490	15720	15290	16790	16090	18070	16660	18010	16910
13	15590	15040	14900	15530	15720	15250	16770	16060	18020	16600	17960	16850
14	15570	15010	14900	15590	15710	15220	16740	16000	17980	16540	17910	16780
15	15540	14980	14900	15630	15670	15210	16720	15960	17910	16500	17870	16740
16	15510	14960	14900	15670	15630	15210	16690	15920	17840	16450	17830	16700
17	15470	14940	14900	15720	15620	15220	16750	15880	17800	16440	17800	16670
18	15430	14920	14900	15790	15610	15190	16740	15850	17750	16640	17770	16640
19	15410	14910	15100	15830	15600	15270	16740	15800	17700	16990	17740	16640
20	15370	14900	15100	15840	15580	15330	16730	15790	17650	17380	17780	16610
21	15330	14880	15150	15860	15580	15510	16690	15810	17610	18430	17770	16580
22	15360	14870	15150	15890	15570	16430	16670	15770	17550	18500	17730	16530
23	15480	14860	15150	15880	15550	17100	16650	15740	17510	18490	17690	16510
24	15490	14850	15150	15910	15530	17160	16630	15700	17450	18490	17640	16470
25	15480	14850	15150	15920	15530	17170	16580	15660	17430	18430	17610	16440
26	15450	14820	15250	15920	15520	17170	16530	15630	17400	18400	17570	16410
27	15430	14780	15250	15900	15480	17170	16490	15630	17360	18360	17520	16360
28	15410	14760	15250	15890	15490	17180	16460	15610	17320	18330	17480	16320
29	15390	14740	15300	15880	---	17180	16440	15580	17270	18270	17430	16290
30	15370	14750	15300	15850	---	17170	16440	15540	17210	18210	17420	16260
31	15350	---	15300	15840	---	17150	---	15510	---	18190	17380	---
MAX	16000	15330	15300	15920	15830	17180	17130	16490	18270	18500	18260	17340
MIN	15330	14740	14750	15400	15480	15190	16440	15510	15550	16440	17380	16260
(†)	2057.55	2056.95	2057.50	2058.02	2057.68	2059.25	2058.59	2057.70	2059.31	2060.19	2059.46	2058.42
(‡)	-640	-600	+550	+540	-350	+1660	-710	-930	+1700	+980	-810	-1120
(††)	117	97	110	118	101	116	147	166	179	203	165	171

CAL YR 1978 MAX 16000 MIN 13890 ‡ +360 †† 1790
WTR YR 1979 MAX 18500 MIN 14740 ‡ +270 †† 1690

† 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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
JAN 16...	1000	3120	9.0	740	600	140	96	390	6.2

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
JAN 16...	26	180	0	850	450	1.1	6.9	2050

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 (1.4 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.--203 mi² (526 km²).

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, 10,940 acre-ft (13.5 hm³) Aug. 2, elevation, 2,052.10 ft (625.480 m); minimum, 5,500 acre-ft (6.79 hm³) Feb. 22, elevation, 2,041.19 ft (622.155 m).

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

2,041.0	5,440
2,047.0	8,160
2,053.0	11,500

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7790	7670	7550	6220	5660	5520	9300	9310	9330	10540	10920	10680
2	7740	7660	7500	6190	5660	5530	9300	9340	9340	10520	10940	10670
3	7710	7660	7450	6160	5660	5520	9300	9360	9350	10500	10930	10670
4	7700	7660	7410	6130	5660	5520	9280	9350	9440	10490	10920	10670
5	7710	7660	7360	6080	5660	5520	9280	9350	10710	10490	10900	10670
6	7680	7660	7310	6000	5660	5520	9280	9340	10740	10480	10890	10650
7	7680	7660	7270	5930	5660	5530	9280	9330	10740	10470	10880	10640
8	7670	7660	7220	5860	5660	5530	9280	9320	10740	10460	10870	10630
9	7660	7660	7170	5800	5660	5520	9290	9320	10740	10450	10850	10620
10	7660	7660	7130	5770	5660	5520	9290	9320	10730	10420	10850	10600
11	7660	7660	7080	5730	5660	5520	9270	9300	10720	10410	10840	10590
12	7660	7660	7040	5710	5660	5520	9250	9290	10720	10390	10830	10580
13	7640	7670	6990	5700	5660	5520	9250	9280	10710	10380	10820	10560
14	7630	7670	6940	5700	5660	5520	9250	9260	10700	10360	10800	10540
15	7630	7670	6890	5690	5660	5530	9240	9250	10680	10350	10790	10530
16	7620	7670	6840	5670	5660	5530	9240	9240	10670	10330	10780	10510
17	7620	7670	6800	5660	5640	5540	9240	9230	10650	10330	10790	10510
18	7610	7670	6750	5660	5630	5540	9250	9230	10630	10590	10780	10500
19	7610	7670	6700	5660	5600	5570	9260	9220	10620	10770	10780	10490
20	7600	7670	6660	5660	5550	5580	9260	9220	10610	10830	10800	10470
21	7590	7670	6620	5660	5520	6790	9260	9250	10600	10850	10800	10460
22	7640	7670	6580	5660	5510	9210	9260	9290	10580	10850	10800	10460
23	7670	7670	6550	5660	5520	9250	9260	9300	10570	10830	10790	10450
24	7680	7670	6510	5660	5520	9270	9250	9290	10560	10830	10780	10440
25	7690	7670	6470	5660	5520	9280	9250	9280	10560	10820	10760	10430
26	7680	7670	6430	5660	5520	9280	9230	9270	10560	10800	10750	10420
27	7680	7670	6400	5660	5520	9280	9220	9300	10580	10790	10740	10400
28	7680	7670	6360	5660	5520	9290	9210	9320	10590	10780	10720	10390
29	7670	7640	6330	5660	---	9300	9210	9310	10570	10760	10710	10380
30	7670	7590	6290	5660	---	9300	9210	9310	10560	10740	10710	10370
31	7670	---	6260	5660	---	9300	---	9300	---	10890	10690	---
MAX	7790	7670	7550	6220	5660	9300	9300	9360	10740	10890	10940	10680
MIN	7590	7590	6260	5660	5510	5520	9210	9220	9330	10330	10690	10370
(†)	2046.03	2045.87	2043.06	2041.57	2041.20	2049.19	2049.02	2049.19	2051.45	2052.01	2051.67	2051.12
(‡)	-160	-80	-1330	-600	-140	+3780	-90	+90	+1260	+330	-200	-320
(††)	115	66	1450	1420	0	0	0	0	0	0	0	0

CAL YR 1978 MAX 13810 MIN 6260 ‡ -7570 †† 9830
WTR YR 1979 MAX 10940 MIN 5510 ‡ +2540 †† 3050

† 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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
JAN 16...	1230	1420	8.0	520	360	110	59	120	2.3

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
JAN 16...	12	190	0	440	120	.6	5.1	960

08123650 BEALS CREEK ABOVE BIG SPRING, TX

LOCATION.--Lat 32°15'01", long 101°29'26", Howard County, Hydrologic Unit 12080007, on left bank at end of Channing Street in Big Spring, just downstream from Onemile Lake, 2.9 mi (4.7 km) upstream from Little Sandy Creek, 7.5 mi (12.1 km) downstream from confluence of Sulphur Springs Creek and Mustang Draw, and 71.1 mi (114.4 km) upstream from mouth.

DRAINAGE AREA.--9,409 mi² (24,369 km²), of which 8,915 mi² (23,090 km²) probably is noncontributing.

PERIOD OF RECORD.--January 1959 to September 1979 (discontinued).

REVISED RECORDS.--WSP 1732: 1959(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,400.02 ft (731.526 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Runoff from contributing drainage area is largely regulated by several natural salt lakes. Records of diversions from Threemile and Fourmile Lakes (natural lakes upstream from gage on Beals Creek) into Natural Salt Lake (natural lake on Sulphur Springs) 7.0 mi (11.3 km) upstream from gage were furnished by the Colorado River Municipal Water District.

AVERAGE DISCHARGE.--20 years (water years 1960-79), 1.17 ft³/s (0.0331 m³/s), 848 acre-ft/yr (1.05 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 255 ft³/s (7.22 m³/s) Sept. 6, 1962, gage height, 5.95 ft (1.814 m); no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 10, 1957, was highest known since 1932, from comparision of floods at a point 4 mi (6 km) downstream, from information by City Engineering Department. Flood of June 12, 1938, reached a stage of about 7.6 ft (2.32 m) at present site and datum, from information by Texas and Pacific Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 247 ft³/s (7.00 m³/s) July 19, gage height, 5.90 ft (1.798 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	.47	5.4	.32	.19	.00	.00	.00	.00	.00	3.2	.00
2	1.2	.43	3.0	.24	.17	.05	.00	.00	.00	.00	2.4	.00
3	.99	.37	1.9	.27	.15	.05	.00	.00	.00	.00	1.5	.00
4	.89	.41	1.5	.42	.18	.00	.00	.00	.00	.00	.93	.00
5	.74	.52	1.1	.64	.31	.00	.00	.00	.00	.00	.55	.00
6	.59	.57	.62	.69	.60	.00	.00	.00	.00	.00	.34	.00
7	.53	.52	.56	.71	.54	.00	.00	.00	.00	.00	.28	.00
8	.30	.49	.55	.69	.40	.00	.00	.00	.00	.00	.20	.00
9	.15	.48	.56	.49	.30	.00	.00	.00	.00	.00	.17	.00
10	.05	.44	.55	.40	.30	.00	.00	.01	.00	.00	.18	.00
11	.08	.32	.52	.48	.28	.00	.01	.00	.00	.00	.19	.00
12	.30	.32	.52	.53	.32	.00	.01	.00	.00	.00	.15	.00
13	.22	.37	.41	.56	.31	.00	.00	.00	.00	.00	.11	.00
14	.18	.33	.40	.37	.33	.00	.00	.00	.00	.00	.08	.00
15	.16	.32	.42	.42	.21	.00	.00	.00	.00	.00	1.0	.00
16	.13	.34	.26	.40	.19	.00	.00	.00	.00	.00	.47	.00
17	.10	.32	.18	.38	.21	.00	.00	.00	.00	.00	.14	.00
18	.08	.31	.12	.42	.21	.00	.00	.00	.00	.00	.10	.00
19	.07	.29	.17	.39	.23	.00	.00	.00	.00	129	.08	.00
20	.06	.29	.33	.46	.31	.00	.00	.00	.00	100	.06	.00
21	.03	.29	.01	.28	.11	.04	.00	.00	.00	44	5.0	.00
22	.02	.33	.01	.38	.14	.79	.00	.00	.00	25	2.0	.00
23	.32	.36	.11	.36	.12	.02	.00	.00	.00	17	1.0	.00
24	.71	.34	.01	.20	.13	.03	.00	.00	.00	15	.50	.00
25	.80	.35	.02	.23	.08	.00	.00	.00	.00	12	.14	.00
26	.73	.38	.01	.24	.09	.00	.00	.00	.00	9.3	.06	.00
27	.69	.30	.01	.24	.20	.00	.00	.00	.00	7.6	.04	.00
28	.65	.29	.02	.17	.01	.00	.00	.00	.00	6.2	.03	.00
29	.60	.27	.02	.20	---	.00	.00	.00	.00	4.5	.02	.00
30	.55	3.8	.00	.27	---	.00	.00	.00	.00	3.2	.01	.00
31	.51	---	.07	.16	---	.00	---	.00	---	3.1	.01	---
TOTAL	13.93	14.62	19.36	12.01	6.62	.98	.02	.01	.00	375.90	20.94	.00
MEAN	.45	.49	.62	.39	.24	.032	.001	.000	.000	12.1	.68	.000
MAX	1.5	3.8	5.4	.71	.60	.79	.01	.01	.00	129	5.0	.00
MIN	.02	.27	.00	.16	.01	.00	.00	.00	.00	.00	.01	.00
AC-FT	28	29	38	24	13	1.9	.04	.02	.00	746	42	.00
(†)	120	68	66	45	24	16	0	0	0	31	132	107

CAL YR 1978 TOTAL 255.71 MEAN .70 MAX 77 MIN .00 AC-FT 507 † 507
WTR YR 1979 TOTAL 464.39 MEAN 1.27 MAX 129 MIN .00 AC-FT 921 † 921

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

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 19.9 mi (32.0 km) upstream from mouth.

DRAINAGE AREA.--9,903 mi² (25,648 km²), of which 8,930 mi² (23,130 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, see station 08123650.

AVERAGE DISCHARGE.--21 years, 22.7 ft³/s (0.643 m³/s), 0.32 in/yr (8 mm/yr), 11,450 acre-ft/yr (20.3 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); 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 CURRENT YEAR.--Maximum discharge, 2,110 ft³/s (59.8 m³/s) July 20, gage height, 14.81 ft (4.514 m), no other peak above base of 900 ft³/s (25.5 m³/s); minimum, 0.08 ft³/s (0.002 m³/s) July 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	3.5	3.0	4.3	6.1	3.8	3.6	3.8	3.5	.51	84	3.6
2	5.3	3.5	3.7	4.1	6.1	3.8	3.6	4.4	30	.38	33	3.6
3	4.5	3.1	5.7	4.1	6.8	3.9	3.4	4.8	44	.21	10	3.4
4	3.8	3.5	6.6	4.0	7.1	3.9	3.3	4.2	27	.11	101	3.2
5	3.5	3.9	5.4	4.1	7.6	4.5	3.7	3.0	84	.25	80	2.9
6	3.1	8.5	5.1	8.6	8.6	3.9	3.5	2.9	19	6.5	7.3	2.8
7	2.9	9.0	4.5	8.2	9.2	3.6	3.5	2.7	9.5	1.8	4.8	2.6
8	3.1	5.9	4.1	5.7	10	3.6	3.4	2.3	4.9	.82	3.7	2.6
9	2.9	3.9	4.0	4.9	9.3	3.6	3.4	1.8	3.3	.33	3.6	2.4
10	2.5	3.5	4.0	5.5	6.7	3.7	4.2	1.3	2.4	.23	112	2.4
11	2.3	3.3	3.9	5.9	6.2	3.5	2.9	1.2	3.0	.69	27	2.1
12	2.3	3.1	3.7	6.1	5.8	3.4	2.9	14	5.3	.45	6.0	1.9
13	2.2	3.2	3.9	6.1	5.7	3.8	2.7	5.3	3.1	.29	4.7	2.3
14	2.0	3.3	4.5	5.9	5.3	3.6	2.7	3.0	2.0	.25	3.7	2.4
15	1.7	3.5	3.6	5.5	5.1	3.8	2.7	2.1	1.8	.22	2.8	2.1
16	1.6	3.5	3.5	4.7	3.8	4.1	2.8	1.2	1.5	.11	2.6	2.2
17	1.4	3.7	3.4	5.1	3.8	4.2	2.9	1.1	1.1	.97	2.6	2.1
18	1.5	3.8	3.4	5.5	3.6	4.4	2.9	1.0	.79	4.2	3.4	2.3
19	1.4	3.8	3.5	5.5	3.6	82	2.9	1.3	.79	105	11	2.2
20	1.6	3.9	3.8	5.6	3.6	59	3.3	1.4	.79	1370	59	2.4
21	1.4	3.6	3.5	5.5	3.6	24	3.1	1.8	.79	1200	157	1.7
22	1.4	3.7	3.3	5.0	4.1	78	3.0	18	.54	343	151	2.1
23	119	3.8	3.5	4.6	3.9	80	3.0	20	.31	102	34	2.3
24	76	4.2	3.1	4.7	4.0	15	2.8	6.1	.21	34	8.0	2.4
25	42	3.8	3.4	4.8	3.8	7.1	2.5	4.1	.36	20	5.4	2.3
26	14	3.6	4.2	5.1	3.8	5.3	2.3	3.4	53	14	4.7	1.9
27	7.3	3.9	4.8	5.6	3.5	4.4	2.1	3.2	86	12	4.3	1.7
28	4.7	4.0	3.3	5.8	3.4	4.1	2.1	12	4.4	9.1	3.9	1.8
29	3.9	3.2	3.1	7.1	---	4.9	2.2	6.7	1.6	7.3	3.6	1.3
30	3.8	2.5	3.4	6.1	---	5.1	3.1	2.8	.71	6.1	3.4	1.7
31	3.5	---	4.9	5.6	---	4.0	---	1.7	---	5.6	3.6	---
TOTAL	333.2	119.7	123.8	169.3	154.1	442.0	90.5	142.6	395.69	3246.42	941.1	70.7
MEAN	10.7	3.99	3.99	5.46	5.50	14.3	3.02	4.60	13.2	105	30.4	2.36
MAX	119	9.0	6.6	8.6	10	82	4.2	20	86	1370	157	3.6
MIN	1.4	2.5	3.0	4.0	3.4	3.4	2.1	1.0	.21	.11	2.6	1.3
CFSM	.001	.000	.000	.001	.001	.001	.000	.000	.001	.01	.003	.000
IN.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
AC-FT	661	237	246	336	306	877	180	283	785	6440	1870	140

CAL YR 1978	TOTAL	2714.09	MEAN	7.44	MAX	372	MIN	.00	CFSM	.001	IN	.01	AC-FT	5380
WTR YR 1979	TOTAL	6229.11	MEAN	17.1	MAX	1370	MIN	.11	CFSM	.002	IN	.02	AC-FT	12360

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.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 22,800 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, 20,900 micromhos Dec. 13; minimum daily, 595 micromhos July. 20.
WATER TEMPERATURES: Maximum daily, 34.0°C July 14; minimum daily, 0.5°C Jan. 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
12...	1100	2.2	--	19.0	--	--	--	--	--
31...	1415	3.8	6890	22.0	1500	1300	210	230	1000
NOV									
30...	0850	2.3	--	8.0	--	--	--	--	--
DEC									
31...	1345	4.9	13000	2.0	2800	2700	290	500	2200
JAN									
17...	1255	5.2	12300	8.0	2600	2500	260	480	2000
FEB									
22...	0950	4.0	12600	10.0	2900	2700	370	480	2000
MAR									
28...	1535	4.1	5040	17.0	1100	960	200	150	730
MAY									
09...	1550	2.0	--	30.0	--	--	--	--	--
31...	0830	1.8	6230	23.0	1400	1200	220	200	990
JUN									
22...	1145	.46	--	30.0	--	--	--	--	--
30...	0830	.89	1250	27.0	250	140	57	25	160
JUL									
31...	1120	4.7	8110	27.0	1800	1600	260	270	1300
SEP									
10...	1210	2.3	15900	25.0	3200	3000	250	620	2500

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
12...	--	--	--	--	--	--	--	--	--
31...	11	29	200	0	1000	1800	.5	3.4	4370
NOV									
30...	--	--	--	--	--	--	--	--	--
DEC									
31...	18	49	140	0	2200	3800	.8	1.9	9110
JAN									
17...	17	42	180	0	2200	3400	.5	18	8490
FEB									
22...	16	47	230	0	2100	3500	.8	15	8630
MAR									
28...	9.5	21	190	0	810	1200	.6	7.4	3210
MAY									
09...	--	--	--	--	--	--	--	--	--
31...	12	30	260	0	1000	1500	.7	3.7	4070
JUN									
22...	--	--	--	--	--	--	--	--	--
30...	4.4	7.8	130	0	150	240	.6	7.0	711
JUL									
31...	13	33	240	0	1400	2100	.7	2.7	5480
SEP									
10...	19	63	210	0	2700	4400	.7	1.9	10600

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	333.2	3710	2450	2200	940	843	590	531	810
NOV. 1978.....	119.7	10300	6780	2190	2720	880	1630	528	****
DEC. 1978.....	123.8	14600	9650	3230	4030	1350	2330	778	****
JAN. 1979.....	169.3	12500	8240	3760	3390	1550	1990	908	****
FEB. 1979.....	154.1	12600	8290	3450	3420	1420	2000	833	****
MAR. 1979.....	441	4580	3020	3610	1180	1410	730	870	1000
APR. 1979.....	90.5	11700	7740	1890	3160	773	1870	456	****
MAY 1979.....	142.6	8740	5760	2220	2290	883	1390	534	1910
JUNE 1979.....	395.69	2660	1750	1880	660	701	420	452	580
JULY 1979.....	3246.42	1100	720	6330	270	2390	170	1520	240
AUG. 1979.....	941.1	3500	2310	5860	860	2200	560	1420	770
SEPT 1979.....	70.7	12800	8440	1610	3480	664	2040	388	****
TOTAL	6229.1	**	**	38200	**	15100	**	9220	**
WTD. AVG.	17	3450	2300	**	890	**	550	**	750

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7950	7050	11600	12900	13500	12300	6620	11700	6020	1400	5000	10800
2	8070	8080	11800	12900	13700	12400	7520	11700	4000	1550	1250	13900
3	8690	8780	11900	13100	13400	12300	9050	11900	2860	1660	1860	14100
4	9070	9170	11700	12000	13500	12400	11000	11400	3380	1740	2500	13700
5	9190	9770	11800	11800	13000	12400	12100	11600	2000	1720	1630	14000
6	9530	10300	12100	11700	12900	12600	12200	11500	1270	2040	2230	14700
7	9650	11000	11700	11300	13000	12300	12300	11700	2210	2570	2460	15200
8	9760	11400	11000	11700	11600	12300	12500	11800	2930	3550	2600	16000
9	9860	10700	11000	11400	11800	12300	12600	11900	3140	4110	2790	17100
10	9950	10400	15600	11900	12000	12300	12700	11800	3950	4350	1500	15900
11	10000	6290	18500	11000	12000	12200	12900	11900	4970	5150	1100	15200
12	10100	7770	19700	11500	11900	12000	12600	13600	9220	5240	1060	13900
13	10400	10000	20900	12100	11800	12000	12300	12100	9900	5920	1290	13600
14	10600	12300	19800	10200	11700	12300	11400	12700	9520	6580	1420	14600
15	10600	11600	18900	10600	11900	12600	12000	11900	9220	6910	1700	14500
16	10600	10400	17900	11400	12900	13200	12100	12000	8700	6870	1970	13500
17	10600	10000	17100	12300	13400	12600	12100	11900	8200	6370	2230	13000
18	10700	9630	15700	12900	12700	11900	12300	12100	8000	7530	2810	12600
19	10900	10100	15400	13400	12100	2500	12400	12000	7840	2200	3000	11800
20	10800	10500	15500	13800	12200	1240	12300	12100	7750	595	6970	10800
21	10800	11100	15400	13500	12200	6370	12400	12200	7700	720	5600	10500
22	10900	11200	15300	13200	12500	3500	12500	5500	7690	2130	3450	10300
23	2000	11100	15800	12900	12900	2800	12600	3430	7840	2780	3310	10300
24	1220	11200	15300	14000	13000	3330	12700	5600	7750	3580	3660	9780
25	4060	10900	14900	13800	13100	6740	12500	7720	8100	4660	3940	9600
26	4250	10800	14600	13700	12900	5530	12600	9020	3550	5230	4260	9410
27	4450	10900	13400	13200	12800	5070	12600	10200	739	6740	4520	9680
28	3880	11100	14300	13500	12700	5040	12400	7500	905	6830	5200	9950
29	4870	11200	14900	13800	---	5140	11900	6130	1150	7370	6260	9710
30	5690	11100	14000	13900	---	5250	11700	6070	1250	7560	7780	9230
31	6800	---	13000	13200	---	5400	---	6080	---	8110	8650	---
MEAN	8260	10200	14900	12500	12600	9040	11800	10300	5390	4320	3350	12600

08123800 BEALS CREEK WESTBROOK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	18.0	10.0	1.0	2.0	11.0	20.0	19.0	22.0	25.0	28.0	28.0
2	28.0	19.0	15.0	2.0	1.0	15.0	14.0	21.0	19.0	---	26.0	32.0
3	25.0	18.0	10.0	2.0	8.0	10.0	15.0	21.0	24.0	32.0	27.0	29.0
4	22.0	18.0	6.0	7.0	9.0	14.0	13.0	15.0	24.0	33.0	28.0	30.0
5	24.0	18.0	8.0	3.0	4.0	10.0	16.0	15.0	25.0	26.0	30.0	27.0
6	18.0	15.0	6.0	1.0	5.0	12.0	23.0	26.0	28.0	28.0	30.0	31.0
7	20.0	13.0	5.0	---	6.0	12.0	18.0	21.0	24.0	27.0	28.0	27.0
8	19.0	13.0	2.0	3.0	---	19.0	26.0	28.0	25.0	33.0	29.0	---
9	25.0	14.0	5.0	1.0	5.0	13.0	20.0	30.0	28.0	33.0	28.0	30.0
10	20.0	17.0	4.0	4.0	12.0	11.0	21.0	22.0	27.0	33.0	26.0	29.0
11	25.0	13.0	7.0	3.0	9.0	17.0	18.0	18.0	22.0	33.0	24.0	27.0
12	22.0	13.0	---	---	---	18.0	14.0	24.0	27.0	26.0	29.0	28.0
13	18.0	15.0	5.0	5.0	16.0	16.0	22.0	20.0	27.0	31.0	26.0	23.0
14	20.0	17.0	7.0	.5	12.0	---	16.0	21.0	30.0	34.0	31.0	24.0
15	21.0	11.0	7.0	6.0	13.0	12.0	27.0	26.0	23.0	31.0	27.0	18.0
16	19.0	11.0	7.0	5.0	6.0	10.0	23.0	20.0	23.0	32.0	29.0	22.0
17	17.0	9.0	9.0	8.0	3.0	12.0	24.0	20.0	31.0	28.0	26.0	---
18	15.0	14.0	13.0	11.0	2.0	20.0	21.0	28.0	30.0	28.0	27.0	22.0
19	22.0	---	15.0	12.0	4.0	13.0	22.0	27.0	26.0	22.0	---	21.0
20	16.0	12.0	12.0	8.0	8.0	10.0	27.0	28.0	33.0	23.0	25.0	27.0
21	17.0	11.0	8.0	9.0	9.0	19.0	21.0	23.0	---	23.0	25.0	21.0
22	20.0	12.0	6.0	7.0	15.0	16.0	24.0	23.0	29.0	28.0	24.0	21.0
23	13.0	18.0	8.0	5.0	13.0	13.0	19.0	26.0	27.0	29.0	29.0	28.0
24	13.0	15.0	9.0	4.0	11.0	14.0	21.0	26.0	26.0	28.0	31.0	28.0
25	16.0	19.0	9.0	5.0	9.0	20.0	21.0	24.0	27.0	31.0	28.0	22.0
26	14.0	16.0	6.0	7.0	9.0	21.0	25.0	20.0	23.0	27.0	29.0	23.0
27	15.0	12.0	6.0	7.0	16.0	16.0	20.0	23.0	30.0	33.0	30.0	21.0
28	15.0	10.0	9.0	---	12.0	16.0	18.0	28.0	25.0	27.0	30.0	22.0
29	17.0	10.0	14.0	4.0	---	24.0	20.0	24.0	32.0	28.0	30.0	26.0
30	18.0	10.0	7.0	7.0	---	22.0	18.0	29.0	27.0	33.0	29.0	27.0
31	22.0	---	2.0	3.0	---	19.0	---	23.0	---	27.0	27.0	---
MEAN	19.5	14.0	8.0	5.0	8.5	15.0	20.0	23.0	26.5	29.0	28.0	25.5

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

LOCATION.--Lat 32°03'37", long 100°45'56", 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 756.6 (1,217.3 km).

DRAINAGE AREA.--15,407 mi² (39,904 km²), of which 11,600 mi² (30,000 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.--12 years, 60.4 ft³/s (1.711 m³/s), 43,760 acre-ft/yr (54.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,900 ft³/s (365 m³/s) May 29, 1971, gage height, 17.68 ft (5.389 m), at former site; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,500 ft³/s (99.1 m³/s) June 6, gage height, 11.09 ft (3.380 m); minimum, 0.07 ft³/s (0.002 m³/s) July 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	7.3	8.7	10	9.2	5.9	12	7.2	223	7.2	140	8.3
2	12	7.3	9.1	11	7.5	5.6	10	6.5	132	5.7	282	6.9
3	7.7	7.9	6.6	13	7.3	3.6	9.0	8.9	220	4.0	54	5.9
4	6.0	11	6.7	12	7.5	4.2	8.0	13	161	2.5	27	27
5	6.5	12	9.7	11	9.4	4.4	9.1	11	1150	1.7	133	14
6	5.4	10	11	9.9	11	4.4	11	11	2700	2.7	132	5.4
7	4.2	9.9	10	9.9	11	4.4	9.6	8.1	764	77	105	3.1
8	3.5	17	7.8	17	11	5.8	8.7	6.1	186	7.0	39	2.8
9	3.1	18	9.0	16	13	3.8	9.5	4.3	115	11	21	2.5
10	2.6	15	9.0	13	14	3.3	8.2	1.7	75	3.8	23	2.4
11	2.3	9.3	8.1	12	13	3.3	7.6	.99	51	2.0	178	2.2
12	2.7	9.1	8.1	13	8.8	5.1	5.9	1.3	41	1.4	52	1.7
13	.99	9.5	7.2	9.7	7.9	5.1	5.6	1.1	35	.68	64	2.0
14	1.6	8.8	7.2	11	6.1	4.3	7.4	5.5	30	.40	24	1.7
15	1.7	8.1	7.8	12	5.5	4.9	8.0	6.5	20	.22	16	1.7
16	1.5	8.1	8.2	9.9	4.3	6.0	6.9	3.8	16	.15	11	1.7
17	.83	9.6	8.0	10	4.7	8.7	7.2	2.6	13	.10	8.0	2.0
18	.63	11	9.6	10	4.8	7.5	7.0	1.6	9.8	.14	8.3	2.4
19	.36	11	9.2	9.0	6.4	9.6	7.0	1.4	8.1	222	6.5	2.4
20	.29	11	7.8	8.8	6.0	103	5.8	.95	6.6	848	25	2.0
21	.39	9.9	9.0	9.9	5.5	146	4.5	1.5	5.8	2450	318	2.0
22	.50	11	7.3	11	5.8	150	4.7	2.3	5.8	1650	282	2.4
23	9.6	12	7.0	6.7	5.1	295	4.7	345	5.0	488	179	2.8
24	170	11	6.9	8.0	4.1	194	5.6	349	3.3	189	59	2.4
25	81	12	7.2	9.2	4.3	101	3.6	109	3.8	105	29	2.0
26	57	23	6.6	9.0	5.3	66	2.8	67	6.2	71	20	2.0
27	23	19	7.3	8.7	5.5	39	3.1	43	83	49	15	1.7
28	17	11	9.1	9.1	4.1	28	3.8	40	48	33	13	1.7
29	11	8.8	8.4	9.9	---	22	3.9	406	16	27	11	1.4
30	8.0	8.4	8.1	8.3	---	18	5.0	872	10	22	9.2	1.4
31	8.5	---	11	8.8	---	20	---	218	---	20	8.8	---
TOTAL	465.89	337.0	256.7	326.8	208.1	1281.9	205.2	2556.34	6143.4	6301.69	2292.8	117.9
MEAN	15.0	11.2	8.28	10.5	7.43	41.4	6.84	82.5	205	203	74.0	3.93
MAX	170	23	11	17	14	295	12	872	2700	2450	318	27
MIN	.29	7.3	6.6	6.7	4.1	3.3	2.8	.95	3.3	.10	6.5	1.4
AC-FT	924	668	509	648	413	2540	407	5070	12190	12500	4550	234

CAL YR 1978 TOTAL 7552.58 MEAN 20.7 MAX 478 MIN .00 AC-FT 14980
WTR YR 1979 TOTAL 20493.72 MEAN 56.1 MAX 2700 MIN .10 AC-FT 40650

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 current year.

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 14,500 micromhos Dec. 30, 1978; minimum daily, 235 micromhos Aug. 10, 1974.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 10, 14, 1979; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 14,500 micromhos Dec. 30; minimum daily, 483 micromhos July 7.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 10, 14; minimum daily, 0.0°C Jan. 8, 14, 15, Feb. 18.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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											
02...	1250	13	--	--	23.5	--	--	--	--	--	--
31...	1100	9.4	2750	8.6	17.0	60	9.1	98	4.0	180	270
NOV											
06...	1220	9.4	--	--	15.0	--	--	--	--	--	--
20...	1115	9.4	9100	8.2	12.5	20	9.1	91	3.3	260	92
DEC											
04...	1210	6.7	--	--	7.0	--	--	--	--	--	--
12...	1000	9.0	10000	8.4	2.0	6.0	10.9	85	2.6	12	72
JAN											
16...	1130	9.8	9700	8.5	5.5	7.0	12.8	108	3.4	46	26
FEB											
02...	1150	7.6	--	--	7.0	--	--	--	--	--	--
13...	1200	8.1	10700	8.8	12.5	25	11.5	116	5.7	44	120
26...	1250	6.8	--	--	10.0	--	--	--	--	--	--
MAR											
13...	1100	5.1	11140	8.8	15.0	25	8.4	95	9.9	76	52
28...	1435	27	--	--	17.0	--	--	--	--	--	--
APR											
10...	1050	9.8	5660	8.5	14.5	40	8.4	87	4.0	88	120
23...	1309	4.4	--	--	24.0	--	--	--	--	--	--
MAY											
08...	1030	5.8	12120	8.4	22.5	27	7.1	88	5.6	440	44
21...	1200	1.7	--	--	23.0	--	--	--	--	--	--
23...	1040	337	--	--	--	--	--	--	--	--	--
JUN											
05...	1135	436	2360	8.0	23.5	380	6.8	82	6.3	1200	2900
05...	1405	1300	--	--	--	--	--	--	--	--	--
05...	2100	2830	--	--	21.5	--	--	--	--	--	--
21...	1630	6.5	--	--	31.0	--	--	--	--	--	--
JUL											
10...	1110	2.8	1100	8.3	25.5	64	6.7	84	6.0	680	1000
16...	1145	.15	--	--	27.0	--	--	--	--	--	--
20...	0945	646	--	--	22.5	--	--	--	--	--	--
AUG											
07...	1130	97	4500	8.0	27.0	220	7.7	99	4.4	540	960
16...	1530	11	--	--	29.0	--	--	--	--	--	--
SEP											
04...	1245	75	5400	8.1	27.5	28	7.9	108	5.8	980	430
13...	1410	1.7	--	--	28.5	--	--	--	--	--	--

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT											
02...	--	--	--	--	--	--	--	--	--	--	--
31...	620	520	140	66	350	6.1	8.0	110	6	500	560
NOV											
06...	--	--	--	--	--	--	--	--	--	--	--
20...	2000	1900	340	280	1200	12	26	170	0	1500	2000
DEC											
04...	--	--	--	--	--	--	--	--	--	--	--
12...	2300	2100	380	330	1500	14	35	200	2	1700	2700
JAN											
16...	1900	1700	260	300	1500	15	31	170	10	1800	2100
FEB											
02...	--	--	--	--	--	--	--	--	--	--	--
13...	2200	2000	360	320	1500	14	32	190	30	1800	2500
26...	--	--	--	--	--	--	--	--	--	--	--
MAR											
13...	2300	2100	330	350	1700	16	35	120	18	1800	2700
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
10...	1200	1100	250	140	790	9.9	18	130	6	1000	1300
23...	--	--	--	--	--	--	--	--	--	--	--
MAY											
08...	2500	2400	380	380	1900	17	36	110	4	2200	3000
21...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
JUN											
05...	460	350	110	45	310	6.3	8.7	140	0	350	500
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
JUL											
10...	280	210	72	24	110	2.9	7.2	86	0	230	190
16...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
07...	650	480	160	61	750	13	11	204	0	470	1100
16...	--	--	--	--	--	--	--	--	--	--	--
SEP											
04...	1200	1100	230	160	700	8.7	19	140	0	1000	1200
13...	--	--	--	--	--	--	--	--	--	--	--

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)	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)
OCT										
02...	--	--	--	--	--	--	--	--	--	--
31...	.4	2.5	1760	1690	--	.00	.01	.01	.03	.77
NOV										
06...	--	--	--	--	--	--	--	--	--	--
20...	.5	2.3	6370	5430	--	.00	.01	.01	.06	.94
DEC										
04...	--	--	--	--	--	--	--	--	--	--
12...	.6	2.1	7330	6750	--	.33	.08	.41	.03	1.5
JAN										
16...	.7	1.4	7100	6090	--	.10	.02	.12	.00	1.1
FEB										
02...	--	--	--	--	--	--	--	--	--	--
13...	.7	.5	7120	6640	--	.00	.06	.02	.08	1.4
26...	--	--	--	--	--	--	--	--	--	--
MAR										
13...	.6	2.1	7790	6990	--	.00	.02	.01	.06	1.5
28...	--	--	--	--	--	--	--	--	--	--
APR										
10...	.5	.2	3710	3570	--	.00	.02	.01	.10	1.1
23...	--	--	--	--	--	--	--	--	--	--
MAY										
08...	.7	.1	8740	7960	--	.01	.00	.01	.04	2.1
21...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
JUN										
05...	.4	6.5	1460	1400	796	.08	.25	.33	.26	1.4
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
JUL										
10...	.4	5.1	729	681	--	.02	.02	.04	.04	1.1
16...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
AUG										
07...	.5	7.4	2830	2660	--	.01	.04	.05	.13	1.4
16...	--	--	--	--	--	--	--	--	--	--
SEP										
04...	.5	3.8	3500	3380	--	.01	.02	.03	.04	1.4
13...	--	--	--	--	--	--	--	--	--	--

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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										
02...	--	--	--	--	--	--	--	--	--	--
31...	.80	.51	.200	.120	--	3.9	--	67	1.7	100
NOV										
06...	--	--	--	--	--	--	--	--	--	--
20...	1.0	.74	.140	.120	10	--	--	17	.43	93
DEC										
04...	--	--	--	--	--	--	--	--	--	--
12...	1.5	.90	.340	.240	--	--	--	19	.46	99
JAN										
16...	1.1	.73	.660	.590	--	--	--	5	.13	94
FEB										
02...	--	--	--	--	--	--	--	--	--	--
13...	1.5	.77	.570	.420	--	12	2.8	24	.53	90
26...	--	--	--	--	--	--	--	--	--	--
MAR										
13...	1.6	.77	.190	.070	15	--	--	20	.28	98
28...	--	--	--	--	--	--	--	--	--	--
APR										
10...	1.2	.77	.130	.030	9.2	--	--	56	1.5	99
23...	--	--	--	--	--	--	--	--	--	--
MAY										
08...	2.1	1.4	.120	.030	19	--	--	78	1.2	98
21...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	1660	1510	97
JUN										
05...	1.7	.63	.670	.330	--	6.8	6.4	890	1050	94
05...	--	--	--	--	--	--	--	3530	12400	80
05...	--	--	--	--	--	--	--	5720	43700	85
21...	--	--	--	--	--	--	--	--	--	--
JUL										
10...	1.1	.54	.100	.070	9.1	--	--	81	.61	99
16...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	1510	2630	96
AUG										
07...	1.5	1.1	.160	.160	--	8.7	2.2	417	109	99
16...	--	--	--	--	--	--	--	--	--	--
SEP										
04...	1.4	.65	.160	.030	14	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--

DATE	LENGTH OF EXPOSURE (DAYS)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS)
JAN						
16...	34	3.86	4.41	5.68	.630	--
APR						
10...	28	19.4	21.9	8.52	.700	293
JUL						
10...	35	31.6	36.5	39.8	3.19	123
SEP						
04...	28	6.06	8.98	8.03	1.02	364

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC 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 31...	1100	4	3	0	0	0	0	0	1	0
FEB 13...	1200	3	3	0	0	0	0	0	1	20
JUN 05...	1135	6	4	400	200	200	1	0	1	200
AUG 07...	1130	5	5	200	0	300	0	0	0	20

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, 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)
OCT 31...	0	0	1	1	0	4	3	1	960	950
FEB 13...	0	20	2	2	0	3	3	0	310	270
JUN 05...	200	0	10	8	2	22	21	1	11000	11000
AUG 07...	20	0	4	4	0	5	3	2	4000	4000

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
OCT 31...	10	1	0	1	80	80	0	.1	.0	.2
FEB 13...	40	3	2	1	210	60	150	.1	.1	.0
JUN 05...	20	26	24	2	520	510	10	.2	.2	.0
AUG 07...	30	6	6	0	230	210	20	.4	.2	.2

DATE	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 31...	1	0	1	0	0	0	10	0	20
FEB 13...	1	0	1	1	1	0	100	30	70
JUN 05...	1	0	1	0	0	0	70	50	20
AUG 07...	1	0	1	0	0	0	20	10	10

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)
OCT												
31...	1100	--	--	--	--	--	--	--	--	--	--	--
FEB												
13...	1200	.0	--	.00	--	.0	--	.00	--	.00	--	.00
MAR												
13...	1100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY												
08...	1030	ND	--	ND	--	ND	--	ND	--	ND	--	ND
JUN												
05...	1135	.0	--	.00	--	.0	--	.00	--	.00	--	.00
21...	1630	ND	--	ND	--	ND	--	ND	--	ND	--	ND
AUG												
07...	1130	.0	--	.00	--	.0	--	.00	--	.00	--	.00

DATE	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT												
31...	--	.02	--	--	--	--	--	--	.00	--	--	--
FEB												
13...	--	.09	--	.00	--	.00	.00	--	.00	--	.00	--
MAR												
13...	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND
MAY												
08...	--	ND	--	ND	--	--	ND	--	ND	--	ND	--
JUN												
05...	--	.02	--	.00	--	.00	.00	--	.00	--	.00	--
21...	--	ND	--	ND	--	--	ND	--	ND	--	ND	--
AUG												
07...	--	.01	--	.00	--	.00	.00	--	.00	--	.00	--

DATE	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)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRITHION, TOTAL (UG/L)
OCT											
31...	--	--	--	--	.00	--	--	--	.00	--	.00
FEB											
13...	.00	--	.00	--	.00	--	--	--	.00	--	.00
MAR											
13...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY											
08...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
JUN											
05...	.00	--	.00	--	.00	--	--	--	.00	--	.00
21...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
AUG											
07...	.00	--	.00	--	.00	--	--	--	.00	--	.00

DATE	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT											
31...	--	--	.00	--	--	--	.00	--	.00	.00	.00
FEB											
13...	--	.00	.00	--	0	--	.00	--	.01	.00	.00
MAR											
13...	ND	--	ND	ND	ND	ND	ND	ND	--	--	--
MAY											
08...	--	--	ND	--	ND	--	ND	--	--	--	--
JUN											
05...	--	.00	.00	--	0	--	.00	--	.02	.06	.00
21...	--	--	ND	--	ND	--	ND	--	--	--	--
AUG											
07...	--	.00	.00	--	0	--	.00	--	--	--	--

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	NOV 20,78	MAR 13,79	MAY 8,79	JUN 5,79
TIME	1115	1100	1030	1135
TOTAL CELLS/ML	15000	380000	23000	34000
DIVERSITY: DIVISION	0.7	0.0	1.6	1.2
.CLASS	0.7	0.0	1.6	1.2
..ORDER	1.2	0.0	2.1	1.6
...FAMILY	1.4	0.0	3.0	1.8
....GENUS	0.0	0.0	3.1	1.8

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	--	-	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	130	1	1000	3
...OOCYSTACEAE								
....ANKISTRODESMUS	280	2	--	-	1200	5	--	-
....CHLORELLA	--	-	--	-	--	-	--	-
....CHODATELLA	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	1900	9	--	-
....SELENASTRUM	420	3	380000#	100	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	260	1	6200#	18
....TETRASTRUM	560	4	--	-	--	-	--	-
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	1000	3
..VOLVOCALES								
...CHLAMYDOMONADACEAE	11000#	72	--	-	--	-	--	-
....CHLAMYDOMONAS	690	5	--	-	260	1	2700	8
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...CHAETOCERACEAE								
....CHAETOCEROS	--	-	--	-	4800#	21	--	-
...COSCINODISCACEAE								
....CYCLOTELLA	560	4	--	-	3000	13	770	2
....MELOSIRA	--	-	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	140	1	--	-	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	--	-	--	-	--	-
...NAVICULACEAE								
....ENTOMONEIS	--	-	--	-	--	-	*	0
....NAVICULA	420	3	--	-	900	4	*	0
...NITZSCHIACEAE								
....NITZSCHIA	560	4	--	-	2200	10	900	3
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	4100#	18	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	3200	14	21000#	62
....SCHIZOTHRIX	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	280	2	--	-	--	-	--	-
....EUTREPTIA	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-
...PERIDINIACEAE								
....PERIDINIUM	140	1	--	-	650	3	--	-

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 1978 TO SEPTEMBER 1979

DATE	JUL 10,79	AUG 7,79	SEP 4,79
TIME	1110	1130	1245
TOTAL CELLS/ML	4300	47000	98000
DIVERSITY: DIVISION	1.1	1.3	1.2
.CLASS	1.1	1.3	1.2
..ORDER	1.4	1.7	1.9
...FAMILY	2.2	2.6	2.6
....GENUS	2.4	2.6	3.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....CHLOROCOCCUM	--	-	--	-	540	1
...COELASTRACEAE						
....COELASTRUM	--	-	2300	5	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	1500	3	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	240	6	*	0	2400	2
....CHLORELLA	--	-	--	-	3000	3
....CHODATELLA	--	-	--	-	1400	1
....DICTYOSPHAERIUM	88	2	390	1	2700	3
....OOCYSTIS	--	-	--	-	1400	1
....SELENASTRUM	--	-	--	-	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	--	-	1100	1
....CRUCIGENIA	--	-	3100	7	--	-
....SCENEDESMUS	440	10	510	1	4300	4
....TETRASTRUM	44	1	--	-	1100	1
..TETRASPORALES						
...PALMELLACEAE						
....SPHAEROCYSTIS	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE	--	-	--	-	--	-
....CHLAMYDOMONAS	*	0	770	2	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...CHAETOCERACEAE						
....CHAETOCEROS	--	-	--	-	--	-
...COSCINODISCACEAE						
....CYCLOTELLA	44	1	4400	9	6800	7
....MELOSIRA	--	-	260	1	--	-
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	*	0	--	-
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	540	1
...NAVICULACEAE						
....ENTOMONEIS	--	-	--	-	--	-
....NAVICULA	77	2	*	0	1400	1
...NITZSCHIACEAE						
....NITZSCHIA	99	2	2400	5	1100	1
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	220	5	--	-	--	-
....ANACYSTIS	--	-	770	2	22000#	22
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	150	4	9300#	20	5700	6
....ANABAENOPSIS	490	11	--	-	11000	12
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	21000#	44	--	-
....SCHIZOTHRIX	2300#	54	--	-	30000#	31
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	77	2	--	-	--	-
....EUTREPTIA	--	-	--	-	540	1
....TRACHELOMONAS	--	-	--	-	540	1
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	--	-	*	0	--	-
...PERIDINIACEAE						
....PERIDINIUM	--	-	--	-	--	-

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	465.89	3820	2340	2940	860	1080	700	879	860
NOV. 1978.....	336	6950	4520	4120	1650	1500	1270	1160	1560
DEC. 1978.....	256.7	9790	6530	4520	2450	1700	1790	1240	2200
JAN. 1979.....	326.8	10200	6840	6040	2570	2270	1870	1650	****
FEB. 1979.....	208.1	9760	6510	3660	2440	1370	1790	1000	2190
MAR. 1979.....	1281.9	3700	2300	7950	850	2920	680	2350	830
APR. 1979.....	205.2	6110	3930	2180	1430	790	1120	619	1370
MAY 1979.....	2556.34	2380	1460	10100	540	3720	430	3000	530
JUNE 1979.....	6143.38	1280	780	12900	280	4700	230	3890	290
JULY 1979.....	6301.69	1110	670	11300	250	4210	200	3470	250
AUG. 1979.....	2292.8	2890	1770	11000	640	3970	530	3260	650
SEPT 1979.....	117.9	5180	3270	1040	1170	371	950	302	1160
TOTAL	20493.68	**	**	77700	**	28600	**	22800	**
WTD.AVG.	56	2250	1400	**	520	**	410	**	510

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4480	3860	6640	12500	10000	9850	3730	10000	2080	5000	2640	6680
2	4870	4960	7060	11500	10000	9970	4100	10200	2030	4350	2800	6380
3	5330	5500	6860	10500	9680	10000	4580	10400	3460	4030	5000	6000
4	5910	6050	7370	11400	9860	10300	5000	10200	3800	3950	4570	5090
5	6120	7050	7900	11600	9800	10500	5580	10800	899	3870	3670	4240
6	6200	6810	8020	12100	9750	10700	5150	11300	592	3810	2160	4300
7	6270	7240	8680	12500	9720	10500	5110	11200	829	483	3000	4480
8	6280	6690	9250	11200	9720	10200	5320	11300	1510	1250	1580	4560
9	6300	5500	9430	10200	9720	10300	5400	10500	2190	958	1650	4750
10	6310	4670	9500	10700	9950	10500	5320	10400	2790	1470	1830	4790
11	6430	5140	9520	10500	10100	10400	5370	10300	3330	1700	1550	4900
12	6550	5450	9900	10600	10000	10500	5480	9710	3660	1920	4100	5100
13	6800	5900	10100	10700	9720	10700	5600	9760	3980	2560	1430	5160
14	6990	6560	10000	10300	9770	11000	5830	9850	4290	2750	2690	5200
15	7110	7100	9220	9720	9810	10900	6090	9950	4630	2990	3500	5220
16	7140	7700	9500	9650	7680	10800	6320	9980	4740	3200	3940	5220
17	7160	8120	10000	9590	8850	10500	6440	10000	4900	3410	3620	5090
18	7200	8370	10100	9410	10000	10400	6500	10700	5000	3670	3240	5030
19	7230	8610	9520	9250	9910	9580	6570	10500	5100	3180	3000	5020
20	7350	8900	9610	9500	10100	5160	6880	10600	5260	1550	2880	5000
21	7450	9000	9750	9590	9810	3230	7180	10100	5400	539	913	5100
22	7630	9050	9850	9630	9590	4000	7530	10500	5540	703	5600	5270
23	6930	9090	9210	9280	9500	2060	7910	3610	5700	1790	2370	5500
24	4480	8640	9390	9400	9630	3650	8500	1960	5800	2240	3440	5540
25	2470	8330	9600	9500	9770	2470	9010	3140	5940	2510	3410	5500
26	2660	7050	9800	8890	9720	2420	9660	3550	5770	2900	3200	5420
27	1590	5530	11400	8490	9750	2570	10000	4250	3890	3260	3610	5310
28	1950	8200	13700	8420	9770	2760	10200	4560	4210	3610	4360	5210
29	2330	7720	14200	8740	---	3550	10000	2880	4630	4000	5470	5140
30	2440	5650	14500	9120	---	3330	10200	667	5640	4350	6440	5080
31	2920	---	13000	9720	---	3500	---	1470	---	4530	6750	---
MEAN	5510	6950	9760	10100	9700	7620	6690	8200	3920	2790	3370	5180

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	17.0	9.0	---	3.0	8.0	16.0	---	22.0	---	27.0	---
2	23.0	18.0	12.0	---	---	14.0	12.0	---	18.0	24.0	27.0	---
3	21.0	17.0	5.0	---	8.0	9.0	11.0	18.0	23.0	24.0	27.0	---
4	20.0	16.0	7.0	2.0	6.0	7.0	10.0	---	---	---	28.0	25.0
5	21.0	16.0	7.0	---	---	8.0	12.0	16.0	23.0	25.0	---	25.0
6	18.0	14.0	5.0	---	---	9.0	15.0	18.0	22.0	24.0	28.0	25.0
7	17.0	12.0	4.0	---	4.0	10.0	16.0	20.0	23.0	25.0	28.0	---
8	18.0	10.0	4.0	.0	6.0	12.0	17.0	20.0	25.0	---	28.0	25.0
9	17.0	13.0	8.0	4.0	9.0	11.0	15.0	21.0	23.0	25.0	26.0	---
10	20.0	14.0	4.0	4.0	9.0	9.0	19.0	20.0	20.0	26.0	30.0	24.0
11	22.0	12.0	3.0	2.0	8.0	10.0	12.0	17.0	22.0	27.0	23.0	23.0
12	21.0	11.0	5.0	---	10.0	12.0	12.0	15.0	22.0	25.0	---	24.0
13	17.0	15.0	4.0	4.0	9.0	12.0	---	18.0	24.0	26.0	27.0	23.0
14	17.0	17.0	5.0	.0	11.0	9.0	16.0	17.0	24.0	---	30.0	20.0
15	15.0	---	7.0	.0	10.0	---	18.0	19.0	24.0	---	---	19.0
16	17.0	7.0	7.0	3.0	5.0	10.0	20.0	---	22.0	27.0	25.0	---
17	16.0	8.0	5.0	6.0	---	12.0	20.0	20.0	---	27.0	25.0	20.0
18	15.0	11.0	7.0	10.0	.0	15.0	---	23.0	25.0	25.0	26.0	21.0
19	16.0	12.0	10.0	---	2.0	14.0	21.0	23.0	25.0	23.0	---	---
20	16.0	12.0	11.0	8.0	5.0	14.0	22.0	---	25.0	24.0	24.0	21.0
21	16.0	10.0	7.0	5.0	7.0	12.0	18.0	22.0	25.0	22.0	24.0	22.0
22	17.0	11.0	7.0	7.0	10.0	15.0	19.0	18.0	25.0	24.0	23.0	22.0
23	16.0	12.0	8.0	5.0	14.0	13.0	18.0	23.0	24.0	25.0	25.0	---
24	14.0	14.0	5.0	5.0	11.0	12.0	---	19.0	---	26.0	25.0	24.0
25	14.0	17.0	---	5.0	11.0	13.0	21.0	20.0	25.0	27.0	25.0	22.0
26	15.0	16.0	5.0	5.0	7.0	14.0	18.0	19.0	25.0	28.0	---	21.0
27	14.0	10.0	6.0	4.0	8.0	14.0	20.0	24.0	24.0	28.0	25.0	21.0
28	16.0	9.0	8.0	4.0	7.0	15.0	15.0	22.0	25.0	28.0	24.0	20.0
29	14.0	8.0	10.0	3.0	---	16.0	17.0	26.0	26.0	---	25.0	20.0
30	15.0	9.0	---	6.0	---	17.0	17.0	19.0	27.0	27.0	---	---
31	16.0	---	---	5.0	---	---	---	22.0	---	25.0	---	---
MEAN	17.5	12.5	6.5	4.0	7.5	12.0	16.5	20.0	23.5	25.5	26.0	22.0

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.--15,740 mi² (40,770 km²), approximately, of which 11,600 mi² (30,040 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 the 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, 181,900 acre-ft (224 hm³) Sept. 17, 1975, elevation, 1,867.93 ft (569.345 m); minimum since first appreciable storage in June 1969 not recorder, about 330 acre-ft (0.407 hm³) May 29, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 123,100 acre-ft (152 hm³) Aug. 23, 24, elevation, 1,858.59 ft (566.498 m); minimum, 103,900 acre-ft (128 hm³) May 22, 23, elevation, 1,854.78 ft (565.337 m).

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

1,854.0	100,400	1,857.0	114,900
1,855.0	104,900	1,858.0	119,900
1,856.0	109,900	1,859.0	125,400

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121100	117800	115000	112100	109700	108300	110000	106700	107700	113700	121100	121900
2	120900	117700	114900	112000	109800	108200	109700	106700	108000	113500	122200	121800
3	120700	117400	114800	112000	109700	108100	109700	106600	108300	113300	122800	121600
4	120600	117300	114600	111900	109800	108000	109500	106400	108500	113100	122700	121400
5	120400	117300	114600	111900	110100	108000	109400	106300	108800	113000	122600	121400
6	120100	117100	114500	111900	110100	107900	109200	106200	113700	112900	122700	121200
7	120000	117000	114400	111800	110100	107800	109200	106200	115800	112700	122600	121000
8	119700	117000	114200	111600	109900	107800	109100	106000	116100	112700	122500	120800
9	119600	116900	114000	111500	109800	107500	108900	105900	116200	112600	122300	120600
10	119800	116800	113900	111600	109700	107400	108800	105700	116000	112600	122400	120300
11	119500	116600	113900	111400	109700	107300	108600	105400	115900	112200	122700	120100
12	119300	116600	113800	111400	109700	107100	108400	105300	115900	111800	122800	120100
13	119000	116600	113700	111300	109800	107100	108300	105100	115800	111400	122800	119900
14	118900	116500	113700	111000	109800	106800	108300	105000	115600	111300	122700	119500
15	118800	116300	113700	111000	109500	106700	108100	104600	115400	111100	122500	119300
16	118600	116100	113500	111000	109200	106700	108100	104400	115100	111000	122400	119200
17	118400	116000	113400	111000	109100	106800	108200	104400	115000	110700	122300	119000
18	118300	115900	113400	111100	108900	106600	108100	104300	114800	111900	122200	119000
19	118300	115800	113500	111100	108800	107600	108100	104200	114800	112800	122000	118800
20	118000	115800	113200	110900	108900	107700	108000	104100	114600	113500	121900	118700
21	117800	115700	113100	110800	108900	108400	107900	104100	114600	116600	121900	118700
22	117800	115600	113000	110700	109000	109300	107800	104000	114300	120200	123000	118400
23	117800	115700	112900	110600	109000	109300	107700	104000	114100	121300	123000	118400
24	117800	115700	112800	110300	108800	109600	107500	104500	114000	121800	123000	118300
25	118100	115700	112700	110400	108800	109800	107400	104500	113800	121700	122900	117800
26	118100	115600	112600	110500	108600	109700	107100	104500	114000	121600	122800	117400
27	118100	115500	112400	110400	108500	109700	106900	104800	114000	121600	122700	116900
28	118100	115400	112400	110200	108500	109700	106800	104700	114200	121400	122500	116600
29	118000	115400	112400	110100	---	110100	106600	104700	114200	121200	122300	116400
30	117900	115000	112300	110100	---	110200	106500	106300	114000	120900	122100	116300
31	117900	---	112400	109900	---	110100	---	106900	---	120800	122000	---
MAX	121100	117800	115000	112100	110100	110200	110000	106900	116200	121800	123000	121900
MIN	117800	115000	112300	109900	108500	106600	106500	104000	107700	110700	121100	116300
(†)	1857.59	1857.02	1856.49	1855.99	1855.72	1856.03	1855.31	1855.40	1856.81	1858.16	1858.39	1857.27
(‡)	-3300	-2900	-2600	-2500	-1400	+1600	-3600	+400	+7100	+6800	+1200	-5700
(††)	2240	1960	2130	2050	2060	2460	2480	2280	2150	2330	2130	2060

CAL YR 1978 MAX 142600 MIN 112300 ‡ -30200 †† 25410
WTR YR 1979 MAX 123000 MIN 104000 ‡ -4900 †† 26330

† 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 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
06...	0945	1.0	3410	8.3	22.0	7.2	90
06...	0947	10	3410	8.3	22.5	6.8	85
06...	0949	20	3410	8.3	22.5	6.7	84
06...	0951	32	3410	8.3	22.5	6.9	86
FEB							
27...	1326	1.0	3690	8.4	9.0	10.5	102
27...	1328	10	3690	8.4	8.5	10.5	101
27...	1330	20	3690	8.4	8.5	10.4	100
27...	1332	26	3690	8.4	8.5	10.4	100
MAY							
02...	1635	1.0	3680	8.2	20.0	9.6	102
02...	1637	10	3680	8.2	19.0	8.9	93
02...	1639	20	3680	8.1	18.5	7.6	78
02...	1641	29	3680	7.8	18.0	5.3	54
AUG							
08...	1745	1.0	3480	8.2	28.0	7.8	105
08...	1747	10	3480	8.2	27.0	7.6	101
08...	1749	20	3480	8.1	27.0	6.6	88
08...	1751	32	3530	8.0	27.0	5.9	79

315335100312401 E.V. SPENCE RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	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)
OCT										
06...	0900	1.0	3390	8.2	22.0	1.20	6.0	75	670	560
06...	0902	10	3390	8.1	22.0	--	6.0	75	--	--
06...	0904	20	3390	8.1	22.0	--	6.0	75	--	--
06...	0906	30	3390	8.1	22.0	--	5.9	74	--	--
06...	0908	40	3390	8.1	22.0	--	5.6	70	--	--
06...	0910	50	3390	8.0	22.0	--	4.5	56	--	--
06...	0912	60	3310	7.1	20.0	--	.2	2	--	--
06...	0914	66	3300	7.0	19.5	--	.2	2	650	390
FEB										
27...	1235	1.0	3690	8.4	8.5	1.30	10.7	103	700	580
27...	1238	10	3690	8.4	8.5	--	10.7	103	--	--
27...	1240	20	3690	8.4	8.5	--	10.7	103	--	--
27...	1242	30	3690	8.4	8.5	--	10.8	104	--	--
27...	1244	40	3690	8.4	8.0	--	10.7	101	--	--
27...	1246	50	3690	8.4	8.0	--	10.7	101	--	--
27...	1248	65	3690	8.4	8.0	--	10.6	100	700	580
MAY										
02...	1600	1.0	3680	8.3	21.5	1.50	9.7	104	700	580
02...	1602	10	3680	8.3	19.5	--	10.3	108	--	--
02...	1604	20	3680	8.3	19.0	--	9.6	100	--	--
02...	1606	30	3680	8.0	18.0	--	7.0	71	--	--
02...	1608	40	3680	7.5	16.5	--	3.6	36	--	--
02...	1610	48	3680	7.2	16.5	--	2.5	25	700	580
AUG										
08...	1715	1.0	3480	8.3	28.0	1.40	7.7	104	690	590
08...	1717	10	3480	8.1	27.0	--	7.6	101	--	--
08...	1719	20	3480	8.0	27.0	--	6.7	89	--	--
08...	1721	30	3480	8.1	27.0	--	6.2	81	--	--
08...	1723	40	3740	7.3	25.0	--	.1	1	--	--
08...	1725	50	3740	7.2	23.5	--	.1	1	750	610

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT										
06...	140	78	500	8.4	15	130	0	510	810	.4
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	140	72	470	8.0	15	310	0	390	720	--
FEB										
27...	150	78	520	8.6	15	140	0	530	830	.5
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	150	78	510	8.4	15	140	0	540	830	--
MAY										
02...	150	80	550	9.0	4.7	150	0	530	850	.5
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	150	80	550	9.0	4.8	150	0	520	840	--
AUG										
08...	140	83	500	8.3	15	120	0	510	800	.5
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	150	90	520	8.3	15	170	0	530	860	--

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT									
06...	5.8	2120	.01	.07	--	.020	--	80	30
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	.00	.13	--	.020	--	40	140
06...	--	--	.00	3.7	--	.210	--	130	1600
06...	11	1970	.00	5.2	--	.340	--	140	1200
FEB									
27...	4.8	2200	.06	.05	--	.010	--	10	0
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	.06	.05	--	.010	--	10	0
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	4.8	2200	.08	.09	--	.010	--	30	10
MAY									
02...	7.7	2250	.04	.03	.06	.020	.06	20	10
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	.05	.08	.03	.010	.03	10	20
02...	--	--	--	--	--	--	--	--	--
02...	8.2	2230	.08	.19	.09	.030	.09	10	160
AUG									
08...	4.6	2110	.00	.01	--	.040	.12	10	10
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	.00	.00	--	.030	.09	0	30
08...	--	--	.00	.11	--	.030	.09	170	960
08...	6.4	2260	.00	.35	--	.040	.12	120	900

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

315413100312501 E.V. SPENCE RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
06...	0955	1.0	3380	8.1	22.0	6.0	75
06...	0957	10	3380	8.1	22.0	5.9	74
06...	0959	20	3380	8.1	22.5	5.9	74
06...	1001	32	3380	8.1	22.5	5.9	74
FEB							
27...	1314	1.0	3690	8.4	9.0	10.9	106
27...	1316	10	3690	8.4	9.0	10.9	106
27...	1318	23	3690	8.4	9.0	10.8	105
MAY							
02...	1647	1.0	3680	8.3	21.5	10.0	110
02...	1649	10	3680	8.4	20.0	10.3	110
02...	1651	22	3680	8.3	19.5	9.8	103
AUG							
08...	1800	1.0	3480	8.3	28.5	8.3	112
08...	1802	10	3480	8.1	27.5	7.7	103
08...	1804	22	3480	8.0	28.0	5.9	80

315558100342601 E.V. SPENCE RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	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)
OCT										
06...	1015	1.0	3400	8.4	23.0	--	7.5	95	660	560
06...	1017	10	3400	8.4	23.0	--	7.3	92	--	--
06...	1019	20	3400	8.4	23.0	--	7.3	92	--	--
06...	1021	29	3410	8.4	23.0	--	7.4	94	660	560
FEB										
27	1400	1.0	3710	8.4	9.5	.70	10.5	104	700	590
27...	1402	10	3710	8.4	9.5	--	10.5	104	--	--
27...	1404	20	3730	8.4	9.5	--	10.4	103	--	--
27...	1406	34	3730	8.4	9.0	--	10.3	100	700	590
MAY										
02...	1700	1.0	3680	8.4	21.0	.70	10.1	110	700	590
02...	1702	10	3680	8.3	19.5	--	9.1	96	--	--
02...	1705	20	3680	8.3	19.5	--	8.8	93	--	--
02...	1707	34	3680	8.1	19.5	--	7.2	76	740	620
AUG										
08...	1815	1.0	3170	8.2	29.0	.70	7.5	103	630	530
08...	1817	10	3170	8.2	29.0	--	7.4	101	--	--
08...	1819	20	3170	8.2	29.0	--	7.1	97	--	--
08...	1821	29	3300	7.3	28.0	--	.6	8	640	540

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)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT									
06...	140	76	500	8.5	15	120	0	510	830
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	140	76	490	8.3	15	120	0	490	820
FEB									
27...	150	80	520	8.5	15	140	0	530	830
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	150	79	520	8.6	16	140	0	590	800
MAY									
02...	150	80	550	9.0	4.7	130	7	560	850
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	150	89	540	8.6	4.8	150	0	550	860
AUG									
08...	130	74	450	7.8	12	120	0	480	720
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	130	77	500	8.6	14	130	0	480	740

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT									
06...	6.0	2140	.00	.01	--	.020	--	30	10
06...	--	--	.00	.01	--	.030	--	10	0
06...	--	--	.00	.01	--	.030	--	10	0
06...	6.0	2100	.02	.05	--	.030	--	20	10
FEB									
27...	4.7	2200	.08	.03	--	.010	--	20	0
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	4.6	2230	.08	.05	--	.010	--	70	10
MAY									
02...	7.7	2270	.03	.02	.03	.010	.03	10	10
02...	--	--	--	--	--	--	--	--	--
02...	--	--	.03	.04	.03	.010	.03	110	30
02...	7.7	2280	.02	.04	.06	.020	.06	10	10
AUG									
08...	4.8	1930	.00	.01	--	.050	.15	0	10
08...	--	--	.00	.02	--	.040	.12	0	0
08...	--	--	.00	.01	--	.070	.21	0	0
08...	5.3	2010	.00	.16	--	.070	.21	0	30

315619100335601 E.V.SPENCE RESERVOIR SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT								
06...	1033	1.0	3410	8.4	22.5	.60	6.9	86
06...	1035	10	3410	8.4	23.0	--	6.9	87
06...	1037	20	3410	8.3	23.0	--	6.8	86
FEB								
27...	1354	1.0	3710	8.4	9.5	--	10.6	105
27...	1356	10	3710	8.4	9.5	--	10.6	105
27...	1358	20	3710	8.4	9.0	--	10.5	102
MAY								
02...	1717	1.0	3680	8.4	20.5	--	10.2	110
02...	1720	13	3680	8.3	19.5	--	8.7	92
AUG								
08...	1840	1.0	3170	8.2	29.0	--	7.6	104
08...	1842	10	3170	8.2	29.0	--	7.5	103
08...	1844	22	3170	7.9	29.0	--	4.8	66

315712100352001 E.V. SPENCE RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT							
06...	1047	1.0	3360	8.4	22.0	7.0	88
06...	1049	10	3360	8.4	22.0	6.8	85
06...	1051	19	3360	8.4	22.0	7.0	88
FEB							
27...	1427	1.0	3900	8.5	11.0	10.7	108
27...	1430	10	3900	8.5	11.0	10.6	107
27...	1432	18	4470	8.4	11.0	8.9	90
MAY							
02...	1745	1.0	3820	8.4	22.5	10.5	117
02...	1747	10	3820	8.2	20.0	8.3	88
02...	1749	17	3820	8.0	20.0	6.9	73
AUG							
08...	1855	1.0	2760	8.3	30.0	8.5	120
08...	1857	10	2760	8.3	29.5	7.9	107
08...	1859	21	2760	7.4	28.5	.3	4

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

315810100364901 E.V. SPENCE RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	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)
OCT										
06...	1120	1.0	3080	8.6	20.0	.20	7.1	85	560	480
06...	1122	7.0	3090	8.5	19.5	--	6.9	82	590	500
FEB										
27...	1507	1.0	6080	8.6	12.5	.50	10.9	116	1300	1200
27...	1510	6.0	6090	8.6	12.5	--	10.9	116	1300	1200
MAY										
02...	1810	1.0	6180	8.4	23.0	.20	12.8	144	930	810
02...	1812	4.0	6180	8.5	23.0	--	13.3	149	--	--
AUG										
08...	1915	1.0	2150	8.4	30.5	.30	8.4	120	440	350
08...	1917	8.0	2160	8.4	30.5	--	8.3	119	440	340

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)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT									
06...	120	64	440	8.1	13	100	0	440	750
06...	130	64	450	8.1	13	110	0	390	750
FEB									
27...	240	170	930	11	20	170	0	1000	1500
27...	250	170	950	11	20	170	0	1100	1600
MAY									
02...	160	130	950	14	5.3	140	5	1000	1500
02...	--	--	--	--	--	--	--	--	--
AUG									
08...	97	49	290	6.0	9.9	96	8	290	450
08...	97	48	300	6.2	8.9	100	8	290	450

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHATE, TOTAL (MG/L AS PO4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
OCT									
06...	5.6	1880	.00	.08	--	.110	--	20	10
06...	5.4	1860	.00	.09	--	.180	--	280	60
FEB									
27...	6.6	3950	.02	.02	--	.040	--	50	100
27...	6.2	4180	.01	.02	--	.040	--	30	110
MAY									
02...	6.7	3830	.01	.05	.58	.190	.58	280	240
02...	--	--	--	--	--	--	--	--	--
AUG									
08...	4.8	1250	.00	.01	--	.130	.40	0	0
08...	4.9	1260	.00	.02	--	.090	.28	0	10

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

315335100312401 E.V. SPENCE RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT							
06...	0900	1.0	2	400	0	0	0
06...	0910	50	--	--	--	--	--
06...	0912	60	--	--	--	--	--
06...	0914	66	5	400	0	0	0
FEB							
27...	1235	1.0	1	100	0	20	0
27...	1242	30	--	--	--	--	--
27...	1248	65	1	200	0	20	0
MAY							
02...	1600	1.0	1	100	0	0	0
02...	1606	30	--	--	--	--	--
02...	1610	48	1	200	0	10	0
AUG							
08...	1715	1.0	1	0	0	0	0
08...	1721	30	--	--	--	--	--
08...	1723	40	--	--	--	--	--
08...	1725	50	3	200	0	10	0

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT							
06...	80	0	30	.0	0	0	10
06...	40	--	140	--	--	--	--
06...	130	--	1600	--	--	--	--
06...	140	0	1200	.2	0	0	10
FEB							
27...	10	0	0	.0	0	0	20
27...	10	--	0	--	--	--	--
27...	30	0	10	.0	0	0	20
MAY							
02...	20	0	10	.0	1	0	20
02...	10	--	20	--	--	--	--
02...	10	0	160	.0	0	0	20
AUG							
08...	10	0	10	.2	0	0	8
08...	0	--	30	--	--	--	--
08...	170	--	960	--	--	--	--
08...	120	0	900	.1	0	0	7

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

315335100312401 E.V.SPENCE RESERVOIR SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE	OCT 6,78	FEB 27,79	MAY 2,79	AUG 8,79
TIME	0901	1236	1601	1716
TOTAL CELLS/ML	200000	13000	23000	1700000
DIVERSITY: DIVISION	0.3	1.2	0.5	0.0
.CLASS	0.3	1.2	0.5	0.0
..ORDER	0.5	1.3	1.2	0.1
...FAMILY	0.5	1.8	2.0	0.6
....GENUS	0.7	2.7	2.3	0.6

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	2100	1	240	2	--	-	*	0
....CHODATELLA	--	-	*	0	--	-	--	-
....KIRCHNERIELLA	1100	1	--	-	--	-	--	-
....OOCYSTIS	1100	1	400	3	8700#	38	--	-
....SELENASTRUM	*	0	--	-	--	-	*	0
....TETRAEDRON	*	0	770	6	--	-	*	0
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	2100#	15	3400	15	--	-
....SCENEDESMUS	1400	1	4300#	32	4800#	21	*	0
....TETRASTRUM	--	-	130	1	--	-	--	-
..TETRASPORALES								
...PALMELLACEAE								
....GLOEOCYSTIS	--	-	--	-	*	0	--	-
....SPHAEROCYSTIS	--	-	--	-	2500	11	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	*	0	--	-
....CHLAMYDOMONAS	--	-	370	3	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	*	0	--	-	--	-	*	0
....STAURASTRUM	--	-	--	-	800	4	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	170	1	--	-	--	-
..PENNALES								
...FRAGILARIACEAE								
....SYNEDRA	--	-	*	0	--	-	--	-
...NAVICULACEAE								
....DIPLONEIS	*	0	--	-	--	-	--	-
....NAVICULA	*	0	--	-	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	*	0	--	-	--	-	*	0
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	--	-	*	0	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	*	0
...CRYPTOMONADACEAE								
....CRYPTOMONAS	*	0	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	1100	8	--	-	--	-
....ANACYSTIS	5600	3	3600#	27	2400	11	*	0
....COCCOCHLORIS	--	-	*	0	--	-	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENOPSIS	--	-	--	-	--	-	240000	14
...OSCILLATORIACEAE								
....LYNGBYA	3900	2	--	-	--	-	--	-
....OSCILLATORIA	180000#	91	--	-	--	-	1500000#	85
....SPIRULINA	--	-	--	-	--	-	*	0
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	170	1	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	*	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 1978 TO AUGUST 1979

DATE	OCT 6,78		FEB 27,79		MAY 2,79		AUG 8,79	
TIME	1121		1508		1809		1914	
TOTAL CELLS/ML	360000		21000		58000		560000	
DIVERSITY: DIVISION	0.7		0.6		1.5		0.1	
.CLASS	0.7		0.6		1.5		0.1	
..ORDER	0.9		0.7		1.7		0.1	
...FAMILY	1.7		0.7		2.1		0.2	
....GENUS	1.8		0.8		3.2		0.3	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	2000	1	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	*	0	1500	3	*	0
....CHODATELLA	--	-	--	-	*	0	--	-
....DICTYOSPHAERIUM	5400	1	--	-	4600	8	--	-
....KIRCHNERIELLA	4700	1	--	-	3100	5	--	-
....OOCYSTIS	4000	1	--	-	11000#	19	--	-
....SELENASTRUM	*	0	--	-	--	-	*	0
....TETRAEDRON	--	-	--	-	--	-	*	0
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	1000	2	--	-
....SCENEDESMUS	*	0	180	1	2600	4	*	0
....TETRASTRUM	--	-	--	-	1000	2	--	-
..TETRASPORALES								
...TETRASPORACEAE								
....SCHIZOCHLAMYS	--	-	--	-	1000	2	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	360	2	*	0	*	0
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...CHAETOCERACEAE								
....CHAETOCEROS	--	-	--	-	1300	2	--	-
...COSCINODISCACEAE								
....CYCLOTELLA	30000	8	180	1	5600	10	--	-
..PENNALES								
...FRAGILARIACEAE								
....SYNEDRA	*	0	*	0	--	-	--	-
...NAVICULACEAE								
....ENTOMONEIS	--	-	--	-	*	0	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	--	-	1000	2	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	--	-	*	0	--	-	--	-
...OCHROMONADACEAE								
....OCHROMONAS	--	-	*	0	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	180	1	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	11000	3	--	-	12000#	21	--	-
....ANACYSTIS	--	-	*	0	11000#	19	*	0
....COCCOCHLORIS	--	-	19000#	91	--	-	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENOPSIS	--	-	--	-	--	-	12000	2
...OSCILLATORIACEAE								
....OSCILLATORIA	200000#	56	--	-	--	-	540000#	97
....SPIRULINA	--	-	--	-	--	-	*	0
...RIVULARIACEAE								
....RAPHIDIOPSIS	98000#	27	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	*	0	*	0	*	0
....TRACHELOMONAS	--	-	270	1	--	-	*	0
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	270	1	--	-	--	-
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	*	0

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 (1,146 km).

DRAINAGE AREA.--15,770 mi² (40,840 km²), of which 11,600 mi² (30,040 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); 11 years (water years 1969-79) regulated, 2.25 ft³/s (0.0637 m³/s), 1,630 acre-ft/yr (2.01 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); 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, 767 ft³/s (21.7 m³/s) Mar. 22, gage height, 6.61 ft (2.015 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.00	.05	.41	.02	.06	.27	.39	4.1	.00	1.8	.00
2	.08	.00	.04	.29	.01	.08	.18	.26	10	.00	1.1	.00
3	.09	.00	.05	.27	.02	.09	.18	.30	.89	.00	.96	.00
4	.06	.00	.06	.25	.03	.08	.16	.34	.03	.00	.96	.00
5	.05	.01	.04	.23	.26	.11	.19	.27	.00	.00	.87	.00
6	.05	.00	.08	.29	.32	.14	.12	.24	.00	.00	.79	.00
7	.05	.00	.07	.26	.15	.09	.10	.11	.00	.00	.62	.00
8	.06	.00	.07	.17	.05	.06	.12	.14	.00	.00	.34	.00
9	.07	.00	.06	.04	.04	.04	.18	.16	.00	.00	.12	.00
10	.05	.00	.07	.05	.03	.06	.23	.11	.00	.00	.10	.00
11	.05	.00	.13	.08	.02	.06	.15	.10	.00	25	.07	.00
12	.06	.00	.12	.10	.03	.06	.07	.13	.00	121	.19	.00
13	.05	.00	.14	.10	.03	.11	.07	.10	.00	120	.18	.00
14	.03	.00	.21	.07	.02	.14	.11	.10	.00	6.8	.05	.00
15	.02	.05	.22	.12	.03	.10	.12	.07	.00	.00	.01	.00
16	.03	.00	.15	.12	.04	.12	.09	.06	.00	.00	.00	.00
17	.01	.00	.11	.08	.05	.02	.67	.04	.00	.00	.00	.00
18	.02	.00	.18	.09	.05	.03	.87	.01	.00	.00	.00	.00
19	.02	.00	.27	.26	.04	1.6	.46	.00	.00	1.8	.00	.00
20	.00	.00	.35	.10	.03	2.5	.40	.01	.00	4.3	.00	.00
21	.00	.00	.50	.04	.04	1.7	.76	.72	.00	4.0	.00	.00
22	.02	.00	.63	.03	.07	98	.42	.23	.00	4.0	.00	.00
23	.30	.00	.81	.02	.08	2.4	.34	.11	.00	3.5	.00	.00
24	.10	.00	1.0	.04	.08	.87	.30	.07	.00	3.0	.00	.00
25	.04	.00	1.1	.15	.09	.42	.22	.05	.00	2.5	.00	14
26	.01	.00	1.2	.22	.08	1.4	.14	.07	.01	2.2	.00	111
27	.00	.01	1.3	.18	.07	1.8	.10	.13	.04	1.8	.00	90
28	.00	.03	.51	.07	.04	2.0	.09	.43	.03	1.6	.00	4.9
29	.00	.02	.24	.05	---	2.1	.19	.18	.00	1.9	.00	1.3
30	.00	.12	.26	.03	---	2.3	.16	.09	.00	1.5	.00	.52
31	.00	---	.57	.02	---	1.9	---	.07	---	1.1	.00	---
TOTAL	1.41	.24	10.59	4.23	1.82	120.44	7.46	5.09	15.10	306.00	8.16	221.72
MEAN	.045	.008	.34	.14	.065	3.89	.25	.16	.50	9.87	.26	7.39
MAX	.30	.12	1.3	.41	.32	98	.87	.72	10	121	1.8	111
MIN	.00	.00	.04	.02	.01	.02	.07	.00	.00	.00	.00	.00
AC-FT	2.8	.5	21	8.4	3.6	239	15	10	30	607	16	440

CAL YR 1978 TOTAL 862.06 MEAN 2.36 MAX 146 MIN .00 AC-FT 1710
WTR YR 1979 TOTAL 702.26 MEAN 1.92 MAX 121 MIN .00 AC-FT 1390

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.--244 mi² (632 km²).

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, 7,060 acre-ft (8.70 hm³) Aug. 1, 1953, elevation, 1,976.2 ft (602.35 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents observed, 13,780 acre-ft (17.0 hm³) Oct. 1, elevation, 1,984.4 ft (604.85 m); minimum, 10,310 acre-ft (12.7 hm³) Mar. 15-19, elevation, 1,980.6 ft (603.69 m).

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

1,980.0	9,820
1,982.0	11,520
1,985.0	14,380

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13780	12520	12150	11610	11170	10650	12430	12330	12900	12430	12430	13000
2	13380	12520	12150	11610	11170	10650	12430	12710	12900	12330	13580	12900
3	13380	12520	12150	11520	11170	10650	12330	12710	12900	12330	13680	12810
4	13280	12430	12060	11520	11080	10650	12330	12710	12900	12240	13680	12810
5	13280	12430	12060	11520	11080	10560	12330	12710	12900	12240	13580	12810
6	13190	12520	12060	11520	10990	10560	12330	12710	13000	12240	13580	12810
7	13190	12430	12060	11520	11080	10560	12330	12620	13000	12060	13580	12710
8	13090	12430	11970	11520	11170	10480	12330	12620	13000	12060	13580	12620
9	13090	12430	11970	11430	11080	10480	12330	12620	12900	11970	13580	12620
10	13090	12430	11970	11430	11080	10480	12330	12620	12900	11970	13480	12620
11	13000	12430	11970	11430	11080	10400	12330	12620	12900	12060	13480	12520
12	13000	12330	11970	11430	11080	10400	12240	12520	12810	12060	13480	12520
13	13000	12330	11880	11430	10990	10400	12240	12520	12810	11970	13380	12520
14	12900	12330	11880	11430	10990	10400	12240	12430	12810	11970	13380	12430
15	12900	12240	11880	11430	10990	10310	12150	12430	12710	11880	13380	12430
16	12810	12330	11790	11340	10990	10310	12150	12430	12710	11880	13380	12430
17	12810	12330	11790	11340	10910	10310	12150	12330	12620	11880	13280	12330
18	12810	12330	11790	11340	10910	10310	12150	12330	12620	11880	13280	12240
19	12710	12330	11790	11340	10910	10310	12150	12240	12620	12520	13280	12240
20	12710	12330	11790	11340	10910	10650	12150	12240	12520	12810	13190	12240
21	12710	12330	11700	11340	10820	10650	12150	12240	12430	12810	13190	12240
22	12710	12330	11700	11340	10820	11610	12060	12520	12430	12810	13190	12150
23	12710	12240	11700	11340	10820	11700	12060	12520	12430	12810	13190	12150
24	12710	12240	11700	11340	10820	11700	12060	12520	12330	12710	13190	12060
25	12710	12240	11700	11250	10820	11700	12060	12520	12330	12710	13190	12060
26	12620	12240	11700	11340	10730	11610	11970	12520	12330	12620	13190	12060
27	12620	12240	11610	11340	10730	11610	11970	12430	12520	12620	13190	12060
28	12620	12240	11610	11250	10650	11610	11880	12900	12430	12620	13090	12060
29	12620	12150	11610	11250	---	11520	11880	12900	12430	12620	13090	11970
30	12520	12150	11610	11250	---	12330	11880	12900	12430	12520	13000	11970
31	12520	---	11610	11170	---	12430	---	12900	---	12520	13000	---
MAX	13780	12520	12150	11610	11170	12430	12430	12900	13000	12810	13680	13000
MIN	12520	12150	11610	11170	10650	10310	11880	12240	12330	11880	12430	11970
(†)	1983.1	1982.7	1982.1	1981.6	1981.0	1983.0	1982.4	1983.5	1983.0	1983.1	1983.6	1982.5
(‡)	-960	-370	-540	-440	-520	+1780	-550	+1020	-470	+90	+480	-1030
(††)	368	318	332	347	312	360	375	405	441	587	561	502

CAL YR 1978 MAX 18870 MIN 11610 ‡ -7260 †† 4940
WTR YR 1979 MAX 13780 MIN 10310 ‡ -1510 †† 4910

† 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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
JAN 08...	1030	1500	2.0	530	400	110	63	110	2.1

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
JAN 08...	11	165	0	390	170	.4	10	946

08126500 COLORADO RIVER AT BALLINGER, TX

LOCATION.--Lat 31°43'58", long 99°57'13", Runnels County, Hydrologic Unit 12090101, on left bank at downstream side of bridge on U.S. Highway 67 in Ballinger, 1.3 mi (2.1 km) upstream from Elm Creek, and at mile 660.2 (1,062.3 km).

DRAINAGE AREA.--16,840 mi² (43,620 km²), approximately, of which 11,600 mi² (30,040 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1907 to September 1979 (discontinued). 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 1,593.74 ft (485.772 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 29, 1930, nonrecording gages at several sites near present site at various datums. Nov. 29, 1930, to May 1, 1975, water-stage recorder at site 0.8 mi (1.3 km) downstream at same datum.

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); 11 years (water years 1969-79) partially regulated, 43.3 ft³/s (1.226 m³/s), 31,370 acre-ft/yr (38.7 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); 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, 3,060 ft³/s (86.7 m³/s) Apr. 21, gage height, 7.46 ft (2.274 m); minimum daily, 0.60 ft³/s (0.017 m³/s) Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	3.2	5.4	4.5	5.3	2.7	93	365	8.3	5.4	2.1	3.4
2	2.2	3.1	5.8	4.5	4.8	4.0	94	402	168	4.2	2.2	3.5
3	2.5	3.1	6.0	4.5	4.4	5.5	40	240	245	3.3	103	3.3
4	2.4	3.2	5.5	4.8	5.7	4.7	26	226	77	2.6	58	3.2
5	2.5	3.5	5.5	4.7	8.9	3.4	20	65	27	1.7	25	2.3
6	2.5	3.1	5.3	5.6	7.8	4.3	15	24	19	1.3	16	1.9
7	2.5	2.7	5.4	5.8	7.3	3.7	11	16	14	1.1	8.7	2.4
8	2.5	2.6	5.2	5.6	7.1	3.7	9.2	12	8.9	.82	4.5	2.5
9	2.7	2.6	5.3	5.7	6.5	3.4	9.3	9.8	6.1	.62	24	1.9
10	2.6	2.4	5.8	6.3	5.6	3.2	7.9	8.0	6.1	2.6	5.3	1.2
11	2.7	2.5	5.7	6.1	5.0	5.9	7.2	7.2	4.3	1.2	82	.83
12	2.6	2.8	5.8	5.8	5.1	5.4	5.6	6.8	3.4	1.2	55	1.0
13	2.8	2.8	6.1	4.4	5.0	5.0	5.7	5.9	2.4	1.2	21	1.4
14	2.7	2.9	6.3	4.6	4.7	5.7	5.5	5.1	2.0	1.4	12	1.5
15	2.6	4.7	6.4	4.8	4.6	6.5	5.5	4.7	1.7	2.1	8.6	1.7
16	2.7	3.7	7.0	4.8	4.2	7.7	5.6	4.1	1.5	10	6.7	1.8
17	2.7	4.8	7.0	5.5	3.7	11	8.2	4.2	1.5	7.5	5.8	1.7
18	2.5	5.3	6.4	5.2	3.8	9.0	11	3.5	1.5	3.2	4.3	1.6
19	2.4	5.7	6.0	5.2	4.3	9.2	9.2	3.2	1.3	2.6	3.7	1.5
20	2.4	5.7	5.2	4.2	3.4	484	11	3.3	1.3	29	4.0	1.6
21	2.6	5.8	5.0	4.8	3.4	107	1030	5.1	1.6	156	6.2	1.8
22	2.5	5.8	4.9	5.5	3.3	109	94	3.3	1.6	91	48	1.9
23	3.2	5.5	4.2	5.0	3.6	538	27	2.9	1.4	35	108	1.6
24	2.9	5.9	4.6	5.1	3.2	77	13	2.8	1.5	20	21	1.3
25	2.9	6.1	4.8	4.9	3.2	23	7.2	5.7	1.4	12	13	1.2
26	2.8	6.0	4.6	4.6	3.4	12	5.7	5.3	15	8.1	8.2	.91
27	2.9	6.5	4.7	4.6	3.1	7.2	5.1	4.5	4.2	7.1	7.5	.85
28	3.0	5.4	4.6	5.6	2.1	5.9	5.0	3.4	25	5.4	6.1	.60
29	3.0	5.5	4.8	6.0	---	4.6	4.9	2.8	15	4.3	5.2	.61
30	3.0	5.6	4.9	5.3	---	4.1	4.9	10	7.7	3.9	4.3	.76
31	3.0	---	4.7	5.5	---	5.8	---	12	---	2.6	4.1	---
TOTAL	82.4	128.5	168.9	159.5	132.5	1481.6	1596.7	1473.6	674.7	428.44	683.5	51.76
MEAN	2.66	4.28	5.45	5.15	4.73	47.8	53.2	47.5	22.5	13.8	22.0	1.73
MAX	3.2	6.5	7.0	6.3	8.9	538	1030	402	245	156	108	3.5
MIN	2.1	2.4	4.2	4.2	2.1	2.7	4.9	2.8	1.3	.62	2.1	.60
AC-FT	163	255	335	316	263	2940	3170	2920	1340	850	1360	103

CAL YR 1978	TOTAL	15028.92	MEAN	41.2	MAX	9200	MIN	.00	AC-FT 29810
WTR YR 1979	TOTAL	7062.10	MEAN	19.3	MAX	1030	MIN	.60	AC-FT 14010

08126500 COLORADO RIVER AT 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, 249 micromhos Aug. 14, 1963.
WATER TEMPERATURES: Maximum daily, 39.0°C July 3, 1977; minimum daily, 0.0°C Jan. 9-11, 1973.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,380 mg/L May 7, 1978; minimum daily mean, 6 mg/L Feb. 16, 22, 1978.
SEDIMENT LOADS: Maximum daily, 94,100 tons Aug. 3, 1978; minimum daily, 0 tons on several days during June and July 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,900 micromhos Dec.1; minimum daily, 300 micromhos Apr. 21.
WATER TEMPERATURES: Maximum daily, 34.0°C July 8; minimum daily, 1.5°C Jan. 9.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,990 mg/L Apr. 21; minimum daily mean, 7 mg/L Dec. 13.
SEDIMENT LOADS: Maximum daily, 10,600 tons Apr. 21; minimum daily, 0.10 tons Nov. 2, July 9, 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT											
02...	1325	2.1	--	28.0	--	--	--	--	--	--	--
31...	1800	3.2	3790	--	1600	1400	370	160	320	3.5	6.7
NOV											
06...	1225	2.7	--	16.5	--	--	--	--	--	--	--
DEC											
19...	1120	6.6	3860	9.0	1700	1500	410	160	310	3.3	6.0
JAN											
31...	0810	5.7	3590	4.0	1400	1300	330	150	310	3.6	4.1
FEB											
07...	1120	7.4	3570	4.0	1400	1200	340	130	280	3.3	6.1
MAR											
12...	1205	4.9	--	13.5	--	--	--	--	--	--	--
20...	1150	895	--	15.0	--	--	--	--	--	--	--
20...	1445	585	--	16.0	--	--	--	--	--	--	--
20...	1525	545	--	16.0	--	--	--	--	--	--	--
21...	1100	103	873	15.5	260	180	69	21	75	2.0	6.1
23...	0720	773	--	14.0	--	--	--	--	--	--	--
APR											
21...	0800	2540	--	18.0	--	--	--	--	--	--	--
21...	1340	720	787	22.0	290	180	82	21	59	1.5	5.6
MAY											
01...	1040	740	--	17.0	--	--	--	--	--	--	--
JUN											
11...	1205	4.6	1250	25.0	440	300	110	40	92	1.9	5.3
JUL											
24...	1125	20	1900	28.0	430	280	92	48	210	4.4	7.8
SEP											
04...	1140	3.5	1270	28.0	460	320	110	44	98	2.0	6.8

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
02...	--	--	--	--	--	--	--	--	--	--
31...	170	0	1300	610	.5	14	2870	--	--	--
NOV										
06...	--	--	--	--	--	--	--	--	--	--
DEC										
19...	230	0	1300	600	.6	16	2920	--	--	--
JAN										
31...	220	0	1000	540	.3	9.0	2450	--	--	--
FEB										
07...	220	0	1000	510	.5	6.5	2380	--	--	--
MAR										
12...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	2650	4190	98
20...	--	--	--	--	--	--	--	--	--	--
21...	98	0	180	120	.2	6.5	526	364	101	99
23...	--	--	--	--	--	--	--	2480	5180	99
APR										
21...	--	--	--	--	--	--	--	5320	36500	97
21...	140	0	180	84	.3	9.3	510	--	--	--
MAY										
01...	--	--	--	--	--	--	--	5040	10100	97
JUN										
11...	170	0	280	150	.3	8.1	770	--	--	--
JUL										
24...	180	0	260	350	.5	13	1070	--	--	--
SEP										
04...	170	0	300	150	.4	11	804	--	--	--

08126500 COLORADO RIVER AT BALLINGER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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							
20...	1445	585	16.0	2650	4190	60	75
21...	1100	103	15.5	364	101	--	--
23...	0720	773	14.0	2480	5180	58	73
APR							
21...	0800	2540	18.0	5320	36500	52	66
MAY							
01...	1040	740	17.0	5040	10100	50	61

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							
20...	90	97	98	98	98	99	100
21...	--	--	--	99	99	99	100
23...	88	97	98	99	99	100	--
APR							
21...	77	85	92	97	99	99	100
MAY							
01...	71	84	91	97	99	99	100

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	82.4	3730	2680	596	580	130	1160	257	1520
NOV. 1978.....	128.5	3710	2660	923	580	201	1150	398	1510
DEC. 1978.....	168.9	3650	2610	1190	570	260	1120	510	1480
JAN. 1979.....	159.5	3590	2560	1100	560	241	1090	470	1450
FEB. 1979.....	132.5	3590	2550	912	560	200	1090	389	1440
MAR. 1979.....	1481.6	1050	680	2720	160	643	250	989	340
APR. 1979.....	1596.7	553	340	1480	83	357	120	501	180
MAY 1979.....	1473.6	786	490	1940	120	468	170	673	250
JUNE 1979.....	674.7	971	600	1090	150	266	200	373	310
JULY 1979.....	428.44	1620	1010	1170	240	282	350	405	520
AUG. 1979.....	683.5	1420	900	1660	210	397	330	600	450
SEPT 1979.....	51.76	1730	1070	150	260	36	370	52	550
TOTAL	7062.08	**	**	14900	**	3480	**	5620	**
WTD.AVG.	19	1200	780	**	180	**	300	**	380

08126500 COLORADO RIVER AT BALLINGER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3490	3830	3900	3630	3710	3780	1040	647	2090	1340	1410	1380
2	3530	3740	3850	3660	3680	3550	1020	707	1660	1350	1430	1350
3	3620	3730	3600	3660	3650	3750	1070	690	519	1400	3000	1300
4	3650	3740	3550	3590	3680	3730	1080	687	536	1450	2200	1250
5	3670	3750	3570	3520	2830	3720	1090	692	599	1500	1690	1260
6	3680	3720	3580	3540	3410	3750	1140	758	820	1520	1440	1270
7	3680	3770	3620	3560	3510	3800	1200	860	893	1550	1370	1310
8	3700	3780	3650	3600	3600	3810	1250	950	928	1570	1340	1340
9	3660	3780	3680	3630	3630	3820	1310	1110	1020	1580	744	1400
10	3680	3800	3580	3610	3570	3830	1330	1170	1130	1540	850	1390
11	3660	3830	3620	3550	3590	3850	1320	1200	1250	1600	733	1470
12	3670	3810	3680	3600	3600	3850	1400	1320	1370	1670	650	1550
13	3680	3800	3600	3600	3610	3830	1450	1360	1430	1660	869	1640
14	3710	3780	3610	3660	3620	3880	1510	1430	1470	1700	987	1740
15	3730	3600	3620	3650	3630	3850	1530	1510	1500	1660	1020	1820
16	3680	3360	3580	3660	3610	3700	1560	1550	1510	2170	1000	1770
17	3770	3580	3720	3620	3610	3500	1580	1570	1530	3730	1050	1900
18	3800	3600	3740	3550	3660	3700	1560	1660	1540	2860	1090	2020
19	3800	3630	3760	3570	3680	3760	1580	1720	1550	2690	1150	2130
20	3810	3630	3680	3590	3710	1000	1550	1750	1570	2410	1200	2200
21	3810	3720	3700	3560	3680	860	300	1780	1580	1190	1220	2220
22	3820	3750	3760	3550	3730	912	411	1750	1590	1750	1690	2430
23	3800	3720	3620	3540	3750	726	690	1870	1590	1960	904	2450
24	3810	3750	3680	3560	3770	597	913	2020	1600	1820	856	2480
25	3790	3730	3610	3580	3800	737	975	2220	1650	1640	894	2510
26	3800	3730	3620	3590	3790	853	1170	2370	1350	1440	918	2560
27	3830	3720	3640	3580	3800	1020	1270	2490	1520	1450	1130	2570
28	3800	3740	3570	3620	3800	1140	1360	2530	1100	1460	1380	2680
29	3800	3720	3550	3600	---	1260	1440	2570	1260	1400	1450	2690
30	3780	3740	3570	3590	---	1390	1540	2990	1310	1410	1460	2700
31	3760	---	3600	3630	---	1520	---	2560	---	1420	1410	---
MEAN	3720	3720	3650	3600	3630	2690	1220	1560	1320	1740	1240	1890

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	21.0	14.0	---	5.0	14.0	20.0	17.0	24.0	30.0	28.0	30.0
2	22.0	20.0	15.0	2.0	7.0	14.0	18.0	16.0	24.0	27.0	30.0	---
3	24.0	20.0	9.0	2.5	6.0	13.0	17.0	20.0	29.0	31.0	28.0	31.0
4	25.0	19.0	9.0	---	5.0	13.0	19.0	18.0	25.0	30.0	---	30.0
5	---	20.0	---	3.0	6.0	15.0	18.0	19.0	24.0	---	30.0	29.0
6	24.0	19.0	9.0	---	5.0	---	18.0	20.0	28.0	30.0	31.0	28.0
7	23.0	19.0	8.0	3.0	4.0	15.0	---	20.0	26.0	30.0	31.0	29.0
8	21.0	17.0	8.0	4.0	5.0	16.0	20.0	---	27.0	34.0	30.0	30.0
9	23.0	11.0	10.0	1.5	6.0	14.0	17.0	24.0	28.0	27.0	26.0	30.0
10	23.0	---	9.0	2.0	10.0	14.0	18.0	23.0	26.0	31.0	---	30.0
11	24.0	15.0	---	---	9.0	18.0	18.0	---	---	---	27.0	30.0
12	---	15.0	7.0	4.0	8.0	---	17.0	22.0	28.0	33.0	29.0	---
13	20.0	15.0	6.0	4.0	7.0	19.0	---	25.0	28.0	30.0	28.0	27.0
14	22.0	15.0	---	4.0	---	15.0	17.0	23.0	29.0	30.0	30.0	28.0
15	20.0	14.5	6.0	---	---	15.0	20.0	24.0	29.0	30.0	30.0	23.0
16	21.0	13.0	6.0	6.0	---	12.0	19.0	24.0	28.0	32.0	30.0	25.0
17	22.0	11.0	7.0	5.0	6.0	14.0	19.0	21.0	29.0	29.0	30.0	---
18	21.0	---	10.0	7.0	5.0	17.0	20.0	22.0	29.5	28.0	31.0	24.0
19	---	13.0	8.5	---	6.0	15.0	24.0	22.0	25.0	27.0	30.0	25.0
20	22.0	12.0	11.0	9.0	7.5	13.0	22.0	---	30.0	25.0	---	24.0
21	20.0	11.0	10.0	9.0	6.0	14.0	18.0	24.0	---	27.0	28.0	27.0
22	20.0	13.0	7.0	7.0	11.0	16.0	20.0	23.0	30.0	28.0	32.0	26.0
23	17.0	12.0	9.0	6.0	10.0	14.0	23.0	24.0	31.0	30.0	28.0	---
24	18.0	13.0	10.0	7.0	10.0	---	20.0	23.0	31.0	31.0	31.0	27.0
25	20.0	13.0	12.0	6.0	10.0	16.0	22.0	22.0	30.0	31.0	30.0	26.0
26	21.0	12.0	8.0	---	11.0	15.0	22.0	25.0	25.0	32.0	30.0	25.0
27	20.0	---	8.0	---	11.0	16.5	26.0	22.0	30.0	---	29.0	28.0
28	21.0	14.0	11.0	7.0	11.0	---	22.0	---	30.0	31.0	30.0	30.0
29	20.0	15.0	---	5.0	---	17.0	21.0	26.0	31.0	31.0	31.0	25.0
30	---	10.0	9.0	5.0	---	18.0	20.0	21.0	30.0	29.0	28.0	28.0
31	---	---	---	4.0	---	20.0	---	25.0	---	30.0	30.0	---
MEAN	21.5	15.0	9.0	5.0	7.5	15.5	20.0	22.0	28.0	30.0	29.5	27.5

08126500 COLORADO RIVER AT BALLINGER, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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	2.1	72	.41	3.2	24	.21	5.4	29	.42
2	2.2	65	.39	3.1	12	.10	5.8	25	.39
3	2.5	25	.17	3.1	27	.23	6.0	58	.94
4	2.4	32	.21	3.2	20	.17	5.5	24	.36
5	2.5	55	.37	3.5	36	.34	5.5	20	.30
6	2.5	80	.54	3.1	34	.28	5.3	18	.26
7	2.5	65	.44	2.7	17	.12	5.4	36	.52
8	2.5	40	.27	2.6	17	.12	5.2	24	.34
9	2.7	20	.15	2.6	20	.14	5.3	22	.31
10	2.6	18	.13	2.4	25	.16	5.8	22	.34
11	2.7	28	.20	2.5	34	.23	5.7	15	.23
12	2.6	40	.28	2.8	28	.21	5.8	8	.13
13	2.8	41	.31	2.8	17	.13	6.1	7	.12
14	2.7	28	.20	2.9	27	.21	6.3	15	.26
15	2.6	35	.25	4.7	40	.51	6.4	17	.29
16	2.7	24	.17	3.7	38	.38	7.0	12	.23
17	2.7	20	.15	4.8	45	.58	7.0	13	.25
18	2.5	55	.37	5.3	45	.64	6.4	20	.35
19	2.4	35	.23	5.7	46	.71	6.0	18	.29
20	2.4	30	.19	5.7	42	.65	5.2	45	.63
21	2.6	30	.21	5.8	48	.75	5.0	22	.30
22	2.5	24	.16	5.8	25	.39	4.9	16	.21
23	3.2	48	.41	5.5	14	.21	4.2	20	.23
24	2.9	42	.33	5.9	25	.40	4.6	40	.50
25	2.9	30	.23	6.1	27	.44	4.8	17	.22
26	2.8	28	.21	6.0	44	.71	4.6	23	.29
27	2.9	22	.17	6.5	38	.67	4.7	21	.27
28	3.0	24	.19	5.4	38	.55	4.6	20	.25
29	3.0	31	.25	5.5	30	.45	4.8	20	.26
30	3.0	21	.17	5.6	18	.27	4.9	21	.28
31	3.0	24	.19	---	---	---	4.7	25	.32
TOTAL	82.4	---	7.95	128.5	---	10.96	168.9	---	10.09

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	4.5	25	.30	5.3	18	.26	2.7	18	.13
2	4.5	35	.43	4.8	20	.26	4.0	50	.54
3	4.5	22	.27	4.4	21	.25	5.5	60	.89
4	4.8	20	.26	5.7	15	.23	4.7	29	.37
5	4.7	47	.60	8.9	10	.24	3.4	40	.37
6	5.6	60	.91	7.8	15	.32	4.3	40	.46
7	5.8	30	.47	7.3	25	.49	3.7	35	.35
8	5.6	40	.60	7.1	25	.48	3.7	40	.40
9	5.7	40	.62	6.5	25	.44	3.4	35	.32
10	6.3	48	.82	5.6	26	.39	3.2	20	.17
11	6.1	39	.64	5.0	40	.54	5.9	22	.35
12	5.8	34	.53	5.1	32	.44	5.4	40	.58
13	4.4	22	.26	5.0	15	.20	5.0	44	.59
14	4.6	40	.50	4.7	14	.18	5.7	23	.35
15	4.8	28	.36	4.6	20	.25	6.5	51	.90
16	4.8	16	.21	4.2	28	.32	7.7	49	1.0
17	5.5	15	.22	3.7	12	.12	11	55	1.6
18	5.2	45	.63	3.8	26	.27	9.0	40	.97
19	5.2	25	.35	4.3	17	.20	9.2	73	1.8
20	4.2	35	.40	3.4	28	.26	484	2120	3660
21	4.8	20	.26	3.4	25	.23	107	540	197
22	5.5	24	.36	3.3	20	.18	109	302	169
23	5.0	40	.54	3.6	17	.17	538	2110	3560
24	5.1	15	.21	3.2	45	.39	77	750	156
25	4.9	8	.11	3.2	45	.39	23	240	15
26	4.6	10	.12	3.4	21	.19	12	140	4.5
27	4.6	24	.30	3.1	40	.33	7.2	90	1.7
28	5.6	29	.44	2.1	42	.24	5.9	60	.96
29	6.0	30	.49	---	---	---	4.6	50	.62
30	5.3	40	.57	---	---	---	4.1	60	.66
31	5.5	40	.59	---	---	---	5.8	65	1.0
TOTAL	159.5	---	13.37	132.5	---	8.26	1481.6	---	7778.58

08126500 COLORADO RIVER AT BALLINGER, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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	93	88	22	365	2200	3230	8.3	95	2.1
2	94	80	20	402	642	738	168	664	868
3	40	83	9.0	240	682	745	245	1190	889
4	26	77	5.4	226	875	745	77	600	125
5	20	80	4.3	65	185	32	27	255	19
6	15	86	3.5	24	121	7.8	19	110	5.6
7	11	80	2.4	16	100	4.3	14	58	2.2
8	9.2	74	1.8	12	85	2.8	8.9	54	1.3
9	9.3	72	1.8	9.8	65	1.7	6.1	54	.89
10	7.9	70	1.5	8.0	55	1.2	6.1	63	1.0
11	7.2	100	1.9	7.2	90	1.7	4.3	55	.64
12	5.6	110	1.7	6.8	70	1.3	3.4	54	.50
13	5.7	100	1.5	5.9	76	1.2	2.4	74	.48
14	5.5	80	1.2	5.1	66	.91	2.0	50	.27
15	5.5	65	.97	4.7	72	.91	1.7	62	.28
16	5.6	63	.95	4.1	66	.73	1.5	68	.28
17	8.2	45	1.0	4.2	76	.86	1.5	78	.32
18	11	75	2.2	3.5	64	.60	1.5	76	.31
19	9.2	55	1.4	3.2	57	.49	1.3	66	.23
20	11	62	1.8	3.3	60	.53	1.3	56	.20
21	1030	2990	10600	5.1	85	1.2	1.6	55	.24
22	94	1100	279	3.3	82	.73	1.6	50	.22
23	27	220	16	2.9	79	.62	1.4	57	.22
24	13	64	2.2	2.8	130	.98	1.5	68	.28
25	7.2	74	1.4	5.7	98	1.5	1.4	55	.21
26	5.7	83	1.3	5.3	89	1.3	15	93	6.4
27	5.1	56	.77	4.5	94	1.1	4.2	50	.57
28	5.0	51	.69	3.4	90	.83	25	60	4.1
29	4.9	70	.93	2.8	105	.79	15	62	2.5
30	4.9	128	1.7	10	105	2.8	7.7	90	1.9
31	---	---	---	12	105	3.4	---	---	---
TOTAL	1596.7	---	10990.31	1473.6	---	5532.28	674.7	---	1934.24

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	5.4	70	1.0	2.1	116	.66	3.4	48	.44
2	4.2	70	.79	2.2	141	.84	3.5	54	.51
3	3.3	50	.45	103	149	45	3.3	75	.67
4	2.6	105	.74	58	100	16	3.2	42	.36
5	1.7	82	.38	25	80	5.4	2.3	40	.25
6	1.3	72	.25	16	46	2.0	1.9	42	.22
7	1.1	70	.21	8.7	40	.94	2.4	52	.34
8	.82	55	.12	4.5	43	.52	2.5	35	.24
9	.62	60	.10	24	127	14	1.9	42	.22
10	2.6	48	.34	5.3	120	1.7	1.2	63	.20
11	1.2	50	.16	82	164	39	.83	70	.16
12	1.2	52	.17	55	96	14	1.0	80	.22
13	1.2	30	.10	21	92	5.2	1.4	80	.30
14	1.4	65	.25	12	52	1.7	1.5	80	.32
15	2.1	82	.46	8.6	40	.93	1.7	92	.42
16	10	92	2.5	6.7	40	.72	1.8	80	.39
17	7.5	82	1.7	5.8	36	.56	1.7	82	.38
18	3.2	50	.43	4.3	34	.39	1.6	82	.35
19	2.6	59	.41	3.7	55	.55	1.5	75	.30
20	29	76	13	4.0	80	.86	1.6	45	.19
21	156	298	127	6.2	98	1.6	1.8	90	.44
22	91	205	50	48	90	12	1.9	70	.36
23	35	115	11	108	261	80	1.6	70	.30
24	20	75	4.1	21	242	14	1.3	110	.39
25	12	54	1.7	13	135	4.7	1.2	105	.34
26	8.1	75	1.6	8.2	50	1.1	.91	81	.20
27	7.1	115	2.2	7.5	35	.71	.85	85	.20
28	5.4	110	1.6	6.1	28	.46	.60	100	.16
29	4.3	92	1.1	5.2	40	.56	.61	105	.17
30	3.9	72	.76	4.3	49	.57	.76	82	.17
31	2.6	90	.63	4.1	45	.50	---	---	---
TOTAL	428.44	---	225.25	683.5	---	267.17	51.76	---	9.21

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.--471 mi² (1,220 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 587 acre-ft (724,000 m³) from Lake Winters, capacity, 3,060 acre-ft (3.77 hm³).

AVERAGE DISCHARGE.--47 years (water years 1933-79), 47.1 ft³/s (1.334 m³/s), 1.36 in/yr (35 mm/yr), 34,120 acre-ft/yr (42.1 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, 4,490 ft³/s (127 m³/s) Mar. 20, gage height, 6.30 ft (1.920 m), no other peak above base of 2,100 ft³/s (59.5 m³/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	.53	1.6	1.7	1.3	1.3	43	529	4.9	42	2.2	.13
2	1.3	.53	1.5	1.6	1.4	1.4	34	283	11	29	1.8	.08
3	1.1	.54	1.2	1.8	1.6	2.5	28	185	8.3	19	1.4	.05
4	.75	.55	.93	1.8	2.5	3.1	24	192	11	15	.91	.04
5	.62	.73	.92	1.8	9.0	3.2	21	75	11	9.2	.65	.02
6	.47	.97	.92	2.0	11	2.8	19	52	8.9	3.5	.54	.01
7	.43	.78	.92	2.0	9.6	2.3	18	37	7.4	2.1	.43	.00
8	.45	.70	.80	1.8	7.1	1.9	17	29	6.9	.87	.26	.00
9	.49	.75	.70	1.8	5.4	1.7	16	22	43	.33	28	.00
10	.51	.79	.76	2.0	4.5	1.4	17	19	106	29	16	.00
11	.61	.77	.81	2.0	3.4	1.4	23	16	68	15	10	.00
12	.70	.68	1.0	2.0	3.0	1.1	21	15	49	5.2	10	.00
13	.63	.72	1.3	2.1	2.7	.96	14	13	33	1.9	11	.00
14	.45	.82	1.4	1.7	2.5	.76	13	11	26	.81	5.[illegible]	.00
15	.40	1.0	1.4	1.9	2.3	1.0	11	9.8	20	.28	2.[illegible]	.00
16	.37	1.3	1.3	2.0	1.5	3.2	9.1	8.7	13	.17	.69	.00
17	.34	1.1	1.2	2.8	1.3	4.8	15	7.4	11	.[illegible]	.25	.00
18	.31	2.2	1.3	3.0	1.2	5.1	40	6.0	4.3	.[illegible]	.10	.00
19	.32	2.0	1.4	2.8	1.4	741	31	5.4	2.6	273	.04	.00
20	.30	1.6	1.4	2.3	1.6	2190	24	4.7	1.4	623	.01	.00
21	.29	1.4	1.4	1.6	1.6	317	96	6.4	.68	157	.00	.00
22	.29	1.4	1.8	1.8	1.8	446	43	7.0	.61	83	.00	.00
23	.38	1.4	1.8	1.7	1.9	444	31	5.6	.28	58	23	.00
24	.37	1.4	1.6	1.3	1.9	132	25	7.1	.11	43	6.4	.00
25	.54	1.5	1.5	1.9	1.6	76	18	7.1	.05	32	3.4	.00
26	.62	1.9	1.4	3.3	1.4	54	16	6.0	73	24	2.[illegible]	.00
27	.62	1.7	1.4	3.2	1.5	41	14	5.7	314	17	1.4	.00
28	.68	1.4	1.6	2.4	1.4	32	12	5.8	177	13	.78	.00
29	.70	1.6	1.6	2.0	---	29	12	4.5	92	8.7	.45	.00
30	.66	1.8	1.6	1.9	---	26	15	3.9	61	4.2	.26	.00
31	.59	---	1.8	1.5	---	58	---	3.0	---	2.9	.17	---
TOTAL	17.99	34.56	40.26	63.5	87.4	4625.92	720.1	1582.1	1165.43	1512.26	130.54	.33
MEAN	.58	1.15	1.30	2.05	3.12	149	24.0	51.0	38.8	48.8	4.21	.011
MAX	1.7	2.2	1.8	3.3	11	2190	96	529	314	623	28	.13
MIN	.29	.53	.70	1.3	1.2	.76	9.1	3.0	.05	.03	.00	.00
CFSM	.001	.002	.003	.004	.007	.32	.05	.11	.08	.10	.009	.000
IN.	.00	.00	.00	.01	.01	.37	.06	.12	.09	.12	.01	.00
AC-FT	36	69	80	126	173	9180	1430	3140	2310	3000	259	.7

CAL YR 1978	TOTAL	23898.12	MEAN	65.5	MAX	12200	MIN	.00	CFSM	.14	IN	1.89	AC-FT	47400
WTR YR 1979	TOTAL	9980.39	MEAN	27.3	MAX	2190	MIN	.00	CFSM	.06	IN	.79	AC-FT	19800

08127000 ELM CREEK AT BALLINGER, 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, 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, 4,060 micromhos Jan. 8; minimum daily, 351 micromhos Mar. 20, 23.
WATER TEMPERATURES: Maximum daily, 34.0°C July 8; minimum daily, 1.0°C Feb. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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...	1750	.55	3040	22.0	930	780	160	130	290
NOV 06...	1030	1.0	3030	16.5	960	800	170	130	300
DEC 19...	1230	1.4	3710	9.0	1200	1000	210	160	390
JAN 31...	0800	1.6	3820	4.0	1200	1000	210	170	390
FEB 07...	0940	9.7	--	--	--	--	--	--	--
28...	0800	1.4	3500	11.0	1200	990	210	160	340
MAR 12...	1305	1.0	--	--	--	--	--	--	--
31...	0800	68	838	--	260	150	63	26	71
APR 30...	0800	14	1670	19.0	480	320	97	58	170
JUN 11...	1350	63	--	--	--	--	--	--	--
30...	0930	54	420	30.0	150	22	40	13	22
JUL 24...	1225	44	--	--	--	--	--	--	--
AUG 31...	0810	.18	1020	30.0	300	180	66	34	83

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 31...	4.1	7.8	190	0	470	690	.5	7.9	1850
NOV 06...	4.2	7.0	190	0	460	690	.5	11	1860
DEC 19...	4.9	6.6	200	0	590	890	.5	7.3	2350
JAN 31...	4.9	6.0	220	0	540	880	.7	5.5	2310
FEB 07...	--	--	--	--	--	--	--	--	--
28...	4.3	5.5	230	0	570	780	.8	3.5	2180
MAR 12...	--	--	--	--	--	--	--	--	--
31...	1.9	4.2	140	0	130	140	.3	7.8	511
APR 30...	3.4	6.0	200	0	210	340	.5	5.5	986
JUN 11...	--	--	--	--	--	--	--	--	--
30...	.8	4.8	160	0	31	35	.3	4.6	230
JUL 24...	--	--	--	--	--	--	--	--	--
AUG 31...	2.1	7.3	150	0	140	170	.3	8.3	583

08127000 ELM CREEK AT BALLINGER, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	17.99	2650	1540	75	530	26	340	16	780
NOV. 1978.....	34.56	3260	1970	183	720	67	480	45	960
DEC. 1978.....	40.26	3720	2280	248	860	94	560	60	1100
JAN. 1979.....	63.5	3890	2400	411	920	157	590	101	1150
FEB. 1979.....	87.4	3710	2280	538	860	203	560	132	1100
MAR. 1979.....	4625.92	721	420	5210	150	1820	93	1170	210
APR. 1979.....	720.1	1660	960	1880	330	649	210	415	490
MAY 1979.....	1582.1	834	480	2070	170	715	110	460	250
JUNE 1979.....	1165.43	1070	620	1960	220	679	140	434	320
JULY 1979.....	1512.26	514	300	1230	100	419	66	271	150
AUG. 1979.....	130.54	758	440	156	150	54	98	35	220
SEPT 1979.....	0.33	1100	640	0.5	220	0.2	140	0.1	320
TOTAL	9980.37	**	**	14000	**	4880	**	3140	**
WTD. AVG.	27	887	520	**	180	**	120	**	260

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2270	3000	3310	3970	3900	3610	1100	1000	1550	424	608	1070
2	2340	3010	3520	3980	3890	3510	1190	789	1560	432	611	1090
3	2400	3010	3590	3900	3880	3570	1260	850	1620	453	623	1120
4	2440	3030	3610	3380	3820	3590	1300	479	1670	458	700	1140
5	2470	3010	3620	3710	3800	3580	1350	667	1700	470	788	1150
6	2500	3030	3610	3850	3700	3520	1360	607	1770	485	668	1170
7	2530	3100	3600	3990	3730	3540	1400	612	1940	493	657	---
8	2560	3030	3700	4060	3710	3560	1410	650	1990	498	659	---
9	2570	3130	3220	3980	3690	3580	1430	694	2100	496	653	---
10	2580	3150	3470	3810	3710	3590	1420	728	2810	501	680	---
11	2690	3160	3350	3470	3690	3600	1400	742	2020	550	701	---
12	2690	3160	3210	3910	3670	3600	1430	795	1020	586	697	---
13	2700	3190	3650	4000	3650	3590	1450	831	840	568	852	---
14	2710	3200	3700	3960	3650	3610	1480	921	833	643	774	---
15	2710	3230	3760	3950	3640	3600	1580	953	859	588	796	---
16	2730	3190	3800	3960	3650	3590	1600	965	882	606	828	---
17	2760	3200	3760	4000	3660	3560	1650	974	1010	621	841	---
18	2780	3230	3850	3990	3670	3530	1700	1030	934	622	852	---
19	2800	3270	3820	3940	3680	2250	1800	1090	919	560	855	---
20	2830	3290	3760	3960	3650	351	1990	1100	911	477	865	---
21	2870	3300	3740	3950	3660	580	2220	1110	915	545	---	---
22	2860	3270	3450	3950	3670	402	2420	1130	911	561	---	---
23	2860	3290	3930	3960	3660	351	1650	1180	919	553	828	---
24	2870	3290	3900	3950	3650	362	1710	1240	904	541	981	---
25	2870	3390	3930	3940	3660	436	1650	1260	996	544	890	---
26	2900	3420	3900	3920	3670	487	1690	1280	919	558	981	---
27	2920	3440	3880	3900	3680	550	1730	1330	734	600	1010	---
28	2930	3450	3830	3930	3680	600	1740	1400	538	636	1150	---
29	2960	3450	3900	3540	---	654	1730	1430	406	600	1100	---
30	2980	3470	3960	3750	---	715	1730	1460	420	581	1030	---
31	2990	---	3970	3930	---	872	---	1520	---	607	1050	---
MEAN	2710	3210	3690	3890	3710	2350	1590	994	1220	544	818	1120

08127000 ELM CREEK AT BALLINGER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	21.0	14.0	---	5.0	14.0	20.0	---	24.0	30.0	28.0	
2	21.5	20.0	15.5	2.0	7.0	14.0	18.0	16.0	24.0	27.0	30.0	
3	24.0	20.0	10.0	2.5	6.0	13.0	17.0	20.0	29.0	31.0	30.0	
4	25.0	19.0	9.0	6.0	5.0	13.0	19.0	18.0	25.0	30.0	---	
5	---	20.0	---	2.5	6.0	15.0	18.0	19.0	24.0	---	30.0	
6	24.0	19.0	9.0	---	5.0	15.0	18.0	20.0	28.0	30.0	31.0	
7	25.0	19.0	8.0	3.0	4.0	---	---	20.0	26.0	30.0	31.0	
8	21.0	16.0	8.0	4.0	5.0	16.0	20.0	---	27.0	34.0	30.0	
9	23.0	17.0	10.0	1.5	6.0	14.0	17.0	24.0	28.0	27.0	27.0	
10	23.0	---	9.0	2.0	10.0	14.0	18.0	23.0	26.0	31.0	---	
11	24.0	15.0	---	---	8.0	18.0	18.0	19.0	---	---	27.0	
12	---	15.0	7.0	4.0	---	---	17.0	22.0	28.0	33.0	29.0	
13	20.0	15.5	6.0	4.0	7.0	19.0	---	25.0	28.0	30.0	28.0	
14	23.0	15.0	---	4.0	---	15.0	17.0	23.0	29.0	30.0	29.0	
15	20.0	14.5	6.0	---	---	15.0	20.0	24.0	29.0	30.0	30.0	
16	21.0	13.0	6.0	6.0	8.0	12.0	19.0	24.0	28.0	32.0	30.0	
17	21.0	11.5	7.0	5.0	6.0	14.0	19.0	21.0	29.0	29.0	30.0	
18	21.0	---	10.0	7.0	5.0	17.0	20.0	22.0	29.0	28.0	31.0	
19	---	13.0	9.0	10.0	6.0	15.0	24.0	22.0	25.0	27.0	30.0	
20	23.0	12.0	11.0	9.0	7.0	14.0	22.0	---	30.0	25.0	---	
21	20.0	11.0	10.0	9.0	6.0	14.0	22.0	24.0	---	27.0	---	
22	20.0	13.0	7.0	7.0	1.0	16.0	20.0	23.0	30.0	28.0	---	
23	17.0	12.0	9.0	6.0	10.0	14.0	26.0	25.0	31.0	30.0	28.0	
24	18.0	13.0	10.0	7.0	9.0	---	28.0	23.0	31.0	31.0	31.0	
25	20.0	13.0	13.0	6.0	10.0	16.0	22.0	22.0	30.0	31.0	30.0	
26	21.0	12.0	8.0	---	11.0	15.0	22.0	25.0	25.0	32.0	30.0	
27	20.0	---	---	6.0	11.0	16.0	25.0	22.0	30.0	---	29.0	
28	21.0	14.0	11.0	7.0	11.0	---	22.0	---	30.0	31.0	30.0	
29	20.0	15.0	---	5.0	---	17.0	21.0	26.0	31.0	---	31.0	
30	---	10.0	9.0	5.0	---	18.0	19.0	26.0	30.0	29.0	28.0	
31	22.0	---	---	4.0	---	---	---	---	---	30.0	30.0	
MEAN	21.5	15.0	9.5	5.0	7.0	15.0	20.5	22.0	28.0	29.5	29.5	

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. 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.--39 years (water years 1941-79), 6.77 ft^3/s (0.192 m^3/s), 4,900 acre-ft/yr (6.04 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, Oct. 19 to Nov. 2, 1966.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	11	11	10	.92	.45	5.2	7.7	5.6	5.7	5.9	5.2
2	13	11	11	10	.92	.37	3.8	7.6	5.4	5.7	5.8	4.9
3	13	11	11	10	2.5	.42	3.8	7.7	5.3	5.8	5.8	4.9
4	13	11	11	10	3.3	.49	3.7	7.7	5.5	5.8	6.0	4.8
5	13	12	11	10	1.0	.52	4.5	7.7	5.5	6.0	5.9	4.6
6	13	11	11	10	1.0	.50	4.0	7.7	5.4	6.0	6.1	5.1
7	13	11	11	10	1.0	.46	4.0	7.6	5.4	6.3	6.1	5.3
8	13	11	11	10	.91	.45	3.9	7.7	5.3	6.3	6.1	5.1
9	13	11	11	8.1	.89	.43	3.8	7.7	5.8	6.2	6.1	5.2
10	12	11	11	1.8	.84	.44	3.5	7.6	6.3	6.2	6.2	5.1
11	11	11	11	1.8	.79	.46	3.1	7.6	6.3	6.2	6.1	5.1
12	11	11	11	1.7	.78	.41	3.8	7.6	6.7	6.1	6.1	5.0
13	11	11	12	1.6	.78	.40	4.4	7.7	6.7	6.0	6.2	4.9
14	11	11	13	1.6	.73	.42	4.3	7.7	6.7	6.0	5.9	5.0
15	11	11	12	1.5	.70	.41	3.3	7.7	6.7	5.9	5.9	4.9
16	11	11	12	1.4	.70	.40	4.6	7.7	6.8	5.9	5.9	5.0
17	11	11	12	1.3	.70	.40	5.7	7.7	8.0	5.9	5.9	4.9
18	11	11	12	1.2	.72	.36	5.7	7.8	11	6.2	5.9	4.8
19	11	11	11	1.2	.74	.38	5.8	7.8	11	7.6	5.8	4.8
20	11	11	11	1.2	.62	.43	5.8	7.8	11	6.5	5.7	4.7
21	11	11	11	1.1	.59	.38	4.9	8.0	11	6.4	5.7	5.3
22	11	11	11	1.1	.57	.38	3.7	8.0	8.2	6.4	5.6	6.0
23	11	11	11	1.1	2.1	.39	4.0	7.5	6.0	6.4	5.7	5.4
24	11	11	11	1.0	4.1	.40	5.1	6.0	5.9	6.3	6.1	4.7
25	11	11	11	1.0	.63	.40	4.9	5.9	6.0	6.2	6.0	4.6
26	11	11	11	.99	.54	.38	5.5	5.9	6.4	6.1	5.8	4.6
27	11	11	11	.99	.47	.39	7.9	6.0	6.1	6.1	5.7	4.4
28	11	11	11	.97	.48	4.9	7.8	6.1	6.1	6.1	5.6	4.4
29	11	11	11	.94	---	6.4	7.8	5.9	6.1	6.0	5.5	4.3
30	11	11	11	.92	---	6.7	7.8	5.6	6.1	5.9	5.5	4.3
31	11	---	11	.95	---	6.6	---	5.6	---	5.9	5.3	---
TOTAL	360	331	348	115.46	30.02	35.92	146.1	224.3	204.3	190.1	181.9	147.3
MEAN	11.6	11.0	11.2	3.72	1.07	1.16	4.87	7.24	6.81	6.13	5.87	4.91
MAX	13	12	13	10	4.1	6.7	7.9	8.0	11	7.6	6.2	6.0
MIN	11	11	11	.92	.47	.36	3.1	5.6	5.3	5.7	5.3	4.3
AC-FT	714	657	690	229	60	71	290	445	405	377	361	292

CAL YR 1978 TOTAL 3461.70 MEAN 9.48 MAX 18 MIN 2.9 AC-FT 6870
WTR YR 1979 TOTAL 2314.40 MEAN 6.34 MAX 13 MIN .36 AC-FT 4590

08128000 SOUTH CONCHO RIVER AT CHRISTOVAL, TX

LOCATION.--Lat 31°11'16", long 100°30'09", 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 85.0 mi (136.8 km) upstream from mouth.

DRAINAGE AREA.--409 mi² (1,059 km²), of which 65 mi² (168 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.--49 years, 33.5 ft³/s (0.949 m³/s), 24,270 acre-ft/yr (29.9 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, 43 ft³/s (1.22 m³/s) Mar. 20, gage height, 2.12 ft (0.646 m), no peak above base of 160 ft³/s (4.53 m³/s); maximum gage height, 2.17 ft (0.661 m) Nov. 5; minimum discharge, 11 ft³/s (0.31 m³/s) June 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	15	21	21	30	30	26	20	21	18	17	14
2	16	15	22	21	30	30	27	20	21	20	18	15
3	16	15	22	21	28	30	27	20	21	20	18	15
4	16	17	22	21	27	30	27	19	23	19	18	15
5	17	23	22	21	33	30	27	18	22	17	18	15
6	17	20	22	21	33	30	27	18	20	18	18	15
7	15	20	22	21	32	30	27	18	20	18	18	15
8	13	20	22	21	30	30	27	17	20	18	18	15
9	13	20	22	23	30	30	28	16	20	16	16	15
10	14	20	22	29	30	30	30	16	20	16	17	15
11	14	20	22	30	30	30	29	16	20	16	16	15
12	14	20	22	30	30	30	28	16	20	17	16	15
13	15	20	21	30	30	30	25	16	20	18	16	15
14	16	21	20	30	30	28	25	16	20	18	16	15
15	16	20	20	30	29	28	26	16	20	18	16	15
16	16	20	20	30	28	28	26	16	18	18	16	15
17	16	20	20	30	28	28	25	16	16	18	16	15
18	16	21	20	31	28	28	25	16	13	17	16	15
19	16	21	20	31	28	28	25	15	13	19	16	15
20	17	20	20	31	29	30	26	15	13	20	16	15
21	17	20	20	31	30	31	28	15	12	20	16	13
22	17	20	20	29	30	30	28	15	13	18	16	12
23	17	20	20	28	29	30	28	15	17	18	16	12
24	17	20	20	29	23	30	25	16	17	17	16	13
25	17	20	20	30	28	30	25	17	17	17	16	13
26	17	21	21	30	29	30	25	17	19	17	14	13
27	17	21	20	30	30	30	20	17	19	17	14	13
28	16	21	20	30	30	24	17	17	18	17	15	13
29	15	21	20	30	---	21	17	17	18	17	15	13
30	15	21	20	30	---	21	18	17	18	16	15	13
31	15	---	21	30	---	21	---	17	---	16	14	---
TOTAL	489	593	646	850	822	886	764	520	549	549	503	427
MEAN	15.8	19.8	20.8	27.4	29.4	28.6	25.5	16.8	18.3	17.7	16.2	14.2
MAX	17	23	22	31	33	31	30	20	23	20	18	15
MIN	13	15	20	21	23	21	17	15	12	16	14	12
AC-FT	970	1180	1280	1690	1630	1760	1520	1030	1090	1090	998	847

CAL YR 1978 TOTAL 10162 MEAN 27.8 MAX 566 MIN 13 AC-FT 20160
WTR YR 1979 TOTAL 7598 MEAN 20.8 MAX 33 MIN 12 AC-FT 15070

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.--2,436 mi^2 (6,309 km^2), of which 1,055 mi^2 (2,732 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. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 17.1 ft^3/s (0.484 m^3/s), 12,390 acre-ft/yr (15.3 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, 1,570 ft^3/s (44.5 m^3/s) Mar. 20, gage height, 11.43 ft (3.484 m), no peak above base of 1,700 ft^3/s (48.1 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.50	3.3	4.6	6.6	5.4	5.2	4.9	6.7	4.4	.20	.09	.00
2	.58	3.2	5.1	6.4	5.6	5.5	4.6	7.0	182	.17	.08	.00
3	.63	3.1	5.3	6.5	5.6	5.3	4.3	9.3	56	.13	.06	.00
4	.72	3.2	4.9	6.6	6.8	4.9	4.0	6.7	24	.13	.02	.00
5	.83	4.9	5.4	6.6	9.2	4.9	4.0	6.2	20	.12	.00	.00
6	.93	6.3	5.6	6.6	10	5.4	3.9	5.9	13	.15	.00	.00
7	.86	5.9	5.9	6.6	9.1	5.6	3.5	4.9	9.1	.22	.00	.00
8	.96	5.2	5.6	6.6	7.7	5.7	3.8	4.3	7.3	.24	.00	.00
9	1.1	4.2	4.4	6.3	6.9	5.6	3.9	4.0	6.0	.23	.11	.00
10	1.3	4.5	4.6	6.3	6.3	5.6	4.4	3.7	5.8	.16	.39	.00
11	1.5	4.0	4.6	6.6	5.9	5.6	6.8	3.4	5.1	.08	2.2	.00
12	1.5	4.0	4.9	7.0	5.6	5.4	8.3	3.0	4.6	.02	.49	.00
13	1.5	4.2	5.1	7.0	5.4	5.5	7.8	3.2	4.3	.00	.34	.00
14	1.5	4.3	4.9	6.3	5.3	5.8	7.9	3.3	4.0	.00	.23	.00
15	1.5	4.8	5.4	6.5	5.2	5.3	7.8	3.2	3.2	.00	.21	.00
16	1.5	5.2	5.4	6.6	4.7	5.7	8.1	2.8	2.6	.00	.18	.00
17	1.5	4.6	5.3	6.6	4.6	6.4	8.5	2.7	2.0	12	.15	.00
18	1.5	3.5	5.3	7.2	4.6	6.3	8.8	2.7	1.7	20	.14	.00
19	1.6	3.3	5.5	7.4	4.8	61	7.4	2.4	1.5	1.9	.17	.00
20	1.5	3.5	5.3	7.6	5.5	540	34	2.4	1.3	.83	.19	.00
21	1.5	3.4	5.3	7.0	5.6	199	18	3.8	1.1	.54	.12	.00
22	1.7	3.3	5.3	7.0	5.9	216	12	4.9	.95	.40	.08	.00
23	2.9	3.3	5.3	6.7	5.7	98	11	4.2	.75	.37	.06	.00
24	2.4	3.3	5.6	6.3	5.6	26	11	3.6	.69	.30	.02	.00
25	2.3	4.0	5.9	6.2	5.0	14	8.5	2.9	.58	.24	.00	.00
26	2.4	4.5	5.9	5.9	5.0	9.4	7.3	2.6	.56	.22	.00	.00
27	2.8	4.8	5.9	5.9	4.9	7.4	6.3	2.4	.67	.15	.00	.00
28	2.9	4.3	6.3	5.4	5.1	7.0	6.3	2.3	.50	.13	.00	.00
29	3.0	4.3	6.6	5.3	---	6.6	6.3	2.3	.38	.11	.00	.00
30	2.9	4.7	6.6	5.7	---	6.4	6.3	2.1	.31	.10	.00	.00
31	3.3	---	6.6	5.4	---	5.4	---	1.6	---	.06	.00	---
TOTAL	51.61	125.1	168.4	200.7	167.0	1295.9	239.7	120.5	364.39	39.20	5.33	.00
MEAN	1.66	4.17	5.43	6.47	5.96	41.8	7.99	3.89	12.1	1.26	.17	.000
MAX	3.3	6.3	6.6	7.6	10	540	34	9.3	182	20	2.2	.00
MIN	.50	3.1	4.4	5.3	4.6	4.9	3.5	1.6	.31	.00	.00	.00
AC-FT	102	248	334	398	331	2570	475	239	723	78	11	.00

CAL YR 1978 TOTAL 4299.56 MEAN 11.8 MAX 999 MIN .00 AC-FT 8530
WTR YR 1979 TOTAL 2777.83 MEAN 7.61 MAX 540 MIN .00 AC-FT 5510

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, and 2.5 mi (4.0 km) upstream from Dove Creek.

DRAINAGE AREA.--424 mi² (1,098 km²), of which 28 mi² (73 km²) 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.--19 years, 14.7 ft³/s (0.416 m³/s), 10,650 acre-ft/yr (13.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,400 ft³/s (861 m³/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 ft³/s (2,330 m³/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, 163 ft³/s (4.62 m³/s) Mar. 20, gage height, 4.87 ft (1.484 m), no peak above base of 400 ft³/s (11.3 m³/s); minimum, 0.09 ft³/s (0.003 m³/s) July 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	11	12	14	14	13	22	11	5.8	.57	.78	.22
2	6.8	11	11	13	15	22	12	11	24	.51	4.4	.22
3	4.7	11	11	13	14	18	13	12	17	.44	5.4	.21
4	4.6	11	12	14	20	13	11	12	21	.40	5.5	.19
5	4.7	22	12	14	25	11	11	11	38	.36	5.4	.62
6	4.4	19	11	14	21	7.2	10	9.8	18	.34	5.4	3.3
7	4.3	13	11	14	16	7.0	9.7	7.9	15	.33	5.6	2.1
8	6.4	13	11	13	15	8.6	11	9.6	13	.31	6.4	1.0
9	4.2	13	12	13	14	6.0	11	9.5	13	.31	4.3	.56
10	3.7	13	12	12	14	5.1	12	7.1	13	.29	5.0	.38
11	1.6	12	12	12	14	8.1	13	6.4	12	.27	2.8	.27
12	.79	13	10	12	14	8.0	10	6.8	12	.24	3.8	.23
13	1.6	14	10	12	13	7.3	10	6.8	8.5	.22	3.7	.21
14	1.8	14	9.6	12	14	6.1	9.7	5.2	6.1	.19	2.7	.20
15	2.1	14	6.9	12	13	4.8	9.4	6.4	6.0	.17	2.3	.18
16	2.6	14	6.9	12	13	8.9	11	6.9	6.0	.16	3.3	.20
17	4.8	14	7.4	12	13	15	13	6.6	4.4	.15	4.2	.21
18	3.8	14	6.9	12	14	9.9	10	5.3	3.9	.18	4.2	.20
19	3.6	14	5.2	13	13	8.2	12	5.1	5.0	.19	6.5	.22
20	3.5	14	8.1	13	14	72	17	4.3	5.9	.18	5.0	.22
21	4.3	15	8.5	13	13	46	22	11	3.7	.14	2.3	.21
22	3.3	16	5.6	14	14	36	16	13	1.9	.12	3.1	.19
23	10	17	3.1	14	13	20	15	8.7	1.1	.12	3.1	.19
24	11	16	7.4	14	13	19	15	5.6	.80	.20	2.4	.19
25	13	16	8.5	14	12	18	13	5.9	.75	.17	1.3	.18
26	12	16	8.0	14	12	15	9.1	4.4	.90	.13	.67	.18
27	11	14	8.9	15	12	12	10	2.2	1.0	.11	.45	.17
28	11	13	11	15	12	13	9.2	2.4	.81	.10	.39	.17
29	10	12	12	15	---	14	11	4.8	.61	.12	.28	.16
30	11	12	11	16	---	16	11	2.1	.55	.19	.23	.17
31	10	---	12	16	---	12	---	.94	---	.52	.23	---
TOTAL	184.39	421	294.0	416	404	480.2	369.1	221.74	259.72	7.73	101.13	12.75
MEAN	5.95	14.0	9.48	13.4	14.4	15.5	12.3	7.15	8.66	.25	3.26	.43
MAX	13	22	12	16	25	72	22	13	38	.57	6.5	3.3
MIN	.79	11	3.1	12	12	4.8	9.1	.94	.55	.10	.23	.16
AC-FT	366	835	583	825	801	952	732	440	515	15	201	25

CAL YR 1978 TOTAL 3393.80 MEAN 9.30 MAX 56 MIN .02 AC-FT 6730
WTR YR 1979 TOTAL 3171.76 MEAN 8.69 MAX 72 MIN .10 AC-FT 6290

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 5.4 mi (8.7 km) upstream from mouth.

DRAINAGE AREA.--229 mi² (593 km²), of which 31 mi² (80.3 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 except those for period of no gage-height record, which are poor. 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.--19 years, 17.9 ft³/s (0.507 m³/s), 12,970 acre-ft/yr (26.0 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.--Maximum discharge, 36 ft³/s (1.02 m³/s) Nov. 5, gage height, 3.36 ft (1.024 m), no peak above base of 100 ft³/s (2.83 m³/s); minimum daily, 5.5 ft³/s (0.16 m³/s) Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	21	22	22	19	17	16	19	19	16	16	9.7
2	21	21	22	22	19	17	16	18	21	15	17	9.4
3	22	21	22	22	19	17	16	15	17	14	18	10
4	21	22	22	22	22	17	16	14	15	15	17	11
5	21	29	23	22	23	16	16	14	19	16	16	10
6	20	23	23	22	20	16	16	16	16	16	15	7.6
7	20	22	23	22	19	17	16	17	15	16	16	7.3
8	21	22	23	22	17	16	16	17	15	16	15	6.2
9	20	21	23	21	17	16	16	14	14	16	14	7.6
10	20	21	23	21	19	16	16	14	14	14	17	5.8
11	21	21	23	21	19	16	16	16	19	14	13	6.8
12	21	21	24	21	19	16	16	17	19	13	14	7.3
13	20	21	24	20	19	16	16	17	19	12	14	7.3
14	20	21	23	20	19	16	16	17	19	11	13	7.0
15	21	21	24	20	20	16	16	17	16	11	12	5.5
16	21	21	24	20	20	16	16	17	14	11	10	6.2
17	19	21	24	20	19	15	16	17	13	11	9.4	6.7
18	19	21	24	21	18	15	16	17	13	19	9.7	6.0
19	21	21	24	20	17	15	16	16	13	16	8.5	7.0
20	22	21	25	20	17	15	17	16	13	18	8.2	8.1
21	21	21	24	19	17	16	18	17	12	16	7.9	8.0
22	20	21	24	18	18	16	19	17	11	14	8.5	7.7
23	22	21	24	18	18	16	21	17	12	14	8.8	8.6
24	22	21	23	17	18	16	21	17	11	14	9.1	9.8
25	22	21	23	18	18	16	19	16	13	14	9.4	9.9
26	21	22	23	18	18	16	19	16	14	15	9.7	9.6
27	21	22	23	17	18	16	19	16	15	17	10	8.9
28	21	22	23	17	17	16	19	15	15	20	10	9.2
29	21	22	23	17	---	16	20	16	15	20	10	8.0
30	21	22	23	17	---	16	20	16	15	18	9.7	11
31	21	---	24	17	---	16	---	16	---	18	9.7	---
TOTAL	646	648	722	614	523	497	516	504	456	470	375.6	243.2
MEAN	20.8	21.6	23.3	19.8	18.7	16.0	17.2	16.3	15.2	15.2	12.1	8.11
MAX	22	29	25	22	23	17	21	19	21	20	18	11
MIN	19	21	22	17	17	15	16	14	11	11	7.9	5.5
AC-FT	1280	1290	1430	1220	1040	986	1020	1000	904	932	745	482

CAL YR 1978 TOTAL 7977.9 MEAN 21.9 MAX 30 MIN 9.9 AC-FT 15820
WTR YR 1979 TOTAL 6214.8 MEAN 17.0 MAX 29 MIN 5.5 AC-FT 12330

NOTE.--No gage-height record Nov. 14 to Dec. 19 and Feb. 15 to Apr. 23; discharge estimated.

08131200 TWIN BUTTES RESERVOIR NEAR SAN ANGELO, TX

LOCATION.--Lat 31°22'55", long 100°32'17", Tom Green County, Hydrologic Unit 12090102, in outlet control tower at Twin Buttes Dam on Middle Concho River, Spring Creek, and South Concho River, 3.8 mi (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.--3,724 mi² (9,645 km²), of which 1,178 mi² (3,051 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 ft (4.7 m) concrete conduits, each is controlled by a 12.0 by 15.0 ft (3.7 by 4.6 m) fixed-wheel gate and a 12.0 by 15.0 ft (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 ft (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 mi (5.18 km) equalizing channel. At an elevation of 1,926.5 ft (587.20 m) the two pools join to form one lake. 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	1,925.0	84,760
Dead storage in South Concho pool	1,925.0	4,600
Lowest gated outlet (invert at Middle Concho-Spring Creek pool)	1,885.0	3,750

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 205,200 acre-ft (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 contents, 129,500 acre-ft (160 hm³) Apr. 23-25, elevation, 1,932.98 ft (589.172 m); minimum, 87,370 acre-ft (108 hm³) Sept. 30, elevation, 1,925.55 ft (586.908 m).

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

1,925.5	87,100	1,931.0	116,800
1,926.5	91,920	1,933.0	129,700
1,928.0	99,590		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118300	116600	118900	119200	121700	124900	128500	129200	121200	113400	102000	94390
2	118200	116500	118900	119400	121700	125400	128300	129100	121400	112900	101900	94150
3	118100	116500	118800	119400	121800	125200	128200	129100	121400	112400	101600	93950
4	118200	116600	118800	119400	122500	125300	128100	128900	121900	112000	101200	93700
5	118000	117400	118700	119600	123100	125400	127900	128700	122200	111600	100800	93500
6	117900	117300	118700	119700	123200	125400	127700	128700	122200	111300	100500	93260
7	117900	117400	118600	119700	123400	125400	127700	128300	122100	111000	100100	93010
8	117800	117400	118600	119800	123300	125400	127600	127700	121900	110600	99750	92810
9	117700	117500	118600	119900	123500	125300	127700	127400	121600	110200	99650	92560
10	117700	117400	118600	120000	123600	125400	127700	127000	121500	109700	99650	92320
11	117600	117300	118600	120100	123700	125300	127700	126600	121300	109300	99490	92020
12	117500	117400	118600	120400	123700	125400	127600	126300	121200	108800	99330	91820
13	117400	117400	118600	120200	123900	125200	127500	126000	120900	108400	99020	91540
14	117300	117400	118700	120400	124000	125100	127500	125500	120600	107900	98710	91180
15	117200	117500	118700	120400	123900	125200	127500	125100	120200	107400	98450	90900
16	117200	117700	118700	120500	123900	125200	127500	124800	119700	106900	98140	90720
17	117000	117700	118700	120600	124000	125600	127500	124300	119400	106700	97820	90490
18	116900	117800	118700	120800	124100	125500	127500	124100	119000	106300	97560	90210
19	116900	117900	118800	120900	124300	125500	127600	123700	118600	106100	97360	89940
20	116700	117900	118800	121000	124300	127200	129100	123300	118200	105900	97040	89710
21	116500	118100	118900	121100	124400	127700	129300	123300	117800	105700	96780	89480
22	116500	118200	118900	121300	124500	128000	129300	123100	117300	105400	96580	89260
23	116600	118300	118700	121100	[illegible]500	128300	129500	122800	116700	105100	96320	89030
24	116700	118400	118900	121300	124500	128400	129500	122500	116300	104700	96060	88780
25	116700	118700	118900	121300	124700	128500	129300	122300	115900	104300	95850	88560
26	116700	118600	118800	121400	124700	128300	129300	121900	115500	103900	95590	88340
27	116700	118600	118900	121400	124700	128300	129100	121700	115100	103500	95330	88070
28	116700	118700	119000	121500	124700	128300	129200	121500	114700	103000	95070	87770
29	116600	118700	119000	121600	---	128300	129100	121200	114300	102500	94860	87590
30	116600	118700	119100	121600	---	128300	129200	120900	113800	102000	94710	87370
31	116600	---	119200	121600	---	128300	---	120700	---	101600	94550	---
MAX	118300	118700	119200	121600	124700	128500	129500	129200	122200	113400	102000	94390
MIN	116500	116500	118600	119200	121700	124900	127500	120700	113800	101600	94550	87370
(†)	1930.96	1931.31	1931.39	1931.76	1932.25	1932.77	1932.93	1931.62	1930.51	1928.37	1927.03	1925.55
(‡)	-1700	+2100	+500	+2400	+3100	+3600	+900	-8500	-6900	-12200	-7050	-7180

CAL YR 1978 MAX 153700 MIN 116500 ‡ -25900
WTR YR 1979 MAX 129500 MIN 87370 ‡ -30930

† Elevation, in feet, at end of month.
‡ 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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
OCT 04...	0945	707	23.0	210	49	41	25	68	2.1
JAN 30...	0840	741	4.5	210	47	45	24	62	1.9

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 04...	5.8	190	0	55	100	.4	13	402
JAN 30...	4.7	200	0	61	100	.4	12	408

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, 3.6 mi (5.8 km) upstream from mouth, and 10.5 mi (16.9 km) south of San Angelo.

DRAINAGE AREA.--83.2 mi^2 (215.5 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. No known diversions above station. Two observations of water temperature were made during the current year.

AVERAGE DISCHARGE.--18 years, 1.59 ft^3/s (0.0450 m^3/s), 0.26 in/yr (7 mm/yr), 1,150 acre-ft/yr (1.42 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,780 ft^3/s (192 m^3/s) Sept. 24, 1964, gage height, 11.15 ft (3.399 m), site and datum then in use, from rating curve extended above 2,100 ft^3/s (59.5 m^3/s) on basis of slope-area measurement of 30,500 ft^3/s (864 m^3/s); 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, 3.5 ft^3/s (0.099 m^3/s) Mar. 22, gage height, 0.62 ft (0.189 m), no peak above base of 100 ft^3/s (2.83 m^3/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.06	.24	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.09	.15	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.12	.14	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.07	.11	.11	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	1.7	.08	.10	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	1.2	.07	.07	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.47	.07	.06	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.34	.07	.05	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.19	.06	.04	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.18	.05	.05	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.15	.05	.05	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.14	.03	.04	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.12	.02	.02	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.09	.01	.02	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.08	.00	.02	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.05	.01	.02	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.03	.06	.02	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.02	.17	.02	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.02	.18	.02	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.04	.31	.02	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.16	.27	.05	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.15	.87	.02	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.09	.22	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.11	.17	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.09	.13	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.07	.11	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.06	.09	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.06	.09	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.09	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.09	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.10	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	5.68	3.85	1.33	.00	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.20	.12	.044	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	1.7	.87	.24	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.000	.000	.000	.002	.001	.001	.000	.000	.000	.000	.000
IN.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	11	7.6	2.6	.00	.00	.00	.00	.00

CAL YR 1978 TOTAL 123.69 MEAN .34 MAX 47 MIN .00 CFSM .004 IN .06 AC-FT 245
WTR YR 1979 TOTAL 10.86 MEAN .030 MAX 1.7 MIN .00 CFSM .000 IN .00 AC-FT 22

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 current year.

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; 8 years (water years 1972-79), 19.4 ft³/s (0.549 m³/s), 14,060 acre-ft/yr (17.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 123 ft³/s (3.48 m³/s) May 12, 1979; no flow Oct. 1 to Mar. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	80	28	91	52	81	5.6
2	.00	.00	.00	.00	.00	.00	68	34	64	57	66	5.1
3	.00	.00	.00	.00	.00	.00	61	39	41	58	69	.82
4	.00	.00	.00	.00	.00	.00	49	37	24	58	48	.41
5	.00	.00	.00	.00	.00	.00	45	34	19	71	38	5.3
6	.00	.00	.00	.00	.00	.00	35	34	19	79	41	17
7	.00	.00	.00	.00	.00	.00	35	47	19	84	47	17
8	.00	.00	.00	.00	.00	.00	32	67	19	72	52	9.6
9	.00	.00	.00	.00	.00	.00	21	78	19	78	51	9.5
10	.00	.00	.00	.00	.00	.00	20	101	19	85	38	2.5
11	.00	.00	.00	.00	.00	.00	14	114	19	80	30	.33
12	.00	.00	.00	.00	.00	.00	7.4	123	34	83	19	.33
13	.00	.00	.00	.00	.00	16	7.0	116	58	89	28	1.6
14	.00	.00	.00	.00	.00	25	7.0	106	69	84	36	4.5
15	.00	.00	.00	.00	.00	17	6.9	105	80	70	44	4.7
16	.00	.00	.00	.00	.00	13	7.2	101	81	77	51	7.7
17	.00	.00	.00	.00	.00	13	7.2	93	81	83	47	12
18	.00	.00	.00	.00	.00	13	7.2	82	105	97	51	12
19	.00	.00	.00	.00	.00	14	7.2	75	105	109	42	12
20	.00	.00	.00	.00	.00	28	12	71	101	96	47	12
21	.00	.00	.00	.00	.00	37	11	68	84	73	48	12
22	.00	.00	.00	.00	.00	37	7.2	67	76	68	43	12
23	.00	.00	.00	.00	.00	37	7.2	62	67	67	46	12
24	.00	.00	.00	.00	.00	36	10	60	57	75	35	12
25	.00	.00	.00	.00	.00	38	14	54	70	85	24	12
26	.00	.00	.00	.00	.00	51	22	53	80	86	9.7	11
27	.00	.00	.00	.00	.00	68	22	48	72	97	6.7	.44
28	.00	.00	.00	.00	.00	83	22	61	76	95	12	.71
29	.00	.00	.00	.00	---	93	22	65	72	87	13	6.4
30	.00	.00	.00	.00	---	98	22	77	65	79	13	3.4
31	.00	---	.00	.00	---	92	---	86	---	79	13	---
TOTAL	.00	.00	.00	.00	.00	809.00	688.5	2186	1786	2453	1189.4	221.94
MEAN	.000	.000	.000	.000	.000	26.1	23.0	70.5	59.5	79.1	38.4	7.40
MAX	.00	.00	.00	.00	.00	98	80	123	105	109	81	17
MIN	.00	.00	.00	.00	.00	.00	6.9	28	19	52	6.7	.33
AC-FT	.00	.00	.00	.00	.00	1600	1370	4340	3540	4870	2360	440

CAL YR 1978 TOTAL 9160.27 MEAN 25.1 MAX 125 MIN .00 AC-FT 18170
WTR YR 1979 TOTAL 9333.84 MEAN 25.6 MAX 123 MIN .00 AC-FT 18510

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.--3,833 mi² (9,927 km²), of which 3,724 mi² (9,645 km²) is above Twin Buttes Reservoir and 1,178 mi² (3,051 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 ft (5.5 by 7.6 m) tainter gates, and a 25.0 by 3.0 ft (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, 11,080 acre-ft (13.7 hm³) Apr. 20, gage height, 31.38 ft (9.565 m); minimum, 10,250 acre-ft (12.6 hm³) May 4, gage height, 30.84 ft (9.400 m).

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

30.0	9,170
31.0	10,470
32.0	12,070

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10600	10580	10390	10600	10370	10500	10650	10370	10580	10520	10400	10390
2	10580	10600	10410	10600	10370	10660	10610	10360	10630	10530	10300	10400
3	10550	10600	10390	10570	10390	10570	10630	10290	10650	10530	10300	10410
4	10580	10610	10400	10570	10550	10550	10650	10270	10760	10550	10360	10430
5	10530	10810	10400	10570	10660	10520	10690	10330	10730	10550	10410	10430
6	10520	10760	10410	10570	10680	10470	10690	10370	10600	10580	10470	10410
7	10520	10690	10430	10550	10690	10430	10690	10440	10550	10600	10500	10390
8	10500	10650	10460	10550	10660	10410	10710	10500	10530	10600	10520	10390
9	10500	10570	10490	10550	10660	10370	10550	10570	10500	10470	10580	10370
10	10500	10530	10500	10550	10660	10370	10710	10530	10490	10490	10580	10370
11	10490	10530	10530	10550	10660	10390	10690	10500	10460	10440	10630	10370
12	10470	10610	10570	10570	10650	10390	10660	10460	10410	10390	10680	10390
13	10430	10630	10570	10530	10660	10340	10680	10430	10410	10370	10690	10370
14	10430	10610	10600	10520	10660	10360	10680	10410	10440	10390	10710	10330
15	10430	10610	10610	10520	10610	10430	10680	10390	10460	10410	10690	10330
16	10410	10630	10600	10520	10600	10440	10690	10370	10470	10430	10650	10320
17	10400	10600	10610	10500	10600	10430	10680	10400	10470	10460	10630	10320
18	10390	10580	10610	10520	10600	10370	10630	10460	10430	10460	10600	10330
19	10410	10570	10650	10520	10610	10300	10600	10520	10390	10520	10600	10340
20	10430	10530	10650	10520	10600	10430	11000	10570	10330	10520	10550	10360
21	10410	10530	10650	10500	10600	10530	10950	10650	10360	10490	10530	10370
22	10460	10530	10630	10470	10600	10580	10920	10630	10460	10440	10520	10390
23	10460	10530	10630	10430	10580	10550	10870	10630	10550	10410	10490	10400
24	10440	10500	10650	10410	10580	10520	10850	10610	10680	10410	10490	10400
25	10440	10500	10650	10410	10570	10490	10710	10630	10740	10430	10490	10410
26	10430	10470	10630	10400	10570	10470	10610	10650	10710	10440	10530	10460
27	10440	10440	10650	10370	10550	10520	10500	10660	10650	10430	10580	10530
28	10470	10430	10660	10360	10520	10530	10440	10660	10580	10430	10610	10550
29	10490	10400	10610	10340	---	10500	10370	10630	10530	10410	10570	10550
30	10500	10390	10600	10330	---	10570	10370	10550	10530	10410	10470	10550
31	10530	---	10630	10330	---	10570	---	10470	---	10430	10400	---
MAX	10600	10810	10660	10600	10690	10660	11000	10660	10760	10600	10710	10550
MIN	10390	10390	10390	10330	10370	10300	10370	10270	10330	10370	10300	10320
(†)	31.04	30.94	31.10	30.90	31.03	31.06	30.93	31.00	31.04	30.97	30.95	31.05
(‡)	-80	-140	+240	-300	+190	+50	-200	+100	+60	-100	-30	+150

CAL YR 1978 MAX 11080 MIN 10290 ‡ +60
WTR YR 1979 MAX 11000 MIN 10270 ‡ -60

† 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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
OCT 04...	0815	922	23.0	240	63	48	28	99	2.8
JAN 30...	0810	1240	6.0	310	110	70	32	140	3.5

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 04...	6.2	210	0	73	150	.5	18	526
JAN 30...	5.2	244	0	120	220	.5	17	725

08133500 NORTH CONCHO RIVER NEAR 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 55.3 (89.0 km).

DRAINAGE AREA.--605 mi² (1,567 km²), of which 66 mi² (171 km²) 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. An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--40 years, 8.46 ft³/s (0.240 m³/s), 6,130 acre-ft/yr (7.56 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,300 ft³/s (462 m³/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, 25 ft³/s (0.71 m³/s) Mar. 19, gage height, 3.53 ft (1.076 m), no peak above base of 300 ft³/s (8.50 m³/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.29	.59	.18	.00	.00	.00	.00
2	.00	.00	.00	.00	.01	.31	.45	.25	.00	.00	.00	.00
3	.00	.00	.00	.00	.02	.38	.44	.17	.00	.00	.00	.00
4	.00	.00	.00	.00	.02	.30	.40	.12	.45	.00	.00	.00
5	.00	.00	.00	.00	.15	.41	.39	.09	4.8	.00	.00	.00
6	.00	.00	.00	.00	.25	.34	.39	.09	2.0	.00	.00	.00
7	.00	.00	.00	.00	.29	.35	.38	.07	.40	.00	.00	.00
8	.00	.00	.00	.00	.20	.38	.39	.05	.19	.00	.00	.00
9	.00	.00	.00	.00	.13	.35	.39	.03	.14	.00	.00	.00
10	.00	.00	.00	.00	.15	.32	.35	.01	.08	.00	.00	.00
11	.00	.00	.00	.00	.12	.12	.34	.00	.04	.00	.00	.00
12	.00	.00	.00	.00	.10	.10	.40	.00	.04	.00	.00	.00
13	.00	.00	.00	.00	.10	.10	.25	.00	.02	.00	.00	.00
14	.00	.00	.00	.00	.12	.09	.30	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.09	.08	.32	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.05	.15	.30	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.12	.19	.46	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.17	.16	.33	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.19	5.8	.29	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.24	5.7	.26	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.29	1.5	.23	.00	.00	.00	.00	.00
22	.00	.00	.00	.01	.35	1.2	.21	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.38	.83	.21	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.36	.70	.19	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.38	.57	.16	.00	.00	.00	.00	.00
26	.00	.00	.00	.02	.40	.49	.12	.00	.00	.00	.00	.00
27	.00	.00	.00	.01	.33	.44	.07	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.41	.44	.06	.00	.03	.00	.00	.00
29	.00	.00	.00	.00	---	.46	.12	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.53	.20	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.57	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.04	5.42	23.65	8.99	1.06	8.19	.00	.00	.00
MEAN	.000	.000	.000	.001	.19	.76	.30	.034	.27	.000	.000	.000
MAX	.00	.00	.00	.02	.41	5.8	.59	.25	4.8	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.08	.06	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.08	11	47	18	2.1	16	.00	.00	.00

CAL YR 1978 TOTAL 228.41 MEAN .63 MAX 55 MIN .00 AC-FT 453
WTR YR 1979 TOTAL 47.35 MEAN .13 MAX 5.8 MIN .00 AC-FT 94

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 22.9 mi (36.8 km) upstream from mouth.

DRAINAGE AREA.--1,249 mi² (3,235 km²), of which 105 mi² (272 km²) probably is noncontributing.

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

AVERAGE DISCHARGE.--55 years, 35.4 ft³/s (1.003 m³/s), 25,650 acre-ft/yr (31.6 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, 243 ft³/s (6.88 m³/s) Apr. 1, gage height, 5.40 ft (1.646 m), from floodmark, 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 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.2	1.3	3.5	2.4	2.9	65	5.6	.86	.24	.00	.00
2	.00	1.7	1.3	3.5	2.6	3.2	9.8	5.6	7.7	.10	.00	.00
3	.00	1.5	1.5	3.5	2.9	3.5	7.6	5.6	6.8	.04	12	.00
4	.00	1.5	1.3	3.5	3.2	3.2	7.6	5.2	6.4	.03	13	.00
5	.00	2.9	1.3	3.5	5.2	2.6	7.6	4.8	5.2	.02	8.0	.00
6	.00	3.2	1.5	3.5	5.6	2.9	7.6	4.5	4.1	.01	2.9	.00
7	.00	2.4	1.5	3.5	4.8	2.9	7.2	4.1	2.9	.01	.87	.00
8	.00	1.9	1.7	3.5	3.5	3.2	7.2	3.8	2.4	.00	.18	.00
9	.00	2.9	1.5	3.8	3.5	2.9	6.8	3.5	2.1	.00	.07	.00
10	.00	3.4	1.7	3.8	3.5	2.6	6.8	3.2	2.4	.00	.08	.00
11	.00	4.5	1.9	4.1	3.5	2.6	6.4	2.6	2.6	.00	.06	.00
12	.00	4.8	1.9	4.1	3.5	2.4	6.4	2.1	2.4	.00	.04	.00
13	.00	4.5	1.9	4.1	3.5	2.6	6.0	2.1	2.6	.00	.02	.00
14	.00	4.5	1.9	3.8	3.5	2.6	6.0	2.1	4.1	.00	.01	.00
15	.00	4.1	2.1	3.8	3.5	2.9	5.6	1.9	5.2	.00	.00	.00
16	.00	3.5	2.6	3.8	3.2	3.2	5.6	1.3	4.1	.00	.00	.00
17	.00	3.2	2.6	4.1	3.2	3.5	5.2	1.2	3.2	.00	.00	.00
18	.00	2.9	2.9	4.1	3.2	3.8	5.2	1.0	2.1	.00	.00	.00
19	.00	2.6	3.2	4.8	3.5	3.5	4.8	.87	1.0	.00	.00	.00
20	.00	2.6	2.9	4.5	3.5	4.1	4.8	.64	.30	.00	.00	.00
21	.00	2.4	3.2	3.5	3.8	5.2	4.5	2.6	.18	.00	.00	.00
22	.00	2.4	2.9	3.5	3.8	8.3	4.5	1.9	.10	.00	.00	.00
23	.00	2.1	2.6	3.5	3.8	9.4	4.1	1.3	.08	.00	.00	.00
24	.00	1.9	2.6	3.5	3.8	8.5	4.1	1.2	.06	.00	.00	.00
25	.00	1.5	3.2	3.2	3.5	6.4	4.1	.64	.04	.00	.00	.00
26	.00	1.7	2.9	2.9	3.2	5.2	4.1	.18	2.0	.00	.00	.00
27	.00	1.9	2.4	2.9	3.2	4.8	4.1	.18	14	.00	.00	.00
28	.00	1.3	2.6	2.9	3.2	4.5	4.1	1.1	3.2	.00	.00	.00
29	.00	1.3	2.9	2.6	---	4.5	4.8	2.4	1.5	.00	.00	.00
30	.80	1.5	2.9	2.6	---	4.1	5.2	1.0	.64	.00	.00	.00
31	.75	---	3.2	2.4	---	3.8	---	.45	---	.00	.00	---
TOTAL	1.55	77.8	69.9	110.3	99.6	125.8	232.8	74.66	90.26	.45	37.23	.00
MEAN	.050	2.59	2.25	3.56	3.56	4.06	7.76	2.41	3.01	.015	1.20	.000
MAX	.80	4.8	3.2	4.8	5.6	9.4	65	5.6	14	.24	13	.00
MIN	.00	1.2	1.3	2.4	2.4	2.4	4.1	.18	.04	.00	.00	.00
AC-FT	3.1	154	139	219	198	250	462	148	179	.9	74	.00

CAL YR 1978	TOTAL	5039.11	MEAN	13.8	MAX	2010	MIN	.00	AC-FT 10000
WTR YR 1979	TOTAL	920.35	MEAN	2.52	MAX	65	MIN	.00	AC-FT 1830

NOTE.--No gage-height record Mar. 27 to Apr. 25; discharge estimated.

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 service 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. Corps of Engineers gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	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, 25,200 acre-ft (31.1 hm³) Oct. 1, elevation, 1,880.86 ft (573.286 m); minimum, 18,690 acre-ft (23.0 hm³) Sept. 30, elevation, 1,877.09 ft (572.137 m).

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

1,877.0	18,560	1,880.0	23,560
1,878.0	20,080	1,881.0	25,480
1,879.0	21,750		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25160	24260	23940	23530	23300	23490	23750	23530	22570	21820	20760	19830
2	25120	24240	23940	23470	23300	23530	23730	23530	22570	21730	20710	19790
3	25100	24200	23900	23430	23300	23600	23670	23620	22560	21700	20680	19760
4	25060	24200	23900	23430	23450	23560	23670	23540	22920	21630	20630	19720
5	25010	24350	23840	23410	23640	23540	23660	23510	22950	21590	20560	19680
6	24950	24330	23820	23450	23640	23540	23600	23490	22950	21560	20520	19630
7	24910	24300	23790	23410	23640	23530	23600	23430	22920	21520	20470	19590
8	24850	24260	23750	23410	23640	23510	23600	23410	22900	21470	20420	19540
9	24830	24240	23710	23410	23640	23490	23600	23400	22900	21420	20560	19510
10	24810	24220	23710	23410	23640	23470	23660	23360	22790	21390	20550	19460
11	24790	24180	23690	23430	23640	23470	23580	23300	22750	21320	20660	19420
12	24770	24160	23670	23430	23640	23470	23510	23250	22700	21280	20650	19370
13	24700	24180	23660	23430	23640	23450	23490	23210	22660	21230	20600	19320
14	24640	24160	23660	23400	23660	23430	23470	23140	22610	21160	20530	19260
15	24600	24140	23660	23400	23640	23450	23430	23100	22560	21100	20500	19220
16	24560	24140	23640	23400	23600	23470	23430	23030	22540	21060	20450	19190
17	24540	24130	23640	23400	23560	23490	23410	22990	22430	21060	20400	19130
18	24510	24090	23620	23430	23560	23490	23410	22950	22390	21180	20390	19100
19	24490	24070	23620	23450	23560	23510	23410	22970	22360	21270	20320	19070
20	24430	24070	23620	23430	23560	23690	23670	22900	22300	21250	20290	19040
21	24390	24070	23600	23410	23560	23750	23710	22940	22290	21220	20240	19010
22	24450	24070	23600	23410	23560	23790	23730	22900	22200	21160	20210	18990
23	24450	24070	23580	23380	23560	23730	23730	22860	22160	21130	20160	18950
24	24430	24070	23540	23380	23540	23710	23710	22810	22110	21100	20130	18920
25	24430	24070	23530	23360	23530	23710	23670	22750	22110	21050	20100	18890
26	24390	24050	23510	23360	23530	23670	23620	22720	22070	21010	20050	18840
27	24350	24030	23510	23360	23510	23670	23560	22680	22040	20960	20010	18830
28	24330	23990	23510	23340	23490	23670	23540	22650	21960	20890	19970	18780
29	24310	23990	23510	23340	---	23690	23530	22590	21950	20840	19930	18740
30	24310	23960	23510	23340	---	23710	23530	22560	21880	20760	19880	18690
31	24280	---	23530	23300	---	23710	---	22500	---	20730	19850	---
MAX	25160	24350	23940	23530	23660	23790	23750	23620	22950	21820	20760	19830
MIN	24280	23960	23510	23300	23300	23430	23410	22500	21880	20730	19850	18690
(†)	1880.38	1880.21	1879.98	1879.86	1879.96	1880.08	1879.98	1879.42	1879.07	1878.40	1877.85	1877.09
(‡)	-920	-320	-430	-230	+190	+220	-180	-1030	-620	-1150	-880	-1160

CAL YR 1978 MAX 27090 MIN 20190 ‡ +1640
WTR YR 1979 MAX 25160 MIN 18690 ‡ -6510

† 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.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
OCT 02...	1125	585	23.5	180	59	40	20	39	1.3

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 02...	1.6	150	0	36	80	.3	8.4	299

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.--1,507 mi² (3,903 km²) of which 105 mi² (272 km²) proabably is noncontributing.

PERIOD OF RECORD.--October 1915 to June 1928, Feburary 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.--Records good. Since October 1951, flow regulated by O.C. Fisher Lake (station 08134500). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years (water years 1916-27, 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); 28 years (water years 1952-79) regulated, 8.67 ft³/s (0.246 m³/s), 6,280 acre-ft/yr (7.74 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, 146 ft³/s (4.13 m³/s) Aug. 1, gage height, 2.25 ft (0.686 m); no flow July 28-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.61	.50	.51	.93	.62	.70	9.8	.94	2.5	.35	30	.18
2	.53	.49	.51	.81	.62	3.7	1.3	1.4	2.4	.25	2.7	.15
3	.55	.47	.50	.73	.58	2.9	1.0	.91	.99	.22	.68	.13
4	.53	.48	.52	.72	5.7	.96	1.0	.95	3.8	.23	.45	.09
5	.54	8.3	.51	.71	9.6	.81	1.0	.74	11	.23	.36	.08
6	.54	1.4	.50	.70	2.0	.81	.99	.70	.91	.22	.34	.07
7	.53	.53	.52	.70	.69	.77	.97	.62	.65	.18	.35	.05
8	.54	.47	.54	.68	.61	.72	1.0	.79	.52	.16	.30	.05
9	.55	.47	.51	.68	.65	.73	3.1	1.4	1.2	.15	.25	.05
10	.57	.47	.54	.69	.56	.74	2.0	1.4	1.8	.22	.58	.04
11	.56	.46	.54	.70	.57	.78	3.5	1.7	1.3	.08	7.2	.03
12	.54	.47	.52	.70	.66	.96	1.2	1.4	1.0	.06	1.4	.02
13	.53	.50	.52	.64	.65	.88	1.0	1.6	.90	.04	.63	.03
14	.52	.50	.54	.57	.73	.86	.99	1.5	.77	.02	.48	.02
15	.52	.89	.57	.55	.71	1.8	.99	1.3	.64	.01	.39	.02
16	.52	.51	.59	.57	.65	1.6	.97	.78	.83	.01	.38	.03
17	.52	.51	.59	.56	.81	1.1	1.0	1.1	1.0	.07	.37	.03
18	.52	.50	.59	.59	.77	1.0	.91	1.4	.69	.58	.33	.03
19	.52	.48	.60	.69	.51	.94	.89	.99	.61	.72	.31	.02
20	.51	.49	.59	.64	.52	14	3.4	1.1	.59	.50	.30	.02
21	.50	.51	.57	.55	.59	17	2.2	2.8	.58	.34	.35	.01
22	.75	.56	.65	.53	.60	4.8	.99	1.2	.57	.19	.34	.02
23	1.1	.52	.67	.52	.56	.99	.91	.89	.53	.13	.35	.02
24	.72	.50	.66	.52	.53	.97	.91	1.2	.52	.10	.26	.01
25	.79	.52	.79	.45	.56	.94	.74	.65	.62	.08	.21	.01
26	.56	.51	.87	.57	.65	.94	.59	.81	1.9	.03	.20	.01
27	.52	.48	.69	.70	.68	.92	.67	1.1	1.1	.01	.20	.01
28	.50	.47	.68	.71	.66	.96	.67	1.0	.77	.00	.21	.01
29	.51	.47	.70	.69	---	1.1	.75	.95	.66	.00	.24	.01
30	.52	.49	.71	.65	---	2.9	.95	.88	.74	.00	.24	.01
31	.52	---	.98	.61	---	1.2	---	.98	---	.00	.21	---
TOTAL	17.74	23.92	18.78	20.06	33.04	69.48	46.39	35.18	42.09	5.18	50.61	1.26
MEAN	.57	.80	.61	.65	1.18	2.24	1.55	1.13	1.40	.17	1.63	.042
MAX	1.1	8.3	.98	.93	9.6	17	9.8	2.8	11	.72	30	.18
MIN	.50	.46	.50	.45	.51	.70	.59	.62	.52	.00	.20	.01
AC-FT	35	47	37	40	66	138	92	70	83	10	100	2.5

CAL YR 1978 TOTAL 453.90 MEAN 1.24 MAX 58 MIN .07 AC-FT 900
WTR YR 1979 TOTAL 363.73 MEAN 1.00 MAX 30 MIN .00 AC-FT 721

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 60.9 mi (98.0 km) upstream from mouth.

DRAINAGE AREA.--5,380 mi² (13,934 km²), of which 1,283 mi² (3,323 km²) 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 period Oct. 3 to Nov. 12, which are poor. Many diversions upstream from station for irrigation, industrial, and municipal supply. Records furnished by the city of San Angelo show that they diverted 17,920 acre-ft (22.1 hm³), of which 19 acre-ft (23,400 m³) was diverted from E. V. Spence Reservoir during the year. 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 ft³/s (4.475 m³/s), 114,500 acre-ft/yr (141 hm³/yr); 17 years (water years 1963-79) regulated, 22.8 ft³/s (0.646 m³/s), 16,520 acre-ft/yr (20.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft³/s (6,510 m³/s) Sept. 17, 1936, gage height, 46.6 ft (14.20 m), from floodmarks, from rating curve extended above 105,000 ft³/s (2,970 m³/s) on basis of slope-area measurements of 167,000 and 230,000 ft³/s (4,730 and 6,510 m³/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 ft³/s (6,970 m³/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, 414 ft³/s (11.7 m³/s) Apr. 21, gage height, 3.25 ft (0.991 m); minimum daily, 0.02 ft³/s (0.001 m³/s) Dec. 5, result of bridge construction upstream.

CORRECTIONS.--The revised figure for water year 1936 is 73,400 ft³/s (2,080 m³/s) Sept. 15, 1936; the previously published figure in WSP 1148 was incorrect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	4.0	2.0	4.5	4.0	7.4	28	6.1	8.6	37	118	18
2	3.5	4.0	.11	4.5	3.8	7.7	23	5.9	42	35	48	16
3	4.0	4.0	.18	4.5	3.8	10	13	5.6	33	34	26	20
4	4.0	4.0	.03	4.5	6.0	9.7	12	7.2	34	35	18	19
5	4.0	30	.02	4.5	8.9	7.6	11	12	100	42	13	18
6	4.0	20	.03	4.5	10	6.6	8.6	12	33	44	13	17
7	4.0	18	.10	4.5	4.6	6.5	7.5	9.9	26	23	9.7	15
8	4.0	16	1.3	4.5	.17	6.7	6.9	9.1	20	24	7.1	18
9	4.5	15	4.5	5.1	.21	10	7.8	8.5	19	33	14	19
10	5.0	15	4.5	5.2	.11	7.7	17	10	16	42	37	21
11	5.0	14	4.5	5.2	.71	5.6	26	10	16	40	57	22
12	5.0	14	4.7	5.5	2.8	5.5	20	16	13	35	38	17
13	4.5	13	4.2	5.6	2.6	5.2	12	15	12	25	27	17
14	4.0	13	4.1	5.2	2.5	5.2	7.9	16	10	20	18	20
15	4.0	12	4.2	5.2	3.1	5.4	6.3	12	7.1	19	13	24
16	4.0	12	4.8	4.3	3.0	5.2	6.4	8.1	5.1	20	12	27
17	4.0	11	4.8	3.8	2.6	5.3	7.1	7.4	4.0	20	9.5	29
18	4.0	11	4.5	3.8	2.4	5.2	6.9	7.6	3.8	35	8.6	28
19	4.0	11	4.5	3.9	2.2	5.2	5.9	6.9	3.5	35	9.7	27
20	4.0	10	4.7	4.2	5.9	5.7	17	6.1	3.9	31	11	27
21	4.0	9.6	4.7	4.1	8.7	36	155	7.7	3.6	25	9.1	27
22	5.0	8.7	4.5	4.1	8.4	40	28	12	3.7	19	6.1	32
23	6.0	8.1	4.3	4.1	7.9	26	13	13	3.6	14	8.6	30
24	5.0	7.7	4.1	4.1	7.9	15	9.1	12	8.6	8.9	14	22
25	5.0	7.0	4.1	4.1	7.8	11	7.4	9.3	19	9.0	13	19
26	5.0	7.0	4.1	4.1	7.5	8.5	6.5	8.4	59	13	20	17
27	5.0	7.0	4.1	4.0	7.5	7.3	5.9	9.0	71	13	15	19
28	4.0	7.0	4.0	4.0	7.5	7.0	6.1	10	63	14	12	19
29	4.0	3.9	4.5	4.1	---	8.4	6.1	9.4	54	19	11	14
30	4.0	1.4	4.5	4.1	---	17	6.1	6.8	39	20	12	13
31	4.0	---	4.5	4.1	---	17	---	5.9	---	14	14	---
TOTAL	134.8	318.4	105.17	137.9	132.60	326.6	493.5	294.9	734.5	797.9	642.4	631
MEAN	4.35	10.6	3.39	4.45	4.74	10.5	16.5	9.51	24.5	25.7	20.7	21.0
MAX	6.0	30	4.8	5.6	10	40	155	16	100	44	118	32
MIN	3.5	1.4	.02	3.8	.11	5.2	5.9	5.6	3.5	8.9	6.1	13
AC-FT	267	632	209	274	263	648	979	585	1460	1580	1270	1250

CAL YR 1978 TOTAL 6247.27 MEAN 17.1 MAX 262 MIN .02 AC-FT 12390
WTR YR 1979 TOTAL 4749.67 MEAN 13.0 MAX 155 MIN .02 AC-FT 9420

NOTE.--No gage-height record Oct. 3 to Nov. 12.

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 current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 02...	1830	25	2250	8.0	18.5	9.1	100	2.8	660	400
DEC 14...	1735	21	2400	7.9	7.0	11.9	103	2.6	720	430
FEB 15...	1115	18	2760	8.1	13.5	10.7	107	2.6	720	460
APR 12...	1200	31	2100	8.2	19.5	8.9	100	3.5	610	370
JUN 07...	1705	30	1790	8.4	27.0	11.9	151	9.9	430	250
JUL 12...	1400	27	1600	7.9	30.5	8.0	108	4.3	400	200
SEP 06...	1400	25	1850	7.7	29.0	7.9	108	4.0	480	260

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 02...	140	75	240	4.1	4.8	310	0	230	490	.6
DEC 14...	160	78	250	4.1	4.9	350	0	260	500	.6
FEB 15...	170	72	280	4.5	5.1	320	0	260	560	.6
APR 12...	130	70	240	4.2	5.3	300	0	200	490	.6
JUN 07...	92	49	210	4.4	5.8	220	2	170	390	.5
JUL 12...	78	49	180	3.9	5.7	240	0	170	320	.6
SEP 06...	100	56	210	4.2	5.8	270	0	190	370	.7

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 02...	20	1350	4.1	.06	4.2	.02	1.3	1.3	.05
DEC 14...	21	1450	8.8	.03	8.8	.00	1.2	1.2	.03
FEB 15...	16	1520	3.5	.08	3.6	.01	1.4	1.4	.04
APR 12...	12	1300	3.8	.30	4.1	.11	.74	.85	.04
JUN 07...	17	1040	.55	.06	.61	.02	1.6	1.6	.09
JUL 12...	23	945	1.1	.25	1.3	.04	1.3	1.3	.08
SEP 06...	27	1090	2.0	.26	2.3	.05	.95	1.0	.07

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 19.6 mi (31.5 km) upstream from mouth.

DRAINAGE AREA.--6,415 mi² (16,615 km²), of which 1,283 mi² (3,323 km²) 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).

AVERAGE DISCHARGE.--47 years (water years 1916-62) prior to construction of Twin Buttes Dam, 210 ft³/s (5.947 m³/s), 152,100 acre-ft/yr (188 hm³/yr); 17 years (water years 1963-79) regulated, 54.1 ft³/s (1.532 m³/s), 39,200 acre-ft/yr (48.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 301,000 ft³/s (8,520 m³/s) Sept. 17, 1936, gage height, 43.4 ft (13.23 m), from floodmarks, from rating curve extended above 98,000 ft³/s (2,780 m³/s) on basis of slope-area measurements of 144,000 and 301,000 ft³/s (4,080 and 8,520 m³/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, 2,760 ft³/s (78.2 m³/s) Apr. 21, gage height, 15.20 ft (4.633 m); minimum daily, 5.0 ft³/s (0.14 m³/s) June 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	36	41	32	29	30	77	155	15	43	11	17
2	36	38	40	32	30	29	69	87	18	31	11	17
3	31	39	37	32	31	29	51	42	25	29	82	22
4	29	43	34	33	36	28	49	32	46	24	54	25
5	28	47	35	33	51	28	40	27	55	29	34	25
6	26	53	32	33	51	28	32	26	90	38	29	25
7	27	51	31	33	48	28	28	24	81	31	24	24
8	32	48	29	31	43	28	27	27	47	33	17	22
9	35	46	28	32	40	26	23	28	38	25	36	20
10	32	48	30	34	38	25	26	26	33	17	27	20
11	31	47	31	34	36	24	27	23	25	14	24	22
12	30	49	32	34	33	26	27	20	22	20	6	24
13	27	51	36	33	33	27	31	21	19	27	2	24
14	26	55	36	31	33	25	31	22	18	26	5	24
15	28	52	38	31	31	25	25	24	15	24	46	24
16	29	53	38	32	29	24	23	27	13	22	38	24
17	31	52	38	33	28	28	27	26	12	18	31	25
18	31	52	38	34	30	35	22	22	11	24	29	27
19	32	52	38	35	31	34	21	18	9.6	46	27	29
20	31	52	36	36	33	47	88	15	9.6	44	25	27
21	31	52	31	33	33	84	1040	14	8.4	48	22	25
22	31	52	29	31	33	90	285	11	8.4	43	24	24
23	30	52	32	29	31	56	129	11	7.2	38	25	24
24	33	52	33	27	33	61	80	15	6.2	34	20	29
25	35	52	31	27	33	45	60	16	5.0	31	18	25
26	36	50	32	29	32	36	52	18	5.0	27	45	22
27	36	47	31	28	34	31	42	19	6.2	23	31	18
28	36	43	32	27	32	28	37	18	6.2	19	24	18
29	37	42	33	28	---	29	36	18	9.6	17	24	18
30	36	41	32	29	---	48	44	18	49	15	22	17
31	36	---	33	29	---	42	---	16	---	12	18	---
TOTAL	989	1447	1047	975	975	1124	2549	866	713.4	872	1004	687
MEAN	31.9	48.2	33.8	31.5	34.8	36.3	85.0	27.9	23.8	28.1	32.4	22.9
MAX	40	55	41	36	51	90	1040	155	90	48	82	29
MIN	26	36	28	27	28	24	21	11	5.0	12	11	17
AC-FT	1960	2870	2080	1930	1930	2230	5060	1720	1420	1730	1990	1360

CAL YR 1978 TOTAL 23764.3 MEAN 65.1 MAX 4350 MIN 1.0 AC-FT 47140
WTR YR 1979 TOTAL 13248.4 MEAN 36.3 MAX 1040 MIN 5.0 AC-FT 26280

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 current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,110 micromhos Apr. 20, 24, 25, 1974; minimum daily, 321 micromhos Aug. 4, 1978.
WATER TEMPERATURES (1967-73, 1975-79): Maximum daily, 35.0°C Aug. 11, 1969 and July 18, 1978, June 15, July 9, 1979; minimum daily 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean 2930 mg/L Aug. 3, 1978; minimum daily mean, 3 mg/L Feb. 2, 1979.
SEDIMENT LOADS: Maximum daily, 68,200 tons Aug. 3, 1978; minimum daily, 0.12 tons July 10, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,580 micromhos Mar. 11; minimum daily, 565 micromhos Apr. 21.
WATER TEMPERATURES: Maximum daily, 35.0°C June 15, July 9; minimum daily, 0.0°C Feb. 1.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 626 mg/L Apr. 16; minimum daily mean, 3 mg/L Feb. 2.
SEDIMENT LOADS: Maximum daily, 1,200 tons Apr. 21; minimum daily, 0.24 tons Feb. 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT												
02...	1120	37	2100	--	23.0	--	--	--	--	--	670	510
NOV												
02...	1630	38	2300	8.0	19.5	5	20	9.2	103	2.4	730	540
06...	0900	55	--	--	16.0	--	--	--	--	--	--	--
DEC												
14...	1545	36	2400	7.8	7.0	5	4.0	11.0	95	1.1	780	560
19...	0930	38	--	--	8.5	--	--	--	--	--	--	--
JAN												
31...	0600	29	2330	--	4.0	--	--	--	--	--	720	590
FEB												
07...	0845	49	--	--	4.5	--	--	--	--	--	--	--
15...	0820	31	2400	7.9	12.5	0	15	9.5	98	1.6	710	510
MAR												
12...	0935	25	--	--	13.5	--	--	--	--	--	--	--
APR												
12...	0930	29	2430	8.1	17.5	10	20	8.5	92	2.5	700	520
30...	--	41	--	--	--	--	--	--	--	--	--	--
MAY												
31...	1800	14	2340	--	27.0	--	--	--	--	--	720	590
JUN												
07...	1520	72	2290	8.2	26.5	--	13	8.8	111	8.1	660	500
11...	0950	25	--	--	24.5	--	--	--	--	--	--	--
30...	1720	49	2310	--	33.0	--	--	--	--	--	580	430
JUL												
12...	1210	18	2200	7.6	29.5	20	10	7.6	101	5.6	690	560
24...	0900	34	--	--	27.5	--	--	--	--	--	--	--
SEP												
04...	0900	25	--	--	28.0	--	--	--	--	--	--	--
06...	1200	25	1900	7.7	29.0	5	14	7.8	100	2.3	510	350

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
02...	140	78	190	3.2	5.9	200	0	260	430	.5	19
NOV											
02...	160	81	210	3.4	4.7	230	0	300	480	.6	19
06...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	180	80	210	3.3	5.0	270	0	280	480	.6	18
19...	--	--	--	--	--	--	--	--	--	--	--
JAN											
31...	150	85	230	3.7	4.8	160	0	350	510	.4	19
FEB											
07...	--	--	--	--	--	--	--	--	--	--	--
15...	160	75	230	3.8	4.5	240	0	280	480	.6	14
MAR											
12...	--	--	--	--	--	--	--	--	--	--	--
APR											
12...	150	80	230	3.8	5.3	230	0	270	550	.6	8.0
30...	--	--	--	--	--	--	--	--	--	--	--
MAY											
31...	140	90	210	3.4	6.3	160	0	310	490	.5	17
JUN											
07...	130	82	220	3.7	5.2	200	0	280	480	.6	19
11...	--	--	--	--	--	--	--	--	--	--	--
30...	120	68	260	4.7	5.3	180	0	250	530	.6	20
JUL											
12...	130	89	220	3.6	6.1	160	0	300	510	.6	21
24...	--	--	--	--	--	--	--	--	--	--	--
SEP											
04...	--	--	--	--	--	--	--	--	--	--	--
06...	99	63	190	3.7	6.0	190	0	230	400	.7	26

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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											
02...	1220	--	--	--	--	--	--	--	--	--	--
NOV											
02...	1370	28	4	17	.05	17	.03	1.4	1.4	.030	4.2
06...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	1390	8	3	4.7	.01	4.7	.00	1.3	1.3	.020	--
19...	--	--	--	--	--	--	--	--	--	--	--
JAN											
31...	1430	--	--	--	--	--	--	--	--	--	--
FEB											
07...	--	--	--	--	--	--	--	--	--	--	--
15...	1360	16	3	8.3	.08	8.4	.05	1.2	1.2	.040	--
MAR											
12...	--	--	--	--	--	--	--	--	--	--	--
APR											
12...	1410	28	5	6.6	.28	6.9	.08	.51	.59	.030	4.8
30...	--	--	--	--	--	--	--	--	--	--	--
MAY											
31...	1340	--	--	--	--	--	--	--	--	--	--
JUN											
07...	1320	40	--	1.7	.21	1.9	.02	1.8	1.8	.070	11
11...	--	--	--	--	--	--	--	--	--	--	--
30...	1340	--	--	--	--	--	--	--	--	--	--
JUL											
12...	1360	25	16	1.2	.33	1.5	.12	1.4	1.5	.070	8.4
24...	--	--	--	--	--	--	--	--	--	--	--
SEP											
04...	--	--	--	--	--	--	--	--	--	--	--
06...	1110	24	--	.76	.16	.92	.13	.29	.42	.070	11

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV							
02...	1630	2	0	1	0	1	20
FEB							
15...	0820	2	100	0	10	1	20
JUN							
07...	1520	3	100	1	10	0	<
SEP							
06...	1200	5	200	<1	10	2	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV						
02...	0	0	.1	8	0	10
FEB						
15...	0	10	.1	5	1	10
JUN						
07...	2	0	.0	4	0	20
SEP						
06...	0	2	.3	2	0	3

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)
FEB										
15...	0820	.0	0	.00	.0	.0	0	.00	.2	.00
SEP										
06...	1200	.0	7	.00	.0	.0	2	.00	1.8	.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										
15...	2.9	.00	.0	.00	.00	.0	.00	.00	.0	.00
SEP										
06...	8.9	.00	1.7	.00	.00	.2	.00	.00	.0	.00

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 15...	.00	.0	.00	.0	.00	.0	.00	--	--	.00
SEP 06...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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 15...	.00	.00	.00	0	0	.00	.00	.00	.00
SEP 06...	.00	.00	.00	0	0	.00	.01	.01	.00

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	989	2230	1290	3430	460	1230	260	692	680
NOV. 1978.....	1447	2340	1350	5290	490	1900	280	1100	710
DEC. 1978.....	1047	2370	1370	3860	490	1380	290	806	720
JAN. 1979.....	975	2420	1400	3680	500	1320	290	775	740
FEB. 1979.....	975	2440	1410	3720	510	1330	300	786	740
MAR. 1979.....	1124	2300	1330	4020	480	1440	270	832	700
APR. 1979.....	2549	1210	700	4820	250	1730	130	919	370
MAY 1979.....	866	1810	1040	2440	370	874	200	458	550
JUNE 1979.....	713.4	2230	1290	2480	460	889	260	500	680
JULY 1979.....	872	2210	1280	3010	460	1080	260	606	670
AUG. 1979.....	1004	1920	1110	3010	400	1070	200	548	580
SEPT 1979.....	687	2010	1160	2150	410	770	220	403	610
TOTAL	13248.39	**	**	41900	**	15000	**	8420	**
WTD.AVG.	36	2030	1200	**	420	**	230	**	620

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2100	2370	2290	2500	2490	2460	2150	1650	2300	2230	1870	1880
2	2090	2310	2300	2410	2490	2450	1990	1600	2290	2270	1890	1870
3	2120	2340	2310	2420	2520	2460	2120	1420	2250	2290	1750	1860
4	2130	2360	2320	2400	2510	2450	2230	1410	2200	2330	1950	1880
5	2160	2370	2310	2360	2300	2460	2300	1280	2160	2370	2000	1910
6	2170	2380	2320	2390	2250	2540	2310	1360	2120	2400	2060	1930
7	2150	2370	2330	2410	2430	2560	2350	1480	2190	2430	2090	1970
8	2160	2350	2320	2440	2400	2480	2330	1620	2220	2420	2110	1980
9	2120	2370	2320	2430	2370	2560	2340	1700	2260	2410	2090	1990
10	2130	2330	2350	2410	2380	2570	2350	1800	2280	2390	1960	1980
11	2190	2370	2340	2240	2410	2580	2330	1870	2270	2400	1900	1950
12	2210	2380	2350	2390	2420	2520	2350	1900	2280	2410	1820	1930
13	2200	2340	2360	2410	2380	2540	2380	1930	2290	2430	1960	1900
14	2230	2350	2390	2400	2450	2510	2400	1960	2280	2460	2090	1910
15	2230	2350	2380	2400	2180	2500	2410	1970	2260	2480	2050	1940
16	2230	2380	2370	2390	2430	2520	2400	2010	2270	2460	1930	1960
17	2220	2360	2380	2440	2460	2530	2350	2030	2290	2450	1850	2000
18	2220	2380	2370	2430	2490	2560	2280	2050	2300	2430	1800	2030
19	2250	2370	2370	2410	2520	2520	2190	2080	2310	2360	1810	2040
20	2250	2350	2360	2440	2530	2400	1850	2120	2300	2280	1830	2100
21	2270	2320	2360	2430	2540	1480	565	2150	2280	2230	1860	2130
22	2280	2290	2380	2440	2550	1800	750	2180	2290	2070	1860	2150
23	2290	2320	2390	2450	2540	2200	926	2190	2310	1900	1840	2140
24	2290	2300	2410	2460	2550	2290	1050	2220	2310	1770	1830	2140
25	2300	2310	2420	2470	2510	2180	1250	2230	2310	1740	1850	2130
26	2290	2300	2430	2460	2520	2100	1560	2270	2320	1780	1870	2130
27	2290	2310	2440	2460	2530	2250	1700	2260	2320	1760	1900	2110
28	2320	2330	2430	2480	2530	2320	1760	2250	2300	1800	1910	2100
29	2340	2340	2420	2470	---	2380	1790	2270	2310	1830	1890	2090
30	2350	2330	2460	2470	---	2420	1810	2280	2210	1850	1900	2070
31	2350	---	2430	2470	---	2390	---	2270	---	1860	1910	---
MEAN	2220	2340	2370	2430	2450	2390	1950	1930	2270	2200	1920	2010

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	20.0	18.0	---	.0	18.0	21.0	20.0	25.0	33.0	28.0	32.0
2	27.0	24.0	16.0	7.0	10.0	18.0	20.0	25.0	24.0	32.0	30.0	32.0
3	28.0	---	10.0	5.0	9.0	15.0	---	20.0	27.0	33.0	30.0	---
4	27.0	20.0	12.0	5.0	7.0	13.0	20.0	19.0	26.0	---	31.0	30.0
5	27.0	19.0	13.0	4.0	---	17.0	23.0	25.0	29.0	30.0	30.0	31.0
6	22.0	15.0	14.0	1.0	4.0	18.0	23.0	30.0	34.0	34.0	30.0	31.0
7	22.0	16.0	7.0	---	---	17.0	20.0	30.0	33.0	33.0	30.0	---
8	---	17.0	5.0	7.0	18.0	15.0	20.0	27.0	30.0	31.0	31.0	30.0
9	24.0	19.0	---	4.0	9.0	21.0	19.0	---	29.0	35.0	29.0	31.0
10	26.0	21.0	5.0	4.0	10.0	12.0	24.0	28.0	25.0	34.0	30.0	30.0
11	27.0	15.0	7.0	---	2.5	15.0	21.0	23.0	26.0	34.0	---	29.0
12	26.0	17.0	8.0	12.0	15.0	18.0	21.0	22.0	28.0	34.0	27.0	29.0
13	23.0	21.0	7.0	5.0	16.0	20.0	20.0	25.0	30.0	33.0	31.0	28.0
14	23.0	19.0	7.0	5.0	17.0	17.0	25.0	27.0	30.0	32.0	31.0	---
15	23.0	12.0	15.0	5.0	15.0	10.0	---	28.0	35.0	33.0	30.0	25.0
16	23.0	9.0	9.0	10.0	6.0	10.0	25.0	24.0	29.0	34.0	30.0	25.0
17	23.0	15.0	8.0	10.0	---	15.0	22.0	25.0	32.0	33.0	32.0	26.0
18	24.0	15.0	16.0	13.0	6.0	18.0	25.0	25.0	29.0	29.0	29.0	27.0
19	24.0	12.0	10.0	13.0	6.0	19.0	25.0	30.0	30.0	27.0	30.0	---
20	24.0	13.0	15.0	8.0	15.0	13.0	28.0	---	33.0	27.0	32.0	25.0
21	20.0	10.0	17.0	---	14.0	20.0	20.0	26.0	33.0	30.0	30.0	---
22	21.0	12.0	16.0	11.0	15.0	20.0	21.0	25.0	31.0	---	30.0	29.0
23	18.0	15.0	10.0	---	---	20.0	25.0	27.0	31.0	33.0	27.0	27.0
24	18.0	13.0	16.0	11.0	14.0	17.0	28.0	27.0	34.0	34.0	30.0	---
25	20.0	18.0	---	9.0	13.0	21.0	---	25.0	33.0	30.0	---	29.0
26	19.0	17.0	15.0	6.0	15.0	22.0	25.0	25.0	27.0	30.0	31.0	28.0
27	20.0	13.0	10.0	4.0	13.0	21.0	23.0	---	30.0	29.0	30.0	31.0
28	20.0	13.0	10.0	---	15.0	21.0	20.0	25.0	34.0	33.0	---	---
29	23.0	13.0	15.0	5.0	---	24.0	20.0	31.0	33.0	30.0	30.0	26.0
30	21.0	15.0	7.0	5.0	---	23.0	21.0	31.0	33.0	33.0	30.0	27.0
31	21.0	---	5.0	4.0	---	22.0	---	27.0	---	32.0	31.0	---
MEAN	23.0	16.0	11.0	7.0	11.0	17.5	22.5	26.0	30.0	32.0	30.0	28.5

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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	40	45	4.9	36	48	4.7	41	53	5.9
2	36	28	2.7	38	43	4.4	40	18	1.9
3	31	42	3.5	39	41	4.3	37	49	4.9
4	29	32	2.5	43	20	2.3	34	24	2.2
5	28	50	3.8	47	58	7.4	35	20	1.9
6	26	33	2.3	53	96	14	32	14	1.2
7	27	27	2.0	51	14	1.9	31	20	1.7
8	32	22	1.9	48	16	2.1	29	60	4.7
9	35	30	2.8	46	12	1.5	28	78	5.9
10	32	12	1.0	48	76	9.8	30	14	1.1
11	31	6	.50	47	17	2.2	31	14	1.2
12	30	20	1.6	49	26	3.4	32	44	3.8
13	27	25	1.8	51	28	3.9	36	65	6.3
14	26	29	2.0	55	20	3.0	36	16	1.6
15	28	36	2.7	52	26	3.7	38	52	5.3
16	29	25	2.0	53	14	2.0	38	15	1.5
17	31	22	1.8	52	12	1.7	38	33	3.4
18	31	37	3.1	52	11	1.5	38	12	1.2
19	32	10	.86	52	18	2.5	38	42	4.3
20	31	38	3.2	52	16	2.2	36	72	7.0
21	31	24	2.0	52	40	5.6	31	29	2.4
22	31	14	1.2	52	14	2.0	29	24	1.9
23	30	54	4.4	52	19	2.7	32	20	1.7
24	33	24	2.1	52	19	2.7	33	24	2.1
25	35	85	8.0	52	16	2.2	31	25	2.1
26	36	12	1.2	50	32	4.3	32	26	2.2
27	36	25	2.4	47	12	1.5	31	26	2.2
28	36	22	2.1	43	44	5.1	32	24	2.1
29	37	28	2.8	42	24	2.7	33	30	2.7
30	36	34	3.3	41	13	1.4	32	22	1.9
31	36	41	4.0	---	---	---	33	37	3.3
TOTAL	989	---	80.46	1447	---	108.7	1047	---	91.6

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	32	24	2.1	29	12	.94	30	35	2.8
2	32	10	.86	30	3	.24	29	18	1.4
3	32	24	2.1	31	6	.50	29	44	3.4
4	33	18	1.6	36	11	1.1	28	31	2.3
5	33	18	1.6	51	10	1.4	28	30	2.3
6	33	15	1.3	51	10	1.4	28	16	1.2
7	33	14	1.2	48	52	6.7	28	28	2.1
8	31	63	5.3	43	20	2.3	28	24	1.8
9	32	18	1.6	40	36	3.9	26	20	1.4
10	34	13	1.2	38	10	1.0	25	28	1.9
11	34	15	1.4	36	11	1.1	24	30	1.9
12	34	9	.83	33	33	2.9	26	28	2.0
13	33	85	7.6	33	22	2.0	27	48	3.5
14	31	52	4.4	33	19	1.7	25	12	.81
15	31	48	4.0	31	13	1.1	25	10	.68
16	32	62	5.4	29	42	3.3	24	50	3.2
17	33	45	4.0	28	30	2.3	28	16	1.2
18	34	28	2.6	30	17	1.4	35	28	2.6
19	35	31	2.9	31	10	.84	34	32	2.9
20	36	46	4.5	33	22	2.0	47	18	2.3
21	33	43	3.8	33	24	2.1	84	22	5.0
22	31	48	4.0	33	26	2.3	90	22	5.3
23	29	53	4.1	31	12	1.0	56	31	4.7
24	27	38	2.8	33	10	.89	61	24	4.0
25	27	26	1.9	33	14	1.2	45	25	3.0
26	29	27	2.1	32	17	1.5	36	18	1.7
27	28	36	2.7	34	15	1.4	31	24	2.0
28	27	26	1.9	32	29	2.5	28	22	1.7
29	28	16	1.2	---	---	---	29	43	3.4
30	29	16	1.3	---	---	---	48	21	2.7
31	29	12	.94	---	---	---	42	46	5.2
TOTAL	975	---	83.23	975	---	51.01	1124	---	80.39

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L) APRIL	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L) MAY	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L) JUNE	SEDIMENT DISCHARGE (TONS/DAY)
1	77	34	7.1	155	51	21	15	142	5.8
2	69	36	6.7	87	40	9.4	18	61	3.0
3	51	27	3.7	42	34	3.9	25	58	3.9
4	49	17	2.2	32	60	5.2	46	65	8.1
5	40	20	2.2	27	41	3.0	55	78	12
6	32	54	4.7	26	32	2.2	90	55	13
7	28	5	.38	24	33	2.1	81	68	15
8	27	33	2.4	27	34	2.5	47	40	5.1
9	23	35	2.2	28	37	2.8	38	71	7.3
10	26	39	2.7	26	24	1.7	33	42	3.7
11	27	47	3.4	23	46	2.9	25	43	2.9
12	27	5	.36	20	38	2.1	22	56	3.3
13	31	42	3.5	21	30	1.7	19	73	3.7
14	31	29	2.4	22	80	4.8	18	41	2.0
15	25	55	3.7	24	97	6.3	15	46	1.9
16	23	626	39	27	88	6.4	13	70	2.5
17	27	50	3.6	26	66	4.6	12	54	1.7
18	22	50	3.0	22	98	5.8	11	64	1.9
19	21	32	1.8	18	44	2.1	9.6	49	1.3
20	88	26	6.2	15	40	1.6	9.6	43	1.1
21	1040	427	1200	14	60	2.3	8.4	56	1.3
22	285	45	35	11	62	1.8	8.4	34	.77
23	129	44	15	11	35	1.0	7.2	42	.82
24	80	42	9.1	15	66	2.7	6.2	22	.37
25	60	42	6.8	16	66	2.9	5.0	38	.51
26	52	40	5.6	18	61	3.0	5.0	45	.61
27	42	35	4.0	19	61	3.1	6.2	50	.84
28	37	35	3.5	18	60	2.9	6.2	42	.70
29	36	33	3.2	18	43	2.1	9.6	44	1.1
30	44	50	5.9	18	47	2.3	49	66	8.7
31	---	---	---	16	84	3.6	---	---	---
TOTAL	2549	---	1389.34	866	---	119.8	713.4	---	114.92

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L) JULY	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L) AUGUST	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L) SEPTEMBER	SEDIMENT DISCHARGE (TONS/DAY)
1	43	28	3.3	11	55	1.6	17	36	1.7
2	31	48	4.0	11	48	1.4	17	44	2.0
3	29	40	3.1	82	56	12	22	50	3.0
4	24	50	3.2	54	34	5.0	25	68	4.6
5	29	61	4.8	34	47	4.3	25	50	3.4
6	38	48	4.9	29	51	4.0	25	36	2.4
7	31	55	4.6	24	96	6.2	24	72	4.7
8	33	72	6.4	17	56	2.6	22	86	5.1
9	25	37	2.5	36	100	9.7	20	40	2.2
10	17	52	2.4	27	72	5.2	20	61	3.3
11	14	17	.64	34	60	5.5	22	66	3.9
12	20	22	1.2	46	48	6.0	24	72	4.7
13	27	27	2.0	72	67	13	24	32	2.1
14	26	36	2.5	58	54	8.5	24	56	3.6
15	24	52	3.4	46	61	7.6	24	67	4.3
16	22	52	3.1	38	76	7.8	24	53	3.4
17	18	56	2.7	31	66	5.5	25	74	5.0
18	24	30	1.9	29	40	3.1	27	52	3.8
19	46	49	6.1	27	44	3.2	29	86	6.7
20	44	46	5.5	25	80	5.4	27	62	4.5
21	48	40	5.2	22	60	3.6	25	50	3.4
22	43	51	5.9	24	36	2.3	24	79	5.1
23	38	62	6.4	25	38	2.6	24	101	6.5
24	34	54	5.0	20	40	2.2	29	58	4.5
25	31	33	2.8	18	46	2.2	25	79	5.3
26	27	38	2.8	45	72	8.7	22	74	4.4
27	23	56	3.5	31	100	8.4	18	80	3.9
28	19	38	1.9	24	74	4.8	18	90	4.4
29	17	32	1.5	24	72	4.7	18	82	4.0
30	15	42	1.7	22	70	4.2	17	134	6.2
31	12	58	1.9	18	54	2.6	---	---	---
TOTAL	872	---	106.84	1004	---	163.9	687	---	122.1

08136700 COLORADO RIVER NEAR STACY, TX
(National stream-quality accounting network)

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.--24,040 mi² (62,260 km²), approximately, of which 12,880 mi² (33,360 km²) 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 08126500 and 08136000) and at times by discharge from the flood-detention pools of 40 floodwater-retarding structures with combined detention capacity of 54,040 acre-ft (66.6 hm³). These structures control runoff from 260 mi² (673 km²).

AVERAGE DISCHARGE.--11 years (water years 1969-79), 214 ft³/s (6.060 m³/s), 155,000 acre-ft/yr (191 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,700 ft³/s (1,010 m³/s) Aug. 4, 1978, gage height, 22.50 ft (6.858 m); no flow June 22 to Aug. 3, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since since at least 1882, 356,000 ft³/s (10,100 m³/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, 4,730 ft³/s (134 m³/s) Mar. 20, gage height, 9.61 ft (2.929 m); minimum daily, 9.5 ft³/s (0.27 m³/s) June 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	47	59	52	48	50	173	254	43	148	29	34
2	47	48	59	47	49	52	198	1370	45	111	25	30
3	49	47	59	52	49	55	298	944	44	94	23	25
4	47	46	56	50	62	53	230	638	316	72	19	22
5	43	52	54	52	82	50	183	595	222	59	41	21
6	57	57	52	54	88	48	168	327	144	44	111	38
7	44	59	51	53	91	47	147	217	117	34	76	34
8	38	65	50	51	89	52	130	161	137	26	55	34
9	35	68	47	50	88	49	117	122	107	22	46	30
10	36	67	46	53	81	48	111	104	85	19	39	28
11	44	64	46	57	75	46	99	95	80	32	31	24
12	47	64	45	57	69	45	101	85	148	30	50	21
13	43	66	45	57	66	43	101	75	108	24	71	20
14	38	67	47	55	60	41	102	67	83	19	97	21
15	35	68	48	54	55	45	102	61	64	21	113	22
16	34	76	51	54	53	50	100	56	49	29	88	22
17	34	80	55	53	49	49	290	52	40	38	68	23
18	36	76	55	54	49	47	213	51	33	40	57	23
19	38	77	55	56	48	52	134	54	26	43	46	25
20	39	78	53	57	47	1830	118	51	20	69	38	29
21	42	78	54	53	47	1640	973	46	17	800	46	34
22	40	76	53	54	50	707	1220	40	15	572	128	36
23	44	74	50	53	50	1100	569	41	11	443	87	36
24	45	74	47	53	55	890	325	37	10	336	141	34
25	44	74	46	52	49	453	215	32	9.5	264	165	32
26	42	74	49	52	48	300	160	31	31	204	83	33
27	44	72	50	48	50	221	121	30	46	158	43	40
28	47	67	50	47	49	170	102	31	183	126	30	39
29	48	62	51	50	---	146	94	34	336	106	46	35
30	49	59	52	48	---	187	90	36	233	90	40	28
31	48	---	52	46	---	163	---	41	---	57	35	---
TOTAL	1328	1982	1587	1624	1696	8729	6984	5778	2802.5	4130	1967	873
MEAN	42.8	66.1	51.2	52.4	60.6	282	233	186	93.4	133	63.5	29.1
MAX	57	80	59	57	91	1830	1220	1370	336	800	165	40
MIN	34	46	45	46	47	41	90	30	9.5	19	19	20
AC-FT	2630	3930	3150	3220	3360	17310	13850	11460	5560	8190	3900	1730

CAL YR 1978 TOTAL 76566.0 MEAN 210 MAX 28000 MIN 2.6 AC-FT 151900
WTR YR 1979 TOTAL 39480.5 MEAN 108 MAX 1830 MIN 9.5 AC-FT 78310

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 (discontinued).

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 (1968-77): Maximum daily, 33.5°C July 18, 1971; minimum daily, 2.0°C Jan. 8, 1970, Dec. 16, 1972, and Jan. 12, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,760 micromhos Feb. 11; minimum daily, 683 micromhos Apr. 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 04...	0945	48	1940	25.0	570	460	120	66	180
NOV 15...	1010	69	--	15.0	--	--	--	--	--
30...	1200	49	2300	10.0	710	540	160	75	220
JAN 04...	1315	50	2410	6.0	780	630	180	80	210
FEB 15...	0940	55	2500	13.0	800	640	180	85	210
MAR 28...	1329	166	1010	19.0	300	200	74	27	86
APR 30...	1200	90	920	18.0	290	190	75	26	75
MAY 09...	1345	123	1170	26.0	350	210	85	34	110
JUN 20...	1145	20	1510	29.5	460	360	100	51	130
AUG 01...	1100	25	--	28.0	--	--	--	--	--
SEP 12...	1115	23	1620	27.0	440	320	100	47	140

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 04...	3.3	6.6	140	0	300	390	.4	16	1150
NOV 15...	--	--	--	--	--	--	--	--	--
30...	3.6	4.8	200	0	350	450	.5	12	1370
JAN 04...	3.3	5.0	180	0	390	460	.5	6.7	1420
FEB 15...	3.2	4.4	200	0	440	470	.6	5.9	1490
MAR 28...	2.2	4.6	120	0	160	170	.3	7.0	588
APR 30...	1.9	5.5	130	0	150	150	.3	8.5	554
MAY 09...	2.6	6.1	170	0	200	190	.4	7.3	717
JUN 20...	2.6	5.9	120	0	280	250	.4	10	886
AUG 01...	--	--	--	--	--	--	--	--	--
SEP 12...	2.9	7.4	150	0	230	290	.5	17	906

08136700 COLORADO RIVER NEAR STACY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	1328	1970	1150	4120	370	1330	280	1000	610
NOV. 1978.....	1982	2140	1260	6740	400	2160	330	1760	660
DEC. 1978.....	1587	2330	1390	5960	440	1870	390	1660	710
JAN. 1979.....	1624	2410	1450	6340	450	1990	410	1800	740
FEB. 1979.....	1696	2490	1500	6890	470	2150	440	2010	760
MAR. 1979.....	8729	1130	660	15600	210	5030	170	3920	350
APR. 1979.....	6984	1110	650	12200	210	3950	150	2900	340
MAY 1979.....	5778	1050	610	9570	200	3080	150	2290	320
JUNE 1979.....	2802.5	1590	920	6990	300	2260	220	1680	490
JULY 1979.....	4130	1290	750	8360	240	2710	180	2000	400
AUG. 1979.....	1967	1660	960	5120	310	1660	230	1230	510
SEPT 1979.....	873	1650	960	2260	310	731	230	537	510
TOTAL	39480.5	**	**	90100	**	28900	**	22800	**
WTD.AVG.	108	1440	840	**	270	**	210	**	440

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1950	2080	2350	2330	2460	2460	1300	866	1320	1800	1540	1640
2	1960	2070	2340	2390	2450	2470	1020	1060	1370	1690	1530	1630
3	1930	2080	2300	2350	2430	2490	1210	1240	1400	1590	1490	1540
4	1940	2100	2360	2380	2400	2470	1310	909	1430	1350	1480	1450
5	1930	2160	2340	2330	2310	2460	1180	846	1650	1230	1500	1480
6	1900	2200	2330	2280	2280	2450	1240	1000	1400	1200	1510	1290
7	1930	2210	2320	2310	2220	2470	1310	1120	1270	1180	1600	1240
8	1940	2100	2320	2390	2400	2440	1370	1190	1440	1170	1710	1260
9	1950	2050	2310	2430	2600	2460	1420	1170	1780	1180	1770	1350
10	1970	2100	2320	2400	2750	2470	1460	1010	1830	1190	1780	1490
11	1960	2110	2310	2350	2760	2470	1760	982	1900	1210	1790	1610
12	1900	2140	2330	2370	2460	2500	1740	970	2080	1220	1900	1670
13	1840	2150	2340	2400	2480	2520	1720	965	2120	1260	1990	1690
14	1880	2160	2310	2430	2500	2560	1600	982	2040	1280	2050	1680
15	1930	2040	2300	2460	2510	2000	1640	1060	1980	1350	1780	1620
16	1950	2000	2290	2470	2520	1640	1650	1030	1880	1420	1750	1630
17	1960	1950	2260	2490	2550	2450	957	1150	1750	1160	1730	1650
18	1990	2190	2290	2480	2580	2480	1000	1070	1640	1470	1790	1660
19	1980	2130	2310	2480	2600	2430	1160	1110	1550	1520	1690	1680
20	1990	2060	2320	2450	2590	1000	1610	1150	1430	1550	1660	1700
21	2010	2120	2330	2490	2590	1050	1200	1170	1290	1920	1640	1710
22	2050	2200	2350	2470	2550	1280	950	1190	1320	1000	1570	1720
23	2040	2210	2340	2480	2560	800	918	1200	1310	962	1520	1740
24	2030	2200	2360	2450	2470	691	739	1210	1300	775	1580	1730
25	2040	2200	2370	2460	2500	913	683	1220	1270	792	1400	1790
26	2060	2210	2360	2340	2520	1020	713	1230	1200	900	1600	1820
27	2070	2210	2340	2250	2490	1010	757	1250	1190	1050	1750	1920
28	2070	2240	2360	2390	2550	1010	809	1240	1120	1370	1740	1900
29	2000	2230	2350	2400	---	1060	900	1200	1330	1460	1630	1960
30	1950	2240	2330	2470	---	878	930	1280	1990	1520	1600	1980
31	2100	---	2320	2450	---	1610	---	1260	---	1510	1620	---
MEAN	1970	2140	2330	2410	2500	1870	1210	1110	1550	1300	1670	1640

08136700 COLORADO RIVER NEAR STACY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	20.0	10.0	---	7.0	15.0	---	18.0	25.0	---	25.0	32.0
2	24.0	18.0	18.0	---	8.0	15.0	10.0	20.0	28.0	---	24.0	32.0
3	25.0	18.0	15.0	---	10.0	12.0	15.0	20.0	---	28.0	26.0	---
4	12.0	18.0	18.0	5.0	8.0	10.0	20.0	18.0	22.0	---	26.0	28.0
5	24.0	---	15.0	---	9.0	12.0	20.0	18.0	25.0	30.0	---	---
6	22.0	15.0	---	---	---	12.0	22.0	---	---	30.0	25.0	26.0
7	20.0	16.0	---	---	---	15.0	20.0	20.0	30.0	30.0	---	26.0
8	---	18.0	---	---	---	15.0	---	25.0	25.0	---	26.0	24.0
9	20.0	18.0	10.0	---	---	10.0	17.0	---	25.0	---	28.0	---
10	20.0	16.0	---	3.0	10.0	12.0	20.0	26.0	20.0	30.0	30.0	26.0
11	28.0	---	14.0	---	8.0	15.0	25.0	22.0	27.0	30.0	26.0	26.0
12	20.0	---	---	4.0	10.0	18.0	---	---	20.0	30.0	---	27.0
13	24.0	---	---	---	15.0	10.0	14.0	18.0	25.0	30.0	25.0	25.0
14	---	18.0	15.0	4.0	10.0	---	---	22.0	25.0	28.0	28.0	22.0
15	---	15.0	10.0	10.0	15.0	---	24.0	24.0	24.0	---	20.0	24.0
16	22.0	---	15.0	---	---	12.0	24.0	20.0	18.0	30.0	---	25.0
17	18.0	---	---	---	---	10.0	24.0	22.0	---	24.0	24.0	---
18	22.0	18.0	10.0	---	---	---	---	23.0	20.0	30.0	26.0	---
19	18.0	---	10.0	15.0	12.0	15.0	22.0	22.0	---	26.0	28.0	25.0
20	18.0	18.0	---	---	---	10.0	20.0	---	28.0	25.0	30.0	24.0
21	20.0	---	15.0	---	12.0	---	20.0	25.0	26.0	30.0	28.0	23.0
22	---	17.0	12.0	---	10.0	12.0	18.0	25.0	28.0	---	30.0	---
23	---	---	15.0	8.0	---	15.0	22.0	22.0	30.0	28.0	26.0	25.0
24	16.0	12.0	---	---	---	14.0	20.0	22.0	---	20.0	30.0	25.0
25	18.0	---	---	---	---	10.0	20.0	24.0	20.0	28.0	28.0	25.0
26	18.0	15.0	---	---	15.0	15.0	22.0	24.0	26.0	---	---	27.0
27	20.0	15.0	---	15.0	12.0	12.0	20.0	---	28.0	---	28.0	28.0
28	---	18.0	12.0	---	12.0	20.0	20.0	24.0	26.0	30.0	30.0	28.0
29	---	15.0	10.0	---	---	---	---	---	26.0	---	26.0	27.0
30	18.0	10.0	---	15.0	---	25.0	18.0	---	26.0	28.0	27.0	---
31	20.0	---	---	---	---	10.0	---	22.0	---	24.0	30.0	---
MEAN	20.5	16.5	13.0	9.0	11.0	13.5	20.0	22.0	25.0	28.0	27.0	26.0

08138000 COLORADO RIVER AT WINCHELL, TX

LOCATION.--Lat 31°28'04", long 99°09'43", McCulloch-Brown County line, Hydrologic Unit 12090106, near left bank 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.--24,580 mi² (63,660 km²), approximately, of which 12,880 mi² (33,360 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 08126500 and 08136000) and at times by discharge from flood-dentention pools of 85 floodwater-retarding structures with a combined dentention capacity of 100,320 acre-ft (124 hm³). These structures control runoff from 486 mi² (1,259 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); 11 years (water years 1969-79) partially regulated, 252 ft³/s (7.137 m³/s), 182,600 acre-ft/yr (225 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), presents 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, 17,000 ft³/s (481 m³/s) Aug. 2, gage height, 23.18 ft (7.065 m), no other peak above base of 12,000 ft³/s (340 m³/s); minimum, 7.6 ft³/s (0.215 m³/s) July 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	37	46	41	39	38	178	1230	21	170	89	29
2	46	37	46	40	38	40	234	1340	24	107	5670	24
3	45	38	44	41	38	40	193	1300	30	71	288	23
4	44	37	43	39	47	41	275	779	31	62	58	22
5	45	40	43	41	63	41	210	663	127	56	28	19
6	43	41	41	41	72	38	159	503	185	44	19	15
7	40	41	39	42	73	37	132	285	135	36	16	13
8	48	42	37	42	72	36	111	192	109	30	62	14
9	42	43	36	42	73	33	94	146	111	24	45	31
10	39	47	36	44	72	34	80	115	113	19	34	25
11	35	49	35	48	70	35	72	92	87	16	32	21
12	35	49	34	47	63	34	62	81	61	13	24	18
13	37	48	34	47	57	33	56	71	99	10	21	16
14	39	48	34	46	53	32	58	61	102	9.0	18	14
15	36	50	34	46	49	33	58	54	73	14	40	12
16	34	51	36	44	44	36	59	47	56	12	68	11
17	32	53	37	44	43	36	60	42	44	9.8	69	10
18	31	55	39	46	41	39	326	38	35	8.9	54	10
19	28	66	42	48	39	38	225	36	29	21	41	12
20	28	58	42	49	38	48	120	35	25	18	33	13
21	29	56	42	47	37	2800	83	43	21	19	27	13
22	30	58	41	48	37	1170	968	48	18	436	23	15
23	30	56	40	43	37	719	833	49	15	356	50	19
24	32	55	40	43	49	1150	485	34	13	248	55	24
25	35	55	40	45	71	666	273	28	11	165	40	24
26	37	56	37	44	50	386	175	26	18	117	95	23
27	37	54	35	43	40	251	124	24	19	86	71	22
28	36	52	35	42	37	186	95	23	14	65	46	20
29	36	50	39	40	---	144	338	22	34	51	32	23
30	37	48	39	38	---	205	188	21	213	41	24	26
31	37	---	41	39	---	227	---	19	---	41	25	---
TOTAL	1149	1470	1207	1350	1442	8646	6324	7447	1873	2375.7	7197	561
MEAN	37.1	49.0	38.9	43.5	51.5	279	211	240	62.4	76.6	232	18.7
MAX	48	66	46	49	73	2800	968	1340	213	436	5670	31
MIN	28	37	34	38	37	32	56	19	11	8.9	16	10
AC-FT	2280	2920	2390	2680	2860	17150	12540	14770	3720	4710	14280	1110

CAL YR 1978	TOTAL	73673.29	MEAN 202	MAX 19500	MIN .01	AC-FT	146100	
WTR YR 1979	TOTAL	41041.70	MEAN 112	MAX 5670	MIN 8.9	AC-FT	81410	

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 10...	1350	38	2020	21.5	590	490	130	64	180
NOV 29...	1600	49	2220	14.0	640	510	150	65	200
JAN 11...	1015	47	2460	2.5	740	590	170	76	230
FEB 12...	1300	64	2400	11.0	750	610	180	74	220
MAR 27...	1345	248	725	18.0	220	130	57	20	57
MAY 08...	1510	188	885	22.0	250	140	61	23	76
JUN 19...	1240	29	1340	27.0	380	260	88	40	130
JUL 31...	1144	34	1260	29.0	380	250	81	42	110
SEP 11...	1235	22	1580	27.0	400	270	86	45	160

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 10...	3.2	7.0	125	0	320	410	.4	13	1190
NOV 29...	3.4	6.1	160	0	360	440	.5	7.9	1310
JAN 11...	3.7	7.0	175	0	370	490	.4	6.1	1440
FEB 12...	3.5	4.8	170	0	410	460	.4	4.1	1440
MAR 27...	1.7	4.4	120	0	120	100	.3	7.1	425
MAY 08...	2.1	5.4	130	0	120	140	.4	7.5	497
JUN 19...	2.9	6.1	150	0	230	220	.4	6.9	795
JUL 31...	2.5	6.3	150	0	160	210	.4	11	695
SEP 11...	3.5	7.6	160	0	220	300	.5	17	915

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.--37.9 mi² (98.2 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 ft (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 ft (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, 5,810 acre-ft (7.16 hm³) May 2-11, elevation, 1,872.2 ft (570.65 m); minimum, 4,620 acre-ft (5.70 hm³) Sept. 27-30, elevation, 1,869.4 ft (569.79 m).

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

1,869.0	4,460
1,871.0	5,280
1,873.0	6,180

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5500	5280	5150	5030	5070	4990	5720	5760	5720	5590	5150	4820
2	5500	5280	5150	5030	5070	4990	5720	5810	5720	5540	5150	4820
3	5450	5280	5150	5030	5070	4990	5720	5810	5720	5540	5110	4820
4	5450	5280	5150	4990	5070	4990	5720	5810	5720	5540	5110	4820
5	5450	5240	5150	4990	5070	4990	5720	5810	5720	5540	5110	4820
6	5450	5240	5110	4990	5070	4990	5720	5810	5720	5500	5110	4780
7	5450	5240	5110	4990	5070	4990	5720	5810	5720	5500	5070	4780
8	5450	5240	5110	4990	5070	4950	5720	5810	5720	5500	5070	4780
9	5410	5240	5110	4990	5070	4950	5670	5810	5720	5450	5070	4780
10	5410	5240	5110	4990	5070	4950	5670	5810	5720	5450	5030	4780
11	5410	5240	5110	4990	5030	4950	5670	5810	5720	5450	5030	4780
12	5410	5240	5110	4990	5030	4950	5670	5760	5720	5410	5030	4740
13	5370	5200	5110	4990	5030	4950	5670	5760	5720	5410	5030	4740
14	5370	5200	5110	4990	5030	4950	5670	5760	5720	5370	4990	4740
15	5370	5200	5110	5030	5030	4950	5670	5760	5720	5370	4990	4740
16	5370	5240	5110	5070	5030	4990	5670	5720	5670	5370	4990	4740
17	5370	5240	5070	5070	5030	4990	5670	5720	5670	5370	4950	4740
18	5320	5240	5070	5070	5030	4990	5720	5720	5670	5320	4950	4700
19	5320	5200	5070	5070	5030	4990	5720	5720	5670	5320	4950	4700
20	5320	5200	5070	5070	5030	5410	5720	5720	5630	5280	4950	4700
21	5320	5200	5070	5070	5030	5450	5720	5720	5630	5280	4900	4700
22	5320	5200	5070	5070	5030	5500	5720	5670	5630	5280	4900	4700
23	5320	5200	5070	5070	4990	5500	5720	5670	5630	5280	4900	4660
24	5320	5200	5070	5070	4990	5500	5720	5670	5630	5240	4860	4660
25	5320	5200	5070	5070	4990	5500	5720	5670	5630	5240	4860	4660
26	5320	5200	5030	5070	4990	5500	5720	5670	5670	5240	4860	4660
27	5320	5150	5030	5070	4990	5500	5720	5630	5670	5200	4860	4620
28	5280	5150	5030	5070	4990	5500	5720	5630	5630	5200	4860	4620
29	5280	5150	5030	5070	---	5500	5760	5720	5630	5200	4860	4620
30	5280	5150	5030	5070	---	5720	5760	5720	5590	5200	4860	4620
31	5280	---	5030	5070	---	5720	---	5720	---	5150	4860	---
MAX	5500	5280	5150	5070	5070	5720	5760	5810	5720	5590	5150	4820
MIN	5280	5150	5030	4990	4990	4950	5670	5630	5590	5150	4860	4620
(†)	1871.0	1870.7	1870.4	1870.5	1870.3	1872.0	1872.1	1872.0	1871.7	1870.7	1870.0	1869.4
(‡)	-220	-130	-120	+40	-80	+730	+40	-40	-130	-440	-290	-240
(††)	28	24	26	28	23	24	28	31	35	42	38	37

CAL YR 1978 MAX 7420 MIN 1460 ‡ +2660 †† 378
WTR YR 1979 MAX 5810 MIN 4620 ‡ -880 †† 364

† 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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
OCT 05...	1730	461	22.0	120	28	39	5.8	47	1.9

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 05...	5.6	114	0	28	70	.2	7.5	259

08140700 PECAN BAYOU NEAR CROSS CUT, TX

LOCATION.--Lat 31°58'21", long 99°07'48", Brown County, Hydrologic Unit 12090107, on right bank at downstream side of bridge on State Highway 279, 1.2 mi (1.9 km) downstream from Turkey Creek, and 4.2 mi (6.8 km) south of Cross Cut.

DRAINAGE AREA.--532 mi² (1,378 km²).

PERIOD OF RECORD.--April 1968 to December 1978 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,453.35 ft (442.981 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several small diversions above station. Flow is affected at times by discharge from flood-detention pools of 32 floodwater-retarding structures with combined detention capacity of 43,850 acre-ft (54.1 hm³). These structures control runoff from 236 mi² (611 km²) in the Turkey Creek and upper Pecan Bayou drainage basins. National Weather Service gage-height telemeter and rain gage at station.

AVERAGE DISCHARGE.--10 years, 37.4 ft³/s (1.059 m³/s), 27,100 acre-ft/yr (33.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,200 ft³/s (459 m³/s) Aug. 4, 1978, gage height, 24.90 ft (7.590 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage of 26.5 ft (8.08 m) and was exceeded by a flood in 1900, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October to December 1978, 0.08 ft³/s (0.002 m³/s) Oct. 1, no peak above base of 1,000 ft³/s (28.3 m³/s); maximum gage height, 1.89 ft (0.576 m) for all or part of Oct. 1, 2; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER TO DECEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.00	.02									
2	.04	.00	.02									
3	.03	.00	.02									
4	.01	.00	.02									
5	.01	.00	.02									
6	.00	.00	.02									
7	.00	.00	.02									
8	.00	.00	.02									
9	.00	.00	.02									
10	.00	.00	.02									
11	.01	.00	.02									
12	.00	.00	.02									
13	.00	.00	.02									
14	.00	.00	.02									
15	.00	.00	.02									
16	.00	.00	.02									
17	.00	.01	.02									
18	.00	.01	.02									
19	.00	.01	.02									
20	.00	.01	.02									
21	.00	.01	.02									
22	.00	.01	.02									
23	.00	.02	.02									
24	.00	.02	.02									
25	.00	.02	.02									
26	.00	.02	.02									
27	.00	.02	.02									
28	.00	.02	.02									
29	.00	.02	.02									
30	.00	.02	.02									
31	.00	---	.02									
TOTAL	.18	.22	.62									
MEAN	.006	.007	.020									
MAX	.08	.02	.02									
MIN	.00	.00	.02									
AC-FT	.4	.4	1.2									

CAL YR 1978 TOTAL 24473.23 MEAN 67.0 MAX 6160 MIN .00 AC-FT 48540

08140800 JIM NED CREEK NEAR COLEMAN, TX

LOCATION.--Lat 31°58'59", long 99°24'52", Coleman County, Hydrologic Unit 12090108, on right bank 77 ft (23 m) downstream from centerline of U.S. Highway 283, 1.4 mi (2.3 km) downstream from Turtle Bayou, 7.4 mi (11.9 km) downstream from Lake Coleman, and 10.8 mi (17.4 km) north of Coleman.

DRAINAGE AREA.--333 mi² (862 km²), of which 299 mi² (774 km²) is above Lake Coleman.

PERIOD OF RECORD.--October 1961 to September 1964 (miscellaneous measurements only), March 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,592.31 ft (485.336 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Since March 1966 when deliberate impoundment began, flow has been largely controlled by Lake Coleman, capacity, 40,000 acre-ft (49.3 hm³) at service spillway; elevation, 1,717.5 ft (523.49 m). During year, the city of Coleman diverted 933 acre-ft (1.15 hm³) from Lake Coleman for municipal use. At end of year, flow from 22.0 mi² (57.0 km²) above this station and below Lake Coleman was affected at times by discharge from flood-detention pools of two floodwater-retarding structures with a combined detention capacity of 6,560 acre-ft (8.09 hm³). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years, 23.0 ft³/s (0.651 m³/s), 16,660 acre-ft/yr (20.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,020 ft³/s (142 m³/s) May 6, 1969, gage height, 9.08 ft (2.768 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 482 ft³/s (13.7 m³/s) Mar. 22, gage height, 3.25 ft (0.991 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.57	.00	.28	.42	.08	.21	79	69	4.2	1.1	.00	.00
2	.28	.00	.28	.34	.08	.25	64	98	4.4	.47	.00	.00
3	.13	.00	.34	.34	.10	.82	51	129	6.6	.10	.00	.00
4	.03	.00	.34	.34	.15	1.3	44	153	6.5	.00	.00	.00
5	.00	.00	.28	.34	.99	.92	35	100	5.0	.00	.00	.00
6	.00	.00	.34	.34	1.8	.50	30	83	5.1	.00	.00	.00
7	.00	.00	.42	.34	1.3	.28	23	69	3.7	.00	.00	.00
8	.00	.00	.46	.24	.61	.17	21	59	2.7	.00	.00	.00
9	.00	.00	.49	.18	.36	.13	19	49	1.6	.00	.00	.00
10	.00	.00	.42	.21	.28	.14	15	42	6.0	.00	.00	.00
11	.00	.00	.62	.28	.28	.10	22	34	10	.00	.00	.00
12	.00	.00	.63	.28	.22	.08	19	28	6.0	.00	.00	.00
13	.00	.00	.36	.47	.22	.10	9.9	22	4.2	.00	.00	.00
14	.00	.00	.09	1.0	.22	.10	6.2	18	2.3	.00	.00	.00
15	.00	.20	.08	1.2	.20	.16	3.9	14	1.2	.00	.00	.00
16	.00	1.4	.08	1.5	.10	.67	2.9	8.9	.58	.00	.00	.00
17	.00	1.9	.08	1.9	.08	1.2	3.0	5.4	.14	.00	.00	.00
18	.00	.96	.08	2.9	.09	1.5	16	3.0	.02	.00	.00	.00
19	.00	.54	.09	2.3	.14	45	28	1.8	.00	.00	.00	.00
20	.00	.38	.10	2.2	.30	102	29	1.2	.00	.00	.00	.00
21	.00	.28	.10	1.5	.34	214	71	2.4	.00	.00	.00	.00
22	.00	.28	.10	.94	.34	340	37	7.1	.00	.00	.00	.00
23	.00	.28	.10	.62	.34	295	30	6.6	.00	.00	.00	.00
24	.00	.28	.10	.59	.29	224	26	4.6	.00	.00	.00	.00
25	.00	.28	.12	7.2	.27	170	22	2.8	.00	.00	.00	.00
26	.00	.29	.15	3.0	.27	132	20	1.5	.00	.00	.00	.00
27	.00	.51	.17	.73	.28	103	13	.78	.06	.00	.00	.00
28	.00	.39	.22	.29	.27	84	9.5	.68	.05	.00	.00	.00
29	.00	.34	.25	.16	---	73	7.1	.92	.02	.00	.00	.00
30	.00	.33	.28	.13	---	69	14	1.3	1.2	.00	.00	.00
31	.00	---	.36	.09	---	85	---	4.4	---	.00	.00	---
TOTAL	1.01	8.64	7.81	32.37	10.00	1944.63	770.5	1020.38	71.57	1.67	.00	.00
MEAN	.033	.29	.25	1.04	.36	62.7	25.7	32.9	2.39	.054	.000	.000
MAX	.57	1.9	.63	7.2	1.8	340	79	153	10	1.1	.00	.00
MIN	.00	.00	.08	.09	.08	.08	2.9	.68	.00	.00	.00	.00
AC-FT	2.0	17	15	64	20	3860	1530	2020	142	3.3	.00	.00

CAL YR 1978	TOTAL	12224.86	MEAN	33.5	MAX	1770	MIN	.00	AC-FT	24250
WTR YR 1979	TOTAL	3868.58	MEAN	10.6	MAX	340	MIN	.00	AC-FT	7670

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 emergency 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 service spillway consists of three concrete conduits; two controlled by slide gates 5.0 by 6.0 ft (1.5 by 1.8 m), 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, 2,340 acre-ft (2.89 hm³) Aug. 2 1978, elevation, 1,882.52 ft (573.792 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,440 acre-ft (4.24 hm³) May 4, elevation, 1,887.39 ft (575.276 m); minimum, 2,630 acre-ft (3.24 hm³) Mar. 14, elevation, 1,883.97 ft (574.234 m).

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

1,882.0	2,240	1,886.0	3,090
1,884.0	2,630	1,888.0	3,600

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3230	3060	2990	2870	2770	2680	2890	3410	3330	3280	3230	3030
2	3220	3050	2990	2860	2760	2690	2880	3430	3340	3260	3230	3020
3	3220	3050	2990	2850	2760	2680	2880	3430	3330	3260	3220	3010
4	3210	3040	2980	2850	2760	2680	2870	3430	3330	3250	3220	3000
5	3210	3050	2980	2850	2760	2680	2870	3440	3330	3240	3210	3000
6	3200	3050	2970	2840	2770	2670	2860	3430	3330	3230	3200	2990
7	3190	3050	2960	2840	2770	2670	2860	3430	3320	3220	3190	3000
8	3190	3050	2960	2830	2770	2660	2860	3420	3320	3220	3180	2990
9	3180	3040	2950	2830	2760	2660	2860	3420	3320	3210	3170	2990
10	3180	3040	2950	2830	2760	2650	2870	3410	3310	3200	3170	2980
11	3180	3030	2940	2830	2760	2650	2860	3410	3300	3190	3160	2970
12	3170	3030	2930	2820	2750	2640	2860	3410	3300	3180	3160	2960
13	3160	3030	2930	2820	2750	2630	2860	3400	3290	3170	3150	2960
14	3160	3030	2930	2820	2750	2630	2850	3400	3280	3170	3140	2950
15	3150	3030	2920	2810	2740	2630	2840	3390	3280	3150	3130	2940
16	3150	3030	2920	2810	2740	2640	2840	3380	3270	3140	3120	2930
17	3140	3020	2900	2800	2740	2640	3040	3380	3260	3140	3120	2920
18	3130	3020	2910	2810	2730	2640	3050	3370	3260	3140	3110	2910
19	3130	3020	2910	2820	2730	2770	3050	3370	3250	3330	3100	2910
20	3120	3020	2900	2820	2720	2780	3150	3360	3240	3330	3090	2900
21	3120	3020	2900	2810	2710	2790	3160	3370	3230	3330	3090	2900
22	3120	3020	2900	2810	2710	2880	3170	3370	3220	3320	3090	2890
23	3110	3010	2900	2800	2710	2880	3170	3370	3210	3320	3080	2890
24	3100	3010	2890	2790	2700	2890	3170	3360	3200	3310	3080	2880
25	3100	3010	2890	2790	2700	2890	3160	3360	3260	3300	3070	2870
26	3090	3010	2880	2790	2700	2880	3160	3350	3300	3300	3070	2860
27	3090	3010	2880	2790	2700	2880	3160	3340	3300	3290	3060	2860
28	3080	3000	2880	2780	2690	2880	3160	3330	3300	3280	3050	2850
29	3080	3000	2880	2780	---	2880	3180	3330	3290	3270	3040	2850
30	3070	2990	2870	2780	---	2890	3180	3330	3280	3260	3040	2840
31	3060	---	2870	2770	---	2890	---	3330	---	3240	3030	---
MAX	3230	3060	2990	2870	2770	2890	3180	3440	3340	3330	3230	3030
MIN	3060	2990	2870	2770	2690	2630	2840	3330	3200	3140	3030	2840
(†)	1885.88	1885.60	1885.08	1884.64	1884.26	1885.14	1886.38	1886.98	1886.79	1886.64	1885.76	1884.93
(‡)	-170	-70	-120	-100	-80	+200	+290	+150	-50	-40	-210	-190
(††)	34	31	53	91	80	52	30	26	24	42	36	39

CAL YR 1978 MAX 3570 MIN 2340 ‡ -520 †† 516
WTR YR 1979 MAX 3440 MIN 2630 ‡ -390 †† 538

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

08141000 HORDS CREEK LAKE NEAR VALERA, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
NOV 13...	0815	1280	16.0	310	180	68	33	130	3.2

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 13...	7.4	150	0	56	310	.2	6.7	685

08141500 HORDS CREEK NEAR VALERA, TX

LOCATION.--Lat 31°50'03", long 99°32'04", Coleman County, Hydrologic Unit 12090108, on left bank 2,500 ft (762 m) downstream from Farm Road 503, 1.6 mi (2.6 km) downstream from Hords Creek Dam, 5.7 mi (9.2 km) north of Valera, 7.0 mi (11.3 km) west of Coleman, and 21.8 mi (35.1 km) upstream from mouth.

DRAINAGE AREA.--53 mi² (137 km²), approximately, of which 48 mi² (124 km²) is above Hords Creek Dam.

PERIOD OF RECORD.--April 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,819.88 ft (554.699 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Records poor. Flow is regulated by Hords Creek Lake (station 08141000). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--32 years, 1.71 ft³/s (0.0484 m³/s), 1,240 acre-ft/yr (1.53 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,860 ft³/s (109 m³/s) Apr. 30, 1956, gage height, 14.73 ft (4.490 m), from rating curve extended above 1,900 ft³/s (53.8 m³/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, 171 ft³/s (4.84 m³/s) Apr. 20, gage height, 6.03 ft (1.838 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.07	.02	.08	.14	.33	4.3	.06	.06	.00	.00
2	.00	.00	.11	.02	.08	.15	.30	.84	.07	.05	.01	.00
3	.00	.00	.03	.02	.10	.16	.28	.83	.08	.04	.00	.00
4	.00	.00	.03	.03	.14	.14	.24	.80	.08	.04	.00	.00
5	.00	.00	.04	.04	.39	.14	.22	.76	.08	.04	.00	.00
6	.00	.00	.04	.05	.34	.14	.20	.76	.08	.04	.00	.00
7	.00	.00	.04	.05	.24	.13	.17	.76	.08	.04	.00	.00
8	.00	.00	.04	.05	.18	.14	.16	.76	.08	.04	.00	.00
9	.00	.00	.04	.04	.15	.14	.14	.74	.08	.03	.00	.00
10	.00	.00	.04	.11	.15	.14	.15	.70	.08	.01	.00	.00
11	.00	.00	.04	.18	.14	.14	.16	.68	.08	.00	.00	.00
12	.00	.00	.04	.20	.15	.14	.14	.64	.06	.00	.00	.00
13	.00	.00	.06	.32	.17	.10	.14	.59	.08	.00	.00	.00
14	.00	.00	.06	.45	.19	.03	.14	.55	.08	.00	.00	.00
15	.00	.00	.06	.34	.20	.04	.14	.50	.08	.00	.00	.00
16	.00	.00	.05	.31	.17	.05	.14	.44	.08	.00	.00	.00
17	.00	.03	.04	.30	.17	.09	.37	.40	.07	.00	.00	.00
18	.00	.11	.05	.17	.17	.10	.82	.35	.05	.00	.00	.00
19	.00	.04	.05	.09	.17	10	76	.31	.05	.02	.00	.00
20	.00	.04	.04	.08	.17	2.0	26	.27	.05	.08	.00	.00
21	.00	.04	.04	.05	.17	1.0	1.8	.25	.05	.06	.00	.00
22	.00	.04	.04	.05	.17	.80	.81	.28	.05	.05	.00	.00
23	.00	.06	.09	.03	.17	.60	.76	.24	.05	.05	.00	.00
24	.00	.06	.14	.04	.17	.60	.76	.22	.03	.05	.00	.00
25	.00	.06	.03	.07	.17	.55	.74	.18	.03	.05	.00	.00
26	.00	.06	.03	.11	.17	.55	.68	.16	.13	.05	.00	.00
27	.00	.05	.02	.10	.17	.49	.68	.14	.10	.05	.00	.00
28	.00	.04	.02	.09	.15	.44	.68	.12	.06	.05	.00	.00
29	.00	.05	.03	.08	---	.41	.81	.10	.07	.04	.00	.00
30	.00	.06	.02	.07	---	.38	.76	.08	.06	.03	.00	.00
31	.00	---	.03	.07	---	.35	---	.07	---	.01	.00	---
TOTAL	.00	.74	1.46	3.63	4.89	20.28	39.48	17.82	2.08	.98	.01	.00
MEAN	.000	.025	.047	.12	.17	.65	1.32	.57	.069	.032	.000	.000
MAX	.00	.11	.14	.45	.39	10	26	4.3	.13	.08	.01	.00
MIN	.00	.00	.02	.02	.08	.03	.14	.07	.03	.00	.00	.00
AC-FT	.00	1.5	2.9	7.2	9.7	40	78	35	4.1	1.9	.02	.00

CAL YR 1978 TOTAL 196.70 MEAN .54 MAX 189 MIN .00 AC-FT 390
WTR YR 1979 TOTAL 91.37 MEAN .25 MAX 26 MIN .00 AC-FT 181

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 502 acre-ft (619,000 m^3) was diverted from the canal above gage for irrigation, and that of the total flow of canal passing gage, 6,530 acre-ft (8.05 hm^3) was used for municipal and industrial supply and 1,320 acre-ft (1.63 hm^3) was used for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--29 years, 26.8 ft^3/s (0.759 m^3/s), 19,420 acre-ft/yr (23.9 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 Jan. 27, 1977.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	48	25	38	31	6.1	30	21	33	39	45	21
2	31	49	26	37	31	28	29	23	34	41	49	34
3	28	49	26	37	30	39	29	23	35	43	45	37
4	1.5	49	27	37	30	38	30	23	38	44	46	38
5	15	50	27	36	30	38	30	23	46	44	43	42
6	37	44	28	36	30	35	30	23	47	44	42	42
7	42	35	30	36	30	11	29	25	42	44	4.0	41
8	43	33	30	36	30	12	30	18	36	46	16	40
9	43	33	31	35	30	24	29	1.0	33	47	40	38
10	41	33	31	35	30	33	28	6.1	33	48	46	37
11	41	33	32	35	30	32	29	24	26	49	42	40
12	40	33	33	35	30	31	28	25	3.1	50	41	48
13	40	33	33	33	29	26	28	26	22	50	41	49
14	40	31	35	33	29	6.6	28	18	31	45	40	47
15	40	32	39	33	30	20	28	.27	36	45	40	38
16	41	33	39	19	30	29	20	9.0	38	47	40	38
17	42	33	39	17	29	29	14	28	39	49	39	39
18	43	32	40	32	29	29	15	32	40	46	39	41
19	44	32	40	32	29	30	.94	36	40	46	39	42
20	44	32	41	32	29	29	13	36	40	46	40	42
21	44	32	41	32	29	26	24	37	40	47	41	44
22	45	30	39	32	29	28	24	26	41	47	45	46
23	45	29	38	31	30	28	24	35	42	47	31	47
24	46	29	38	31	30	28	17	34	42	48	6.9	48
25	47	28	39	31	30	29	.60	34	43	48	25	49
26	47	28	39	30	30	30	7.3	34	38	47	24	50
27	47	27	39	30	30	16	19	34	31	47	19	51
28	47	25	39	30	27	18	17	34	34	45	14	51
29	48	25	39	30	---	34	15	34	38	43	14	51
30	48	25	39	30	---	34	16	34	39	42	8.5	51
31	48	---	39	30	---	31	---	33	---	42	12	---
TOTAL	1239.5	1025	1081	1001	831	827.7	661.84	789.37	1080.1	1416	1017.4	1282
MEAN	40.0	34.2	34.9	32.3	29.7	26.7	22.1	25.5	36.0	45.7	32.8	42.7
MAX	48	50	41	38	31	39	30	37	47	50	49	51
MIN	1.5	25	25	17	27	6.1	.60	.27	3.1	39	4.0	21
AC-FT	2460	2030	2140	1990	1650	1640	1310	1570	2140	2810	2020	2540

CAL YR 1978 TOTAL 11797.50 MEAN 32.3 MAX 61 MIN 1.5 AC-FT 23400
WTR YR 1979 TOTAL 12251.91 MEAN 33.6 MAX 51 MIN .27 AC-FT 24300

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.--1,535 mi² (3,976 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 ft (4 m) horseshoe-shaped concrete conduits. Water is released into Brown County canal through a 5 ft (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 for 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, 152,600 acre-ft (188 hm³) June 26, gage height, 1,426.3 ft (434.74 m); minimum, 125,900 acre-ft (155 hm³) Mar. 9-19, gage height, 1,422.6 ft (433.61 m).

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

1,422.0	121,700
1,424.0	135,700
1,427.0	158,200

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 1800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137800	132900	130800	127300	126600	126600	144100	144800	142700	146200	141300	140600
2	137800	132200	130800	127300	126600	126600	144100	145500	142700	145500	142000	139900
3	137800	132200	130100	127300	126600	126600	144100	145500	142700	144800	142000	139900
4	137800	132200	130100	127300	126600	126600	144100	145500	142700	144800	142000	139900
5	137100	132200	130100	127300	127300	126600	144100	145500	142700	144100	142000	139900
6	137100	132900	130100	127300	127300	126600	144100	145500	142700	144100	141300	139200
7	137100	132900	130100	127300	127300	126600	144100	145500	142700	144100	141300	139200
8	136400	132900	129400	126600	127300	126600	144100	144800	142700	143400	141300	139200
9	136400	132200	129400	126600	127300	125900	143400	144800	142000	143400	140600	139200
10	136400	132200	129400	126600	127300	125900	143400	144800	142700	143400	140600	138500
11	136400	132200	129400	126600	127300	125900	144100	144800	142700	142700	140600	138500
12	135700	132200	129400	126600	127300	125900	144100	144800	142700	142700	140600	138500
13	135700	131500	129400	126600	127300	125900	144100	144100	142700	142000	140600	137800
14	135700	131500	129400	126600	127300	125900	144100	144100	142700	142000	140600	137800
15	135700	131500	128700	126600	127300	125900	144100	144100	142000	141300	139900	137800
16	135000	131500	128700	126600	127300	125900	144100	144100	142000	141300	139900	137100
17	135000	131500	128700	126600	127300	125900	144100	144100	142000	141300	139900	137100
18	135000	131500	128700	126600	127300	125900	144100	143400	141300	141300	139200	137100
19	135000	131500	128700	127300	127300	125900	144100	143400	141300	142000	139200	136400
20	134300	131500	128700	127300	126600	128000	144100	143400	140600	142000	139200	136400
21	134300	131500	128700	127300	126600	131500	144100	143400	140600	142000	139200	136400
22	134300	131500	128000	127300	126600	137100	144100	143400	140600	142000	139200	136400
23	134300	131500	128000	127300	126600	139200	144100	143400	139900	142000	140600	135700
24	133600	131500	128000	127300	126600	140600	144100	142700	139900	142000	140600	135700
25	133600	131500	128000	127300	126600	141300	144100	142700	139900	141300	140600	135700
26	133600	131500	128000	127300	126600	142000	144100	142700	152600	141300	141300	135000
27	133600	130800	128000	127300	126600	142000	144100	142700	151000	140600	141300	135000
28	132900	130800	128000	127300	126600	142000	144100	142700	148600	140600	141300	135000
29	132900	130800	128000	126600	---	142700	144100	142700	147800	140600	140600	135000
30	132900	130800	128000	126600	---	143400	144100	142700	146200	139900	140600	135000
31	132900	---	127300	126600	---	143400	---	142700	---	139900	140600	---
MAX	137800	132900	130800	127300	127300	143400	144100	145500	152600	146200	142000	140600
MIN	132900	130800	127300	126600	126600	125900	143400	142700	139900	139900	139200	135000
(†)	1423.6	1423.3	1422.8	1422.7	1422.7	1425.1	1425.2	1425.0	1425.5	1424.6	1424.7	1423.9
(‡)	-4900	-2100	-3500	-700	0	+16800	+700	-1400	+3500	-6300	+700	-5600

CAL YR 1978 MAX 141300 MIN 59120 ‡ +49770
WTR YR 1979 MAX 152600 MIN 125900 ‡ -2800

† 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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
JAN 04...	1130	618	6.0	170	59	49	11	50	1.7

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
JAN 04...	6.7	133	0	43	100	.2	6.6	332

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 47.5 mi (76.4 km) upstream from mouth.

DRAINAGE AREA.--1,614 mi² (4,180 km²).

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). National Weather Service gage-height 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); 47 years (water years 1933-79) partially regulated, 121 ft³/s (3.427 m³/s), 87,660 acre-ft/yr (108 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, 2,900 ft³/s (82.1 m³/s) June 26, gage height, 3.94 ft (1.201 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.00	2.5	3.4	2.2	3.4	8.0	94	2.1	258	447	1.1
2	.98	.00	2.7	2.3	2.4	3.6	12	169	1.9	163	131	.69
3	.93	.00	3.5	2.8	2.5	6.8	12	199	2.5	106	31	.55
4	.87	.00	3.3	2.9	2.9	6.2	17	264	2.5	71	9.2	.36
5	.48	.00	2.8	3.3	5.8	4.4	12	238	2.6	46	5.2	.40
6	.20	.00	2.8	3.3	7.6	3.7	11	204	2.7	25	3.3	.38
7	.11	.00	2.8	3.2	7.1	3.3	9.6	178	2.1	20	2.2	.30
8	.03	.00	2.7	2.7	5.0	2.5	9.9	145	4.4	16	1.7	.48
9	.01	.00	2.6	2.9	3.4	2.8	10	128	4.4	6.9	1.4	.56
10	.00	.00	2.8	3.8	2.9	2.7	8.5	118	2.9	3.9	1.0	.58
11	.00	.00	3.2	5.2	2.8	2.4	61	104	1.6	2.9	1.1	.88
12	.00	.00	3.1	4.5	3.0	2.8	41	73	2.0	2.7	1.3	1.2
13	.00	.00	3.2	3.8	2.8	3.2	30	52	3.9	2.3	1.9	1.1
14	.00	.00	3.3	2.8	3.8	3.3	17	38	2.4	1.0	1.8	.56
15	.00	.00	3.2	2.8	4.0	3.7	11	21	.83	.41	1.4	.22
16	.00	.34	3.3	3.0	3.6	5.4	10	11	.35	.20	1.0	.11
17	.00	2.5	3.2	3.1	3.6	5.9	9.7	6.9	.18	.12	.89	.02
18	.00	4.1	3.2	39	3.7	5.0	9.8	6.2	.12	.05	.70	.01
19	.00	3.8	4.4	71	3.7	4.0	10	2.7	.06	6.4	.37	.00
20	.00	3.6	5.3	8.4	3.7	3.4	11	.94	.04	21	.20	.00
21	.00	3.1	5.3	4.4	3.8	8.9	22	.49	.04	13	.10	.00
22	.00	3.1	4.3	2.8	4.1	18	57	3.3	.03	13	.06	.00
23	.00	3.1	3.6	2.7	4.4	8.7	64	10	.01	12	59	.00
24	.00	3.5	3.4	2.6	5.6	5.3	58	8.1	.00	12	22	.00
25	.00	3.4	3.2	2.5	5.3	4.4	46	5.2	.00	12	7.3	.00
26	.00	3.7	3.0	3.5	4.3	4.1	47	3.7	1310	12	33	.00
27	.00	2.8	3.0	3.4	3.6	3.6	20	2.8	1510	12	9.8	.00
28	.00	2.3	3.1	2.6	3.7	3.3	12	2.6	960	9.9	4.8	.00
29	.00	2.4	3.2	2.3	---	3.0	12	2.9	637	6.0	3.0	.00
30	.00	2.5	3.5	2.6	---	8.2	12	4.6	407	4.7	1.8	.00
31	.00	---	3.8	2.4	---	8.8	---	4.6	---	4.8	1.3	---
TOTAL	4.71	44.24	103.3	206.0	111.3	154.8	670.5	2101.03	4863.66	864.28	785.82	9.50
MEAN	.15	1.47	3.33	6.65	3.98	4.99	22.4	67.8	162	27.9	25.3	.32
MAX	1.1	4.1	5.3	71	7.6	18	64	264	1510	258	447	1.2
MIN	.00	.00	2.5	2.3	2.2	2.4	8.0	.49	.00	.05	.06	.00
AC-FT	9.3	88	205	409	221	307	1330	4170	9650	1710	1560	19

CAL YR 1978 TOTAL 720.93 MEAN 1.98 MAX 40 MIN .00 AC-FT 1430
WTR YR 1979 TOTAL 9919.14 MEAN 27.2 MAX 1510 MIN .00 AC-FT 19670

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 10 mi (16 km) upstream from Colorado River.

DRAINAGE AREA.--2,034 mi² (5,268 km²).

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 143 mi² (370 km²) above this station and below Lake Brownwood was partly controlled by 40 floodwater-retarding structures with a combined detention capacity of 32,280 acre-ft (39.8 hm³) below the flood-spillway crests.

AVERAGE DISCHARGE.--12 years, 132 ft³/s (3.738 m³/s), 95,630 acre-ft/yr (118 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 June 29 to Aug. 5, 1974, and July 7 to Aug. 2, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,620 ft³/s (74.2 m³/s) June 27, gage height, 9.05 ft (2.758 m); minimum, 0.45 ft³/s (0.013 m³/s) July 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	3.0	8.2	14	11	15	54	63	14	352	197	8.2
2	9.1	2.7	6.8	13	11	14	51	214	15	229	1150	7.5
3	8.6	2.1	6.2	13	12	13	40	167	15	146	140	6.3
4	7.8	1.7	6.2	12	14	15	39	197	15	95	82	5.0
5	6.5	3.0	6.1	12	18	19	41	237	21	62	34	4.1
6	6.4	13	5.8	12	42	16	42	204	25	45	20	3.6
7	4.3	31	6.2	12	47	14	33	177	25	32	13	3.8
8	3.7	23	6.2	12	35	14	31	152	20	24	13	4.5
9	3.7	12	6.5	11	28	14	28	134	15	19	11	3.6
10	3.5	8.8	6.7	13	21	14	32	116	15	15	24	2.8
11	3.7	7.2	6.7	15	17	13	30	102	20	11	36	2.7
12	3.7	5.9	6.7	22	15	11	88	88	22	7.4	19	2.5
13	2.7	5.8	6.7	21	14	9.8	80	60	16	4.3	8.7	2.6
14	1.9	5.5	7.2	16	14	9.8	77	42	14	2.3	6.3	3.2
15	1.6	4.8	7.2	13	14	12	51	34	14	1.3	6.3	6.7
16	1.5	5.8	7.5	12	13	12	40	27	11	.79	7.4	6.7
17	1.2	14	7.7	12	13	18	36	23	9.1	.54	8.0	5.1
18	1.1	17	7.7	12	13	24	29	18	7.3	24	7.7	4.9
19	.77	66	7.7	115	13	20	28	13	5.7	33	7.1	4.9
20	1.1	28	7.7	100	16	22	24	12	4.8	82	6.5	4.5
21	1.3	17	10	38	18	118	35	13	5.0	29	5.8	3.9
22	1.3	15	11	25	17	121	31	64	4.8	22	5.8	3.7
23	1.4	12	10	17	14	107	56	50	4.2	16	237	4.1
24	3.3	11	10	16	27	83	63	21	4.2	14	215	4.1
25	5.2	11	11	15	35	37	59	20	9.8	14	58	4.1
26	5.2	12	9.6	14	32	29	49	15	168	12	29	3.7
27	4.6	11	9.3	14	21	25	46	13	2170	12	39	3.1
28	4.1	10	8.8	13	18	24	34	13	1360	12	26	2.0
29	4.1	9.4	8.8	12	---	23	25	30	821	11	19	1.5
30	3.8	8.8	11	12	---	76	21	34	534	9.6	14	1.1
31	3.3	---	13	11	---	64	---	15	---	8.4	10	---
TOTAL	120.47	377.5	250.2	649	563	1006.6	1293	2368	5384.9	1345.63	2455.6	124.5
MEAN	3.89	12.6	8.07	20.9	20.1	32.5	43.1	76.4	179	43.4	79.2	4.15
MAX	10	66	13	115	47	121	88	237	2170	352	1150	8.2
MIN	.77	1.7	5.8	11	11	9.8	21	12	4.2	.54	5.8	1.1
AC-FT	239	749	496	1290	1120	2000	2560	4700	10680	2670	4870	247

CAL YR 1978	TOTAL	4467.77	MEAN	12.2	MAX	958	MIN	.00	AC-FT	8860
WTR YR 1979	TOTAL	15938.40	MEAN	43.7	MAX	2170	MIN	.54	AC-FT	31610

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 (1967-70, 1972-79): Maximum daily, 2,230 micromhos May 14, 1978; minimum daily, 203 micromhos Sept. 18, 1974.
WATER TEMPERATURES (1967-70, 1972-75): Maximum daily, 32.0°C on several days during summer months; minimum daily, 1.0°C Jan. 15, 1975.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,850 micromhos Nov 17; minimum daily, 212 micromhos July 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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									
10...	1630	3.5	1240	22.0	220	51	63	16	160
NOV									
29...	1330	9.4	1110	13.0	200	76	60	12	140
DEC									
01...	2330	8.2	1470	13.0	240	93	70	16	200
JAN									
03...	2135	13	1600	5.0	330	140	95	23	210
10...	1645	14	--	3.5	--	--	--	--	--
FEB									
12...	1605	9.5	--	9.5	--	--	--	--	--
MAR									
27...	1045	26	726	17.0	180	60	55	11	68
APR									
02...	1800	43	1040	18.5	280	120	84	16	110
MAY									
08...	1230	156	664	22.0	180	57	57	9.1	56
JUN									
19...	0940	5.1	--	27.0	--	--	--	--	--
JUL									
31...	0850	8.3	--	28.0	--	--	--	--	--
AUG									
02...	0800	1940	519	21.0	160	41	53	7.8	34
SEP									
11...	--	2.3	443	27.0	130	2	42	6.9	29

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
10...	4.7	12	210	0	65	240	.3	8.1	668
NOV									
29...	4.3	5.9	150	0	60	230	.3	5.4	588
DEC									
01...	5.6	14	180	0	84	340	.4	6.5	820
JAN									
03...	5.0	13	230	0	120	330	.4	.8	905
10...	--	--	--	--	--	--	--	--	--
FEB									
12...	--	--	--	--	--	--	--	--	--
MAR									
27...	2.2	7.4	150	0	59	110	.2	7.7	392
APR									
02...	2.9	8.8	190	0	96	180	.3	7.2	596
MAY									
08...	1.8	8.3	150	0	50	110	.3	6.7	371
JUN									
19...	--	--	--	--	--	--	--	--	--
JUL									
31...	--	--	--	--	--	--	--	--	--
AUG									
02...	1.2	6.9	150	0	34	62	.2	9.0	281
SEP									
11...	1.1	7.2	160	0	23	44	.2	7.9	239

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	120.47	1510	850	275	300	97	110	37	330
NOV. 1978.....	377.5	1440	810	820	280	284	110	110	320
DEC. 1978.....	250.2	1490	830	564	290	197	110	75	330
JAN. 1979.....	649	1280	710	1250	240	422	96	168	300
FEB. 1979.....	563	1110	620	943	190	288	85	129	270
MAR. 1979.....	1006.6	1020	570	1540	170	460	78	212	260
APR. 1979.....	1293	898	500	1750	140	478	69	243	250
MAY 1979.....	2368	740	410	2640	110	684	55	353	210
JUNE 1979.....	5384.9	654	370	5320	91	1330	47	687	190
JULY 1979.....	1345.63	630	350	1280	86	314	45	164	190
AUG. 1979.....	2455.6	492	280	1840	60	400	33	216	160
SEPT 1979.....	124.5	508	280	95	63	21	34	12	160
TOTAL	15938.38	**	**	18300	**	4970	**	2410	**
WTD.AVG.	44	761	430	**	120	**	56	**	220

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1800	1780	1490	1590	840	1300	850	714	948	640	1000	410
2	1770	1790	1510	1610	859	1310	1040	969	883	649	528	400
3	1740	1800	1520	1620	890	1280	1000	900	900	670	500	394
4	1630	1840	1500	1630	920	1250	987	674	920	700	470	393
5	1510	1800	1490	1630	940	1220	822	660	870	725	440	395
6	1420	1710	1510	1600	1070	1210	864	650	859	715	400	402
7	1360	1540	1460	1580	1170	1250	850	658	940	720	393	410
8	1320	1630	1440	1550	1350	1240	835	664	1020	725	385	411
9	1260	1540	1410	1540	1330	1220	822	670	1070	728	400	425
10	1230	1480	1400	1500	1320	1230	929	673	1120	735	330	440
11	1200	1520	1390	1480	1350	1150	945	708	1160	746	313	443
12	1180	1590	1390	1440	1370	1080	960	765	1200	731	365	460
13	1200	1660	1380	1480	1370	1070	974	760	1210	746	385	479
14	1210	1700	1400	1490	1240	1100	920	750	1190	753	409	500
15	1220	1710	1410	1500	1120	1140	890	742	1200	765	415	518
16	1230	1710	1390	1470	963	1080	850	789	1210	777	420	550
17	1240	1850	1430	1430	955	1140	831	752	1220	781	421	580
18	1250	1800	1470	1450	900	1250	820	780	1240	647	422	614
19	1270	1300	1490	1510	819	1360	810	807	1270	533	421	628
20	1290	1400	1520	1400	833	1310	799	820	1300	320	420	630
21	1300	1510	1470	800	889	1130	820	835	1330	300	420	633
22	1330	1560	1440	720	900	1120	870	765	1360	275	418	622
23	1350	1350	1470	655	940	1110	917	936	1370	230	280	610
24	1380	1110	1500	675	980	950	987	870	1400	212	290	595
25	1440	996	1540	703	1060	830	957	865	1420	350	320	587
26	1540	950	1580	725	1250	775	874	860	1000	471	340	593
27	1590	927	1600	744	1220	726	820	870	603	589	352	600
28	1650	1060	1630	765	1300	648	787	880	610	994	437	614
29	1670	1190	1580	788	---	654	844	600	632	1100	479	620
30	1710	1300	1620	811	---	635	800	552	635	1240	466	630
31	1760	---	1610	819	---	626	---	888	---	1490	432	---
MEAN	1420	1500	1490	1250	1080	1080	882	769	1070	679	422	520

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	28.5	13.0	---	---	---	---	22.0	24.5	---	---	28.0
2	---	---	15.0	---	5.0	14.0	18.5	21.0	24.0	29.0	21.0	---
3	23.0	18.0	---	5.0	---	---	---	---	---	---	---	26.0
4	---	---	---	5.0	---	---	19.0	18.5	---	---	---	27.0
5	---	---	11.0	4.0	6.0	13.5	18.5	---	---	29.0	---	---
6	22.0	15.0	---	---	5.0	14.0	20.0	21.0	26.0	---	29.5	29.0
7	20.0	---	8.0	---	.5	14.0	---	20.0	27.0	---	29.0	27.0
8	---	16.0	6.5	---	8.0	---	---	---	27.0	---	29.0	26.5
9	---	15.0	4.5	3.0	---	---	21.0	---	30.0	32.0	---	---
10	20.0	19.5	---	4.0	8.0	13.0	21.0	24.0	---	---	---	27.0
11	---	15.0	---	---	---	---	20.0	22.0	26.0	30.0	26.5	---
12	22.0	---	---	---	---	15.0	---	19.0	26.0	28.0	27.0	---
13	---	---	6.0	5.0	10.0	17.5	22.0	---	26.5	31.0	---	25.5
14	18.0	16.0	7.0	---	12.0	---	---	21.5	28.0	30.0	29.0	---
15	---	13.0	7.0	4.0	---	13.0	---	23.0	28.5	---	---	22.5
16	19.0	12.0	6.0	5.0	9.0	12.0	---	23.5	28.0	---	---	---
17	20.0	---	---	7.0	6.0	14.0	23.0	23.5	---	30.0	---	---
18	---	14.0	10.0	---	---	---	---	---	26.0	37.0	29.0	21.0
19	---	---	10.0	10.0	6.5	17.0	24.0	26.0	---	27.0	---	22.0
20	17.5	---	---	---	8.0	17.0	24.0	---	30.0	25.5	30.0	---
21	20.0	---	8.5	---	14.0	---	---	---	31.0	---	30.0	25.0
22	---	13.0	10.0	---	---	19.0	---	22.0	30.0	---	27.0	27.0
23	---	---	---	7.0	---	17.0	24.0	25.0	---	---	---	25.0
24	17.0	---	---	---	---	---	23.0	25.0	---	29.0	---	---
25	18.0	15.0	9.0	8.0	11.5	---	26.0	---	30.0	---	---	21.5
26	18.0	---	8.5	6.0	13.0	---	25.0	24.0	---	29.0	---	24.5
27	---	13.0	---	6.5	12.0	---	23.0	---	26.0	30.0	26.0	---
28	19.0	12.0	10.0	---	13.0	19.0	20.0	---	---	30.0	28.0	25.0
29	---	12.0	10.5	6.0	---	18.0	22.0	---	27.0	---	28.0	---
30	---	---	8.0	7.0	---	---	---	24.0	---	---	28.0	---
31	---	---	---	4.0	---	19.0	---	26.0	---	27.5	28.0	---
MEAN	19.5	15.5	9.0	5.5	8.5	15.5	22.0	22.5	27.5	29.5	28.0	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.--55 years (water-years 1925-79), 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 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 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	23	24	15	9.4	13	19	18	23	16	16	9.7
2	19	23	23	15	8.9	14	19	18	22	16	15	9.6
3	19	23	24	15	11	14	19	17	21	16	14	9.2
4	18	23	22	15	13	11	19	15	21	16	14	9.2
5	18	23	23	15	14	12	19	14	21	16	13	9.1
6	18	23	24	15	12	11	19	18	21	16	12	9.1
7	17	23	24	15	12	12	19	19	20	16	12	8.9
8	19	23	24	15	12	18	19	19	19	16	12	8.7
9	17	23	24	15	12	18	19	20	20	16	12	8.4
10	19	22	24	15	12	18	19	20	22	15	12	8.2
11	18	22	24	15	12	18	19	20	20	14	13	8.1
12	16	22	23	15	12	18	17	16	19	14	13	8.0
13	16	22	21	15	12	18	16	19	19	13	12	7.8
14	15	22	17	15	12	18	20	20	19	14	12	7.8
15	15	22	17	15	12	18	20	20	19	14	12	7.8
16	15	23	17	15	12	18	20	21	18	15	12	7.5
17	14	23	17	15	12	18	21	21	18	15	11	7.2
18	14	23	17	15	12	18	21	21	18	17	12	7.0
19	15	23	16	14	12	18	20	21	18	19	12	6.7
20	14	23	16	14	12	19	21	21	18	18	11	7.6
21	14	23	16	13	12	19	20	21	18	17	11	8.4
22	14	24	16	13	12	19	20	21	18	16	5.9	8.3
23	13	24	16	12	12	18	20	21	17	16	13	8.6
24	13	24	15	11	11	18	20	21	17	15	11	8.7
25	13	24	15	11	11	18	20	21	17	15	11	8.5
26	12	24	15	11	12	18	19	21	18	15	11	9.1
27	11	24	15	10	13	18	19	21	18	15	11	8.8
28	12	24	15	10	14	18	19	21	17	15	11	8.0
29	13	24	15	10	---	19	19	17	17	14	10	6.9
30	22	24	15	10	---	19	18	20	16	14	9.7	6.9
31	23	---	16	10	---	18	---	20	---	14	9.7	---
TOTAL	495	693	590	419	333.3	524	579	603	569	478	366.3	247.8
MEAN	16.0	23.1	19.0	13.5	11.9	16.9	19.3	19.5	19.0	15.4	11.8	8.26
MAX	23	24	24	15	14	19	21	21	23	19	16	9.7
MIN	11	22	15	10	8.9	11	16	14	16	13	5.9	6.7
AC-FT	982	1370	1170	831	661	1040	1150	1200	1130	948	727	492

CAL YR 1978 TOTAL 7307.26 MEAN 20.0 MAX 26 MIN .31 AC-FT 14490
WTR YR 1979 TOTAL 5897.40 MEAN 16.2 MAX 24 MIN 5.9 AC-FT 11700

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 110.4 mi (177.6 km) upstream from mouth.

DRAINAGE AREA.--1,151 mi² (2,981 km²).

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. 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 hm²) above station. See record of Noyes Canal on preceding page. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--64 years, 64.9 ft³/s (1.838 m³/s), 47,020 acre-ft/yr (58.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s (3,680 m³/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 ft³/s (1,590 m³/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, 4,590 ft³/s (130 m³/s) July 18, gage height, 8.93 ft (2.722 m), no other peak above base of 670 ft³/s (19.0 m³/s); minimum, 0.27 ft³/s (0.008 m³/s) Sept. 26, result of temporary dam upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	42	42	52	54	54	50	51	109	22	46	31
2	46	38	43	50	55	55	48	50	48	20	56	30
3	45	31	44	50	54	54	48	49	46	20	49	29
4	45	34	44	51	58	53	48	48	47	21	42	31
5	45	39	45	51	69	54	48	47	44	21	38	34
6	46	51	42	51	65	54	47	45	43	21	38	36
7	48	48	43	52	58	50	47	43	43	22	36	34
8	56	43	43	51	54	48	50	41	43	22	34	35
9	57	42	43	51	52	47	48	40	45	23	35	33
10	53	42	43	53	52	48	50	40	150	23	37	30
11	49	42	43	54	53	49	52	39	70	23	43	29
12	48	42	44	54	53	49	51	40	43	22	48	29
13	47	43	45	52	53	48	49	38	40	18	44	28
14	46	44	49	51	53	48	43	37	36	19	38	28
15	47	42	50	51	52	53	45	36	32	18	36	27
16	48	42	50	52	50	54	44	35	30	18	34	26
17	48	44	49	53	51	54	42	34	28	18	34	27
18	51	43	49	54	52	52	42	33	28	876	29	27
19	50	43	50	54	53	50	36	31	27	372	29	27
20	49	43	50	53	53	67	26	29	27	112	29	28
21	48	41	49	52	54	62	19	28	26	75	28	28
22	49	40	46	52	55	58	25	27	25	57	28	29
23	50	41	46	53	55	51	27	27	25	49	46	28
24	52	43	47	53	54	49	26	24	24	45	38	26
25	53	41	47	54	52	49	30	23	23	42	33	27
26	55	44	49	55	53	49	40	23	120	39	32	19
27	53	43	49	54	53	50	50	25	60	37	32	2.0
28	53	42	49	54	53	51	50	25	26	31	31	11
29	53	42	49	54	---	53	50	28	25	33	31	15
30	43	42	48	55	---	53	50	25	24	32	31	14
31	38	---	51	54	---	50	---	21	---	30	31	---
TOTAL	1518	1257	1441	1630	1523	1616	1281	1082	1357	2181	1136	798.0
MEAN	49.0	41.9	46.5	52.6	54.4	52.1	42.7	34.9	45.2	70.4	36.6	26.6
MAX	57	51	51	55	69	67	52	51	150	876	56	36
MIN	38	31	42	50	50	47	19	21	23	18	28	2.0
AC-FT	3010	2490	2860	3230	3020	3210	2540	2150	2690	4330	2250	1580

CAL YR 1978	TOTAL	28434.5	MEAN 77.9	MAX 5460	MIN 6.4	AC-FT	56400
WTR YR 1979	TOTAL	16820.0	MEAN 46.1	MAX 876	MIN 2.0	AC-FT	33360

08144800 BRADY CREEK NEAR EDEN, TX

LOCATION.--Lat 31°11'05", long 99°50'29", 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 69.3 mi (111.5 km) upstream from mouth.

DRAINAGE AREA.--97 mi^2 (251 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. 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.--17 years, 1.10 ft^3/s (0.0312 m^3/s), 797 acre-ft/yr (0.983 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, 10 ft^3/s (0.28 m^3/s) Aug. 9, gage height, 1.51 ft (0.460 m); minimum daily, 0.02 ft^3/s (0.001 m^3/s) Sept. 24-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	.36	.41	.39	.64	.46	.63	.73	.37	.16	.11	.09
2	.17	.36	.41	.39	.64	1.6	.57	.77	.63	.15	3.3	.09
3	.17	.38	.46	.41	.64	1.8	.57	.66	.85	.15	.67	.08
4	.16	.46	.46	.41	1.5	.80	.46	.52	.68	.15	.35	.08
5	.20	.52	.43	.41	2.6	.61	.43	.46	.64	.13	.21	.08
6	.22	.62	.41	.44	1.5	.51	.41	.46	.55	.16	.19	.08
7	.20	.54	.46	.46	.88	.51	.41	.45	.38	.33	.14	.07
8	.26	.46	.46	.46	.57	.50	.48	.39	.36	.28	.08	.07
9	.32	.46	.46	.48	.57	.46	.51	.32	.36	.25	3.8	.07
10	.29	.46	.46	.61	.51	.46	.51	.34	.41	.22	2.1	.07
11	.29	.46	.46	.71	.51	.46	.43	.36	.39	.16	.75	.07
12	.29	.48	.46	.71	.51	.46	.33	.36	.32	.13	.47	.06
13	.30	.61	.46	.71	.51	.46	.36	.36	.30	.13	.27	.06
14	.24	.41	.46	.68	.51	.51	.36	.35	.22	.11	.20	.06
15	.22	.41	.42	.56	.51	.59	.36	.32	.22	.11	.17	.06
16	.22	.43	.41	.49	.51	.71	.46	.31	.22	.09	.13	.04
17	.21	.46	.41	.46	.51	.71	.64	.29	.22	.09	.10	.04
18	.19	.51	.41	.60	.51	.70	.79	.27	.22	.09	.09	.04
19	.21	.51	.41	.64	.51	.59	.72	.22	.22	.12	.09	.04
20	.22	.51	.46	.61	.51	.86	1.1	.22	.22	.20	.08	.03
21	.22	.51	.44	.51	.51	1.8	2.8	.29	.22	.22	.06	.03
22	.22	.51	.41	.51	.51	1.3	1.1	.33	.22	.21	.06	.03
23	.22	.51	.41	.51	.51	.50	.75	.25	.18	.19	.14	.03
24	.22	.51	.41	.51	.57	.46	.57	.25	.17	.14	.20	.02
25	.38	.46	.41	.51	.62	.46	.57	.25	.15	.11	.17	.02
26	.41	.50	.41	.58	.52	.46	.52	.25	.18	.09	.12	.02
27	.39	.51	.41	.64	.51	.46	.51	.23	.22	.07	.10	.02
28	.34	.51	.41	.64	.46	.46	.51	.27	.22	.06	.09	.02
29	.32	.50	.41	.64	---	.46	.51	.34	.21	.06	.09	.02
30	.32	.48	.41	.73	---	1.9	.56	.27	.17	.06	.08	.02
31	.41	---	.41	.64	---	.68	---	.20	---	.05	.08	---
TOTAL	8.00	14.41	13.32	17.05	19.36	22.70	18.93	11.09	9.72	4.47	14.49	1.51
MEAN	.26	.48	.43	.55	.69	.73	.63	.36	.32	.14	.47	.050
MAX	.41	.62	.46	.73	2.6	1.9	2.8	.77	.85	.33	3.8	.09
MIN	.16	.36	.41	.39	.46	.46	.33	.20	.15	.05	.06	.02
AC-FT	16	29	26	34	38	45	38	22	19	8.9	29	3.0

CAL YR 1978 TOTAL 207.35 MEAN .57 MAX 9.6 MIN .00 AC-FT 411
WTR YR 1979 TOTAL 155.05 MEAN .42 MAX 3.8 MIN .02 AC-FT 308

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.--513 mi² (1,329 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 ft (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 ft (5.9 m) head. The gated outlet is a 36 in (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 structues with a combined detention capacity of 82,180 acre-ft (101 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, 23,470 acre-ft (28.9 hm³) Oct. 1, elevation, 1,739.26 ft (530.126 m); minimum, 19,180 acre-ft (23.6 hm³) Sept. 30, elevation, 1,736.58 ft (529.310 m).

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

1,736.0	18,320
1,738.0	21,370
1,740.0	24,740

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23450	22720	22540	22130	21980	22110	22570	22950	22430	21620	20780	20110
2	23420	22720	22540	22100	21980	22200	22560	23020	22410	21540	20820	20080
3	23400	22690	22490	22080	21980	22160	22560	23050	22410	21490	20790	20040
4	23360	22670	22480	22100	22200	22150	22540	22990	22460	21450	20780	20010
5	23360	22760	22460	22100	22290	22130	22530	22990	22480	21400	20760	19980
6	23310	22720	22440	22100	22310	22130	22490	22970	22460	21390	20730	19950
7	23260	22710	22410	22080	22280	22100	22490	22950	22440	21420	20700	19920
8	23260	22670	22390	22060	22260	22100	22480	22940	22410	21390	20670	19890
9	23240	22660	22330	22050	22260	22060	22460	22920	22410	21350	20650	19840
10	23240	22640	22330	22110	22260	22050	22490	22900	22380	21320	20620	19800
11	23230	22620	22310	22110	22260	22050	22440	22870	22330	21290	20710	19770
12	23190	22610	22310	22110	22280	22010	22430	22840	22290	21250	20700	19740
13	23140	22620	22290	22110	22260	22010	22390	22820	22260	21200	20680	19690
14	23110	22620	22280	22080	22260	21980	22380	22790	22230	21150	20650	19650
15	23070	22610	22280	22060	22240	22080	22360	22760	22200	21100	20620	19590
16	23050	22610	22260	22080	22230	22100	22340	22710	22130	21070	20590	19540
17	23020	22590	22240	22080	22210	22150	22490	22670	22100	21030	20560	19510
18	23000	22570	22240	22110	22200	22150	22530	22660	22050	21000	20530	19480
19	22990	22590	22260	22130	22200	22150	22510	22640	22010	21000	20480	19450
20	22950	22590	22240	22110	22200	22340	22490	22640	22000	21040	20450	19440
21	22920	22590	22230	22080	22200	22380	22530	22640	21960	21030	20420	19420
22	22900	22590	22210	22080	22210	22440	22510	22590	21910	21000	20370	19390
23	22870	22590	22230	22050	22200	22380	22490	22560	21880	20960	20390	19360
24	22860	22610	22200	22030	22200	22360	22480	22510	21850	20930	20360	19350
25	22870	22620	22180	22050	22160	22360	22460	22480	21780	20900	20320	19320
26	22840	22640	22150	22050	22150	22340	22410	22440	21780	20860	20290	19290
27	22820	22590	22150	22030	22150	22340	22380	22430	21770	20840	20260	19270
28	22790	22570	22150	22000	22130	22360	22330	22430	21730	20790	20230	19240
29	22770	22570	22150	22030	---	22340	22410	22430	21700	20750	20180	19200
30	22760	22560	22150	22000	---	22590	22460	22380	21670	20680	20150	19180
31	22740	---	22160	21980	---	22590	---	22380	---	20650	20140	---
MAX	23450	22760	22540	22130	22310	22590	22570	23050	22480	21620	20820	20110
MIN	22740	22560	22150	21980	21980	21980	22330	22380	21670	20650	20140	19180
(†)	1738.83	1738.72	1738.48	1738.37	1738.46	1738.74	1738.66	1738.61	1738.18	1737.54	1737.21	1736.58
(‡)	-730	-180	-400	-180	+150	+460	-130	-80	-710	-1020	-510	-960

CAL YR 1978 MAX 23860 MIN 19950 ‡ -1190
WTR YR 1979 MAX 23450 MIN 19180 ‡ -4290

† 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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
OCT 10...	1000	1360	20.5	260	130	51	32	180	4.9

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 10...	11	160	0	130	280	.3	10	773

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 29.5 mi (47.5 km) upstream from mouth.

DRAINAGE AREA.--575 mi² (1,489 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 542 acre-ft (668,000 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); 17 years (water years 1963-79) regulated, 11.6 ft³/s (0.329 m³/s), 8,400 acre-ft/yr (10.4 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, 799 ft³/s (22.6 m³/s) May 1, gage height, 8.66 ft (2.640 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.20	.31	.23	1.6	.97	4.3	210	.68	.00	.61	.00
2	.00	.00	.40	.22	.45	1.2	2.8	21	.32	.00	2.3	.00
3	.00	.00	.39	.21	.55	2.2	2.3	6.5	.29	.00	.12	.00
4	.04	.00	.10	.22	3.5	2.0	1.8	4.3	2.5	.00	.02	.01
5	.07	.17	.21	.34	6.7	3.1	1.4	2.8	.73	.00	.00	.02
6	.09	.15	.29	.45	1.9	3.4	1.2	1.9	.23	.00	.00	.01
7	.09	.48	.36	.52	.97	3.4	1.1	1.5	.14	.00	.00	.00
8	.13	.67	.43	.66	.64	3.4	1.2	.98	.06	.00	.00	.00
9	.16	.66	.39	.78	.47	2.9	1.1	.76	.03	.00	.00	.00
10	.23	.60	.08	2.2	.44	.28	1.1	.61	.06	.00	.00	.00
11	.15	.31	.12	1.9	.42	.28	2.6	.52	.02	.00	1.5	.00
12	.23	.00	.14	1.1	.45	.21	1.2	.51	.01	.00	.17	.00
13	.31	.00	.25	1.8	.51	.21	.82	.47	.00	.00	.03	.00
14	.39	.01	.43	2.2	.68	.24	.70	.31	.00	.00	.02	.00
15	.46	.09	.65	.83	.62	1.1	.68	.27	.00	.00	.01	.00
16	.38	.48	.39	.81	.62	.80	.53	.18	.00	.00	.00	.00
17	.00	.70	.79	.86	.94	.61	2.1	.17	.00	.00	.00	.00
18	.00	.47	1.1	1.3	.89	.52	2.0	.13	.00	.00	.00	.00
19	.00	.01	.73	1.9	.88	.37	1.4	.15	.00	.56	.00	.00
20	.01	.00	.20	1.6	.88	3.1	3.2	.16	.00	.12	.00	.00
21	.02	.00	.40	.79	.99	52	4.0	.23	.01	.00	.00	.00
22	.02	.00	.69	.82	.98	11	1.6	.20	.01	.00	.00	.00
23	.02	.00	.53	.86	.96	3.9	1.2	.23	.00	.00	.18	.00
24	.02	.06	.09	1.2	.86	2.1	.99	.22	.00	.00	.07	.00
25	.07	.10	.17	1.3	1.0	1.5	1.0	.21	.00	.00	.03	.00
26	.10	.00	.24	1.3	1.0	1.2	1.3	.17	.22	.00	.02	.00
27	.10	.00	.45	1.3	.89	1.1	1.5	.20	.05	.00	.01	.00
28	.20	.01	.65	1.4	.96	.97	1.6	.22	.01	.00	.00	.00
29	.24	.05	.73	1.6	---	.84	4.8	.22	.01	.00	.00	.00
30	.24	.23	.22	1.7	---	77	2.8	.23	.00	.00	.00	.00
31	.23	---	.28	1.7	---	12	---	.32	---	.00	.00	---
TOTAL	4.03	5.45	12.21	34.10	31.75	193.90	54.32	255.67	5.38	.68	5.09	.04
MEAN	.13	.18	.39	1.10	1.13	6.25	1.81	8.25	.18	.022	.16	.001
MAX	.46	.70	1.1	2.2	6.7	77	4.8	210	2.5	.56	2.3	.02
MIN	.00	.00	.08	.21	.42	.21	.53	.13	.00	.00	.00	.00
AC-FT	8.0	11	24	68	63	385	108	507	11	1.3	10	.08

CAL YR 1978 TOTAL 1454.68 MEAN 3.99 MAX 706 MIN .00 AC-FT 2890
WTR YR 1979 TOTAL 602.62 MEAN 1.65 MAX 210 MIN .00 AC-FT 1200

08146000 SAN SABA RIVER AT SAN SABA, TX

LOCATION.--Lat 31°12'47", long 98°43'09", San Saba County, Hydrologic Unit 12090109, on right bank at downstream side of bridge on State Highway 16, 1.2 mi (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 16.6 mi (26.7 km) upstream from mouth.

DRAINAGE AREA.--3,042 mi² (7,879 km²).

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 hm³). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--64 years, 240 ft³/s (6.797 m³/s), 173,900 acre-ft/yr (214 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 203,000 ft³/s (5,750 m³/s) July 23, 1938, gage height, 39.3 ft (11.98 m), present site and datum, from rating curve extended above 41,000 ft³/s (1,160 m³/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, 1,810 ft³/s (51.3 m³/s) May 2, gage height, 9.02 ft (2.749 m), no peak above base of 3,000 ft³/s (85.0 m³/s); minimum, 34 ft³/s (0.96 m³/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	100	118	110	116	136	309	305	110	79	145	66
2	123	95	116	112	116	137	235	1150	141	64	139	63
3	116	92	116	109	117	150	203	446	279	59	103	60
4	114	87	112	116	125	160	187	286	255	57	116	60
5	111	96	110	115	175	150	178	229	191	54	99	60
6	107	119	111	116	324	139	168	198	169	52	95	60
7	102	117	110	116	378	136	163	179	156	57	90	58
8	100	107	110	113	280	135	164	163	144	59	81	60
9	104	104	111	113	228	130	160	151	132	54	77	66
10	109	110	110	117	202	126	157	144	125	59	75	66
11	116	108	109	132	187	127	160	133	114	60	82	58
12	122	104	110	138	178	127	149	157	112	54	95	56
13	114	104	111	127	172	122	148	175	154	52	171	55
14	104	104	110	119	168	121	146	139	119	48	117	52
15	99	106	112	119	163	127	144	127	106	45	92	49
16	98	113	113	118	153	146	139	117	96	45	83	46
17	98	119	113	115	149	152	136	110	90	41	77	44
18	98	117	116	120	149	155	142	103	84	40	73	43
19	99	112	118	126	149	152	170	101	84	52	71	44
20	98	111	118	140	149	150	185	100	82	552	69	48
21	99	114	110	132	149	199	181	98	82	447	62	45
22	99	114	106	125	149	297	194	113	81	296	60	44
23	96	114	109	125	148	297	187	109	77	181	205	42
24	96	114	108	119	146	241	166	94	72	130	95	43
25	100	112	109	117	140	202	156	92	68	108	67	40
26	106	122	107	118	138	183	141	89	156	92	67	39
27	104	155	106	118	139	169	132	86	180	79	74	38
28	103	163	106	118	136	161	127	101	116	87	73	36
29	104	133	106	119	---	161	135	296	100	109	69	35
30	103	121	109	120	---	339	176	195	82	75	67	34
31	100	---	112	118	---	320	---	133	---	65	66	---
TOTAL	3267	3387	3442	3720	4823	5347	5038	5919	3757	3252	2855	1510
MEAN	105	113	111	120	172	172	168	191	125	105	92.1	50.3
MAX	125	163	118	140	378	339	309	1150	279	552	205	66
MIN	96	87	106	109	116	121	127	86	68	40	60	34
AC-FT	6480	6720	6830	7380	9570	10610	9990	11740	7450	6450	5660	3000

CAL YR 1978 TOTAL 62569.0 MEAN 171 MAX 8620 MIN 8.2 AC-FT 124100
WTR YR 1979 TOTAL 46317.0 MEAN 127 MAX 1150 MIN 34 AC-FT 91870

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.--30,600 mi² (79,250 km²), approximately, of which 12,880 mi² (33,360 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 183 floodwater-retarding structures with combined detention capacity of 196,360 acre-ft (242 hm³). These structures control runoff from 896 mi² (2,321 km²). The National Weather Service operates a 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); 11 years (water years 1969-79) partially regulated, 687 ft³/s (19.46 m³/s), 497,700 acre-ft/yr (614 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, 9,110 ft³/s (258 m³/s) Aug. 3, gage height, 10.80 ft (3.292 m); minimum, 44 ft³/s (1.25 m³/s) July 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUC	SEP
1	182	152	189	186	197	225	715	782	244	638	1070	121
2	186	150	186	183	194	213	617	2450	204	606	3880	109
3	186	148	181	186	191	220	506	2390	287	475	7600	100
4	175	145	180	187	205	211	501	1980	316	334	2670	93
5	190	156	175	191	339	217	458	1450	264	260	547	98
6	417	193	169	198	508	201	508	1130	235	228	323	95
7	238	206	171	198	671	198	450	1060	222	186	237	93
8	175	195	168	193	535	199	387	799	324	152	182	94
9	164	189	164	190	430	194	354	617	313	130	153	92
10	164	188	164	201	363	186	324	502	275	107	136	91
11	167	186	162	219	326	184	306	428	249	94	249	88
12	179	180	165	234	303	182	291	368	242	84	358	78
13	174	179	167	231	288	175	274	391	247	70	247	73
14	161	181	167	219	278	169	324	325	253	56	215	83
15	150	188	167	214	265	180	291	273	217	49	150	81
16	142	200	167	208	246	202	282	258	198	61	124	77
17	143	210	169	207	237	261	258	235	204	60	110	69
18	146	205	171	208	229	244	261	213	185	57	105	64
19	146	207	173	214	226	229	274	195	168	56	134	67
20	145	266	181	259	224	256	508	182	150	236	143	72
21	145	314	179	408	221	756	472	176	136	664	130	73
22	143	236	175	274	224	2750	383	173	128	401	116	68
23	138	214	173	236	222	2010	628	171	121	226	156	66
24	137	209	175	218	217	1370	1320	190	111	349	514	66
25	144	210	176	207	211	1410	866	201	103	401	408	66
26	146	264	173	207	221	1120	631	177	99	305	224	65
27	150	381	172	203	236	755	464	163	867	223	171	62
28	150	262	175	202	248	564	367	201	2080	172	158	62
29	150	219	178	202	---	464	326	308	1380	172	192	67
30	154	197	176	202	---	1400	307	417	930	150	159	69
31	158	---	194	198	---	1080	---	319	---	119	136	---
TOTAL	5245	6230	5382	6683	8055	17825	13653	18524	10752	7121	20997	2402
MEAN	169	208	174	216	288	575	455	598	358	230	677	80.1
MAX	417	381	194	408	671	2750	1320	2450	2080	664	7600	121
MIN	137	145	162	183	191	169	258	163	99	49	105	62
AC-FT	10400	12360	10680	13260	15980	35360	27080	36740	21330	14120	41650	4760

CAL YR 1978 TOTAL 144604 MEAN 396 MAX 19700 MIN 12 AC-FT 286800
WTR YR 1979 TOTAL 122869 MEAN 337 MAX 7600 MIN 49 AC-FT 243700

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, 161 micromhos Sept. 11, 1952.
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, 1,610 micromhos Mar. 25; minimum daily, 273 micromhos Aug. 4.
WATER TEMPERATURES: Maximum daily, 33.0°C July 8-10; minimum daily, 3.0°C Jan. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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											
11...	1245	163	--	--	22.0	--	--	--	--	--	--
17...	1045	143	595	8.1	19.0	30	8.2	93	1.6	88	210
NOV											
14...	1050	181	920	8.1	18.5	20	8.1	92	1.2	68	250
29...	0910	222	--	--	13.0	--	--	--	--	--	--
DEC											
05...	1130	178	1010	8.3	11.5	7.0	9.4	92	1.0	60	88
JAN											
04...	1250	186	1080	8.4	5.0	3.0	11.8	95	1.5	12	820
10...	1345	204	--	--	4.0	--	--	--	--	--	--
FEB											
08...	1400	520	938	8.1	9.0	25	11.1	99	1.2	100	600
13...	1210	283	--	--	11.5	--	--	--	--	--	--
MAR											
06...	1235	198	988	8.1	14.5	15	11.1	114	2.1	12	96
APR											
03...	1525	506	500	7.4	19.0	240	6.6	77	1.2	660	1200
10...	1700	317	--	--	20.5	--	--	--	--	--	--
MAY											
09...	1405	605	820	7.9	23.0	190	7.0	84	1.5	350	1800
21...	1515	177	--	--	25.0	--	--	--	--	--	--
JUN											
12...	1340	242	680	7.9	28.0	50	8.9	116	2.5	190	36
JUL											
10...	0955	110	--	--	33.0	--	--	--	--	--	--
10...	1300	116	800	7.9	32.0	17	7.2	100	2.5	64	78
AUG											
07...	1115	237	380	7.2	27.0	140	5.2	67	2.2	1000	840
28...	1035	146	--	--	24.0	--	--	--	--	--	--
SEP											
25...	1210	66	620	7.6	23.0	12	8.2	99	1.6	32	43

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)
OCT										
11...	--	--	--	--	--	--	--	--	--	--
17...	250	35	58	25	32	.9	3.1	260	0	32
NOV										
14...	320	110	74	33	61	1.5	4.0	260	0	90
29...	--	--	--	--	--	--	--	--	--	--
DEC										
05...	330	130	79	33	73	1.7	4.5	250	0	88
JAN										
04...	370	170	85	39	74	1.7	4.2	250	0	120
10...	--	--	--	--	--	--	--	--	--	--
FEB										
08...	330	120	77	33	63	1.5	3.1	250	0	94
13...	--	--	--	--	--	--	--	--	--	--
MAR										
06...	350	150	78	38	71	1.6	3.4	240	0	110
APR										
03...	170	24	44	15	25	.8	4.0	180	0	28
10...	--	--	--	--	--	--	--	--	--	--
MAY										
09...	260	130	69	22	62	1.7	5.4	160	0	82
21...	--	--	--	--	--	--	--	--	--	--
JUN										
12...	230	53	54	24	48	1.4	4.2	220	0	49
JUL										
10...	--	--	--	--	--	--	--	--	--	--
10...	270	91	64	27	48	1.3	4.6	220	0	70
AUG										
07...	140	19	37	12	11	.4	4.1	150	0	12
28...	--	--	--	--	--	--	--	--	--	--
SEP										
25...	210	5	38	28	38	1.1	3.8	250	0	30

DATE	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)	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)
OCT										
11...	--	--	--	--	--	--	--	--	--	--
17...	60	.2	14	332	353	.19	.01	.20	.01	.59
NOV										
14...	120	.2	12	568	522	.13	.01	.14	.01	.49
29...	--	--	--	--	--	--	--	--	--	--
DEC										
05...	150	.3	11	580	562	.26	.01	.27	.01	.47
JAN										
04...	160	.2	7.4	621	613	.70	.03	.73	.01	.49
10...	--	--	--	--	--	--	--	--	--	--
FEB										
08...	130	.2	7.0	541	531	.70	.02	.72	.02	.58
13...	--	--	--	--	--	--	--	--	--	--
MAR										
06...	140	.3	3.5	561	563	1.3	.02	1.3	.03	.57
APR										
03...	38	.2	9.4	264	252	.22	.02	.24	.03	.75
10...	--	--	--	--	--	--	--	--	--	--
MAY										
09...	120	.3	9.3	489	449	.30	.02	.32	.00	.96
21...	--	--	--	--	--	--	--	--	--	--
JUN										
12...	72	.3	9.8	389	370	.09	.04	.13	.06	.76
JUL										
10...	--	--	--	--	--	--	--	--	--	--
10...	95	.4	12	484	429	.13	.02	.15	.02	.38
AUG										
07...	22	.2	11	217	183	.20	.04	.24	.01	.43
28...	--	--	--	--	--	--	--	--	--	--
SEP										
25...	53	.2	13	338	327	.01	.00	.01	.01	.58

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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										
11...	--	--	--	--	--	--	--	--	--	--
17...	.60	.36	.020	.010	--	5.3	--	113	44	88
NOV										
14...	.50	.39	.050	.010	3.9	--	--	93	45	69
29...	--	--	--	--	--	--	--	--	--	--
DEC										
05...	.48	.25	.080	.080	3.5	--	--	77	37	77
JAN										
04...	.50	.50	.050	.160	2.7	--	--	39	20	72
10...	--	--	--	--	--	--	--	--	--	--
FEB										
08...	.60	.54	.090	.210	--	2.3	.9	89	125	75
13...	--	--	--	--	--	--	--	--	--	--
MAR										
06...	.60	.52	.010	.020	3.3	--	--	200	107	89
APR										
03...	.78	.62	.140	.160	11	--	--	283	387	100
10...	--	--	--	--	--	--	--	--	--	--
MAY										
09...	.96	.80	.140	.320	12	--	--	150	245	99
21...	--	--	--	--	--	--	--	--	--	--
JUN										
12...	.82	.34	.050	.010	--	3.9	.4	141	92	86
JUL										
10...	--	--	--	--	--	--	--	--	--	--
10...	.40	.20	.070	.050	5.8	--	--	38	12	99
AUG										
07...	.44	.45	.110	.050	--	4.5	1.2	168	108	99
28...	--	--	--	--	--	--	--	--	--	--
SEP										
25...	.59	.45	.030	.020	3.7	--	--	59	11	90

DATE	TIME	ARSENIC 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)
OCT										
17...	1045	2	2	0	0	100	0	0	0	0
FEB										
08...	1400	1	1	100	0	100	0	0	0	0
JUN										
12...	1340	1	1	200	100	100	1	0	<1	10
AUG										
07...	1115	3	2	300	200	90	0	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, 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)
OCT										
17...	0	0	0	0	0	6	5	1	820	810
FEB										
08...	0	0	0	0	0	5	5	0	370	360
JUN										
12...	0	10	3	0	<3	120	120	0	910	910
AUG										
07...	10	0	0	0	<3	4	4	0	4300	4300

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
OCT 17...	10	9	9	0	50	50	0	.0	.0	.0
FEB 08...	10	5	5	0	30	20	10	.1	.1	.0
JUN 12...	<0	38	38	0	110	110	2	.0	.0	.0
AUG 07...	20	10	10	0	140	140	3	.3	.3	.0

DATE	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 17...	0	0	1	0	0	0	20	20	0
FEB 08...	1	0	1	0	0	0	20	10	10
JUN 12...	0	0	0	0	0	0	140	140	<3
AUG 07...	0	0	0	0	0	0	20	20	<3

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
NOV 14...	1050	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND
FEB 08...	1400	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND
MAY 09...	1405	ND	ND	.2	ND	ND	ND	ND	ND	--	ND	ND
JUN 12...	1340	.0	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
AUG 07...	1115	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND

DATE	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND
FEB 08...	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND
MAY 09...	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND
JUN 12...	.00	.00	.00	.00	--	.00	.00	.00	.00	0	.00
AUG 07...	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND

DATE	LENGTH OF EXPO-SURE (DAYS)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
DEC 05...	21	14.8	16.5	15.1	.000

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	DEC 5,78	MAR 6,79	JUN 12,79	JUL 10,79	AUG 7,79	SEP 25,79
TIME	1130	1235	1340	1300	1115	1210
TOTAL CELLS/ML	41000	14000	36000	12000	1800	1800
DIVERSITY: DIVISION	0.9	1.4	0.6	1.4	1.6	1.9
.CLASS	0.9	1.4	0.7	1.4	1.6	1.9
..ORDER	0.9	1.8	1.1	2.4	2.0	2.6
...FAMILY	1.0	1.9	1.5	2.9	2.5	3.0
....GENUS	1.7	2.0	1.6	3.3	2.5	3.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	140	8	--	-
...CHLOROCOCCACEAE												
....CHLOROCOCCUM	--	-	--	-	--	-	--	-	--	-	13	1
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	670	6	--	-	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	--	-	270	2	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	100	1	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	290	1	440	3	*	0	540	4	--	-	13	1
....DICTYOSPHAERIUM	1300	3	--	-	350	1	200	2	--	-	100	6
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	72	4	--	-
....OOCYSTIS	1000	2	440	3	--	-	400	3	--	-	--	-
....SELENASTRUM	--	-	160	1	*	0	--	-	--	-	26	1
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-	13	1
....TREUBARIA	--	-	--	-	--	-	67	1	--	-	26	1
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	100	1	--	-	--	-
....CRUCIGENIA	960	2	--	-	620	2	--	-	--	-	--	-
....SCENEDESMUS	670	2	--	-	1200	3	600	5	570#	32	260	14
....TETRASTRUM	--	-	220	2	--	-	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	--	-	600	4	--	-	270	2	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	*	0	820	6	620	2	1200	10	--	-	440#	24
....CHLOROGONIUM	--	-	--	-	--	-	130	1	--	-	13	1
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	2600	6	770	5	500	1	130	1	72	4	39	2
....MELOSIRA	--	-	--	-	--	-	--	-	--	-	26	1
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	*	0	--	-	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	*	0	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	*	0	110	1	*	0	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	*	0	1300	9	*	0	200	2	--	-	77	4
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	26	1
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....OCHROMONAS	--	-	--	-	*	0	--	-	--	-	--	-
.XANTHOPHYCEAE												
..HETEROCOCCALES												
...CHLOROTHECIACEAE												
....OPHIOCYTIUM	--	-	--	-	--	-	67	1	--	-	--	-

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 1978 TO SEPTEMBER 1979

DATE TIME	DEC 5,78 1130		MAR 6,79 1235		JUN 12,79 1340		JUL 10,79 1300		AUG 7,79 1115		SEP 25,79 1210	
TOTAL CELLS/ML	41000		14000		36000		12000		1800		1800	
DIVERSITY: DIVISION	0.9		1.4		0.6		1.4		1.6		1.9	
.CLASS	0.9		1.4		0.7		1.4		1.6		1.9	
..ORDER	0.9		1.8		1.1		2.4		2.0		2.6	
...FAMILY	1.0		1.9		1.5		2.9		2.5		3.0	
....GENUS	1.7		2.0		1.6		3.3		2.5		3.3	
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
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-	90	5
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	--	-	350	1	*	0	72	4	52	3
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	6200#	15	--	-	770	2	2100#	18	--	-	--	-
....ANACYSTIS	28000#	67	9200#	65	2200	6	430	4	430#	24	13	1
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENOPSIS	--	-	--	-	1100	3	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-	360#	20	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	27000#	76	4000#	33	--	-	460#	25
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	--	-	620	2	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	110	1	--	-	370	3	72	4	64	4
....PHACUS	--	-	--	-	--	-	--	-	--	-	13	1
....TRACHELOMONAS	*	0	110	1	*	0	170	1	--	-	39	2
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-	26	1

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 WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	5245	616	340	4880	63	891	41	577	230
NOV. 1978.....	6230	993	560	9350	140	2300	99	1660	340
DEC. 1978.....	5382	914	510	7420	120	1770	87	1260	310
JAN. 1979.....	6683	1140	640	11600	170	2980	120	2210	380
FEB. 1979.....	8055	966	540	11800	130	2850	94	2040	330
MAR. 1979.....	17825	1030	580	27800	140	6950	100	5020	350
APR. 1979.....	13653	836	470	17300	110	3920	75	2750	290
MAY 1979.....	18524	689	390	19300	77	3860	54	2700	250
JUNE 1979.....	10752	613	340	9940	65	1880	45	1320	230
JULY 1979.....	7121	781	440	8400	95	1820	67	1280	280
AUG. 1979.....	20997	371	210	11700	30	1710	23	1320	160
SEPT 1979.....	2402	611	340	2220	62	401	40	258	230
TOTAL	122869	**	**	142000	**	31300	**	22400	**
WTD.AVG.	337	762	430	**	94	**	67	**	270

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	577	644	1000	1000	940	1190	560	1100	640	650	550	610
2	600	671	1020	1070	930	1150	636	764	618	643	412	639
3	622	688	1040	1040	921	1100	483	531	627	644	323	665
4	605	700	982	1060	914	1050	636	535	540	654	273	649
5	608	732	961	1050	889	959	639	537	592	659	295	637
6	620	770	737	1070	941	983	686	539	572	805	336	621
7	634	820	840	1100	868	979	728	782	599	810	382	600
8	613	864	825	1090	941	1000	760	791	674	816	410	594
9	615	881	810	1130	996	1010	776	826	661	824	420	584
10	613	934	807	1090	966	971	755	840	649	795	428	586
11	608	919	775	1090	970	959	768	858	670	763	380	583
12	580	905	757	1110	1010	900	750	842	697	734	376	585
13	557	909	747	1120	978	829	735	811	750	710	449	587
14	562	943	715	1140	933	928	712	769	799	685	477	585
15	580	975	857	1130	900	960	700	741	759	605	460	597
16	600	1000	884	1120	911	1030	692	730	790	623	485	600
17	618	1030	863	1130	920	1050	697	724	848	625	492	605
18	639	1060	921	1120	934	1100	676	706	809	630	486	608
19	650	1070	940	1130	940	1050	692	690	796	572	475	614
20	662	1200	921	1100	949	1060	745	680	770	612	454	623
21	665	1360	1000	1580	974	1070	784	679	744	533	457	627
22	662	1300	990	1390	1000	1330	755	672	691	582	460	620
23	643	1250	1000	1240	1020	1000	703	660	671	700	458	610
24	645	1200	1040	1190	1030	951	1350	700	639	883	427	616
25	646	1160	1000	1160	1060	1610	1240	719	612	1110	439	582
26	636	1110	950	1140	1090	693	886	706	602	1300	426	592
27	614	1000	870	1130	1140	800	978	697	919	1480	395	616
28	622	966	1000	1130	1220	900	1090	769	376	1380	417	620
29	602	923	1010	1080	---	1030	1110	697	500	1070	449	623
30	617	987	1010	1020	---	759	1090	619	631	835	482	623
31	628	---	970	957	---	669	---	664	---	821	579	---
MEAN	618	966	911	1130	974	1000	794	722	675	792	431	610

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	21.0	16.0	---	---	16.0	22.0	22.0	---	30.0	29.0	31.0
2	27.0	20.0	18.0	---	---	---	19.0	22.0	25.0	31.0	23.0	31.0
3	27.0	21.0	11.0	7.0	10.0	16.0	20.0	23.0	26.0	31.0	---	28.0
4	25.0	---	14.0	8.0	---	15.0	20.0	---	26.0	32.0	26.0	32.0
5	24.0	18.0	12.0	7.0	6.0	17.0	21.0	21.0	27.0	30.0	29.0	30.0
6	---	15.0	8.0	---	7.0	18.0	21.0	25.0	29.0	31.0	30.0	30.0
7	24.0	15.0	9.0	3.0	10.0	18.0	20.0	24.0	30.0	---	30.0	---
8	20.0	16.0	---	5.0	10.0	---	24.0	24.0	29.0	33.0	29.0	29.0
9	---	19.0	---	5.0	9.0	18.0	20.0	25.0	29.0	33.0	---	29.0
10	24.0	20.0	9.0	---	10.0	15.0	22.0	26.0	27.0	33.0	30.0	---
11	26.0	18.0	10.0	6.0	15.0	13.0	23.0	21.0	---	32.0	27.0	---
12	25.0	19.0	10.0	9.0	13.0	---	---	21.0	29.0	32.0	28.0	---
13	23.0	20.0	10.0	5.0	---	21.0	23.0	21.0	---	---	30.0	---
14	23.0	20.0	8.0	5.0	17.0	20.0	24.0	25.0	30.0	30.0	30.0	---
15	24.0	14.0	14.0	---	15.0	---	---	26.0	29.0	30.0	30.0	---
16	23.0	14.0	12.0	8.0	10.0	---	25.0	---	29.0	32.0	31.0	---
17	22.0	---	10.0	12.0	---	16.0	23.0	25.0	29.0	30.0	31.0	---
18	22.0	15.0	15.0	15.0	10.0	18.0	25.0	23.0	29.0	28.0	31.0	22.0
19	---	14.0	15.0	14.0	8.0	19.0	24.0	23.0	30.0	28.0	---	23.0
20	25.0	15.0	15.0	12.0	11.0	---	26.0	27.0	---	29.0	31.0	22.0
21	26.0	14.0	10.0	11.0	13.0	20.0	25.0	25.0	29.0	30.0	---	21.0
22	23.0	---	---	12.0	---	---	23.0	25.0	31.0	31.0	31.0	---
23	20.0	15.0	20.0	10.0	18.0	---	25.0	25.0	31.0	---	30.0	25.0
24	---	18.0	12.0	8.0	14.0	18.0	---	25.0	32.0	32.0	30.0	26.0
25	20.0	19.0	10.0	10.0	---	20.0	26.0	26.0	31.0	31.0	29.0	25.0
26	21.0	18.0	---	8.0	15.0	21.0	25.0	25.0	28.0	---	30.0	26.0
27	20.0	15.0	11.0	7.0	15.0	---	24.0	26.0	30.0	31.0	27.0	26.0
28	26.0	15.0	13.0	9.0	18.0	20.0	24.0	---	28.0	32.0	30.0	---
29	20.0	15.0	14.0	---	---	21.0	21.0	28.0	31.0	32.0	31.0	26.0
30	20.0	16.0	10.0	8.0	---	21.0	21.0	27.0	---	31.0	30.0	27.0
31	22.0	---	---	7.0	---	21.0	---	27.0	---	30.0	31.0	---
MEAN	23.5	17.0	12.0	8.5	12.0	18.5	23.0	24.5	29.0	31.0	29.5	27.0

08148000 LAKE BUCHANAN NEAR BURNET, TX

LOCATION.--Lat 30°45'04", long 98°25'06", Burnet County, Hydrologic Unit 12090201, in powerhouse at Buchanan Dam on Colorado River, 1.3 mi (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.--31,250 mi² (80,940 km²), approximately, of which 12,880 mi² (33,360 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 1929 (levels by Lower Colorado River Authority). Prior to July 1938, temporary staff and float gages at same site and datum.

REMARKS.--The lake is formed by two reinforced concrete multiple-arch sections, three banks of tainter gates, a 1,100 ft (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 ft (10 by 5 m) and by seven 40 by 15 ft (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 (42 hm³) Sept. 8-10, 1952, gage height, 983.4 ft (299.74 m).

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents observed, 981,400 acre-ft (1.21 km³) Aug. 4, gage height, 1,019.54 ft (310.756 m); minimum, 763,600 acre-ft (0.942 km³) Nov. 3, 4; gage height, 1,009.43 ft (307.674 m).

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

1,009.0	755,000	1,016.0	902,000
1,012.0	816,000	1,020.0	992,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	769600	767000	777400	779000	786400	813100	858400	886600	931300	950800	957000	964600
2	769800	765600	778000	776800	787000	814700	856300	889900	933200	951500	969900	961900
3	770200	763600	778600	772200	787600	815000	855300	897200	933900	951800	976600	961000
4	770200	763600	776800	773000	789600	815200	855700	900500	935000	952000	981400	961000
5	770200	767400	772200	773800	794000	815600	856300	903100	940500	952700	977300	960500
6	770200	767800	772800	774200	796300	816400	856300	904900	941400	953400	974800	958900
7	770000	767600	772400	774200	797700	816800	857000	907100	941800	954500	975000	958200
8	770000	767200	770000	773800	800300	816800	858700	908800	942900	954700	975200	955400
9	769800	767200	769600	773800	800500	817900	859800	910400	943600	955000	975200	953600
10	769800	767200	769400	777400	801700	817900	861300	912600	944700	955000	975200	951100
11	769800	767800	769600	778000	802600	817900	861500	914300	944700	954300	974500	948100
12	770000	767800	769600	778400	804000	818100	863100	914800	944700	953800	974300	946200
13	770200	767800	770000	779600	804700	818700	863500	915200	945100	953400	973600	944200
14	769800	768200	769800	779600	805700	819200	863900	915900	945300	953400	973600	942900
15	769400	769400	770200	779600	807000	819600	865000	916100	945300	952900	974100	941800
16	769400	769600	770600	780000	806800	821300	866400	916500	945600	952000	974100	941200
17	769400	769400	770200	780600	807000	821500	867500	916700	945600	952000	974100	938300
18	769400	769600	770200	781400	807200	822700	868600	917000	945600	952200	973800	937900
19	769400	770200	770600	782000	807600	824400	869400	917200	945800	953600	973600	937900
20	769400	770800	771400	782200	808400	826300	871600	917600	945100	953400	973600	937900
21	769200	770800	771200	782800	808900	827800	872300	921100	944000	953600	973400	937400
22	767000	771400	771200	783600	809700	832000	873400	921600	943600	954100	973800	937400
23	767200	771800	772200	784000	810500	836200	873400	921800	943600	955000	973800	937200
24	766800	772200	771600	784000	811000	839700	875600	921800	943600	955200	972500	937000
25	769200	773000	771800	784600	811000	842000	878000	921800	943800	955900	972200	937000
26	768800	776400	771800	785200	811200	844400	878900	921800	944500	956800	971300	936500
27	768600	776400	772000	785400	812000	846200	880000	921800	944700	957000	970200	936500
28	768400	776400	772000	785400	812600	847900	880000	923100	947800	957000	969500	934600
29	768400	776800	772200	785800	---	849400	883100	924200	949500	956800	968100	934800
30	767800	777400	773600	787000	---	853000	883500	926200	950100	956400	966900	934800
31	767400	---	778400	786400	---	856300	---	927100	---	956600	966000	---
MAX	770200	777400	778600	787000	812600	856300	883500	927100	950100	957000	981400	964600
MIN	766800	763600	769400	772200	786400	813100	855300	886600	931300	950800	957000	934600
(†)	1009.62	1010.12	1010.17	1010.57	1011.84	1013.92	1015.16	1017.14	1018.18	1018.46	1018.87	1017.49
(‡)	-1600	+10000	+1000	+8000	+26200	+43700	+27200	+43600	+23000	+6500	+9400	-31200

CAL YR 1978 MAX 882200 MIN 698900 ‡ -71200
WTR YR 1979 MAX 981400 MIN 763600 ‡ +165800

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

08150000 LLANO RIVER NEAR JUNCTION, TX

LOCATION.--Lat 30°29'45", 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 106.7 mi (171.7 km) upstream from mouth.

DRAINAGE AREA.--1,874 mi² (4,854 km²).

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.--64 years, 193 ft³/s (5.466 m³/s), 1.39 in/yr (35 mm/yr), 139,800 acre-ft/yr (172 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 1	0600	3,190	90.3	4.42	1.347	Aug. 11	1900	*3,770	107	4.76	1.451
				a5.47	1.667					a5.47	1.667
Aug. 9	1830	2,700	76.5	4.12	1.256						
				a4.93	1.503						

a From supplementary gage.

Minimum discharge, 80 ft³/s (2.27 m³/s) May 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	124	125	131	117	106	111	109	746	112	122	140
2	133	125	126	127	119	106	107	108	392	104	160	138
3	131	125	125	124	119	108	105	107	664	101	141	135
4	131	125	124	122	121	107	105	104	343	100	125	133
5	132	140	123	122	135	106	103	102	354	102	121	131
6	157	146	124	122	143	106	101	101	378	106	117	130
7	144	137	125	122	134	106	102	99	279	122	113	127
8	171	132	125	122	127	105	103	97	232	134	112	128
9	153	131	125	120	123	104	105	97	212	117	608	123
10	143	131	125	121	122	107	122	96	212	109	465	120
11	140	130	125	122	120	110	115	104	236	110	1310	118
12	134	130	125	122	119	108	108	108	218	106	819	118
13	133	131	125	119	119	108	103	104	198	102	349	116
14	131	130	127	117	117	106	102	100	183	100	265	115
15	130	132	128	118	114	105	101	95	173	98	230	113
16	130	134	127	118	111	109	100	92	164	96	212	113
17	129	133	125	118	111	110	105	91	156	94	198	112
18	128	132	125	119	114	110	108	91	152	100	189	111
19	128	132	125	118	115	107	106	89	147	198	183	112
20	128	131	124	119	115	108	144	88	143	166	175	112
21	127	131	122	115	115	125	303	101	139	148	168	110
22	127	132	122	114	115	131	137	109	135	133	164	108
23	128	132	122	113	114	120	121	97	130	125	195	106
24	128	131	122	113	109	113	115	91	124	120	179	105
25	133	132	122	114	107	110	109	88	121	116	163	104
26	131	165	122	116	106	109	106	87	121	111	158	103
27	128	143	122	116	107	109	103	87	122	112	154	102
28	128	133	122	117	106	109	102	87	119	113	150	101
29	128	128	122	119	---	109	118	86	116	106	147	101
30	127	126	123	120	---	114	113	83	114	102	144	100
31	125	---	130	117	---	114	---	81	---	100	142	---
TOTAL	4151	3984	3854	3697	3294	3405	3483	2979	6823	3563	7778	3485
MEAN	134	133	124	119	118	110	116	96.1	227	115	251	116
MAX	171	165	130	131	143	131	303	109	746	198	1310	140
MIN	125	124	122	113	106	104	100	81	114	94	112	100
CFSM	.07	.07	.07	.06	.06	.06	.06	.05	.12	.06	.13	.06
IN.	.08	.08	.08	.07	.07	.07	.07	.06	.14	.07	.15	.07
AC-FT	8230	7900	7640	7330	6530	6750	6910	5910	13530	7070	15430	6910

CAL YR 1978 TOTAL 72235 MEAN 198 MAX 14800 MIN 70 CFSM .11 IN 1.43 AC-FT 143300
WTR YR 1979 TOTAL 50496 MEAN 138 MAX 1310 MIN 81 CFSM .07 IN 1.00 AC-FT 100200

08150700 LLANO RIVER NEAR MASON, TX

LOCATION.--Lat 30°39'35", long 99°06'29", 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 54.5 mi (87.7 km) upstream from mouth.

DRAINAGE AREA.--3,280 mi² (8,500 km²).

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 except those for period of no gage-height record, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years (water years 1969-79), 348 ft³/s (9.855 m³/s), 1.43 in/yr (36 mm/yr), 252,100 acre-ft/yr (311 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 151,000 ft³/s (4,280 m³/s) Oct. 13, 1973, gage height, 26.30 ft (8.016 m), from rating curve extended above 59,000 ft³/s (1,670 m³/s) on basis of slope-area measurement of peak flow; minimum, 16 ft³/s (0.45 m³/s) July 23, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1875 occurred June 14, 1935, discharge 388,000 ft³/s (11,000 m³/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 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 21	0100	4,370	124	6.10	1.859
June 1	1130	*25,500	722	12.20	3.719
Aug. 12	1200	3,150	89.2	5.44	1.658

Minimum discharge, 100 ft³/s (2.83 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	120	153	172	143	137	179	314	6320	136	113	148
2	126	120	149	169	143	136	170	252	1920	130	121	139
3	126	120	152	156	143	150	163	215	950	125	147	137
4	123	120	148	159	144	146	159	203	966	121	170	136
5	123	120	143	159	184	141	156	186	725	115	150	134
6	120	180	143	159	330	140	155	177	747	121	134	130
7	111	200	143	159	279	135	150	166	601	125	125	122
8	117	160	143	155	227	134	149	160	460	152	120	128
9	126	140	143	148	194	134	152	153	374	171	167	123
10	152	130	143	146	176	134	166	151	325	156	642	123
11	138	130	143	150	166	134	171	152	290	144	790	118
12	131	130	143	153	159	134	162	167	303	133	1580	115
13	129	130	143	153	155	134	156	156	301	125	979	113
14	126	130	146	150	153	138	150	156	283	117	487	111
15	120	130	146	145	152	137	142	150	260	109	329	111
16	120	130	146	143	148	137	137	139	240	106	269	111
17	120	130	146	143	145	142	152	131	223	105	243	111
18	120	140	146	145	143	148	166	126	215	104	223	111
19	120	150	146	152	143	149	155	123	208	141	208	111
20	120	160	146	156	143	155	431	123	198	154	197	108
21	120	170	146	154	143	253	1870	120	193	222	188	108
22	120	150	146	148	145	234	794	134	184	203	177	108
23	120	140	140	142	146	223	350	142	172	178	191	108
24	120	130	143	139	145	196	254	144	165	160	183	108
25	140	150	140	137	142	177	213	132	158	143	211	108
26	160	280	140	137	137	164	190	120	164	131	183	107
27	140	240	140	137	136	158	177	116	196	137	171	104
28	120	212	140	137	137	159	169	115	165	137	165	102
29	120	178	140	137	---	159	253	116	159	124	158	102
30	120	163	140	139	---	176	298	114	145	122	154	101
31	120	---	147	143	---	210	---	108	---	115	151	---
TOTAL	3894	4583	4473	4622	4601	4904	7989	4761	17610	4262	9126	3496
MEAN	126	153	144	149	164	158	266	154	587	137	294	117
MAX	160	280	153	172	330	253	1870	314	6320	222	1580	148
MIN	111	120	140	137	136	134	137	108	145	104	113	101
CFSM	.04	.05	.04	.05	.05	.05	.08	.05	.18	.04	.09	.04
IN.	.04	.05	.05	.05	.05	.06	.09	.05	.20	.05	.10	.04
AC-FT	7720	9090	8870	9170	9130	9730	15850	9440	34930	8450	18100	6930

CAL YR 1978	TOTAL	93816	MEAN 257	MAX 30300	MIN 60	CFSM .08	IN 1.06	AC-FT 186100				
WTR YR 1979	TOTAL	74321	MEAN 204	MAX 6320	MIN 101	CFSM .06	IN .84	AC-FT 147400				

NOTE.--No gage-height record Oct. 14 to Nov. 27.

08150800 BEAVER CREEK NEAR MASON, TX

LOCATION.--Lat 30°38'39", long 99°05'46", Mason County, Hydrologic Unit 12090204, on left bank at downstream side of downstream bridge on U.S. Highway 87, 1.4 mi (2.3 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.--218 mi² (565 km²).

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.--16 years, 19.4 ft³/s (0.549 m³/s), 1.21 in/yr (31 mm/yr), 14,060 acre-ft/yr (17.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,900 ft³/s (1,890 m³/s) Aug. 3, 1978, gage height, 24.0 ft (7.315 m), from floodmarks, from rating curve extended above 7,400 ft³/s (210 m³/s) on basis of slope-area measurements of 20,100 and 66,900 ft³/s (569 and 1,890 m³/s); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,300 ft³/s (377 m³/s) June 1, gage height, 9.92 ft (3.024 m), no other peak above base of 1,000 ft³/s (28.3 m³/s); minimum, 0.06 ft³/s (0.002 m³/s) Aug. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	3.6	2.9	11	4.1	2.7	15	8.0	2210	2.6	.41	1.7
2	9.8	3.5	2.5	4.5	4.0	2.5	15	15	85	2.1	.54	1.7
3	8.7	4.7	2.6	5.4	4.4	3.8	15	15	49	2.1	1.1	1.5
4	8.1	4.0	2.4	6.2	7.3	7.8	15	10	37	1.9	.70	1.5
5	7.3	5.1	1.9	6.1	22	3.8	13	8.0	118	1.9	.41	1.5
6	6.5	11	1.7	6.0	30	2.7	11	7.0	49	2.4	.29	2.7
7	5.7	8.7	1.7	6.2	21	2.1	11	6.0	36	3.1	.20	3.1
8	5.7	8.7	2.0	4.6	17	1.8	12	5.0	30	3.4	1.2	3.6
9	7.3	8.6	2.0	5.3	14	1.4	12	4.5	26	3.8	61	3.0
10	7.5	8.0	2.3	7.1	12	1.2	13	4.0	20	3.3	21	2.3
11	6.3	7.7	2.5	14	11	2.2	12	4.0	15	2.5	17	1.9
12	4.9	6.8	2.5	14	10	2.7	9.0	3.5	13	1.8	21	1.7
13	4.2	5.5	2.5	10	9.1	2.0	8.0	3.5	12	1.5	13	1.7
14	3.4	8.0	2.6	6.2	8.8	1.6	7.0	3.0	11	1.3	8.1	1.4
15	2.8	17	2.8	5.8	8.1	1.3	6.0	3.0	8.7	1.2	6.4	1.3
16	2.8	11	3.2	5.6	7.0	11	5.0	2.5	7.1	1.1	5.6	1.2
17	2.8	7.0	2.9	6.0	6.5	13	10	2.5	6.4	.91	4.9	1.1
18	2.8	5.0	2.5	6.3	6.8	7.8	8.0	2.0	6.2	1.7	4.3	1.1
19	2.8	4.0	2.5	7.4	6.8	5.8	7.0	2.0	5.5	2.3	4.0	1.4
20	2.8	6.0	2.8	8.4	7.1	5.9	50	10	5.1	9.4	3.7	2.6
21	2.7	20	2.5	7.2	6.7	47	40	40	4.9	8.6	3.1	3.2
22	2.5	15	2.1	5.1	6.5	42	20	22	4.3	4.2	2.4	3.2
23	2.3	10	1.9	3.8	5.9	30	15	17	3.5	3.0	2.7	3.1
24	2.3	6.0	1.9	3.2	4.9	24	10	15	3.5	2.4	3.0	2.8
25	11	5.0	1.9	3.2	3.8	21	8.0	14	2.9	1.9	2.8	2.2
26	17	10	1.9	3.3	3.5	19	7.0	13	7.6	1.4	2.4	2.0
27	12	15	1.9	4.0	2.8	18	6.0	14	7.4	1.2	2.2	1.8
28	6.8	7.7	2.2	4.0	2.8	17	20	15	4.1	1.1	2.4	1.6
29	5.3	4.7	2.7	4.1	---	17	15	15	3.4	.96	1.9	1.4
30	4.3	3.5	3.2	5.5	---	17	10	14	3.2	.70	1.7	1.2
31	3.9	---	9.0	6.6	---	16	---	13	---	.46	1.7	---
TOTAL	183.3	240.8	80.0	196.1	253.9	351.1	405.0	310.5	2794.8	76.23	201.15	60.5
MEAN	5.91	8.03	2.58	6.33	9.07	11.3	13.5	10.0	93.2	2.46	6.49	2.02
MAX	17	20	9.0	14	30	47	50	40	2210	9.4	61	3.6
MIN	2.3	3.5	1.7	3.2	2.8	1.2	5.0	2.0	2.9	.46	.20	1.1
CFSM	.03	.04	.01	.03	.04	.05	.06	.05	.43	.01	.03	.009
IN.	.03	.04	.01	.03	.04	.06	.07	.05	.48	.01	.03	.01
AC-FT	364	478	159	389	504	696	803	616	5540	151	399	120

CAL YR 1978 TOTAL 15429.90 MEAN 42.3 MAX 12800 MIN .00 CFSM .19 IN 2.63 AC-FT 30610
WTR YR 1979 TOTAL 5153.38 MEAN 14.1 MAX 2210 MIN .20 CFSM .07 IN .88 AC-FT 10220

NOTE.--No gage-height record Apr. 12 to May 22.

08151500 LLANO RIVER AT LLANO, TX

LOCATION.--Lat 30°45'04" (revised), 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 24.2 mi (38.9 km) upstream from mouth.

DRAINAGE AREA.--4,233 mi² (10,963 km²).

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.--Records good except those for period of no gage-height record, which are poor. 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. National Weather Service gage-height telemeter and rain gage at station.

AVERAGE DISCHARGE.--40 years, 358 ft³/s (10.14 m³/s), 1.15 in/yr (29 mm/yr), 259,400 acre-ft/yr (320 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)
June 1	1730	*25,800	731	12.31	3.752
June 5	0900	7,590	215	7.42	2.262

Minimum discharge, 86 ft³/s (2.44 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	230	140	195	201	158	145	381	2800	7010	165	125	138
2	220	140	183	208	158	155	293	1650	4890	153	129	131
3	205	140	173	196	159	215	246	789	2130	145	139	132
4	189	140	166	191	182	246	219	586	1340	140	140	127
5	179	150	163	188	703	205	196	463	4020	138	161	126
6	164	200	160	183	1840	169	173	380	1770	135	153	121
7	155	250	158	178	893	150	160	319	1130	134	141	117
8	150	220	156	172	584	140	158	263	881	136	131	114
9	174	200	158	168	442	131	169	237	701	140	127	116
10	184	180	159	192	355	131	278	228	591	165	281	115
11	215	170	161	235	316	131	209	322	503	160	797	110
12	200	164	161	239	288	131	180	243	448	149	794	110
13	180	150	163	220	259	136	167	232	449	139	1630	110
14	160	150	165	192	246	131	147	207	430	133	777	107
15	140	180	168	177	220	127	126	194	402	126	535	101
16	140	170	173	174	184	189	111	183	353	121	392	101
17	140	160	175	170	174	246	126	173	319	116	307	101
18	140	160	183	174	164	251	196	164	289	113	258	108
19	140	170	175	178	164	220	224	156	268	118	228	106
20	140	200	176	179	174	215	274	151	255	147	197	105
21	140	240	173	184	189	713	2620	159	244	159	178	105
22	140	220	171	178	194	968	1750	193	230	221	165	105
23	140	200	169	159	189	697	848	194	211	208	229	104
24	140	180	168	157	184	476	531	180	196	176	171	101
25	180	200	171	151	164	376	385	172	183	158	209	101
26	200	300	171	157	159	309	286	158	172	147	221	101
27	200	350	169	156	150	254	232	150	302	209	171	101
28	180	314	161	155	150	230	207	145	295	226	154	101
29	150	264	162	157	---	221	859	144	206	155	149	98
30	140	222	163	163	---	296	699	156	175	136	144	91
31	140	---	213	159	---	423	---	156	---	130	140	---
TOTAL	5195	5924	5262	5591	9042	8427	12450	11547	30393	4698	9373	3304
MEAN	168	197	170	180	323	272	415	372	1013	152	302	110
MAX	230	350	213	239	1840	968	2620	2800	7010	226	1630	138
MIN	140	140	156	151	150	127	111	144	172	113	125	91
CFSM	.04	.05	.04	.04	.08	.06	.10	.09	.24	.04	.07	.03
IN.	.05	.05	.05	.05	.08	.07	.11	.10	.27	.04	.08	.03
AC-FT	10300	11750	10440	11090	17930	16710	24690	22900	60280	9320	18590	6550

CAL YR 1978	TOTAL 133513	MEAN 366	MAX 54300	MIN 37	CFSM .09	IN 1.17	AC-FT 264800			
WTR YR 1979	TOTAL 111206	MEAN 305	MAX 7010	MIN 91	CFSM .07	IN .98	AC-FT 220600			

NOTE.--No gage-height record Oct. 11 to Nov. 28.

08151500 LLANO RIVER AT LLANO, TX --Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyes: April to September 1979.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April to September 1979.
WATER TEMPERATURES: April to September 1979.

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

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 442 micromhos June 30; minimum daily, 268 micromhos June 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
APR											
04...	0945	220	420	7.5	16.5	4.0	8.7	94	.4	100	68
MAY											
10...	0915	246	440	7.5	24.0	5.7	7.4	90	.3	230	520
JUN											
13...	0840	453	350	7.8	25.0	5.8	8.3	101	.1	130	29
JUL											
11...	0900	164	380	7.5	29.0	5.2	7.1	95	.4	200	88
AUG											
07...	1620	140	380	7.7	31.5	3.0	7.1	99	1.2	110	76
SEP											
25...	1615	98	350	7.7	26.5	3.0	8.2	105	.8	2700	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)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
APR										
04...	160	16	36	18	20	.7	2.3	180	0	19
MAY										
10...	180	29	41	20	18	.6	2.7	190	0	21
JUN										
13...	160	16	39	16	13	.4	2.8	180	0	16
JUL										
11...	170	28	34	20	14	.6	2.7	170	0	17
AUG										
07...	150	24	29	18	13	.5	2.3	150	0	11
SEP										
25...	160	21	33	19	12	.4	2.5	170	0	14

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
APR										
04...	27	.4	9.6	225	221	.03	.00	.03	.01	.28
MAY										
10...	30	.4	11	238	238	.05	.00	.05	.02	.32
JUN										
13...	15	.3	15	220	206	.18	.04	.22	.03	.24
JUL										
11...	24	.2	19	218	215	.01	.02	.03	.01	.18
AUG										
07...	24	.3	19	202	191	.00	.02	.02	.00	.15
SEP										
25...	22	.2	16	290	203	.18	.00	.18	.01	1.1

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
APR										
04...	.29	.16	.010	.010	3.1	--	--	5	3.0	92
MAY										
10...	.34	.23	.030	.010	3.1	--	--	29	19	95
JUN										
13...	.27	.24	.010	.000	--	4.1	.9	30	37	49
JUL										
11...	.19	.10	.060	.000	4.8	--	--	12	5.3	87
AUG										
07...	.15	.72	.010	.010	--	2.5	.3	5	1.9	85
SEP										
25...	1.1	.41	.000	.000	3.7	--	--	7	1.9	94

08151500 LLANO RIVER AT LLANO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC 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)
JUN 13...	0840	1	2	0	0	60	0	0	<1	0
AUG 07...	1620	3	3	100	50	50	0	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)
JUN 13...	0	10	2	0	<3	4	4	0	230	230
AUG 07...	0	20	0	0	<3	2	1	1	130	120

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
JUN 13...	0	9	9	0	20	10	6	.0	.0	.0
AUG 07...	<10	5	5	0	20	20	2	.2	.0	.2

DATE	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)
JUN 13...	0	0	0	0	0	0	10	7	<3
AUG 07...	0	0	0	0	0	0	10	7	<3

DATE	LENGTH OF EXPO-SURE (DAYS)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS)
SEP 25...	49	19.1	22.0	7.69	1.06	377

08151500 LLANO RIVER AT LLANO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	MAY 10,79 0915		JUN 13,79 0840		JUL 11,79 0900		AUG 7,79 1620		SEP 25,79 1615	
TOTAL CELLS/ML	900		570		1000		1000		520	
DIVERSITY: DIVISION	1.6		1.0		0.4		0.7		0.3	
.CLASS	1.6		1.0		0.4		0.7		0.3	
..ORDER	2.2		1.1		0.4		0.8		1.1	
...FAMILY	3.1		1.1		0.4		1.4		1.2	
....GENUS	3.1		1.1		0.4		1.4		1.2	
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										
...COELASTRACEAE										
....COELASTRUM	190#	22	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....DICTYOSPHAERIUM	--	-	--	-	--	-	140	14	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	13	2
...SCENEDESMACEAE										
....SCENEDESMUS	83	9	52	9	950#	94	730#	71	130#	25
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	83	9	--	-	--	-	--	-	350#	67
...PHACOTACEAE										
....PHACOTUS	--	-	--	-	--	-	14	1	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....SPONDYLOSIUM	14	2	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	26	5	13	1	--	-	--	-
..PENNALES										
...CYMBELLACEAE										
....CYMBELLA	14	2	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	170#	18	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	14	2	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	28	3	--	-	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	110	12	--	-	39	4	14	1	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	-	26	5	--	-	14	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	83	9	13	2	--	-	--	-	26	5
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	97	11	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	450#	80	--	-	110	11	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	14	2	--	-	13	1	--	-	--	-

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 WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	5195	**	**	**	**	**	**	**	**
NOV. 1978.....	5924	**	**	**	**	**	**	**	**
DEC. 1978.....	5262	**	**	**	**	**	**	**	**
JAN. 1979.....	5591	**	**	**	**	**	**	**	**
FEB. 1979.....	9042	**	**	**	**	**	**	**	**
MAR. 1979.....	8427	**	**	**	**	**	**	**	**
APR. 1979.....	12450	355	190	6480	21	703	14	470	150
MAY 1979.....	11547	367	200	6150	22	678	14	450	160
JUNE 1979.....	30393	339	190	15200	20	1630	13	1100	150
JULY 1979.....	4698	370	200	2550	22	277	15	186	160
AUG. 1979.....	9373	318	170	4380	19	476	13	318	140
SEPT 1979.....	3304	352	190	1700	21	185	14	124	150
TOTAL	111206	**	**	**	**	**	**	**	**
WTD.AVG.	305	**	**	**	**	**	**	**	**

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							400	303	361	362	331	340
2							416	284	273	352	343	338
3							426	340	308	327	335	335
4							434	365	361	384	354	337
5							428	400	268	388	343	340
6							424	436	378	373	345	342
7							419	438	398	379	346	342
8							424	440	390	392	340	344
9							426	438	382	371	345	346
10							405	436	378	385	330	348
11							425	400	385	388	351	349
12							424	433	391	375	333	351
13							421	435	378	382	309	352
14							419	428	388	371	305	347
15							417	426	386	390	303	342
16							423	427	361	386	295	357
17							415	428	370	382	286	359
18							413	426	378	382	295	359
19							417	426	383	391	281	358
20							413	424	376	362	300	359
21							290	423	378	358	322	360
22							292	415	379	354	330	359
23							366	431	378	374	304	358
24							409	428	383	373	303	360
25							411	426	378	371	315	362
26							409	423	377	375	313	365
27							395	429	365	371	329	368
28							388	431	378	360	320	370
29							285	431	400	343	323	366
30							341	426	442	345	330	363
31							---	430	---	347	333	---
MEAN							399	414	372	371	322	353

08151500 LLANO RIVER AT LLANO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							---	---	21.0	32.0	30.0	31.0
2							---	21.0	22.0	31.0	30.0	31.0
3							16.0	21.0	27.0	---	30.0	31.0
4							18.0	19.0	26.0	31.0	31.0	31.0
5							20.0	---	26.0	30.0	31.0	---
6							20.0	23.0	29.0	30.0	---	31.0
7							20.0	28.0	30.0	---	31.0	30.0
8							21.0	---	---	32.0	31.0	---
9							21.0	25.0	---	32.0	---	---
10							---	25.0	26.0	32.0	---	28.0
11							21.0	---	---	32.0	27.0	28.0
12							20.0	20.0	27.0	32.0	29.0	28.0
13							22.0	22.0	28.0	32.0	30.0	28.0
14							---	25.0	28.0	32.0	---	---
15							24.0	25.0	28.0	32.0	30.0	23.0
16							23.0	---	---	32.5	---	23.0
17							23.0	25.0	---	32.0	30.0	23.0
18							24.0	26.0	---	32.0	31.0	22.0
19							24.0	27.0	---	28.0	31.0	22.0
20							25.0	27.0	---	30.0	---	24.0
21							21.0	26.0	---	---	32.0	26.0
22							23.0	25.0	---	30.0	---	---
23							24.0	25.0	---	31.0	28.0	26.0
24							25.0	26.0	---	32.0	29.0	---
25							24.0	25.0	---	32.0	29.0	27.0
26							24.0	25.0	---	32.0	29.0	26.0
27							22.0	25.0	---	30.0	31.0	---
28							22.0	25.0	---	---	31.0	27.0
29							17.0	25.0	---	32.0	31.0	28.0
30							---	29.0	---	---	30.0	27.0
31							---	---	---	32.0	31.0	---
MEAN							22.0	24.5	26.5	31.5	30.0	27.0

08152000 SANDY CREEK NEAR KINGSLAND, TX

LOCATION.--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, 3.9 mi (6.3 km) upstream from Lake Lyndon B. Johnson, and 7.3 mi (11.7 km) south of kingsland.

DRAINAGE AREA.--327 mi² (847 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 862.31 ft (262.832 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--13 years, 68.1 ft³/s (1.929 m³/s), 2.83 in/yr (72 mm/yr), 49,340 acre-ft/yr (60.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft³/s (765 m³/s) Sept. 8, 1978, gage height, 17.20 ft (5.243 m), from floodmark; 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 ft³/s (4,620 m³/s), from slope-area measurement at gage site.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 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)
Feb. 5	2000	5,250	149	9.86	3.005	Apr. 21	0500	3,560	101	8.86	2.701
Feb. 6	0200	2,820	79.9	8.39	2.557	June 1	1400	*15,700	445	11.40	3.475
Mar. 20	2400	6,970	197	10.70	3.261	June 5	0830	8,990	255	10.08	3.072

Minimum discharge, 0.82 ft³/s (0.023 m³/s) Oct. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	6.8	12	118	17	41	81	940	5080	24	27	14
2	6.5	6.2	11	43	17	40	95	568	1420	21	94	11
3	5.7	5.6	9.7	34	22	101	83	365	742	20	58	9.5
4	5.7	5.6	8.3	34	37	80	76	297	440	19	38	9.3
5	4.7	45	7.4	33	1240	65	68	238	2820	17	30	12
6	4.4	245	7.0	33	1350	56	59	198	1030	19	25	13
7	3.7	206	7.1	32	373	50	59	152	643	20	23	17
8	3.7	133	6.9	32	229	46	67	118	432	26	24	11
9	4.0	55	6.1	27	161	45	69	101	333	24	20	9.7
10	4.0	34	6.1	81	125	45	118	98	284	19	16	7.9
11	3.7	20	6.1	462	104	50	85	303	248	17	98	7.5
12	4.0	17	5.8	221	95	50	68	245	220	16	133	6.1
13	2.7	16	5.7	130	81	44	61	144	186	14	55	5.7
14	2.1	14	5.7	78	78	40	60	111	165	12	36	5.4
15	1.6	15	6.0	59	73	45	58	98	132	10	26	4.7
16	1.4	60	5.9	51	61	108	58	78	104	8.8	21	4.4
17	1.4	72	5.4	49	59	220	81	74	92	8.0	18	4.0
18	1.3	58	5.4	46	61	165	119	71	86	7.3	17	4.6
19	1.4	36	5.6	45	61	127	88	74	78	104	15	10
20	1.4	37	5.6	42	68	626	92	72	71	207	13	10
21	1.3	34	4.9	34	63	2170	1480	127	64	50	11	8.4
22	1.5	29	4.7	29	62	1040	333	264	60	33	36	6.8
23	1.6	29	4.6	27	62	273	220	78	49	26	366	6.0
24	1.8	24	4.3	22	61	186	183	67	43	21	212	5.5
25	7.9	21	4.2	22	49	176	167	60	39	19	67	4.9
26	12	104	4.0	24	46	139	139	56	35	19	37	4.2
27	11	46	4.0	22	47	111	131	50	35	708	29	4.0
28	9.1	27	4.2	20	44	96	124	50	36	253	23	3.7
29	8.1	20	5.1	34	---	89	708	43	34	75	19	3.3
30	8.0	15	8.7	30	---	89	377	46	29	39	17	3.0
31	7.1	---	769	20	---	78	---	141	---	28	15	---
TOTAL	139.3	1436.2	956.5	1934	4746	6491	5407	5327	15030	1884.1	1619	226.6
MEAN	4.49	47.9	30.9	62.4	170	209	180	172	501	60.8	52.2	7.55
MAX	12	245	769	462	1350	2170	1480	940	5080	708	366	17
MIN	1.3	5.6	4.0	20	17	40	58	43	29	7.3	11	3.0
CFSM	.01	.15	.09	.19	.52	.64	.55	.53	1.53	.19	.16	.02
IN.	.02	.16	.11	.22	.54	.74	.62	.61	1.71	.21	.18	.03
AC-FT	276	2850	1900	3840	9410	12870	10720	10570	29810	3740	3210	449

CAL YR 1978 TOTAL 11807.75 MEAN 32.4 MAX 3610 MIN .00 CFSM .10 IN 1.34 AC-FT 23420
WTR YR 1979 TOTAL 45196.70 MEAN 124 MAX 5080 MIN 1.3 CFSM .38 IN 5.14 AC-FT 89650

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 48.2 mi (77.6 km) upstream from mouth.

DRAINAGE AREA.--947 mi² (2,453 km²).

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 979 acre-ft (1.21 hm³) of sewage effluent into the river. Records furnished by the city of Johnson City show that 194 acre-ft (239,200 m³) was diverted from pool at gage and 175 acre-ft (215,800 m³) of treated sewage effluent was returned to the river below gage.

AVERAGE DISCHARGE.--40 years (water years 1940-79), 181 ft³/s (5.126 m³/s), 131,100 acre-ft/yr (162 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 31	0800	5,310	150	12.35	3.764	May 22	0130	4,360	123	12.07	3.679
Feb. 6	0430	4,420	125	12.09	3.685	June 1	1715	*64,200	1,820	19.75	6.020
Mar. 21	0130	5,170	146	12.31	3.752	June 5	2000	7,990	226	13.04	3.975
						July 27	1015	8,710	247	13.21	4.026

Minimum daily discharge, 51 ft³/s (1.44 m³/s) Sept. 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	57	80	512	145	201	951	1520	16700	209	151	88
2	97	56	80	202	147	198	818	938	5020	195	160	88
3	96	56	72	170	162	214	630	620	1670	180	160	87
4	92	52	71	170	229	210	537	503	1270	171	143	96
5	88	86	71	170	647	191	447	439	4220	170	134	82
6	83	182	68	160	2880	180	395	404	2500	196	126	81
7	80	140	68	151	925	174	383	375	1380	183	115	91
8	80	106	64	142	559	171	413	347	1130	188	113	94
9	80	85	64	133	431	168	390	343	968	176	110	80
10	80	79	64	528	388	168	467	333	1240	158	393	78
11	80	72	63	1350	362	180	401	340	933	150	490	72
12	80	70	65	481	338	175	338	356	717	144	1080	72
13	73	71	63	296	317	170	301	316	644	137	345	67
14	68	68	64	233	297	164	284	277	586	131	198	64
15	64	66	71	217	287	160	272	260	533	125	161	61
16	64	88	64	214	245	210	267	240	488	121	144	58
17	64	96	68	214	236	369	322	231	450	115	133	57
18	64	96	64	219	239	312	783	225	426	117	125	62
19	61	96	64	222	239	264	406	214	401	174	118	71
20	60	96	64	202	247	338	337	214	374	319	113	69
21	57	96	64	180	242	2550	1420	816	347	210	105	71
22	57	96	57	171	243	2030	994	1930	324	164	98	66
23	57	88	57	160	289	1090	551	572	304	149	148	64
24	57	88	57	152	335	642	452	395	277	132	285	64
25	60	88	57	155	237	525	399	310	262	120	167	57
26	60	96	57	167	214	464	353	274	257	118	132	53
27	70	96	57	157	213	429	319	266	512	3400	112	51
28	64	96	57	151	209	416	296	268	334	1040	105	51
29	60	88	57	156	---	422	1030	265	252	285	96	51
30	57	82	57	160	---	454	906	251	226	189	96	51
31	57	---	2160	153	---	447	---	248	---	161	96	---
TOTAL	2215	2632	4089	7748	11302	13686	15862	14090	44745	9327	5952	2097
MEAN	71.5	87.7	132	250	404	441	529	455	1492	301	192	69.9
MAX	105	182	2160	1350	2880	2550	1420	1930	16700	3400	1080	96
MIN	57	52	57	133	145	160	267	214	226	115	96	51
AC-FT	4390	5220	8110	15370	22420	27150	31460	27950	88750	18500	11810	4160

CAL YR 1978 TOTAL 96284.18 MEAN 264 MAX 30100 MIN .50 AC-FT 191000
WTR YR 1979 TOTAL 133745.00 MEAN 366 MAX 16700 MIN 51 AC-FT 265300

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 12...	0922	76	640	23.5	240	35	35	37	37
NOV 29...	0905	86	621	12.0	240	27	37	36	35
JAN 08...	1000	160	645	2.0	260	24	52	32	25
FEB 14...	1110	277	543	16.5	260	29	49	33	24
MAR 29...	1145	360	595	18.5	260	17	51	31	21
MAY 02...	1206	761	469	20.5	220	29	51	22	15
JUN 20...	1330	350	587	27.0	250	35	40	36	26
AUG 01...	1155	147	485	29.0	210	27	42	25	20
SEP 12...	1125	63	628	26.5	230	32	31	38	42

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 12...	1.0	3.4	250	0	33	59	.3	11	339
NOV 29...	1.0	2.8	260	0	38	56	.3	4.1	337
JAN 08...	.7	2.5	290	0	33	39	.3	10	337
FEB 14...	.7	2.2	280	0	33	37	.4	4.3	321
MAR 29...	.6	2.1	290	0	30	29	.4	9.0	316
MAY 02...	.4	3.0	230	0	22	23	.3	13	263
JUN 20...	.7	2.0	260	0	34	39	.3	11	316
AUG 01...	.6	3.0	220	0	25	29	.3	12	265
SEP 12...	1.2	3.2	230	8	36	64	.3	12	348

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.--38,130 mi² (98,760 km²), approximately, of which 12,880 mi² (33,360 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. 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, 1,221,000 acre-ft (1.51 km³) June 3, gage height, 683.44 ft (208.313 m); minimum, 807,500 acre-ft (0.996 km³) Oct. 21, gage height, 658.83 ft (200.811 m).

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

658.0	795,500	670.0	976,900
660.0	824,700	675.0	1,062,000
665.0	899,700	680.0	1,152,000
		684.0	1,232,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	816900	814900	848600	873200	923600	1009000	1116000	1162000	1189000	1144000	1119000	1067000
2	817100	815900	848700	875700	924400	1011000	1129000	1169000	1217000	1140000	1117000	1065000
3	815400	816500	849800	876200	925100	1013000	1132000	1168000	1221000	1137000	1120000	1063000
4	813500	816500	849900	877400	926800	1014000	1133000	1162000	1207000	1135000	1123000	1060000
5	811600	820400	850200	877700	941700	1015000	1137000	1158000	1214000	1129000	1126000	1056000
6	809300	825000	851000	878100	956000	1017000	1139000	1154000	1212000	1128000	1128000	1056000
7	808700	825600	852900	878400	964000	1018000	1143000	1157000	1206000	1126000	1124000	1054000
8	808700	825900	852900	879900	967600	1019000	1145000	1155000	1203000	1123000	1120000	1055000
9	808600	825900	852200	879900	971000	1020000	1148000	1151000	1201000	1120000	1116000	1055000
10	809300	825900	851700	887900	975000	1022000	1145000	1149000	1197000	1118000	1112000	1054000
11	809400	826200	852000	895600	976400	1023000	1144000	1153000	1193000	1116000	1113000	1054000
12	809100	825900	852300	899900	979600	1023000	1143000	1154000	1190000	1114000	1115000	1052000
13	808600	830900	852300	901400	983700	1024000	1143000	1155000	1186000	1112000	1114000	1051000
14	808000	835800	852200	902200	984800	1025000	1142000	1157000	1181000	1110000	1111000	1048000
15	807700	839000	852200	904900	985900	1028000	1142000	1156000	1177000	1108000	1112000	1044000
16	808800	839000	852200	905500	988800	1034000	1137000	1156000	1172000	1107000	1110000	1040000
17	808400	838700	852000	906200	990700	1035000	1143000	1155000	1169000	1104000	1106000	1038000
18	807800	838500	852000	909800	991700	1036000	1146000	1152000	1168000	1103000	1102000	1038000
19	808400	840500	855200	911200	992200	1038000	1147000	1149000	1165000	1107000	1098000	1039000
20	807800	840900	855800	911600	978300	1040000	1154000	1147000	1166000	1109000	1095000	1036000
21	807500	840800	855600	912400	995500	1056000	1158000	1151000	1167000	1106000	1091000	1033000
22	809900	840500	855300	913000	997600	1068000	1160000	1158000	1165000	1104000	1089000	1031000
23	809900	840600	855300	915700	1003000	1074000	1155000	1161000	1162000	1103000	1088000	1028000
24	808400	842900	855300	915800	1004000	1080000	1153000	1162000	1162000	1101000	1086000	1025000
25	810600	843500	855000	916500	1004000	1084000	1154000	1161000	1158000	1101000	1084000	1023000
26	811500	847100	854900	918900	1005000	1088000	1151000	1161000	1154000	1101000	1082000	1021000
27	811500	846600	854700	919600	1007000	1092000	1151000	1160000	1151000	1114000	1079000	1020000
28	812600	847400	855000	919700	1009000	1095000	1151000	1160000	1148000	1118000	1077000	1020000
29	812900	847400	854900	920500	---	1101000	1157000	1157000	1146000	1119000	1075000	1019000
30	812200	847400	860400	923300	---	1104000	1154000	1155000	1146000	1118000	1071000	1017000
31	812500	---	866000	923400	---	1106000	---	1153000	---	1116000	1068000	---
MAX	817100	847400	866000	923400	1009000	1106000	1160000	1169000	1221000	1144000	1128000	1067000
MIN	807500	814900	848600	873200	923600	1009000	1116000	1147000	1146000	1101000	1068000	1017000
(†)	659.17	661.51	662.75	666.55	671.95	677.44	680.09	680.07	679.67	678.02	675.35	672.42
(‡)	-5900	+34900	+18600	+57400	+85600	+97000	+48000	-1000	-7000	-30000	-48000	-51000

CAL YR 1978 MAX 916000 MIN 640900 ‡ -17500
WTR YR 1979 MAX 1221000 MIN 807500 ‡ +198600

† 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.--38,130 mi² (98,760 km²), approximately, of which 12,880 mi² (33,360 km²) probably is noncontributing.

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

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

REMARKS.--Records fair.

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

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, 8,590 ft³/s (243 m³/s) June 5, 6; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	698	.00	.00	.00	.00	.00	.00	2780	2140	1380	907	1700
2	561	.00	.00	2110	.00	.00	66	3090	3520	1730	1020	1730
3	981	265	.00	.00	.00	.00	781	3480	8100	1960	1420	1780
4	907	.00	48	.00	.00	.00	728	3050	8570	1800	1240	1840
5	1080	.00	.00	.00	.00	.00	112	2970	8590	1600	1200	1820
6	1040	.00	51	.00	.00	.00	.00	3090	8590	1590	1270	1450
7	.00	.00	146	.00	.00	.00	202	1600	6090	1590	1870	1250
8	.00	.00	.00	10	.00	.00	1250	2450	3250	1630	2080	1230
9	.00	.00	.00	.00	.00	.00	1670	2630	3030	1570	1820	1360
10	.00	.00	.00	.00	.00	.00	1610	2220	3030	1300	1990	1310
11	.00	.00	.00	.00	.00	.00	1510	.00	3030	1540	2010	1380
12	179	.00	.00	.00	.00	.00	1540	.00	3030	1140	1870	1390
13	313	.00	.00	.00	.00	19	1590	.00	3030	955	1990	1540
14	.00	.00	.00	.00	.00	.00	1520	.00	3250	1140	1910	1670
15	.00	.00	.00	.00	.00	.00	809	879	3320	961	1860	1680
16	218	.00	.00	.00	.00	.00	555	1240	3030	969	1910	1760
17	.00	.00	.00	.00	.00	.00	529	1240	2010	1040	1980	1870
18	201	.00	.00	.00	.00	.00	434	1660	1770	1050	2130	1650
19	.00	.00	.00	.00	.00	.00	635	1780	1970	896	1970	.00
20	192	.00	.00	.00	.00	.00	532	1870	1140	951	2050	1100
21	.00	95	26	.00	.00	.00	2100	1340	1850	1460	2020	1400
22	180	157	.00	.00	.00	.00	3080	199	2380	1020	2010	1260
23	.00	.00	.00	.00	.00	.00	3480	.00	1830	784	2020	1370
24	596	.00	.00	.00	.00	.00	3110	.00	2150	821	1950	1470
25	.00	.00	.00	.00	.00	.00	1560	1070	2230	734	1910	1310
26	.00	.00	89	.00	.00	.00	1410	893	1850	.00	2060	966
27	.00	20	.00	.00	.00	.00	829	1020	1700	.00	2090	950
28	.00	92	.00	.00	.00	.00	762	1530	1790	.00	2020	1230
29	.00	.00	.00	.00	---	32	1570	1770	1820	.00	2160	961
30	325	.00	.00	.00	---	.00	2850	1510	1600	801	2360	958
31	24	---	.00	.00	---	.00	---	1370	---	927	1940	---
TOTAL	7495.00	629.00	360.00	2120.00	.00	51.00	36824.00	46731.00	99690	33339.00	57037	41385.00
MEAN	242	21.0	11.6	68.4	.000	1.65	1227	1507	3323	1075	1840	1380
MAX	1080	265	146	2110	.00	32	3480	3480	8590	1960	2360	1870
MIN	.00	.00	.00	.00	.00	.00	.00	.00	1140	.00	907	.00
AC-FT	14870	1250	714	4210	.00	101	73040	92690	197700	66130	113100	82090

CAL YR 1978 TOTAL 368165.00 MEAN 1009 MAX 3830 MIN .00 AC-FT 730300
WTR YR 1979 TOTAL 325661.00 MEAN 892 MAX 8590 MIN .00 AC-FT 645900

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 and concrete control. 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 basin above the station. 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 gage height, 6.09 ft (1.856 m) Apr. 18, 1976 (discharge unknown); minimum discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s), revised, and maxmum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 31	0445	268	7.59	4.18	1.274
Apr. 29	0730	*280	7.93	4.22	1.286
July 19	2200	253	7.16	4.13	1.259

Minimum daily discharge, 0.21 ft³/s (0.006 m³/s) Oct. 17, Oct. 22-24, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	.25	2.0	28	5.4	7.7	33	33	11	1.3	2.7	.39
2	.29	.25	2.0	13	5.4	7.8	34	25	15	1.4	2.7	.40
3	.29	.25	2.2	11	6.0	8.7	33	20	11	.85	2.4	.42
4	.29	.25	1.8	9.2	12	6.8	29	18	8.9	.65	2.2	.34
5	.29	13	1.6	8.9	29	6.4	26	16	12	.71	1.8	3.5
6	.27	13	1.6	9.2	59	6.4	23	14	11	2.6	1.6	1.5
7	.25	2.2	1.6	9.0	39	6.4	22	13	9.2	1.3	1.4	.69
8	.25	1.4	1.6	7.2	31	6.3	22	13	8.7	1.1	1.3	.49
9	.27	1.2	1.6	6.4	25	6.2	20	12	8.3	1.0	1.3	.46
10	.29	.98	1.5	17	21	6.1	20	12	7.0	1.3	1.2	.34
11	.29	.83	1.5	43	19	6.1	18	18	6.4	1.1	2.2	.34
12	.28	.86	1.5	26	17	6.1	17	12	6.0	.78	1.5	.40
13	.25	.88	1.5	20	15	6.4	15	9.3	5.7	.61	1.3	.42
14	.25	.78	1.5	15	14	6.3	14	8.4	5.6	.58	1.3	.37
15	.22	1.1	1.6	13	13	5.7	13	7.8	5.0	.60	1.2	.33
16	.22	2.8	1.7	12	12	13	13	6.8	4.7	.49	1.1	.29
17	.21	1.6	1.5	11	11	8.8	15	6.8	4.6	.48	.92	.25
18	.25	1.2	1.6	10	11	7.9	15	6.8	4.3	.47	.91	1.6
19	.40	3.0	1.6	9.8	9.5	8.2	13	6.4	4.0	14	.81	1.7
20	.29	2.4	1.7	9.5	9.5	9.0	13	6.3	3.5	4.6	.81	.87
21	.24	2.2	1.6	8.3	9.5	40	12	13	3.0	2.1	.77	.51
22	.21	2.1	1.5	7.8	9.5	44	11	20	3.0	1.5	.72	.40
23	.21	1.8	1.5	7.3	13	35	9.5	10	2.6	1.1	.62	.42
24	.21	1.3	1.5	6.4	11	29	9.2	7.7	2.4	.98	.62	.34
25	.31	1.3	1.5	7.3	9.1	25	8.7	6.6	2.0	.80	.61	.34
26	.40	2.5	2.6	7.2	8.3	22	7.9	6.4	1.6	2.4	.54	.29
27	.28	2.4	1.6	6.5	8.3	20	8.6	6.4	1.6	24	.60	.29
28	.25	1.8	1.6	6.2	8.3	18	6.8	6.5	1.4	8.3	.61	.25
29	.25	1.5	1.6	6.1	---	18	32	6.3	1.3	4.7	.54	.25
30	.25	1.7	1.6	6.0	---	27	15	8.6	1.1	3.7	.53	.21
31	.25	---	47	5.4	---	28	---	9.5	---	3.0	.48	---
TOTAL	8.37	66.83	96.8	362.7	440.8	452.3	528.7	365.6	171.9	88.50	37.29	18.40
MEAN	.27	2.23	3.12	11.7	15.7	14.6	17.6	11.8	5.73	2.85	1.20	.61
MAX	.40	13	47	43	59	44	34	33	15	24	2.7	3.5
MIN	.21	.25	1.5	5.4	5.4	5.7	6.8	6.3	1.1	.47	.48	.21
CFSM	.01	.10	.14	.53	.70	.66	.79	.53	.26	.13	.05	.03
IN.	.01	.11	.16	.61	.74	.75	.88	.61	.29	.15	.06	.03
AC-FT	17	133	192	719	874	897	1050	725	341	176	74	36
(††)	.37	5.81	3.35	2.29	2.88	4.40	2.84	3.47	1.34	5.03	.65	1.46

CAL YR 1978	TOTAL	-	MEAN	-	MAX	-	MIN	-	CFSM	-	IN	-	AC-FT	-	††	-
WTR YR 1979	TOTAL	2638.19	MEAN	7.23	MAX	59	MIN	.21	CFSM	.32	IN	4.40	AC-FT	5230	††	33.86

†† Weighted-mean rainfall, 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.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV										
05...	1740	30	367	7.9	--	20	280	--	--	12
05...	1800	39	280	7.9	--	30	900	--	--	5.9
05...	1820	42	--	--	--	35	1300	--	--	5.9
05...	1840	45	217	8.0	--	60	1900	--	--	5.7
06...	0900	11	552	7.8	16.5	20	130	8.6	91	2.2
DEC										
18...	0905	1.5	712	8.0	11.0	0	2.0	9.8	92	.5
FEB										
05...	0910	25	613	8.1	--	0	30	--	--	1.1
05...	1130	29	595	8.3	--	0	25	--	--	.6
05...	1323	29	--	8.2	7.5	--	--	12.1	104	.3
26...	1010	8.3	620	8.0	7.5	0	2.0	13.0	112	.6
APR										
23...	0905	11	574	8.0	18.5	0	2.0	9.6	105	.9
MAY										
22...	0830	21	561	7.9	20.0	10	12	8.4	91	1.1
JUN										
11...	0820	6.0	583	7.6	19.5	5	2.8	8.5	96	.4
SEP										
10...	0850	.34	604	7.7	21.5	10	1.2	7.0	79	.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
NOV									
05...	250000	20000	24000	140	52	39	11	16	.6
05...	210000	32000	25000	110	36	33	6.9	8.8	.4
05...	210000	21000	35000	--	--	--	--	--	--
05...	390000	28000	41000	92	26	29	4.7	5.2	.2
06...	50000	5700	15000	210	71	61	14	30	.9
DEC									
18...	1300	K28	20	300	96	81	24	30	.8
FEB									
05...	2700	55	800	260	58	74	19	18	.5
05...	2500	72	1000	260	56	73	19	19	.5
05...	2000	91	1400	--	--	--	--	--	--
26...	920	7	76	--	--	--	--	--	--
APR									
23...	660	120	800	280	54	79	21	16	.4
MAY									
22...	7700	770	3900	260	33	74	10	16	.4
JUN									
11...	2100	640	600	--	--	--	--	--	--
SEP									
10...	2600	320	230	240	61	62	21	28	.8

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV									
05...	3.7	110	0	47	26	.1	5.6	203	476
05...	3.5	91	0	36	17	.1	4.8	155	1190
05...	--	--	--	--	--	--	--	--	2310
05...	3.0	80	0	34	10	.1	4.2	130	3900
06...	3.3	170	0	74	41	.2	8.1	316	158
DEC									
18...	2.1	250	0	97	55	.2	7.2	420	2
FEB									
05...	1.4	250	0	57	35	.1	6.7	334	38
05...	1.4	250	0	58	31	.1	6.7	332	31
05...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	0
APR									
23...	1.3	280	0	39	28	.2	7.2	330	2
MAY									
22...	1.5	280	0	38	23	.2	8.3	318	19
JUN									
11...	--	--	--	--	--	--	--	--	6
SEP									
10...	2.6	220	0	53	48	.3	9.0	332	2

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV									
05...	56	.24	.02	.26	.01	.87	.88	.16	26
05...	128	.61	.01	.62	.01	.92	.93	.33	32
05...	315	.62	.02	.64	.03	4.2	4.2	.44	44
05...	550	.71	.01	.72	.04	9.5	9.5	.63	63
06...	22	.45	.01	.46	.01	2.0	2.0	.09	8.8
DEC									
18...	1	.06	.01	.07	.01	.22	.23	.01	2.6
FEB									
05...	1	.59	.02	.61	.01	.39	.40	.04	3.6
05...	4	.45	.02	.47	.01	.29	.30	.04	3.7
05...	--	.41	.02	.43	.01	.29	.30	.03	3.0
26...	0	.55	.00	.55	.01	.09	.10	.00	2.6
APR									
23...	0	.09	.00	.09	.01	.14	.15	.00	2.2
MAY									
22...	18	.24	.02	.26	.04	.30	.34	.02	5.0
JUN									
11...	6	.06	.00	.06	.02	.35	.37	.01	5.0
SEP									
10...	1	.00	.00	.00	.07	.41	.48	.00	4.5

DATE	TIME	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV							
05...	1740	1	30	<1	0	3	50
05...	1800	1	20	<1	0	2	60
05...	1840	1	20	<1	0	2	50
06...	0900	0	50	<1	0	1	40
FEB							
05...	1130	2	100	0	0	2	0
APR							
23...	0905	0	0	0	0	1	10
MAY							
22...	0830	1	0	0	0	0	10
SEP							
10...	0850	2	50	<1	0	0	20

DATE	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)
NOV						
05...	0	<1	.0	0	0	7
05...	0	<1	.0	0	0	3
05...	0	<1	.0	1	0	5
06...	0	2	.0	0	0	<3
FEB						
05...	0	0	.0	0	0	10
APR						
23...	0	10	.0	0	0	20
MAY						
22...	0	0	.0	0	0	10
SEP						
10...	0	9	.3	0	0	<3

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
NOV								
05...	1740	.0	.00	.00	.0	.00	.00	.00
05...	1840	.0	.00	.00	.0	.00	.00	.00
06...	0900	.0	.00	.00	.0	.00	.00	.00
FEB								
05...	1130	.0	--	.00	.0	.00	.00	.00
APR								
23...	0905	.0	--	.00	.0	.00	.00	.00
MAY								
22...	0830	.0	--	.00	.0	.00	.00	.00
SEP								
10...	0850	.0	--	.00	.0	.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)
NOV									
05...	.19	.00	.00	.00	.00	.00	.00	.00	--
05...	.11	.00	.00	.00	.00	.00	.00	.00	--
06...	.07	.00	.00	.00	.00	.00	.00	.00	--
FEB									
05...	.00	.00	.00	.00	.00	.00	.00	.00	--
APR									
23...	.00	.00	.00	.00	.00	.00	.00	.00	--
MAY									
22...	.05	.00	.00	.00	.00	.00	.00	.00	--
SEP									
10...	.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)
NOV								
05...	.00	.00	.00	0	.00	.00	.01	.00
05...	.00	.00	.00	0	.00	.00	.00	.00
06...	.00	.00	.00	0	.00	.02	.00	.00
FEB								
05...	.00	.00	.00	0	.00	.00	.00	.00
APR								
23...	.00	.00	.00	0	.00	.00	.00	.00
MAY								
22...	.00	.00	.00	0	.00	.01	.00	.00
SEP								
10...	.00	.00	.00	0	.00	.00	.04	.00

08154750 WEST BULL CREEK AT LOOP 360 NEAR AUSTIN, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°21'34", long 97°47'24", Travis County, Hydrologic Unit 12090205, 150 ft (46 m) north of the intersection of Farm Road 2222 and northbound Loop 360 access road, and 6.5 mi (10.5 km) northwest of the State Capitol Building in Austin.

DRAINAGE AREA.--6.77 mi^2 (17.53 km^2).

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV										
06...	0930	2.8	839	8.0	17.5	0	1.0	9.2	99	.6
DEC										
18...	0845	.10	948	7.5	10.5	0	2.0	10.7	99	.4
FEB										
26...	0935	4.2	586	7.9	10.5	0	2.0	11.6	107	.8
APR										
23...	0950	2.8	540	7.9	20.0	0	2.0	9.0	102	.5
JUN										
11...	0755	.10	561	7.8	20.5	5	.20	8.4	95	.2
SEP										
10...	0825	.05	729	8.1	19.5	10	.70	10.0	109	.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
NOV									
06...	37000	1200	2600	430	250	110	37	11	.2
DEC									
18...	2000	220	220	--	--	--	--	--	--
FEB									
26...	150	14	55	290	57	80	23	9.6	.2
APR									
23...	370	10	260	--	--	--	--	--	--
JUN									
11...	3200	41	120	260	8	78	23	9.8	.3
SEP									
10...	940	460	370	360	61	95	29	11	.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV									
06...	3.5	220	0	250	20	.2	9.8	550	1
DEC									
18...	--	360	0	--	--	--	--	--	5
FEB									
26...	.8	290	0	41	23	.2	8.4	329	2
APR									
23...	--	--	--	--	--	--	--	--	1
JUN									
11...	.8	310	0	27	15	.2	12	308	0
SEP									
10...	1.9	360	0	74	17	.2	13	419	0

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV									
06...	0	.10	.01	.11	.00	.30	.30	.01	4.2
DEC									
18...	2	.22	.01	.23	.02	.34	.36	.04	2.5
FEB									
26...	1	.11	.00	.11	.01	.09	.10	.00	2.7
APR									
23...	0	.05	.00	.05	.01	.09	.10	.01	2.3
JUN									
11...	0	.04	.00	.04	.00	.31	.31	.01	3.3
SEP									
10...	0	.32	.00	.32	.00	.37	.37	.00	3.3

08154750 WEST BULL CREEK AT LOOP 360 NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 06...	0930	1	40	1	0	1	10
FEB 26...	0935	1	0	0	0	0	10
JUN 11...	0755	0	40	2	10	0	10
SEP 10...	0825	1	50	<1	0	0	<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 06...	0	8	.0	1	0	10
FEB 26...	0	10	.0	1	0	20
JUN 11...	0	6	.0	0	0	<3
SEP 10...	0	50	.2	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)
NOV 06...	0930	.0	.00	.00	.0	.00	.00	.00
FEB 26...	0935	.0	--	.00	.0	.00	.00	.00
JUN 11...	0755	.0	--	.00	.0	.00	.00	.00
SEP 10...	0825	.0	--	.00	.0	.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)
NOV 06...	.00	.00	.00	.00	.00	.00	.00	.00	--
FEB 26...	.00	.00	.00	.00	.00	.00	.00	.00	--
JUN 11...	.00	.00	.00	.00	.00	.00	.00	.00	--
SEP 10...	.00	.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)
NOV 06...	.00	.00	.00	0	.00	.00	.00	.00
FEB 26...	.00	.00	.00	0	.00	.00	.00	.00
JUN 11...	.00	.00	.00	0	.00	.00	.00	.00
SEP 10...	.00	.00	.00	0	.00	.00	.00	.00

08154900 LAKE AUSTIN AT AUSTIN, TX

LOCATION.--Lat 30°18'53", long 97°47'10", Travis County, Hydrologic Unit 12090205, at city of Austin Waterplant No. 2 and 1.5 mi (2.4 km) upstream from Tom Miller Dam on the Colorado River at Austin.

DRAINAGE AREA.--38,240 mi² (99,040 km4), of which 11,900 mi² (30,800 km²) probably is noncontributing.

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to current year.
WATER TEMPERATURES: October 1964 to current year.

REMARKS.--No water-discharge records available.

EXTREMES FOR PERIOD OF DAILY RECORDS.--
SPECIFIC CONDUCTANCE (1964-75): Maximum daily, 982 micromhos Aug. 15-17, 1974; minimum daily, 311 micromhos June 19, 1968.
WATER TEMPERATURES (1964-75): Maximum daily, 32.0°C Aug. 24, 1965; minimum daily, 9.0°C Jan. 30, 1966, Jan. 9, 11, 1968, and Jan. 5, 1969.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
OCT 20...	1415	534	22.0	180	49	39	20	34	1.1
NOV 17...	1100	529	18.0	180	51	40	20	33	1.1
DEC 15...	1100	541	11.5	210	66	41	25	34	1.0
FEB 16...	1255	565	10.5	210	53	49	21	31	.9
MAR 15...	1135	559	15.0	210	54	51	20	30	.9
APR 16...	1430	554	16.5	210	60	47	22	34	1.0
JUN 14...	1300	546	19.0	210	50	46	22	31	.9
JUL 17...	1630	550	21.5	200	43	45	21	33	1.0
SEP 19...	1420	522	24.0	200	37	49	19	27	.8

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 20...	4.3	160	0	35	63	.2	9.9	284
NOV 17...	3.8	160	0	36	63	.2	10	285
DEC 15...	4.3	170	0	42	64	.3	13	307
FEB 16...	3.3	190	0	43	53	.3	6.1	300
MAR 15...	3.2	190	0	44	52	.2	5.0	299
APR 16...	3.8	180	0	42	57	.3	8.2	303
JUN 14...	3.5	190	0	41	55	.2	8.7	301
JUL 17...	3.4	190	0	43	57	.3	8.5	305
SEP 19...	3.6	200	0	34	48	.3	7.8	287

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	536	550	---	538	545	553	---	---	514
2	536	---	---	---	553	551	549	541	529	---	---	---
3	536	---	---	---	553	564	---	548	546	---	---	---
4	---	---	530	533	551	533	503	546	546	530	---	508
5	---	---	531	533	556	538	532	548	549	553	510	---
6	529	---	535	533	553	---	551	553	547	540	545	---
7	---	---	534	535	553	---	549	550	549	542	547	---
8	---	---	534	533	561	---	---	556	549	---	548	513
9	---	528	---	---	555	512	543	550	551	---	---	494
10	533	526	---	---	---	---	---	550	550	---	---	520
11	526	527	538	539	561	---	526	548	545	---	---	474
12	529	---	539	535	558	---	---	550	545	---	---	527
13	529	530	543	539	556	---	---	---	542	---	---	525
14	---	526	538	540	559	---	545	---	546	---	539	514
15	530	---	---	540	562	553	---	556	---	---	546	---
16	530	526	---	538	559	544	---	---	546	---	---	---
17	533	526	---	538	---	551	---	550	550	---	---	507
18	530	530	538	540	561	564	---	---	543	543	---	---
19	530	530	542	540	558	562	551	---	551	548	---	---
20	534	526	538	545	565	512	546	---	550	532	545	489
21	533	---	---	548	---	508	547	548	---	535	543	---
22	533	527	---	548	---	551	546	533	547	540	539	---
23	534	528	540	548	565	533	545	544	551	501	532	516
24	535	527	539	547	561	542	545	536	553	548	521	512
25	---	530	538	551	565	551	551	533	547	---	---	---
26	534	---	---	---	565	547	---	548	551	539	---	---
27	535	---	---	548	---	508	554	---	532	---	546	504
28	535	527	540	548	---	538	---	548	546	518	---	520
29	535	531	538	550	---	547	---	548	---	---	---	505
30	534	532	538	548	---	542	549	545	546	536	529	---
31	---	---	---	---	---	547	---	549	---	537	---	---
MEAN	532	528	537	541	558	541	543	547	547	536	538	509

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	10.0	8.5	---	18.0	16.0	20.0	---	---	22.0
2	20.5	---	---	---	10.0	13.0	18.0	16.0	18.5	---	---	---
3	21.0	---	---	---	9.0	12.0	---	20.0	18.0	---	---	---
4	---	---	16.0	9.0	9.5	13.0	17.0	14.5	16.5	22.0	---	21.0
5	---	---	15.5	9.5	13.0	12.0	17.0	---	14.5	22.0	22.0	---
6	25.5	---	16.5	9.0	9.5	---	18.0	---	13.5	21.0	22.0	---
7	---	---	15.5	9.0	10.0	---	18.5	15.0	15.5	20.5	24.0	---
8	---	---	13.5	8.0	10.5	---	---	16.5	17.0	---	23.0	22.0
9	---	19.0	---	---	9.5	14.5	19.0	16.5	18.0	---	---	22.0
10	24.0	21.0	---	---	---	---	---	14.0	17.0	---	---	22.0
11	24.0	21.0	12.0	7.0	10.5	---	19.5	17.0	17.0	---	---	22.0
12	24.5	---	11.5	7.0	8.5	---	---	16.5	16.5	---	---	23.0
13	24.0	20.0	12.0	8.0	8.5	---	---	---	16.0	---	---	23.0
14	---	19.5	11.5	6.5	9.0	---	17.0	---	17.0	---	22.0	21.5
15	23.5	---	---	6.5	11.5	15.0	---	17.0	---	---	22.0	---
16	23.0	19.5	---	7.0	9.0	14.5	---	---	18.0	---	---	---
17	23.0	19.5	---	7.0	---	14.5	---	19.0	18.0	---	---	21.0
18	23.0	19.5	11.5	8.0	9.0	15.5	---	---	18.5	23.0	---	---
19	21.5	18.5	11.5	8.5	9.0	16.0	18.5	---	20.0	21.5	---	---
20	22.0	19.5	12.0	9.0	9.5	15.5	18.5	---	20.5	23.0	21.5	21.0
21	22.0	---	---	9.0	---	15.5	18.0	19.5	---	---	22.0	---
22	22.0	16.5	---	9.0	---	15.5	18.0	19.5	21.5	22.0	22.0	---
23	22.0	17.0	11.5	8.5	10.5	16.0	19.0	19.5	21.0	21.0	23.0	21.5
24	22.0	16.5	12.0	8.5	11.5	16.0	14.5	20.0	21.5	21.5	22.0	22.0
25	---	17.0	11.5	9.0	10.5	16.0	---	20.0	21.5	---	---	---
26	22.0	---	---	---	10.5	16.5	---	20.5	20.0	23.5	---	---
27	22.0	---	---	9.0	---	17.0	---	---	20.5	---	21.5	22.0
28	21.0	16.5	11.5	10.0	---	17.0	---	20.0	19.5	22.0	---	22.0
29	22.0	16.5	11.5	8.5	---	18.0	---	21.0	---	---	---	23.0
30	20.5	17.0	11.5	8.5	---	18.0	---	20.5	20.0	21.0	23.0	---
31	---	---	---	---	---	18.0	---	20.5	---	24.0	---	---
MEAN	22.5	18.5	12.5	8.5	10.0	15.5	18.0	18.0	18.5	22.0	22.5	22.0

LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471601 LAKE AUSTIN (AUSTIN) SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
17...	1110	1.0	531	7.9	23.0	7.8	93
17...	1111	10	531	7.9	22.5	7.8	92
17...	1112	20	531	7.9	23.0	7.6	90
17...	1113	34	531	7.8	23.0	7.1	85
FEB							
07...	1210	1.0	548	8.5	8.0	12.0	104
07...	1212	10	548	8.5	7.5	12.0	103
07...	1214	20	553	8.5	7.5	11.9	103
07...	1216	30	553	8.5	7.5	11.9	103
07...	1218	40	553	8.5	7.5	11.9	103
07...	1220	52	553	8.5	7.5	11.9	103
MAY							
30...	1055	1.0	542	8.1	21.0	8.4	94
30...	1057	10	542	8.1	18.0	8.2	87
30...	1059	20	542	8.0	17.0	7.8	81
30...	1101	30	545	8.0	16.0	7.5	77
30...	1103	40	545	7.9	16.0	7.1	72
30...	1105	53	545	7.9	16.0	6.8	69
AUG							
21...	1130	1.0	538	7.9	24.0	7.3	87
21...	1132	10	538	7.7	21.0	5.8	65
21...	1134	20	538	7.6	20.5	5.5	61
21...	1136	30	538	7.6	20.0	5.3	58
21...	1138	40	538	7.6	20.0	5.0	55
21...	1140	49	538	7.5	20.0	4.6	51

301739097471201 LAKE AUSTIN (AUSTIN) SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	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)
OCT										
17...	1030	1.0	531	7.9	23.0	5	4.0	7.8	93	1.0
17...	1035	10	531	7.9	23.0	--	--	7.7	92	--
17...	1037	20	531	7.9	22.5	--	--	7.6	89	--
17...	1042	30	531	7.8	22.5	--	--	7.5	88	--
17...	1044	40	531	7.8	22.5	--	--	7.4	87	--
17...	1046	45	531	7.8	22.5	--	--	7.4	87	--
17...	1051	54	531	7.7	22.5	10	65	6.4	75	1.1
FEB										
07...	1129	1.0	548	8.5	8.0	0	2.0	11.9	103	1.1
07...	1132	10	548	8.5	7.5	--	--	11.9	103	--
07...	1134	20	553	8.5	7.5	--	--	11.9	103	--
07...	1136	30	553	8.5	7.5	--	--	11.9	103	--
07...	1137	36	551	8.4	7.5	0	2.0	11.9	103	1.3
MAY										
30...	1030	1.0	542	8.1	21.0	5	--	8.4	94	.8
30...	1032	10	542	8.0	18.0	--	--	8.2	87	--
30...	1034	20	542	8.0	17.0	--	--	7.8	81	--
30...	1036	30	545	7.9	16.0	--	--	7.5	77	--
30...	1038	35	545	7.8	16.0	3	--	7.4	76	.3
AUG										
21...	1145	1.0	538	8.0	25.0	5	.90	7.6	92	--
21...	1147	10	538	7.7	21.0	--	--	5.9	66	--
21...	1149	20	538	7.7	20.0	--	--	5.4	59	--
21...	1151	30	538	7.7	20.0	--	--	5.1	56	--
21...	1153	39	538	7.6	20.0	5	4.6	5.1	56	--

LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 LAKE AUSTIN (AUSTIN) SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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	POTASSIUM, DISSOLVED (MG/L AS K)
OCT										
17...	500	4	1	190	50	43	20	33	1.0	3.8
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	180	43	40	20	32	1.0	3.8
FEB										
07...	K120	K6	K12	200	50	44	21	32	1.0	3.0
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	190	37	42	21	32	1.0	3.0
MAY										
30...	1100	9	1	200	51	45	21	31	1.0	3.7
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	200	49	44	21	33	1.0	3.8
AUG										
21...	--	--	--	200	49	44	21	31	1.0	3.5
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	200	43	45	21	30	.9	3.6

DATE	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
OCT										
17...	170	0	38	62	.2	9.8	294	2	1	.03
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	.03
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	170	0	38	62	.2	10	290	121	14	.03
FEB										
07...	170	4	45	56	.2	7.1	296	2	1	.01
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	.03
07...	--	--	--	--	--	--	--	--	--	--
07...	180	4	45	52	.2	7.1	295	2	1	.00
MAY										
30...	180	0	43	56	.2	6.3	295	6	4	.15
30...	--	--	--	--	--	--	--	--	--	.14
30...	--	--	--	--	--	--	--	--	--	.17
30...	--	--	--	--	--	--	--	--	--	--
30...	180	0	44	58	.2	7.2	300	6	5	.21
AUG										
21...	180	0	39	56	.3	8.3	292	0	0	.11
21...	--	--	--	--	--	--	--	--	--	.20
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	190	0	38	54	.3	8.4	294	--	3	.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)	PHOSPHATE, TOTAL (MG/L AS PO4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
OCT										
17...	.01	.04	.01	.26	--	.020	--	3.6	10	10
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	.01	.04	.01	.36	--	.020	--	--	10	20
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	.01	.04	.04	.48	--	.080	--	--	30	80
FEB										
07...	.02	.03	.01	.36	--	.020	--	3.0	10	0
07...	--	--	--	--	--	--	--	--	--	--
07...	.02	.05	.01	.33	--	.020	--	--	10	0
07...	--	--	--	--	--	--	--	--	--	--
07...	.02	.02	.01	.42	--	.030	--	3.5	10	0
MAY										
30...	.02	.17	.01	.43	.06	.020	.06	9.5	0	0
30...	.02	.16	.03	.39	.03	.010	.03	--	0	0
30...	.02	.19	.04	.23	.03	.010	.03	--	10	0
30...	--	--	--	--	--	--	--	--	--	--
30...	.02	.23	.03	.26	.03	.010	.03	4.0	0	0
AUG										
21...	.02	.13	.01	.52	--	.000	--	2.8	10	1
21...	.02	.22	.01	.17	--	.000	--	--	0	10
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	.02	.21	.00	.06	--	.000	--	4.6	10	3

LAKE AUSTIN AT AUSTIN, TX--Continued

301739097470901 LAKE AUSTIN (AUSTIN) SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
17...	1125	1.0	531	7.9	23.0	8.0	95
17...	1126	10	531	7.9	23.0	7.9	94
17...	1127	16	531	7.9	23.0	7.9	94
FEB							
07...	1202	1.0	548	8.5	8.0	11.8	103
07...	1204	12	548	8.5	7.5	12.0	103
MAY							
30...	1115	1.0	542	8.2	21.5	8.6	98
30...	1117	10	542	8.0	17.0	8.0	83
30...	1119	15	542	8.0	17.0	7.6	79
AUG							
21...	1210	1.0	538	8.0	25.0	7.6	92
21...	1212	14	538	7.7	20.5	5.2	58

302043097472401 LAKE AUSTIN (AUSTIN) SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRATE TOTAL (MG/L AS N)
OCT									
17...	1150	1.0	531	7.8	23.0	1.50	7.4	88	.01
17...	1152	10	531	7.8	23.0	--	7.2	86	--
17...	1154	20	531	7.7	23.0	--	7.0	83	--
17...	1156	28	531	7.7	22.5	--	6.9	81	.03
FEB									
07...	1240	1.0	552	8.5	7.5	2.40	11.4	98	.00
07...	1242	10	552	8.5	7.5	--	11.4	98	--
07...	1244	20	552	8.5	7.5	--	11.3	97	--
07...	1246	28	552	8.5	7.5	--	11.2	97	.00
MAY									
30...	1135	1.0	542	8.2	22.5	1.90	8.3	97	.12
30...	1137	10	542	8.2	22.0	--	8.5	98	--
30...	1139	20	542	8.1	17.0	--	8.8	92	--
30...	1141	28	542	8.1	17.0	--	8.8	92	.16
AUG									
21...	1225	1.0	538	8.0	26.0	--	7.4	91	.10
21...	1227	10	538	7.7	21.0	--	6.1	69	--
21...	1229	20	538	7.7	20.5	--	5.7	63	--
21...	1231	29	538	7.7	20.5	--	5.6	62	.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)	PHOSPHATE, TOTAL (MG/L AS PO4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
OCT									
17...	.01	.02	.01	.39	--	.010	--	20	10
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	.01	.04	.01	.34	--	.020	--	50	20
FEB									
07...	.02	.02	.01	.27	--	.010	--	10	10
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	.02	.02	.00	.30	--	.010	--	20	0
MAY									
30...	.02	.14	.01	.35	.03	.010	.03	0	0
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	.02	.18	.03	.22	.03	.010	.03	10	0
AUG									
21...	.02	.12	.01	.20	--	.000	.00	10	10
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	.02	.22	.01	.08	--	.020	.06	0	10

LAKE AUSTIN AT AUSTIN, TX--Continued

302044097472301 LAKE AUSTIN (AUSTIN) SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT							
17...	1200	1.0	531	7.8	23.0	7.5	89
17...	1202	11	531	7.8	23.0	7.6	90
FEB							
07...	1250	1.0	552	8.5	8.0	11.7	102
07...	1252	8.0	552	8.6	8.0	11.8	103
MAY							
30...	1200	1.0	542	8.2	23.0	8.2	96
30...	1202	12	542	8.1	22.0	8.0	92
AUG							
21...	1235	1.0	538	8.0	26.5	7.5	93
21...	1237	13	538	7.7	21.0	5.6	63

301926097502201 LAKE AUSTIN (AUSTIN) SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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										
17...	1220	1.0	531	7.6	23.5	0	2.0	7.0	84	.6
17...	1222	10	531	7.6	23.0	--	--	7.0	83	--
17...	1224	20	531	7.6	23.0	--	--	6.8	81	--
17...	1226	28	531	7.5	23.0	0	5.0	6.6	79	.4
FEB										
07...	1315	1.0	536	8.4	8.0	0	5.0	11.0	96	.1
07...	1317	10	536	8.4	8.0	--	--	11.0	96	--
07...	1320	20	536	8.4	8.0	--	--	11.0	96	--
07...	1322	27	536	8.4	8.0	0	4.0	11.0	96	.1
MAY										
30...	1223	1.0	542	8.2	21.0	3	--	8.6	97	.6
30...	1225	10	542	8.1	15.5	--	--	8.8	89	--
30...	1227	20	542	8.1	15.5	--	--	8.8	89	--
30...	1229	27	542	8.1	15.5	3	--	8.8	89	.2
AUG										
21...	1255	1.0	538	7.8	21.5	3	.70	6.2	70	--
21...	1257	10	538	7.8	20.5	--	--	5.8	64	--
21...	1259	20	538	7.8	20.0	--	--	5.7	63	--
21...	1301	29	538	7.7	20.0	5	1.4	5.5	60	--

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										
17...	520	3	<1	180	46	38	20	34	1.1	4.0
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	180	46	38	20	34	1.1	3.8
FEB										
07...	28	K3	22	190	40	43	21	31	1.0	3.0
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	190	40	43	21	31	1.0	3.0
MAY										
30...	67	9	1	190	46	43	21	32	1.0	3.2
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	190	46	43	21	33	1.0	3.9
AUG										
21...	--	--	--	200	41	44	21	30	.9	3.5
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	200	43	45	21	30	.9	3.6

LAKE AUSTIN AT AUSTIN, TX--Continued

301926097502201 LAKE AUSTIN (AUSTIN) SITE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
OCT										
17...	160	0	38	68	.2	9.6	291	2	1	.03
17...	--	--	--	--	--	--	--	--	--	.03
17...	--	--	--	--	--	--	--	--	--	--
17...	160	0	39	64	.2	9.8	288	7	1	.04
FEB										
07...	180	4	41	56	.2	7.1	295	2	1	.03
07...	--	--	--	--	--	--	--	--	--	.00
07...	--	--	--	--	--	--	--	--	--	--
07...	180	4	41	56	.2	7.1	295	3	2	.03
MAY										
30...	180	0	43	58	.2	6.7	296	3	0	.17
30...	--	--	--	--	--	--	--	--	--	.19
30...	--	--	--	--	--	--	--	--	--	--
30...	180	0	43	58	.2	7.1	298	5	3	.24
AUG										
21...	190	0	39	55	.3	8.1	295	0	0	.18
21...	--	--	--	--	--	--	--	--	--	.19
21...	--	--	--	--	--	--	--	--	--	--
21...	190	0	39	53	.3	8.3	294	0	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)	PHOSPHATE, TOTAL (MG/L AS PO4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
OCT										
17...	.01	.04	.02	.32	--	.010	--	5.4	0	0
17...	.01	.04	.01	.45	--	.010	--	--	20	10
17...	--	--	--	--	--	--	--	--	--	--
17...	.01	.05	.03	.26	--	.010	--	3.6	10	10
FEB										
07...	.02	.05	.03	.23	--	.010	--	3.0	20	0
07...	.02	.02	.01	.29	--	.010	--	--	10	0
07...	--	--	--	--	--	--	--	--	--	--
07...	.02	.05	.01	.26	--	.010	--	3.1	10	0
MAY										
30...	.02	.19	.02	.25	.03	.010	.03	2.7	0	0
30...	.02	.21	.02	.20	.03	.010	.03	--	0	10
30...	--	--	--	--	--	--	--	--	--	--
30...	.00	.24	.02	.18	.03	.010	.03	2.0	0	10
AUG										
21...	.02	.20	.01	.09	--	.000	--	3.7	10	7
21...	.02	.21	.08	1.2	--	.040	--	--	0	10
21...	--	--	--	--	--	--	--	--	--	--
21...	.02	.21	.01	.14	--	.000	--	3.5	10	8

302021097540001 LAKE AUSTIN (AUSTIN) SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)
OCT									
17...	1305	1.0	542	7.8	23.0	7.5	89	.04	.01
17...	1307	10	542	7.8	22.5	7.4	87	--	--
17...	1309	16	542	7.7	22.5	7.0	82	.02	.01
FEB									
07...	1400	1.0	527	8.6	8.5	11.1	98	.01	.00
07...	1402	10	527	8.6	8.5	11.2	99	--	--
07...	1406	16	524	8.6	8.5	11.2	99	.00	.00
MAY									
30...	1317	1.0	545	8.2	15.5	9.1	92	.22	.00
30...	1319	10	545	8.2	15.0	9.1	91	--	--
30...	1321	14	545	8.2	15.0	9.4	94	.23	.00
AUG									
21...	1335	1.0	538	7.7	19.0	4.6	49	.21	.02
21...	1337	10	538	7.6	18.5	4.3	46	--	--
21...	1339	17	538	7.6	19.0	4.2	45	.21	.02

LAKE AUSTIN AT AUSTIN, TX--Continued

302021097540001 LAKE AUSTIN (AUSTIN) SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	PHOSPHATE, TOTAL (MG/L AS PO4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
OCT								
17...	.05	.01	.53	--	.020	--	0	0
17...	--	--	--	--	--	--	--	--
17...	.03	.02	.42	--	.020	--	0	0
FEB								
07...	.01	.00	.28	--	.010	--	0	10
07...	--	--	--	--	--	--	--	--
07...	.00	.00	.28	--	.010	--	10	0
MAY								
30...	.22	.02	.21	.03	.010	.03	0	10
30...	--	--	--	--	--	--	--	--
30...	.23	.02	.24	.03	.010	.03	10	10
AUG								
21...	.23	.01	.00	--	.010	--	0	10
21...	--	--	--	--	--	--	--	--
21...	.23	.01	.36	--	.000	--	0	20

302314097544901 LAKE AUSTIN (AUSTIN) SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	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)
OCT										
17...	1400	1.0	552	8.2	25.0	0	2.0	9.3	115	.8
17...	1405	7.0	555	8.1	23.5	5	15	8.5	102	2.3
18...	1400	1.0	552	8.4	25.0	--	--	9.3	115	--
18...	1405	7.0	555	8.1	23.5	--	--	8.5	102	--
FEB										
07...	1430	1.0	538	8.5	9.5	0	3.0	11.7	105	.3
07...	1433	7.0	538	8.5	9.5	0	25	12.0	108	2.3
MAY										
30...	1412	1.0	545	8.0	13.5	3	--	7.9	77	.5
30...	1414	8.0	545	8.0	13.5	3	--	7.8	76	.3
AUG										
21...	1400	1.0	535	7.6	18.0	5	.30	3.2	34	--
21...	1402	9.0	535	7.6	18.0	3	1.5	3.6	38	--

DATE	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	POTASSIUM, DISSOLVED (MG/L AS K)
OCT										
17...	3000	1	<1	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	180	47	38	21	35	1.1	4.0
18...	--	--	--	180	42	38	21	36	1.2	4.0
FEB										
07...	K20	K2	K6	200	54	48	20	33	1.0	3.4
07...	--	--	--	--	--	--	--	--	--	--
MAY										
30...	2200	2	<1	190	46	43	21	33	1.0	3.8
30...	--	--	--	190	46	43	21	33	1.0	3.8
AUG										
21...	--	--	--	210	55	48	22	31	.9	3.2
21...	--	--	--	200	41	46	20	31	1.0	3.2

DATE	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
OCT										
17...	--	--	--	--	--	--	--	2	1	--
17...	--	--	--	--	--	--	--	24	4	--
18...	160	2	40	71	.2	8.1	298	--	--	.01
18...	170	0	40	66	.2	8.1	297	--	--	.05
FEB										
07...	170	4	45	62	.2	7.6	307	3	2	.05
07...	--	--	--	--	--	--	--	53	18	--
MAY										
30...	180	0	44	59	.3	7.3	300	4	4	.23
30...	180	0	43	58	.3	7.3	298	5	6	.32
AUG										
21...	190	0	38	54	.2	8.3	298	24	3	.23
21...	190	0	38	53	.2	8.3	293	3	0	.23

LAKE AUSTIN AT AUSTIN, TX--Continued

302314097544901 LAKE AUSTIN (AUSTIN) SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT										
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	.01	.02	.01	.28	--	.020	--	3.5	0	0
18...	.01	.06	.03	.56	--	.050	--	4.8	0	10
FEB										
07...	.02	.07	.01	.20	--	.010	--	3.0	0	0
07...	--	--	--	--	--	--	--	--	--	--
MAY										
30...	.02	.25	.01	.21	.03	.010	.03	2.3	200	0
30...	.02	.34	.01	.21	.03	.010	.03	2.3	0	0
AUG										
21...	.02	.25	.00	.04	--	.000	--	3.2	0	10
21...	.02	.25	.01	.60	--	.000	--	4.1	0	10

301739097471201 LAKE AUSTIN (AUSTIN) SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT							
17...	1030	1.0	2	0	0	0	4
17...	1042	30	--	--	--	--	--
17...	1051	54	2	0	0	0	4
FEB							
07...	1129	1.0	1	100	0	10	1
07...	1134	20	--	--	--	--	--
07...	1137	36	1	100	0	10	1
MAY							
30...	1030	1.0	--	--	--	--	--
30...	1032	10	--	--	--	--	--
30...	1034	20	--	--	--	--	--
30...	1038	35	--	--	--	--	--
AUG							
21...	1145	1.0	1	70	1	10	1
21...	1147	10	--	--	--	--	--
21...	1153	39	1	70	1	0	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT							
17...	10	0	10	.0	0	0	10
17...	10	--	20	--	--	--	--
17...	30	0	80	.0	0	0	10
FEB							
07...	10	0	0	.0	0	0	10
07...	10	--	0	--	--	--	--
07...	10	0	0	.0	0	0	10
MAY							
30...	0	--	0	--	--	--	--
30...	0	--	0	--	--	--	--
30...	10	--	0	--	--	--	--
30...	0	--	0	--	--	--	--
AUG							
21...	10	0	1	.0	0	0	30
21...	0	--	10	--	--	--	--
21...	10	0	3	.0	0	0	3

LAKE AUSTIN AT AUSTIN, TX--Continued

301926097502201 LAKE AUSTIN (AUSTIN) SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT							
17...	1220	1.0	2	100	0	0	4
17...	1222	10	--	--	--	--	--
17...	1226	28	2	0	0	0	4
FEB							
07...	1315	1.0	1	100	0	20	1
07...	1317	10	--	--	--	--	--
07...	1322	27	1	100	0	10	1
MAY							
30...	1223	1.0	--	--	--	--	--
30...	1225	10	--	--	--	--	--
30...	1229	27	--	--	--	--	--
AUG							
21...	1255	1.0	1	70	1	20	1
21...	1257	10	--	--	--	0	--
21...	1301	29	1	70	1	10	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT							
17...	0	0	0	.0	0	0	0
17...	20	--	10	--	--	--	--
17...	10	0	10	.0	0	0	0
FEB							
07...	20	0	0	.0	0	0	0
07...	10	--	0	--	--	--	--
07...	10	0	0	.0	1	0	10
MAY							
30...	0	--	0	--	--	--	--
30...	0	--	10	--	--	--	--
30...	0	--	10	--	--	--	--
AUG							
21...	10	0	7	.0	0	0	3
21...	0	--	10	--	--	--	--
21...	10	0	8	.0	0	0	6

302314097544901 LAKE AUSTIN (AUSTIN) SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT							
18...	1400	1.0	2	100	0	0	4
18...	1405	7.0	2	100	0	0	4
FEB							
07...	1430	1.0	1	0	0	10	1
MAY							
30...	1412	1.0	--	--	--	--	--
30...	1414	8.0	--	--	--	--	--
AUG							
21...	1400	1.0	1	0	0	20	0
21...	1402	9.0	1	0	0	0	0

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT							
18...	0	0	0	.0	0	0	0
18...	0	0	10	.0	0	0	0
FEB							
07...	0	0	0	.0	0	0	10
MAY							
30...	200	--	0	--	--	--	--
30...	0	--	0	--	--	--	--
AUG							
21...	0	0	10	.0	0	0	2
21...	0	0	10	.0	0	0	6

LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 LAKE AUSTIN (AUSTIN) SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)
OCT									
17...	1030	1.0	.0	.00	--	.0	.0	.00	.00
17...	1051	54	.0	.00	--	.0	.0	.00	.00
FEB									
07...	1129	1.0	.0	--	.00	--	.0	.00	.00
07...	1137	36	.0	--	.00	--	.0	.00	.00
AUG									
21...	1145	1.0	.0	--	.00	--	.0	.00	.00
21...	1153	39	.0	--	.00	--	.0	.00	.00

DATE	DDT, TOTAL (UG/L)	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)
OCT									
17...	.00	.00	.00	.00	.00	.00	.00	.00	.00
17...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB									
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG									
21...	.00	.00	.00	.00	.00	.00	--	.00	.00
21...	.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)
OCT								
17...	.00	.00	.00	0	.00	.04	.00	.00
17...	.00	.00	.00	0	.00	.00	.00	.00
FEB								
07...	.00	.00	.00	0	.00	.13	.00	.00
07...	.00	.00	.00	0	.00	.11	.00	.00
AUG								
21...	.00	.00	.00	0	.00	.24	.00	.00
21...	.00	.00	.00	0	.00	.00	.00	.00

301926097502201 LAKE AUSTIN (AUSTIN) SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT								
17...	1220	1.0	.0	.00	.00	.0	.00	.00
17...	1226	28	.0	.00	.00	.0	.00	.00
FEB								
07...	1315	1.0	.0	--	.00	.0	.00	.00
07...	1322	27	.0	--	.00	.0	.00	.00
AUG								
21...	1255	1.0	.0	--	.00	.0	.00	.00
21...	1301	29	.0	--	.00	.0	.00	.00

DATE	DDT, TOTAL (UG/L)	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)
OCT									
17...	.00	.00	.00	.00	.00	.00	.00	.00	.00
17...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB									
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00

301926097502201 LAKE AUSTIN (AUSTIN) SITE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT								
17...	.00	.00	.00	0	.00	.03	.00	.00
17...	.00	.00	.00	0	.00	.02	.00	.00
FEB								
07...	.00	.00	.00	0	.00	.00	.00	.00
07...	.00	.00	.00	0	.00	.00	.00	.00
AUG								
21...	.00	.00	.00	0	.00	.00	.00	.00
21...	.00	.00	.00	0	--	.08	.00	.00

302314097544901 LAKE AUSTIN (AUSTIN) SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT								
18...	1400	1.0	.0	.00	.00	.0	.00	.00
18...	1405	7.0	.0	.00	.00	.0	.00	.00
FEB								
07...	1430	1.0	--	--	--	--	--	--
AUG								
21...	1400	1.0	.0	--	.00	.0	.00	.00
21...	1402	9.0	.0	--	--	--	.00	.00

DATE	DDT, TOTAL (UG/L)	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)
OCT									
18...	.00	.00	.00	.00	.00	.00	.00	.00	.00
18...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB									
07...	--	--	--	--	--	--	--	--	--
AUG									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
21...	.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)
OCT								
18...	.00	.00	.00	0	.00	.00	.00	.00
18...	.00	.00	.00	0	.00	.00	.00	.00
FEB								
07...	--	--	--	--	--	.00	.00	.00
AUG								
21...	.00	.00	.00	0	.00	.00	.00	.00
21...	.00	.00	.00	--	.00	--	.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. Datum of gage is 737.04 ft (224.650 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair above 15.0 ft³/s (0.42 m³/s) and poor below. No known regulation or diversions. There is a recording rain gage in the watershed upstream from gage. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,750 ft³/s (135 m³/s) Apr. 18, 1976, gage height, 11.56 ft (3.523 m); no flow for many days each year.

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. 21	0515	*2,670	75.6	8.71	2.655	Apr. 21	0415	1,130	32.0	6.17	1.881
Mar. 22	1230	1,410	39.9	6.68	2.036	May 22	0445	2,650	75.0	8.65	2.637

Minimum discharge, 0.14 ft³/s (0.004 m³/s) Oct. 23, Oct. 31 to Nov. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.47	.14	4.6	60	32	53	368	296	55	10	9.9	2.1
2	.46	.14	4.6	48	32	52	315	244	62	8.1	8.9	2.0
3	.43	.14	5.8	40	34	54	248	222	47	7.5	8.0	1.8
4	.43	.15	6.3	36	43	48	221	203	41	6.7	7.4	1.9
5	.39	1.3	5.8	36	119	45	201	186	48	5.7	6.6	2.8
6	.26	1.2	5.8	37	327	42	181	173	47	16	5.9	3.8
7	.26	.81	5.8	39	209	42	171	159	39	27	5.5	2.9
8	.26	.56	5.8	36	162	41	176	146	42	17	5.2	2.7
9	.26	.49	5.8	34	132	19	150	137	41	13	5.1	2.2
10	.26	.45	5.8	67	122	37	146	130	35	17	4.7	1.8
11	.26	.45	5.8	369	114	37	155	124	32	12	26	1.7
12	.26	.55	5.8	149	104	36	141	118	29	10	34	1.7
13	.25	.54	5.8	119	96	35	155	99	27	8.7	18	1.6
14	.22	.55	5.9	108	90	33	145	86	28	6.8	11	1.4
15	.20	.58	5.8	100	83	31	133	77	26	6.5	9.6	1.3
16	.20	1.1	5.6	92	72	39	121	73	24	6.5	7.8	1.3
17	.20	1.1	5.4	85	67	42	143	62	20	6.1	6.3	1.2
18	.18	.94	5.4	74	66	41	146	59	20	5.8	5.4	1.8
19	.18	1.0	5.4	68	63	88	142	57	18	12	4.6	2.2
20	.16	1.2	5.4	62	62	158	137	53	17	37	4.5	2.4
21	.15	1.5	5.2	55	59	995	530	64	16	35	3.9	2.2
22	.15	2.0	4.8	50	56	643	229	767	15	16	3.6	1.8
23	.14	3.0	4.8	48	86	327	199	91	13	10	3.4	1.6
24	.15	3.3	4.8	44	84	259	182	61	13	7.6	3.0	1.4
25	.15	3.6	4.5	44	63	222	166	57	12	6.3	2.8	1.3
26	.18	4.0	4.4	45	59	201	149	51	13	5.7	2.9	1.2
27	.18	4.8	4.3	41	59	181	137	50	13	26	2.9	1.1
28	.17	4.7	4.3	37	56	170	125	49	12	47	2.8	.99
29	.15	4.6	4.3	36	---	161	354	45	12	15	2.4	.94
30	.15	4.6	4.3	37	---	215	204	42	11	12	2.3	.89
31	.14	---	34	34	---	197	---	38	---	11	2.2	---
TOTAL	7.30	49.49	192.1	2130	2551	4564	5870	4019	828	431.0	226.6	54.02
MEAN	.24	1.65	6.20	68.7	91.1	147	196	130	27.6	13.9	7.31	1.80
MAX	.47	4.8	34	369	327	995	530	767	62	47	34	3.8
MIN	.14	.14	4.3	34	32	31	121	38	11	5.7	2.2	.89
CFSM	.003	.02	.07	.77	1.02	1.64	2.19	1.45	.31	.16	.08	.02
IN.	.00	.02	.08	.88	1.06	1.89	2.43	1.67	.34	.18	.09	.02
AC-FT	14	98	381	4220	5060	9050	11640	7970	1640	855	449	107
(††)	.47	5.72	2.77	2.77	3.12	5.24	5.25	3.26	1.61	6.30	1.84	2.30

CAL YR 1978	TOTAL	-	MEAN	-	MAX	-	MIN	-	CFSM	-	IN	-	AC-FT	-	††	-
WTR YR 1979	TOTAL	20922.51	MEAN	57.3	MAX	995	MIN	.14	CFSM	.64	IN	8.68	AC-FT	41500	††	40.65

†† Weighted-mean rainfall, in inches, based on one rain gage.

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.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 06...	1235	.55	375	7.7	18.0	3	2.0	7.7	84	.5
DEC 18...	1130	5.4	445	8.1	11.0	0	.00	11.0	103	.3
FEB 27...	1325	59	501	7.9	13.0	0	2.0	10.5	103	.8
APR 25...	1252	168	480	8.0	22.5	0	1.0	8.7	102	.8
JUN 12...	0815	54	462	7.8	21.0	5	.50	8.2	94	.1
SEP 11...	1145	.51	373	8.0	26.5	10	.60	8.0	99	.2

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
NOV 06...	23000	1400	980	180	19	47	16	6.3	.2
DEC 18...	440	5	46	--	--	--	--	--	--
FEB 27...	80	20	28	270	52	80	18	6.6	.2
APR 25...	1100	22	540	250	19	70	18	6.7	.2
JUN 12...	78	22	80	--	--	--	--	--	--
SEP 11...	460	38	130	170	9	43	16	10	.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 06...	1.1	200	0	19	10	.2	8.5	207	2
DEC 18...	--	250	0	--	--	--	--	--	1
FEB 27...	.8	270	0	24	19	.2	6.7	288	1
APR 25...	1.0	280	0	17	12	.2	7.2	270	1
JUN 12...	--	--	--	--	--	--	--	--	0
SEP 11...	1.0	200	0	17	21	.2	10	217	8

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 06...	0	.03	.01	.04	.00	.16	.16	.00	3.3
DEC 18...	1	.01	.01	.02	.01	.15	.16	.01	1.6
FEB 27...	1	.17	.00	.17	.01	.09	.10	.01	1.9
APR 25...	0	.13	.00	.13	.01	.08	.09	.01	5.0
JUN 12...	0	.05	.00	.05	.02	.20	.22	.00	4.6
SEP 11...	9	.00	.02	.01	.00	.56	.56	.00	4.9

08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
NOV 06...	1235	1	20	<1	0	0
FEB 27...	1325	0	0	0	0	0
APR 25...	1252	0	0	0	0	0
SEP 11...	1145	1	20	<1	10	0

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 06...	10	0	4	.0	0	0	<3
FEB 27...	10	0	10	.0	0	0	10
APR 25...	10	0	10	.0	0	0	10
SEP 11...	<10	0	<1	.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)
NOV 06...	1235	.0	.00	.00	.0	.00	.00	.00	.00
FEB 27...	1325	.0	--	.00	.0	.00	.00	.00	.00
APR 25...	1252	.0	.00	.00	.0	.00	.00	.00	.00
SEP 11...	1145	.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)
NOV 06...	.00	.00	.00	.00	.00	.00	.00	.00	--
FEB 27...	.00	.00	.00	.00	.00	.00	.00	.00	--
APR 25...	.00	.00	.00	.00	.00	.00	.00	.00	--
SEP 11...	.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)
NOV 06...	.00	.00	.00	.00	0	.00	.00	.00	.00
FEB 27...	.00	.00	.00	.00	0	.00	.00	.00	.00
APR 25...	.00	.00	.00	.00	0	.00	.00	.00	.00
SEP 11...	.00	.00	.00	.00	0	.00	.01	.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. 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 two recording rain gages located in the watershed above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,270 ft³/s (92.6 m³/s) Apr. 15, 1977, gage height, 7.67 ft (2.338 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)
Mar. 21	1000	2,660	75.3	7.08	2.158	May 21	2345	*3,010	85.2	7.38	2.249
Mar. 22	1700	1,570	44.5	6.18	1.884	May 22	0900	2,700	76.5	7.11	2.167
Apr. 21	0915	1,180	33.4	5.87	1.789						

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	18	18	49	290	255	137	.00	3.7	.00
2	.00	.00	.00	17	17	47	416	283	163	.00	.00	.00
3	.00	.00	.00	16	18	48	280	227	129	.00	.00	.00
4	.00	.00	.00	15	25	44	257	201	113	.00	.00	.00
5	.00	.00	.00	15	82	38	231	180	113	.00	.00	.00
6	.00	.00	.00	16	309	35	212	168	121	.00	.00	.00
7	.00	.00	.00	17	249	33	195	152	103	.00	.00	.00
8	.00	.00	.00	13	191	31	198	139	93	.00	.00	.00
9	.00	.00	.00	10	150	29	177	130	87	.00	.00	.00
10	.00	.00	.00	18	133	26	165	123	79	.00	.00	.00
11	.00	.00	.00	388	118	26	156	115	70	.00	.00	.00
12	.00	.00	.00	192	107	25	135	108	64	.00	.00	.00
13	.00	.00	.00	135	95	23	121	94	59	.00	3.8	.00
14	.00	.00	.00	103	86	19	113	84	52	.00	3.4	.00
15	.00	.00	.00	90	76	18	106	77	45	.00	.00	.00
16	.00	.00	.00	85	62	24	100	73	39	.00	.00	.00
17	.00	.00	.00	77	59	32	107	67	34	.00	.00	.00
18	.00	.00	.00	70	57	32	130	63	28	.00	.00	.00
19	.00	.00	.00	63	53	28	129	59	25	.00	.00	.00
20	.00	.00	.00	50	51	146	119	56	20	.00	.00	.00
21	.00	.00	.00	43	47	929	529	388	17	5.8	.00	.00
22	.00	.00	.00	39	43	698	269	1140	14	5.7	.00	.00
23	.00	.00	.00	37	71	418	217	227	11	.00	.00	.00
24	.00	.00	.00	33	96	295	194	153	9.5	.00	.00	.00
25	.00	.00	.00	31	63	258	173	129	8.3	.00	.00	.00
26	.00	.00	.00	32	59	230	155	117	5.3	.00	.00	.00
27	.00	.00	.00	30	58	204	141	108	3.2	74	.00	.00
28	.00	.00	.00	25	55	195	130	104	1.9	82	.00	.00
29	.00	.00	.00	24	---	185	310	96	1.0	41	.00	.00
30	.00	.00	.00	24	---	196	234	94	.50	21	.00	.00
31	.00	---	13	20	---	249	---	91	---	11	.00	---
TOTAL	.00	.00	13.00	1746	2448	4610	5989	5301	1645.70	240.50	10.90	.00
MEAN	.000	.000	.42	56.3	87.4	149	200	171	54.9	7.76	.35	.000
MAX	.00	.00	13	388	309	929	529	1140	163	82	3.8	.00
MIN	.00	.00	.00	10	17	18	100	56	.50	.00	.00	.00
CFSM	.000	.000	.004	.49	.75	1.28	1.72	1.47	.47	.07	.003	.000
IN.	.00	.00	.00	.56	.79	1.48	1.92	1.70	.53	.08	.00	.00
AC-FT	.00	.00	26	3460	4860	9140	11880	10510	3260	477	22	.00
††	.43	5.81	2.90	2.83	3.22	5.02	5.36	4.00	1.41	7.10	1.90	2.18

CAL YR 1978 TOTAL 13.00 MEAN .036 MAX 13 MIN .00 CFSM .000 IN .00 AC-FT 26 †† 29.40
WTR YR 1979 TOTAL 22004.10 MEAN 60.3 MAX 1140 MIN .00 CFSM .52 IN 7.06 AC-FT 43650 †† 42.16

†† Weighted-mean rainfall, in inches, based on two rain gages.

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX--Continued

PERIOD OF RECORD.--Periodic chemical, biochemical, and pesticide analyses: January to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
DEC										
18...	--	.00	--	--	--	--	--	--	--	--
JAN										
04...	1415	15	463	8.2	4.0	0	2.0	12.0	94	.4
10...	2330	102	453	8.1	--	0	10	--	--	.8
10...	2340	104	470	8.2	--	5	20	--	--	.4
11...	1220	593	401	7.9	6.0	10	100	12.2	101	1.5
FEB										
06...	0745	260	449	8.2	--	0	30	--	--	.4
06...	1005	285	462	8.2	--	0	15	--	--	.3
28...	1020	57	467	8.1	12.0	0	.00	10.8	104	.9
MAR										
21...	0800	875	360	8.6	--	50	90	--	--	1.9
21...	0840	2250	395	--	--	50	310	--	--	2.4
21...	0930	2660	404	8.4	--	10	360	--	--	2.2
21...	1010	2660	408	--	--	--	--	--	--	3.2
22...	1325	656	417	8.5	18.5	5	45	9.2	101	.8
APR										
24...	1245	209	464	8.1	21.0	0	1.0	10.0	115	.6
MAY										
21...	2030	936	218	8.1	--	100	660	--	--	4.7
21...	2100	2250	262	8.2	--	60	330	--	--	4.2
22...	0910	2700	389	8.3	--	30	310	--	--	3.5
22...	0930	2700	389	7.8	21.0	25	360	8.6	96	3.4
22...	1230	1580	250	8.1	--	150	480	--	--	4.3
JUN										
12...	0930	68	421	7.8	23.0	3	.20	8.4	100	.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
DEC									
18...	--	--	--	--	--	--	--	--	--
JAN									
04...	640	80	170	220	29	59	17	6.9	.2
10...	1600	92	880	230	30	63	17	7.5	.2
10...	1900	84	380	230	33	64	17	7.2	.2
11...	14000	2600	18000	200	17	56	14	5.1	.2
FEB									
06...	1800	520	8400	240	39	68	16	4.6	.1
06...	1600	120	3800	230	23	65	16	5.3	.2
28...	440	18	64	--	--	--	--	--	--
MAR									
21...	24000	8700	25000	190	32	53	13	5.2	.2
21...	18000	4000	7700	--	--	--	--	--	--
21...	13000	3300	6100	210	29	60	14	5.7	.2
21...	--	--	--	--	--	--	--	--	--
22...	10000	6800	4600	220	26	65	14	5.2	.2
APR									
24...	340	15	600	--	--	--	--	--	--
MAY									
21...	94000	50000	66000	100	21	33	4.9	2.9	.1
21...	87000	39000	50000	--	--	--	--	--	--
22...	20000	15000	17000	--	--	--	--	--	--
22...	33000	11000	27000	190	8	54	13	5.2	.2
22...	58000	18000	44000	--	--	--	--	--	--
JUN									
12...	96	59	84	190	0	50	17	6.9	.2

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
DEC									
18...	--	--	--	--	--	--	--	--	--
JAN									
04...	.9	230	0	34	15	.1	7.0	253	0
10...	.8	240	0	31	13	.2	7.0	258	14
10...	.9	240	0	31	13	.1	7.1	259	26
11...	1.3	220	0	18	10	.1	6.7	220	186
FEB									
06...	1.0	240	0	26	12	.1	7.0	253	37
06...	.8	250	0	26	12	.1	6.9	255	21
28...	--	--	--	--	--	--	--	--	1
MAR									
21...	1.3	180	4	19	9.3	.2	7.0	201	157
21...	--	--	--	--	--	--	--	--	644
21...	1.1	210	4	20	10	.2	7.1	226	836
21...	--	--	--	--	--	--	--	--	--
22...	1.2	220	8	20	9.6	.2	7.7	239	54
APR									
24...	--	--	--	--	--	--	--	--	2
MAY									
21...	2.8	100	0	19	5.4	.2	6.3	124	774
21...	--	--	--	--	--	--	--	--	536
22...	--	--	--	--	--	--	--	--	714
22...	1.4	220	0	17	10	.2	7.1	216	424
22...	--	--	--	--	--	--	--	--	768
JUN									
12...	.9	240	0	19	12	.2	9.0	233	0

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
DEC									
18...	--	--	--	--	--	--	--	--	--
JAN									
04...	0	.44	.01	.45	.01	.19	.20	.02	1.6
10...	3	.45	.00	.45	.00	.40	.40	.02	2.3
10...	3	.47	.02	.49	.00	2.1	2.1	.02	2.1
11...	39	.47	.02	.49	.02	.08	.10	.06	7.6
FEB									
06...	7	.19	.00	.19	.01	.19	.20	.05	3.0
06...	4	.23	.00	.23	.01	.09	.10	.03	2.7
28...	0	.33	.00	.33	.01	.00	.00	.01	2.3
MAR									
21...	23	.19	.02	.21	.02	.59	.61	.01	6.3
21...	108	.27	.02	.29	.05	1.2	1.2	.10	18
21...	106	.26	.02	.28	.04	1.8	1.8	.10	26
21...	--	.27	.02	.29	.06	1.1	1.2	.11	30
22...	5	.16	.02	.18	.02	.30	.32	.01	4.7
APR									
24...	0	.22	.00	.22	.02	.11	.13	.02	1.1
MAY									
21...	166	.38	--	--	--	1.3	1.4	--	36
21...	122	.38	--	--	--	1.2	1.3	--	22
22...	140	.28	--	--	--	--	.00	--	30
22...	78	.28	--	--	--	.79	.84	--	36
22...	160	.24	.02	.26	.07	2.0	2.1	.18	28
JUN									
12...	0	.02	.00	.02	.00	.37	.37	.00	6.1

DATE	TIME	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						
04...	1415	0	20	<1	0	0
10...	2330	0	20	8	10	4
10...	2340	0	20	2	10	2
11...	1220	0	20	1	0	0
MAR						
21...	0800	1	0	0	0	4
21...	0930	0	0	0	10	1
22...	1325	1	0	0	0	0
MAY						
21...	2030	1	0	0	0	3
22...	0930	1	0	0	0	0
JUN						
12...	0930	0	20	2	10	0

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN							
04...	<0	0	<1	.0	1	0	<3
10...	10	2	1	.0	0	1	30
10...	<0	0	<1	.0	0	1	<3
11...	10	0	<1	.0	0	0	<3
MAR							
21...	0	0	0	.0	0	0	20
21...	0	0	0	.1	0	0	10
22...	0	0	0	.0	0	0	10
MAY							
21...	70	0	0	.0	0	0	10
22...	10	0	0	.0	0	0	10
JUN							
12...	<0	0	<1	.0	0	0	<3

DATE	TIME	PCB, 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								
04...	1415	--	--	--	--	--	--	--
10...	2330	.0	.00	.0	.00	.00	.00	.00
10...	2340	.0	.00	.0	.00	.00	.00	.00
11...	1220	.0	.00	.0	.00	.00	.00	.00
MAR								
21...	0800	.0	.00	.0	.00	.00	.00	.10
21...	0930	.0	.00	.0	.00	.00	.00	.00
22...	1325	.0	.00	.0	.00	.00	.00	.01
MAY								
21...	2030	.0	.00	.0	.00	.00	.00	.26
JUN								
12...	0930	.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)	METHYL PARA-THION, TOTAL (UG/L)
JAN									
04...	--	--	--	--	--	--	--	--	--
10...	.00	.00	.00	.00	.00	.00	.00	.00	.00
10...	.00	.00	.00	.00	.00	.00	.00	.00	.00
11...	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAR									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
22...	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAY									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN									
12...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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								
04...	--	--	--	--	--	.00	.00	.00
10...	.00	.00	.00	0	.00	.00	.00	.00
10...	.00	.00	.00	0	.00	.00	.00	.00
11...	.00	.00	.00	0	.00	.01	.00	.00
MAR								
21...	.00	.00	.00	0	.00	.02	.00	.00
21...	.00	.00	.00	0	.00	.00	.00	.00
22...	.00	.00	.00	0	.00	.00	.00	.00
MAY								
21...	.00	.00	.00	0	.00	.04	.00	.00
JUN								
12...	.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.

GACE.--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, 108 ft^3/s (3.06 m^3/s) June 9-11, 16, 20, 21; minimum daily, 22 ft^3/s (0.62 m^3/s) Oct. 6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, MARCH TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						41	32	31	32	26	19	22
2						41	32	30	31	25	21	24
3						40	32	30	31	25	20	24
4						40	32	30	31	25	20	23
5						40	32	30	31	24	20	23
6						41	32	31	31	21	21	23
7						41	31	31	32	24	22	23
8						40	31	31	35	24	24	23
9						40	31	31	34	23	25	24
10						42	31	31	35	23	24	24
11						41	32	31	35	22	24	25
12						42	32	30	35	21	25	25
13						40	31	31	35	20	24	25
14						42	30	31	34	20	23	24
15						41	31	31	33	20	22	23
16						41	31	31	32	20	22	26
17						39	31	31	32	20	21	26
18						39	31	30	32	20	21	26
19						40	31	31	31	20	22	26
20						39	31	31	31	20	22	26
21						39	30	31	30	20	22	25
22						39	30	32	29	20	22	24
23						40	30	31	28	21	24	25
24						33	30	31	29	20	23	26
25						34	30	30	28	19	23	26
26						34	31	30	28	20	23	26
27						34	30	31	28	19	23	26
28						34	30	31	27	19	23	25
29						33	31	32	27	19	23	24
30						33	31	32	27	20	24	25
31						31	---	32	---	20	23	---
TOTAL						1194	930	957	934	660	695	737
MEAN						38.5	31.0	30.9	31.1	21.3	22.4	24.6
MAX						42	32	32	35	26	25	26
MIN						31	30	30	27	19	19	22
AC-FT						2370	1840	1900	1850	1310	1380	1460

WTR YR 1978 TOTAL - MEAN - MAX - MIN - AC-FT

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	32	37	50	69	84	91	101	105	102	96	88
2	24	30	37	51	69	84	91	102	105	102	96	88
3	24	30	37	52	69	84	92	102	106	101	96	88
4	24	28	37	52	69	84	93	101	107	101	96	87
5	24	30	37	52	74	84	94	101	106	101	96	87
6	22	30	38	54	84	85	94	101	105	100	96	87
7	22	28	37	55	85	84	93	102	105	100	95	87
8	23	31	37	55	77	84	93	102	106	100	95	86
9	23	31	37	53	78	83	93	102	108	100	95	86
10	23	31	37	55	78	82	95	102	108	99	94	85
11	23	31	37	64	79	83	95	102	108	99	94	85
12	23	31	37	72	80	83	94	101	105	99	94	85
13	23	31	36	71	80	84	92	101	105	98	94	85
14	25	31	36	70	80	83	92	101	106	98	94	85
15	25	32	36	68	80	81	92	101	107	98	94	85
16	24	32	36	67	80	81	92	101	108	97	94	84
17	24	33	36	70	80	82	93	101	107	97	93	84
18	25	33	36	70	79	82	93	101	107	97	93	84
19	24	34	37	70	79	82	97	101	107	97	93	83
20	23	35	36	70	81	83	98	101	108	96	93	83
21	25	35	35	69	80	84	98	101	108	96	92	82
22	26	36	35	69	79	84	98	103	107	96	92	82
23	26	38	35	69	83	85	97	105	107	95	91	82
24	26	38	36	68	86	85	98	107	107	95	91	80
25	26	39	35	70	84	85	98	106	106	95	91	80
26	23	39	36	70	84	86	98	106	105	94	91	79
27	25	40	35	69	84	86	98	106	105	96	91	79
28	27	39	35	69	84	86	99	106	104	98	90	78
29	27	38	35	69	---	86	100	106	103	99	90	78
30	28	37	35	69	---	92	100	106	103	99	90	77
31	29	---	44	69	---	91	---	106	---	97	89	---
TOTAL	761	1003	1130	1981	2214	2612	2851	3185	3184	3042	2889	2509
MEAN	24.5	33.4	36.5	63.9	79.1	84.3	95.0	103	106	98.1	93.2	83.6
MAX	29	40	44	72	86	92	100	107	108	102	96	88
MIN	22	28	35	50	69	81	91	101	103	94	89	77
AC-FT	1510	1990	2240	3930	4390	5180	5650	6320	6320	6030	5730	4980

CAL YR 1978	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		
WTR YR 1979	TOTAL	27361	MEAN	75.0	MAX	108	MIN	22	AC-FT	54270		

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: December 1978 to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
FEB 28...	0950	84	590	7.7	18.0	0	2.0	7.8	85	.5
JUL 10...	0700	99	580	7.5	22.5	--	--	--	--	--
SEP 19...	1005	83	593	7.0	21.0	0	.30	7.4	82	.3

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)
FEB 28...	460	140	160	300	47	91	18	12	.3	1.0
JUL 10...	200	25	10	--	--	--	--	--	--	--
SEP 19...	700	420	18	300	32	85	20	13	.3	1.1

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS 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)
FEB 28...	310	0	25	26	.2	9.5	336	4	1
JUL 10...	--	--	--	--	--	--	--	--	--
SEP 19...	320	--	31	26	.3	11	345	5	0

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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
FEB 28...	1.0	.00	1.0	.01	.09	.10	.020	1.2	--
JUL 10...	1.4	.00	1.4	.02	.23	.25	.010	--	.00
SEP 19...	1.6	.00	1.6	.07	.11	.18	.000	1.7	--

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
DEC 05...	1245	0	600	0	0	0	10
FEB 28...	0950	0	100	0	0	0	0
SEP 19...	1005	1	50	1	10	0	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)
DEC 05...	0	0	.0	1	0	10
FEB 28...	0	10	.0	1	0	10
SEP 19...	0	1	.2	0	0	3

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
DEC 05...	1245	.0	.00	.00	.0	.00	.00	.00	.00
FEB 28...	0950	.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)	METHYL PARATHION, TOTAL (UG/L)
DEC 05...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB 28...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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)
DEC 05...	.00	--	.00	0	.00	.00	.00	.00
FEB 28...	.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 and water-quality data: January 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
JAN 19...	1100	109	506	7.9	15.0	1	2.0	9.4	96	.1
FEB 28...	0925	142	496	7.7	13.5	0	10	10.2	101	.7
APR 25...	1045	257	486	7.5	21.5	0	3.0	8.8	102	.5
JUN 13...	0930	152	502	7.3	22.5	5	.60	8.3	98	.1
SEP 19...	1130	85	605	7.2	21.5	3	14	8.2	92	.2

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
JAN 19...	--	--	--	260	38	76	17	7.3	.2
FEB 28...	600	80	210	--	--	--	--	--	--
APR 25...	1400	33	560	260	35	73	18	7.7	.2
JUN 13...	360	48	52	--	--	--	--	--	--
SEP 19...	2400	920	210	280	9	79	20	14	.4

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
JAN 19...	1.1	270	0	29	20	.1	7.6	291	2
FEB 28...	--	--	--	--	--	--	--	--	22
APR 25...	1.1	270	0	19	14	.2	7.6	274	3
JUN 13...	--	--	--	--	--	--	--	--	0
SEP 19...	1.2	330	0	23	19	.2	11	330	8

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 19...	1	.70	.00	.70	.00	.10	.10	.010	2.4
FEB 28...	5	.47	.00	.47	.03	.07	.10	.010	2.1
APR 25...	0	.33	.00	.33	.05	.08	.13	.010	1.9
JUN 13...	0	.38	.02	.40	.00	.39	.39	.030	3.4
SEP 19...	2	1.6	.00	1.6	.01	.26	.27	.000	1.8

08155505 BARTON CREEK BELOW BARTON SPRINGS AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 25...	1045	0	0	0	0	1	10
SEP 19...	1130	1	50	<1	20	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)
APR 25...	0	0	.0	0	0	10
SEP 19...	0	<1	.7	1	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)
APR 25...	1045	--	.00	.00	.0	.00	.00	.00	.00
SEP 19...	1130	.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)
APR 25...	.00	.00	.00	.00	.00	--	.00	.00	--
SEP 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)
APR 25...	.00	--	--	.00	0	.00	.00	.00	.00
SEP 19...	.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 digital recording rain gages in the watershed. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,110 ft³/s (59.8 m³/s) July 19, 1979, gage height, 8.31 ft (2.533 m); no flow for several days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1885 occurred Apr. 22, 1915, stage and discharge unknown.

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)
Nov. 5	1815	599	17.0	5.43	1.655	May 21	1730	852	24.1	6.02	1.825
Dec. 31	0410	875	24.8	6.07	1.850	May 21	1945	684	19.4	5.64	1.719
Apr. 29	0710	736	20.8	5.76	1.756	July 19	2120	*2,110	59.8	8.31	2.533

Minimum discharge, no flow on May 17-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	.04	.33	11	.39	.37	8.3	12	2.0	.13	.14	.05
2	.07	.05	.31	1.3	.96	.60	2.2	.75	2.9	.11	.13	.05
3	.12	.05	1.8	.92	3.5	1.1	1.4	.58	.36	.11	.13	.05
4	.13	.26	.25	2.3	12	.36	1.1	.44	.49	.12	.13	.05
5	.08	80	.22	1.7	17	.33	.82	.33	.87	.24	.12	5.3
6	.06	6.4	.22	3.5	18	.27	.65	.31	.37	15	.12	.41
7	.04	.54	.25	1.0	2.7	.22	1.2	.32	.28	.28	.13	.13
8	.04	.55	.23	.67	1.6	.19	.89	.25	.54	.13	.13	.05
9	.10	.45	.25	.64	1.0	.21	.55	.25	.26	.11	.10	.04
10	.08	.41	.26	20	.86	1.3	.53	.25	.22	.30	.10	.04
11	.06	.45	.19	5.6	.74	.55	.60	3.3	.17	.21	1.6	.04
12	.08	.97	.14	2.3	.68	.51	.45	.28	.19	.10	.13	.04
13	.05	.32	.14	1.2	.59	.46	.55	.18	.17	.09	.07	.04
14	.04	.10	.19	.89	.52	.55	.50	.18	.15	.40	.08	.03
15	.03	4.1	.26	.84	.52	1.2	.38	.16	.17	.19	.15	.03
16	.04	6.4	.20	.80	.52	6.9	.20	.04	.16	.10	.13	.18
17	.05	.41	.17	.88	.54	.67	14	.00	.13	.11	.06	.02
18	.05	.22	.22	1.7	.57	.67	7.8	.00	.17	.10	.14	3.6
19	.05	5.9	.24	.80	.56	.63	6.3	.00	.14	108	.40	2.7
20	.05	1.4	.22	.87	.56	9.8	.79	.00	.14	4.1	.11	.18
21	.06	2.1	.19	.54	.54	23	1.5	80	.13	.28	.07	.10
22	.04	1.2	.19	.52	.53	20	.32	13	.14	.14	.08	.08
23	.05	.42	.20	.52	5.5	1.9	.29	.76	.25	.13	.09	.08
24	.05	.48	.21	.52	.62	1.2	.23	.46	.13	.12	.09	.08
25	.72	.84	.35	2.1	.47	1.0	.19	.35	.14	.11	.10	.09
26	.99	4.3	.24	1.1	.45	.84	.19	.28	.14	4.6	.11	.09
27	.15	2.4	.39	.50	.45	.69	.16	.27	.14	57	.08	.10
28	.16	.36	.45	.42	.43	.64	.12	1.3	.13	.60	.06	.11
29	.10	.37	.79	.74	---	.79	29	.39	.13	.25	.06	.10
30	.06	.38	1.4	.84	---	11	.78	7.3	.14	.20	.07	.10
31	.05	---	83	.39	---	4.9	---	.55	---	.17	.05	---
TOTAL	3.86	121.87	93.50	67.10	72.80	92.85	81.99	124.28	11.35	193.53	4.96	13.96
MEAN	.12	4.06	3.02	2.16	2.60	3.00	2.73	4.01	.38	6.24	.16	.47
MAX	.99	80	83	20	18	23	29	80	2.9	108	1.6	5.3
MIN	.03	.04	.14	.39	.39	.19	.12	.00	.13	.09	.05	.02
CFSM	.02	.58	.43	.31	.37	.43	.39	.57	.05	.89	.02	.07
IN.	.02	.64	.49	.36	.39	.49	.43	.66	.06	1.02	.03	.07
AC-FT	7.7	242	185	133	144	184	163	247	23	384	9.8	28
(††)	.35	5.88	3.24	2.02	2.78	3.91	3.89	4.99	1.15	7.50	.63	2.05

CAL YR 1978 TOTAL 774.91 MEAN 2.12 MAX 104 MIN .00 CFSM .30 IN 4.10 AC-FT 1540 †† 33.00
WTR YR 1979 TOTAL 882.05 MEAN 2.42 MAX 108 MIN .00 CFSM .34 IN 4.67 AC-FT 1750 †† 38.39

†† Weighted-mean rainfall, 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, 1979."

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,970 ft³/s (141 m³/s) May 21, 1979, gage height, 15.20 ft (4.633 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,970 ft³/s (141 m³/s) May 21, gage height, 15.20 ft (4.633 m).

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1975 to current year. Water temperatures: January 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 06...	1200	4.6	306	7.8	18.0	20	35	8.6	93	1.8
DEC 18...	--	.00	--	--	--	--	--	--	--	--
FEB 26...	1120	3.6	859	7.9	10.0	0	1.0	10.6	97	.9
MAR 21...	0830	40	253	6.7	16.5	40	180	7.6	80	3.6
APR 23...	1053	--	724	7.8	21.0	5	4.0	10.3	118	1.0
JUN 11...	0910	1.0	664	7.4	20.5	5	.50	6.2	70	.3

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
NOV 06...	80000	24000	27000	120	42	43	3.2	8.6	.3
DEC 18...	--	--	--	--	--	--	--	--	--
FEB 26...	42000	23000	6900	360	170	130	8.4	38	.9
MAR 21...	80000	43000	130000	110	31	40	2.4	6.1	.3
APR 23...	55000	24000	2200	--	--	--	--	--	--
JUN 11...	7500	580	1100	220	52	80	6.0	30	.9

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 06...	2.9	96	0	47	14	.2	4.5	171	40
DEC 18...	--	--	--	--	--	--	--	--	--
FEB 26...	3.2	230	0	130	86	.3	5.4	515	1
MAR 21...	2.7	96	0	28	9.8	.2	5.0	142	221
APR 23...	--	--	--	--	--	--	--	--	7
JUN 11...	3.4	210	0	74	45	.3	6.7	349	0

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 06...	3	.64	.04	.68	.01	.39	.40	.13	5.8
DEC 18...	--	--	--	--	--	--	--	--	--
FEB 26...	1	.47	.00	.47	.03	.27	.30	.03	2.8
MAR 21...	28	1.1	.06	1.2	.17	.77	.94	.29	9.4
APR 23...	1	.27	.02	.29	.04	.44	.48	.03	4.1
JUN 11...	0	.10	.00	.10	.00	.42	.42	.01	5.6

DATE	TIME	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 06...	1200	24	30	<1	0	2	30
FEB 26...	1120	4	0	0	0	0	10
MAR 21...	0830	6	0	0	10	3	50
JUN 11...	0910	2	70	<1	10	0	0

DATE	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)
NOV 06...	0	3	.0	0	0	<3
FEB 26...	0	10	.0	1	0	20
MAR 21...	0	0	.0	0	0	10
JUN 11...	0	20	.0	0	0	<3

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)	DIELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
NOV 06...	1200	.0	.00	.00	.0	.00	.00	.01	.30	.01	.00	.00
FEB 26...	1120	.0	--	.00	.1	.00	.00	.00	.03	.01	.00	.00
MAR 21...	0830	.0	--	.00	.1	.00	.01	.02	.30	.01	.00	.00
JUN 11...	0910	.0	--	.00	.0	.00	.00	.00	.00	.01	.00	.00

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, 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)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 06...	.00	.00	.01	.00	.00	.00	.00	0	.00	.02	.02	.00
FEB 26...	.00	.00	.00	.00	.02	.00	.00	0	.00	.00	.00	.00
MAR 21...	.00	.01	.00	.02	.00	.00	.00	0	.00	.09	.02	.00
JUN 11...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00

08157000 WALLER CREEK AT 38TH STREET, AUSTIN, TX

LOCATION.--Lat 30°17'49", long 97°43'36", Travis County, Hydrologic Unit 12090205, on right bank 200 ft (61 m) upstream from bridge at East 38th Street in Austin, 1.1 mi (1.8 km) upstream from West Branch of Waller Creek, and 3.3 mi (5.3 km) upstream from Colorado River.

DRAINAGE AREA.--2.31 mi² (5.98 km²).

PERIOD OF RECORD.--April 1955 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 555.44 ft (169.298 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow slightly regulated at times by a small reservoir at the Perry School (formerly Holy Cross High School) on East 41st Street and a small swimming pool at the school which is drained into the creek every week or two during the summer. Water from other swimming pools also drain into the creek. Station is part of hydrologic research project to study rainfall-runoff relation for small urban areas. Two recording rain gages are located in the watershed. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years, 1.70 ft³/s (0.0481 m³/s), 9.99 in/yr (254 mm/yr), 1,230 acre-ft/yr (1.52 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,970 ft³/s (55.8 m³/s) Oct. 29, 1960, gage height, 7.77 ft (2.368 m); no flow for many days in 1955-57, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.50 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)
Nov. 5	1845	338	9.57	4.99	1.521	May 21	2015	*1,830	51.8	7.62	2.323
Dec. 31	0430	318	9.01	4.92	1.500	July 19	2000	605	17.1	5.72	1.743
Apr. 29	0730	389	11.0	5.15	1.570	July 27	0830	881	24.9	6.29	1.917
May 1	1115	341	9.66	5.00	1.524						

Minimum daily discharge, 0.05 ft³/s (0.001 m³/s) Oct. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	.07	.14	7.3	.34	.27	2.6	18	1.2	.76	.89	.41
2	.10	.08	.13	.39	.73	.31	1.9	1.1	3.1	.51	.91	.45
3	.40	.06	1.1	.40	3.2	.65	.84	.86	.68	.75	.88	.44
4	.11	.06	.14	1.8	11	.25	.60	.72	.59	.78	.92	.67
5	.08	46	.13	1.1	13	.24	.53	.71	7.6	.83	.90	.79
6	.07	3.8	.13	2.9	15	.24	.48	.62	.80	30	.56	.79
7	.08	.12	.13	.38	1.9	.24	.69	.58	.66	.88	.88	.46
8	.09	.11	.13	.28	1.0	.24	.62	.58	.66	.85	.81	.44
9	.08	.10	.13	.28	.68	.24	.38	.53	.62	.54	.84	.47
10	.08	.10	.14	17	.66	1.1	.37	.34	3.8	.80	.81	.48
11	.08	.21	.13	2.6	.49	.27	.35	1.8	.31	.79	3.3	.50
12	.07	.46	.13	.80	.41	.23	.31	.32	.59	.80	.85	.49
13	.07	.11	.14	.39	.36	.24	.30	.27	.58	.72	.53	.44
14	.07	.10	.16	.31	.32	.24	.32	.29	.55	3.9	.77	.41
15	.07	4.2	.14	.32	.29	1.6	.33	.28	.53	.84	1.9	.38
16	.06	4.7	.14	.31	.27	8.5	.32	.26	.53	.49	.81	.40
17	.06	.19	.13	.34	.28	.44	13	.24	.53	.75	.80	.41
18	.07	.13	.14	1.4	.27	.52	4.8	.25	.31	.85	.82	5.1
19	.06	3.1	.13	.32	.26	.42	2.1	.27	.52	54	2.1	4.7
20	.06	.93	.14	.48	.26	3.0	.59	.26	.55	4.9	.84	.58
21	.07	1.1	.17	.23	.27	25	1.9	154	.52	1.2	.78	.48
22	.10	.85	.15	.23	.30	21	.42	19	.51	.98	.83	.46
23	.09	.15	.13	.22	15	1.8	.36	2.0	.49	.59	.80	.44
24	.07	.14	.14	.34	.52	.92	.32	1.1	.53	.85	.77	.44
25	.13	.14	.13	1.8	.32	.61	.32	.78	.19	.85	.77	.44
26	.10	1.6	.13	.90	.29	.55	.30	.59	.51	7.1	.91	.46
27	.07	1.0	.13	.42	.32	.43	.33	.50	.45	74	.54	.44
28	.06	.18	.15	.42	.28	.41	.34	1.2	.70	2.2	.45	.44
29	.06	.22	.15	.60	---	.41	20	.70	.76	1.2	.46	.44
30	.06	.17	.15	.63	---	10	.77	2.5	.80	.71	.47	.43
31	.05	---	47	.32	---	2.8	---	.63	---	.90	.45	---
TOTAL	2.97	70.18	52.11	45.21	68.02	83.17	56.49	211.28	30.17	195.32	28.35	23.28
MEAN	.096	2.34	1.68	1.46	2.43	2.68	1.88	6.82	1.01	6.30	.91	.78
MAX	.40	46	47	17	15	25	20	154	7.6	74	3.3	5.1
MIN	.05	.06	.13	.22	.26	.23	.30	.24	.19	.49	.45	.38
CFSM	.04	1.01	.73	.63	1.05	1.16	.81	2.95	.44	2.73	.39	.34
IN.	.05	1.13	.84	.73	1.09	1.34	.91	3.40	.49	3.14	.46	.37
AC-FT	5.9	139	103	90	135	165	112	419	60	387	56	46
(††)	.30	5.80	3.17	2.29	3.33	4.16	3.55	7.26	1.29	10.08	.81	1.75

CAL YR 1978 TOTAL 454.58 MEAN 1.25 MAX 47 MIN .05 CFSM .54 IN 7.32 AC-FT 902 †† 32.65
WTR YR 1979 TOTAL 866.55 MEAN 2.37 MAX 154 MIN .05 CFSM 1.03 IN 13.95 AC-FT 1720 †† 43.79

†† Weighted-mean rainfall, in inches, based on two rain gages.

08157500 WALLER CREEK AT 23D STREET, AUSTIN, TX

LOCATION.--Lat 30°17'08", long 97°44'01", Travis County, Hydrologic Unit 12090205, on San Jacinto Boulevard, 50 ft (15 m) upstream from bridge on East 23d Street in Austin, and 2.1 mi (3.4 km) upstream from Colorado River.

DRAINAGE AREA.--4.13 mi² (10.70 km²).

PERIOD OF RECORD.--December 1954 to current year.
Water-quality records: Periodic chemical, biochemical, and pesticide analyses: October 1970 to September 1971.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 509.95 ft (155.433 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some regulation by small dam upstream. Diversion of city water into channel during the summer months from municipal and private swimming pools. Some diversions into and out of drainage area by storm sewers. Station is part of a hydrologic research project to study rainfall-runoff relation for small urban areas. Three recording rain gages are located in the watershed. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years, 3.55 ft³/s (0.101 m³/s), 11.67 in/yr (296 mm/yr), 2,570 acre-ft/yr (3.17 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,020 ft³/s (114 m³/s) Oct. 11, 1973, gage height, 9.00 ft (2.743 m); minimum daily, 0.2 ft³/s (0.006 m³/s) at times in 1955-57.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since 1885 occurred Apr. 22, 1915, stage unknown.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s (22.7 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. 29	0700	1,060	30.0	5.26	1.603	July 19	2015	1,600	45.3	6.14	1.871
May 1	1045	929	26.3	5.02	1.530	July 26	1630	1,030	29.2	5.20	1.585
May 21	2015	*2,620	74.2	7.47	7.277	July 27	0830	1,920	54.4	6.60	2.012

Minimum daily discharge, 0.25 ft³/s (0.007 m³/s) Nov. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	.35	.53	11	.53	.74	4.8	35	4.1	.89	1.4	.60
2	.60	.30	.51	.86	1.5	1.0	3.6	2.2	6.2	.77	1.4	.66
3	.86	.30	3.0	.81	6.1	1.5	1.6	1.6	1.2	.92	1.3	.61
4	.48	.25	.51	3.8	19	.65	1.2	1.3	1.6	.91	1.3	.89
5	.44	90	.56	2.5	21	.61	1.1	1.2	13	1.3	1.3	1.8
6	.35	6.3	.59	5.9	23	.67	1.0	1.1	1.6	53	1.2	2.0
7	.32	.55	.56	.85	3.2	.66	1.4	1.1	1.6	1.3	1.3	.75
8	.33	.50	.43	.65	1.9	.73	1.2	1.0	1.4	1.3	1.2	.56
9	.39	.47	.44	.64	1.3	.67	.89	1.0	1.1	1.2	1.2	.56
10	.40	.48	.48	28	1.2	2.5	.90	.85	10	.98	1.2	.61
11	.37	1.2	.54	4.8	1.1	.62	.85	3.4	.81	1.1	7.4	.63
12	.36	1.1	.57	1.5	.93	.71	.81	.79	.85	1.0	1.2	.55
13	.34	.57	.57	.90	.87	.70	.74	.65	.89	.97	1.0	.56
14	.28	.51	.58	.73	.81	.63	.71	.67	.89	5.9	1.0	.63
15	.27	7.7	.39	.73	.75	3.7	.73	.63	.92	1.1	6.4	.60
16	.31	9.3	.35	.69	.67	13	.81	.60	.85	.80	1.1	.67
17	.28	.73	.33	1.0	.70	.90	22	.64	.75	.89	1.1	.81
18	.28	.58	.38	2.9	.65	1.0	8.5	.61	.82	.94	1.1	7.5
19	.31	6.7	.39	.82	.70	.90	3.0	.59	.77	113	5.8	4.1
20	.30	2.5	.46	1.1	.66	7.8	1.5	.59	.86	13	1.3	.77
21	.29	3.1	.32	.56	.65	35	5.0	270	.84	2.0	1.0	.63
22	.30	2.2	.36	.57	.68	32	.94	29	.84	1.3	1.1	.60
23	.32	.65	.38	.67	28	2.9	.87	4.1	.77	1.1	1.1	.63
24	.34	.65	.34	.77	1.1	1.7	.79	2.5	.70	1.2	1.1	.67
25	.97	.60	.33	3.5	.78	1.2	.77	1.8	.65	1.4	1.0	.66
26	.89	4.1	.36	1.5	.77	1.2	.75	1.4	.70	26	1.0	.61
27	.35	1.9	.36	.53	.77	1.1	.69	1.3	.80	149	1.0	.63
28	.30	.83	.44	.55	.69	1.0	.68	2.1	1.2	4.3	.64	.65
29	.28	.76	.51	1.0	---	.95	43	1.7	.98	2.3	.64	.56
30	.33	.53	.64	1.1	---	18	1.3	5.1	.93	1.7	.64	.56
31	.34	---	82	.52	---	5.5	---	1.5	---	1.5	.64	---
TOTAL	12.58	145.71	98.21	81.45	120.01	140.24	112.13	376.02	58.62	393.07	50.06	32.06
MEAN	.41	4.86	3.17	2.63	4.29	4.52	3.74	12.1	1.95	12.7	1.61	1.07
MAX	.97	90	82	28	28	35	43	270	13	149	7.4	7.5
MIN	.27	.25	.32	.52	.53	.61	.68	.59	.65	.77	.64	.55
CFSM	.10	1.18	.77	.64	1.04	1.09	.91	2.93	.47	3.08	.39	.26
IN.	.11	1.31	.88	.73	1.08	1.26	1.01	3.39	.53	3.54	.45	.29
AC-FT	25	289	195	162	238	278	222	746	116	780	99	64
(††)	.28	5.83	3.09	2.29	3.30	4.20	3.66	7.97	1.36	11.17	.92	1.76

CAL YR 1978 TOTAL 906.38 MEAN 2.48 MAX 90 MIN .25 CFSM .60 IN 8.16 AC-FT 1800 †† 32.39
WTR YR 1979 TOTAL 1620.16 MEAN 4.44 MAX 270 MIN .25 CFSM 1.08 IN 14.59 AC-FT 3210 †† 45.83

†† Weighted-mean rainfall, in inches, based on three rain gages.

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: Feburary 1975 to current year.

301559097424801 TOWN LAKE (AUSTIN) AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
16...	1040	1.0	543	7.6	26.5	6.0	76
16...	1042	10	543	7.6	25.5	6.3	79
16...	1044	20	543	7.2	25.0	2.9	36
16...	1046	30	543	7.2	25.0	1.9	23
FEB							
07...	1120	1.0	539	7.9	12.0	9.5	92
07...	1122	10	529	7.9	11.0	9.5	90
07...	1124	19	500	7.7	11.0	9.3	88
MAY							
29...	1122	1.0	523	7.6	21.0	7.0	78
29...	1124	10	523	7.5	20.5	5.8	64
29...	1126	21	523	7.4	20.0	4.6	51
JUL							
27...	1340	1.0	500	7.6	26.0	6.4	79
27...	1342	10	397	7.6	25.5	6.2	76
27...	1344	20	379	7.5	25.0	5.8	71
AUG							
22...	1110	1.0	544	7.6	24.5	6.9	83
22...	1112	10	544	7.6	23.0	6.4	75
22...	1114	24	544	7.5	22.5	6.2	72

301500097424801 TOWN LAKE (AUSTIN) AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)
OCT											
16...	1010	1.0	543	7.6	26.5	3.0	5	2.0	5.9	75	.5
16...	1013	10	543	7.7	25.5	--	--	--	6.4	80	--
16...	1015	20	543	7.5	25.0	--	--	--	5.2	64	--
16...	1018	24	543	7.6	25.0	--	5	2.0	5.6	69	.4
FEB											
07...	1055	1.0	539	7.9	12.5	1.90	0	3.0	9.5	93	.7
07...	1057	10	529	7.8	12.0	--	--	--	9.5	92	--
07...	1059	20	510	7.6	11.0	--	--	--	9.4	89	--
07...	1101	25	508	7.7	11.0	--	0	5.0	9.5	90	.6
MAY											
29...	1040	1.0	537	7.6	21.5	1.20	5	2.5	7.3	83	.5
29...	1042	10	537	7.6	20.5	--	--	--	7.6	84	--
29...	1044	20	545	7.6	20.0	--	--	--	7.8	87	--
29...	1046	26	547	7.6	20.0	--	5	3.5	7.9	87	.4
JUL											
27...	1300	1.0	344	7.5	25.0	.20	15	78	6.3	77	2.0
27...	1302	10	318	7.5	25.0	--	--	--	6.3	77	--
27...	1304	22	313	7.5	25.0	--	15	74	6.5	79	2.3
AUG											
22...	1050	1.0	544	7.6	23.5	--	3	.80	6.9	82	--
22...	1052	10	544	7.6	23.5	--	--	--	6.9	82	--
22...	1054	20	544	7.5	23.0	--	--	--	6.5	76	--
22...	1056	24	544	7.5	23.0	--	5	.90	6.2	73	.2

TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 TOWN LAKE (AUSTIN) AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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	POTASSIUM, DISSOLVED (MG/L AS K)
OCT										
16...	3200	6	1	190	40	42	20	32	1.0	3.9
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	190	42	43	20	33	1.0	3.9
FEB										
07...	720	64	92	240	40	65	18	18	.5	1.9
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	220	32	62	16	18	.5	1.8
MAY										
29...	5000	180	55	200	38	48	20	28	.9	3.3
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	200	37	46	21	30	.9	3.4
JUL										
27...	43000	12000	15000	120	17	33	10	17	.7	2.9
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	120	22	32	9.8	16	.2	2.8
AUG										
22...	--	--	--	200	37	46	21	29	.9	3.4
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	210	53	49	21	31	.9	3.3

DATE	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
OCT										
16...	180	0	37	62	.2	9.9	296	1	0	.05
16...	--	--	--	--	--	--	--	--	--	.04
16...	--	--	--	--	--	--	--	--	--	--
16...	180	0	37	62	.2	10	298	2	1	.01
FEB										
07...	240	0	36	35	.2	7.6	300	4	1	.36
07...	--	--	--	--	--	--	--	--	--	.51
07...	--	--	--	--	--	--	--	--	--	--
07...	230	0	34	32	.2	7.1	285	6	2	.13
MAY										
29...	200	0	35	46	.2	8.0	287	3	0	.31
29...	--	--	--	--	--	--	--	--	--	.29
29...	--	--	--	--	--	--	--	--	--	--
29...	200	0	33	48	.2	8.1	288	8	6	.26
JUL										
27...	130	0	23	27	.2	5.5	183	92	16	.25
27...	--	--	--	--	--	--	--	--	--	.20
27...	120	0	21	24	.2	5.1	170	120	24	.13
AUG										
22...	200	0	37	53	.3	8.5	297	16	10	.22
22...	--	--	--	--	--	--	--	--	--	.22
22...	--	--	--	--	--	--	--	--	--	--
22...	190	0	38	53	.2	8.7	298	11	0	.23

TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 TOWN LAKE (AUSTIN) AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)	PHOSPHATE, TOTAL (MG/L AS PO4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
OCT										
16...	.01	.06	.04	.35	--	.020	--	3.4	10	20
16...	.00	.04	.01	.43	--	.020	--	--	10	10
16...	--	--	--	--	--	--	--	--	--	--
16...	.01	.02	.05	1.5	--	.010	--	3.3	10	60
FEB										
07...	.02	.38	.02	.21	--	.030	--	2.1	0	0
07...	.00	.51	.04	.22	--	.030	--	--	0	0
07...	--	--	--	--	--	--	--	--	--	--
07...	.02	.15	.02	.24	--	.040	--	2.6	0	10
MAY										
29...	.02	.33	.05	.30	.06	.020	.06	2.9	<0	8
29...	.02	.31	.05	.27	.06	.020	.06	--	10	10
29...	--	--	--	--	--	--	--	--	--	--
29...	.02	.28	.05	.22	.09	.030	.09	3.1	10	10
JUL										
27...	.02	.27	.04	.57	--	.340	1.0	4.3	0	0
27...	.02	.22	.02	.36	--	.190	.58	--	30	10
27...	.02	.15	.02	.53	--	.190	.58	7.0	10	0
AUG										
22...	.02	.24	.11	.00	--	.000	.00	2.8	<10	7
22...	.02	.24	.02	.00	--	.010	.03	--	0	20
22...	--	--	--	--	--	--	--	--	--	--
22...	.02	.25	.03	.03	--	.000	.00	4.5	10	20

301503097424701 TOWN LAKE (AUSTIN) AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
16...	1050	1.0	543	7.6	27.0	6.0	76
16...	1052	10	543	7.6	26.0	5.8	72
16...	1054	17	543	7.8	25.0	6.8	84
FEB							
07...	1040	1.0	539	7.8	12.0	9.7	92
07...	1042	10	510	7.6	11.0	9.7	94
07...	1044	19	500	7.6	11.0	10.0	94
MAY							
29...	1108	1.0	542	7.6	21.5	7.4	84
29...	1110	10	542	7.6	20.0	7.6	84
29...	1112	16	542	7.6	20.0	7.7	85
JUL							
27...	1330	1.0	344	7.5	25.5	6.2	76
27...	1332	10	318	7.5	25.0	6.4	78
27...	1334	16	313	7.5	25.0	6.3	77
AUG							
22...	1120	1.0	544	7.7	24.0	6.9	82
22...	1122	10	544	7.6	23.0	6.5	76
22...	1124	17	544	7.6	23.0	6.4	75

TOWN LAKE AT AUSTIN, TX--Continued

301500097440801 TOWN LAKE (AUSTIN) BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT							
16...	1115	1.0	543	7.9	25.0	7.9	98
16...	1117	10	543	7.9	25.0	7.7	95
16...	1119	14	543	7.9	24.5	7.6	93
FEB							
07...	1145	1.0	484	7.7	10.0	10.1	94
07...	1147	10	484	7.7	10.0	10.2	94
07...	1149	16	484	7.7	10.0	10.1	94
MAY							
29...	1203	1.0	542	7.7	20.5	7.9	88
29...	1205	10	542	7.7	20.0	7.9	87
29...	1207	16	542	7.7	20.0	7.9	87
JUL							
27...	1408	1.0	372	7.4	24.5	6.7	81
27...	1410	13	367	7.4	24.5	6.6	80
AUG							
22...	1140	1.0	544	7.6	22.5	6.4	74
22...	1142	10	544	7.6	22.5	6.3	73
22...	1144	14	544	7.6	22.5	6.2	72

301504097440901 TOWN LAKE (AUSTIN) BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT							
16...	1105	1.0	543	7.9	25.0	8.0	99
16...	1107	10	543	7.9	24.5	7.9	96
16...	1109	20	561	7.5	24.0	6.0	73
16...	1111	24	561	7.5	24.0	5.9	72
FEB							
07...	1135	1.0	484	7.7	10.0	10.1	94
07...	1137	10	484	7.7	10.0	10.1	94
07...	1139	20	484	7.7	10.0	10.2	94
07...	1141	28	484	7.7	10.0	10.4	96
MAY							
29...	1145	1.0	542	7.7	20.5	7.9	88
29...	1147	10	542	7.7	20.0	7.9	87
29...	1149	20	542	7.7	19.5	7.6	83
29...	1151	25	542	7.7	19.5	7.6	83
JUL							
27...	1400	1.0	324	7.4	24.5	6.9	83
27...	1402	10	324	7.4	24.5	6.9	83
27...	1404	21	322	7.4	24.5	6.7	81
AUG							
22...	1130	1.0	544	7.6	23.0	6.7	79
22...	1132	10	544	7.6	22.5	6.2	72
22...	1134	20	544	7.5	22.0	6.1	70

301544097445201 TOWN LAKE (AUSTIN) CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT							
16...	1140	1.0	574	7.7	25.0	8.1	100
16...	1142	7.0	574	7.7	24.0	8.3	101
FEB							
07...	1215	1.0	532	7.7	10.0	10.3	95
07...	1217	8.0	532	7.7	10.0	10.3	95
MAY							
29...	1230	1.0	544	7.6	20.0	7.7	85
29...	1232	10	544	7.6	20.0	7.7	85
JUL							
27...	1423	1.0	435	7.5	24.5	6.5	78
27...	1425	9.0	435	7.5	24.5	6.4	77
AUG							
22...	1200	1.0	554	7.5	21.5	5.9	67
22...	1202	8.0	554	7.5	21.5	5.8	66

TOWN LAKE AT AUSTIN, TX--Continued

301546097445101 TOWN LAKE (AUSTIN) CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT							
16...	1130	1.0	574	7.6	25.0	8.0	99
16...	1132	10	574	7.6	24.0	7.7	94
16...	1134	16	574	7.5	23.5	8.0	96
FEB							
07...	1200	1.0	532	7.7	10.0	10.3	95
07...	1202	10	532	7.7	10.0	10.6	98
07...	1204	16	532	7.7	10.0	11.2	104
MAY							
29...	1220	1.0	542	7.6	20.5	7.8	86
29...	1222	10	542	7.6	20.0	7.8	86
29...	1224	18	542	7.6	20.0	7.8	86
JUL							
27...	1415	1.0	333	7.6	24.5	7.1	86
27...	1417	10	323	7.6	24.5	7.1	86
27...	1419	18	323	7.6	24.5	7.1	86
AUG							
22...	1150	1.0	554	7.5	23.0	6.1	72
22...	1152	10	554	7.5	21.5	5.8	66
22...	1154	13	554	7.5	21.5	5.8	66

301556097452301 TOWN LAKE (AUSTIN) DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT							
16...	1210	1.0	600	7.7	23.5	8.7	105
16...	1212	13	600	7.3	22.0	7.9	93
FEB							
07...	1250	1.0	536	7.8	10.0	10.6	98
07...	1252	11	536	7.8	9.5	10.7	97
MAY							
29...	1305	1.0	544	7.5	20.5	7.5	83
29...	1307	11	544	7.6	20.0	7.5	83
JUL							
27...	1455	1.0	480	7.5	25.0	6.4	78
27...	1457	9.0	480	7.5	24.5	6.4	77
AUG							
22...	1220	1.0	554	7.4	22.5	6.0	70
22...	1222	11	554	7.3	21.5	5.8	66

301558097452201 TOWN LAKE (AUSTIN) DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
OCT											
16...	1150	1.0	600	7.6	23.0	3.0	0	2.0	8.9	106	1.0
16...	1152	10	600	7.4	22.5	--	--	--	8.6	101	--
16...	1155	20	657	7.1	21.5	--	0	2.0	6.0	70	.5
FEB											
07...	1230	1.0	536	7.8	9.5	2.10	0	3.0	11.1	101	.2
07...	1233	10	548	7.9	9.0	--	--	--	11.1	100	--
07...	1235	18	548	7.9	9.0	--	0	2.0	11.6	105	.5
MAY											
29...	1246	1.0	544	7.4	21.0	2.10	3	1.1	7.9	89	.6
29...	1248	10	544	7.7	20.0	--	--	--	7.7	86	--
29...	1250	18	544	7.7	20.0	--	5	2.5	7.7	86	.6
JUL											
27...	1430	1.0	462	7.5	25.0	.40	10	14	6.4	78	.8
27...	1432	10	473	7.5	24.5	--	--	--	6.3	76	--
27...	1434	20	477	7.4	24.5	--	10	10	6.0	72	1.0
AUG											
22...	1210	1.0	548	7.5	21.5	2.10	5	1.7	6.1	69	.0
22...	1212	10	546	7.5	21.5	--	--	--	5.9	67	--
22...	1214	20	544	7.5	21.5	--	5	1.0	5.7	65	.0

TOWN LAKE AT AUSTIN, TX--Continued

301558097452201 TOWN LAKE (AUSTIN) DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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	POTASSIUM, DISSOLVED (MG/L AS K)
OCT										
16...	1400	31	1	230	42	56	22	34	1.0	3.2
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	270	41	69	24	30	.8	2.3
FEB										
07...	K80	39	120	220	44	57	20	23	.7	2.4
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	210	48	52	20	28	.8	2.7
MAY										
29...	950	140	79	220	28	57	20	24	.7	2.5
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	200	40	44	21	31	1.0	3.5
JUL										
27...	20000	9900	8800	180	45	44	18	23	.7	3.2
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	190	39	45	18	23	.7	3.2
AUG										
22...	38	37	5	210	45	49	21	28	.8	3.4
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	200	48	47	21	29	.9	3.5

DATE	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
OCT										
16...	230	0	38	53	.3	11	331	1	0	.14
16...	--	--	--	--	--	--	--	--	--	.16
16...	280	0	39	47	.3	12	362	2	0	.28
FEB										
07...	220	0	38	42	.2	7.3	298	4	1	.19
07...	--	--	--	--	--	--	--	--	--	.04
07...	200	0	43	53	.2	7.1	305	2	1	.05
MAY										
29...	240	0	26	31	.2	9.0	288	7	5	.46
29...	--	--	--	--	--	--	--	--	--	.24
29...	190	0	31	50	.2	7.8	282	0	0	.22
JUL										
27...	170	0	31	39	.2	7.6	250	18	8	.38
27...	--	--	--	--	--	--	--	--	--	.16
27...	180	0	31	38	.2	7.7	255	13	7	.22
AUG										
22...	200	0	37	52	.3	8.6	298	9	26	.34
22...	--	--	--	--	--	--	--	--	--	.27
22...	190	0	38	54	.3	8.6	295	2	13	.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)	PHOSPHATE, TOTAL (MG/L AS PO4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
OCT										
16...	.01	.15	.02	.37	--	.030	--	2.8	<0	6
16...	.01	.17	.01	.45	--	.020	--	--	10	0
16...	.01	.29	.06	.18	--	.010	--	1.6	<0	60
FEB										
07...	.02	.21	.02	.27	--	.020	--	2.8	0	20
07...	.02	.06	.01	.27	--	.010	--	--	0	0
07...	.02	.07	.02	.25	--	.020	--	2.5	0	30
MAY										
29...	.02	.48	.02	.25	.03	.010	.03	4.2	<0	9
29...	.02	.26	.03	.27	.03	.010	.03	--	10	0
29...	.02	.24	.03	.33	.06	.020	.06	6.4	10	7
JUL										
27...	.06	.44	.04	.75	--	.120	.37	3.4	10	20
27...	.02	.18	.02	.34	--	.130	.40	--	20	20
27...	.02	.24	.05	.29	--	.100	.31	3.2	20	20
AUG										
22...	.00	.34	.02	.03	--	.000	.00	3.1	<10	9
22...	.02	.29	.03	.01	--	.010	.03	--	0	10
22...	.02	.25	.02	.06	--	.000	.00	4.7	<10	9

TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 TOWN LAKE (AUSTIN) EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)
OCT											
16...	1245	1.0	534	7.6	23.0	2.30	0	3.0	6.9	82	.6
16...	1248	5.0	545	7.5	22.5	--	--	--	7.3	86	--
16...	1250	13	598	6.9	22.0	--	0	2.0	8.0	94	.4
FEB											
07...	1320	1.0	552	7.9	9.5	2.40	0	2.0	11.6	105	.9
07...	1323	10	549	8.2	9.0	--	--	--	12.0	108	--
07...	1325	19	546	8.3	8.0	--	2	2.0	12.4	109	.8
MAY											
29...	1330	1.0	539	7.9	20.5	1.30	3	.50	8.5	94	.5
29...	1332	10	540	7.9	20.5	--	--	--	8.5	94	--
29...	1335	18	540	7.9	20.0	--	5	.80	8.5	93	.4
JUL											
27...	1520	1.0	523	7.2	22.5	--	5	4.6	7.3	85	.4
27...	1522	12	531	7.6	21.5	--	5	3.3	7.0	80	.8
AUG											
22...	1250	1.0	539	7.6	21.5	1.40	3	1.4	6.2	70	.1
22...	1252	10	539	7.6	22.0	--	--	--	6.2	71	--
22...	1254	14	539	7.6	22.0	--	3	1.6	6.1	70	.1

DATE	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	POTASSIUM, DISSOLVED (MG/L AS K)
OCT										
16...	2300	20	<1	180	45	41	20	33	1.1	3.9
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	290	39	78	22	13	.3	1.3
FEB										
07...	76	K9	22	210	50	51	21	30	.9	2.8
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	210	59	48	21	31	.9	3.0
MAY										
29...	260	16	7	190	39	45	20	32	1.0	3.6
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	190	36	44	20	32	1.0	3.6
JUL										
27...	800	680	180	230	42	56	22	20	.6	2.5
27...	--	--	--	200	40	42	22	28	.9	3.6
AUG										
22...	15	8	3	200	43	45	21	30	.9	3.6
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	200	48	47	21	32	1.0	3.2

DATE	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
OCT										
16...	170	0	37	63	.2	9.7	292	2	1	.04
16...	--	--	--	--	--	--	--	--	--	--
16...	300	0	33	24	.2	10	329	0	0	.51
FEB										
07...	200	0	43	56	.2	7.4	310	3	1	.13
07...	--	--	--	--	--	--	--	--	--	.08
07...	180	0	44	60	.3	7.2	303	2	1	.05
MAY										
29...	190	0	39	53	.3	7.3	294	5	4	.19
29...	--	--	--	--	--	--	--	--	--	.16
29...	190	0	39	53	.3	7.3	293	4	3	.18
JUL										
27...	230	0	31	35	.2	8.6	175	4	4	.32
27...	190	0	36	51	.3	7.9	191	5	5	.16
AUG										
22...	190	0	39	56	.3	8.3	297	21	15	.18
22...	--	--	--	--	--	--	--	--	--	--
22...	190	0	39	54	.2	8.5	299	4	5	.18

TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 TOWN LAKE (AUSTIN) EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT										
16...	.01	.05	.01	.49	--	.010	--	3.4	10	10
16...	--	--	--	--	--	--	--	--	--	--
16...	.01	.52	.01	.88	--	.010	--	2.2	10	10
FEB										
07...	.02	.15	.01	.30	--	.020	--	3.4	0	0
07...	.00	.08	.01	.31	--	.010	--	--	0	0
07...	.02	.07	.01	.31	--	.020	--	2.9	0	0
MAY										
29...	.02	.21	.02	.26	.03	.010	.03	4.1	<0	<1
29...	.02	.18	.02	.27	.03	.010	.03	--	10	10
29...	.02	.20	.03	.24	.03	.010	.03	2.9	<0	<1
JUL										
27...	.02	.34	.00	.47	--	.060	.18	2.5	10	0
27...	.02	.18	.01	.45	--	.070	.21	2.1	10	0
AUG										
22...	.02	.20	.01	.01	--	.000	.00	7.6	<10	2
22...	--	--	--	--	--	--	--	--	--	--
22...	.02	.20	.01	.56	--	.000	.00	3.4	10	2

301601097454001 TOWN LAKE (AUSTIN) FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT							
16...	1225	1.0	694	7.2	21.5	9.1	106
FEB							
07...	1300	1.0	497	7.8	11.5	11.8	112
07...	1302	3.0	497	7.8	11.5	11.8	112
MAY							
29...	1410	1.0	519	7.6	23.5	11.5	134
29...	1412	7.0	540	7.8	21.0	8.5	96
JUL							
27...	1500	1.0	495	7.1	22.5	6.8	79
27...	1502	4.0	495	7.1	22.5	6.8	79
AUG							
22...	1225	1.0	610	7.1	23.0	9.4	111
22...	1227	5.0	610	7.1	23.0	9.2	108

301500097424801 TOWN LAKE (AUSTIN) AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT							
16...	1010	1.0	2	0	0	0	7
16...	1013	10	--	--	--	--	--
16...	1018	24	2	0	0	0	7
FEB							
07...	1055	1.0	1	0	0	0	4
07...	1057	10	--	--	--	--	--
07...	1101	25	1	0	0	0	4
MAY							
29...	1040	1.0	--	--	--	--	--
29...	1042	10	--	--	--	--	--
29...	1046	26	--	--	--	--	--
JUL							
27...	1300	1.0	2	0	1	0	0
27...	1302	10	--	--	--	--	--
27...	1304	22	2	0	0	0	1
AUG							
22...	1050	1.0	--	--	--	--	--
22...	1052	10	--	--	--	20	--
22...	1056	24	--	--	--	--	--

TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 TOWN LAKE (AUSTIN) AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT							
16...	10	0	20	.0	0	0	0
16...	10	--	10	--	--	--	--
16...	10	0	60	.0	0	0	10
FEB							
07...	0	0	0	.0	0	0	10
07...	0	--	0	--	--	--	--
07...	0	2	10	.0	0	0	10
MAY							
29...	<0	--	8	--	--	--	--
29...	10	--	10	--	--	--	--
29...	10	--	10	--	--	--	--
JUL							
27...	0	1	0	.0	0	0	20
27...	30	--	10	--	--	--	--
27...	10	2	0	.0	0	0	20
AUG							
22...	<10	--	7	--	--	--	--
22...	0	--	20	--	--	--	--
22...	10	--	20	--	--	--	--

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)
OCT								
16...	1010	1.0	.0	.00	.00	.0	.00	.00
16...	1018	24	.0	.00	.00	.0	.00	.00
FEB								
07...	1055	1.0	.0	--	.00	.0	.00	.00
07...	1101	25	.0	--	.00	.0	.00	.00
JUL								
27...	1300	1.0	.0	--	.00	.1	.01	.03
27...	1304	22	.0	--	.00	.1	.01	.04

DATE	DDT, TOTAL (UG/L)	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)
OCT									
16...	.00	.00	.00	.00	.00	.00	.00	.00	.00
16...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB									
07...	.00	.01	.00	.00	.00	.00	.00	.00	.00
07...	.01	.03	.00	.00	.00	.00	.00	.00	.00
JUL									
27...	.00	.20	.00	.00	.00	.00	.00	.00	.00
27...	.07	.24	.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)
OCT								
16...	.00	.00	.00	0	.00	.00	.00	.00
16...	.00	.00	.00	0	.00	.05	.00	.00
FEB								
07...	.00	.00	.00	0	.00	.09	.00	.00
07...	.00	.00	.00	0	.00	.09	.00	.00
JUL								
27...	.03	.00	.00	0	.00	.00	.01	.00
27...	.04	.00	.00	0	.00	.00	.01	.00

TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 TOWN LAKE (AUSTIN) SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT								
16...	1245	1.0	.0	.00	.00	.0	.00	.00
FEB								
07...	1320	1.0	.0	--	.00	.0	.00	.00
07...	1325	19	.0	--	.00	.0	.00	.00
JUL								
27...	1520	1.0	.0	--	.00	.0	.00	.00
27...	1522	12	.0	--	.00	.0	.00	.00

DATE	DDT, TOTAL (UG/L)	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)
OCT									
16...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB									
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL									
27...	.00	.01	.00	.00	.00	.00	.00	.00	.00
27...	.00	.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)
OCT								
16...	.00	.00	.00	0	.00	.03	.00	.00
FEB								
07...	.00	.00	.00	0	.00	.08	.00	.00
07...	.00	.00	.00	0	.00	.11	.00	.00
JUL								
27...	.00	.00	.00	0	.00	.15	.00	.00
27...	.00	.00	.00	0	.00	.29	.00	.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.--38,400 mi² (99,500 km²), approximately, of which 12,880 mi² (33,360 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 good except those for Aug. 6 to Sept. 13, which are fair. National Weather Service gage-height telemeter at station. 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 70,780 acre-ft (87.3 hm³) was diverted for municipal use above station and 47,340 acre-ft (58.4 hm³) of treated sewage was returned below station. Many other diversions above Lake Buchanan for irrigation, municipal supplies, and oilfield operations.

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); 43 years (water years 1937-79) regulated, 2,029 ft³/s (57.46 m³/s), 1,470,000 acre-ft/yr (1.81 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, 17,200 ft³/s (487 m³/s) May 21, gage height, 15.07 ft (4.593 m); minimum daily, 6.7 ft³/s (0.19 m³/s) Oct. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	747	41	135	132	132	174	399	3890	2800	2120	1440	1940
2	392	41	59	2380	150	198	1260	4080	4320	2020	1330	1900
3	956	34	84	307	182	538	1180	4130	5930	2140	1720	1820
4	970	35	92	123	291	180	1200	3860	10600	2160	1580	1760
5	525	790	51	150	626	168	647	3680	9970	2180	1610	1650
6	987	355	62	148	711	170	375	3580	9800	2670	1650	1600
7	18	44	53	125	732	168	580	2290	7910	2170	1850	1560
8	22	39	59	110	332	155	1690	3010	4070	2170	2050	1450
9	48	46	42	100	694	163	2080	3410	4020	2200	1820	1420
10	60	53	43	334	258	172	2140	2660	3500	1800	1940	1480
11	54	61	85	482	245	158	1850	545	3790	1790	2000	1540
12	43	58	65	329	249	149	1980	400	3480	1610	1960	1560
13	45	60	75	587	240	158	1900	353	3900	1540	1950	1640
14	35	52	61	216	237	148	1910	357	3930	1430	1920	1750
15	30	112	66	185	426	160	1130	1260	3460	1430	1880	2180
16	26	140	71	193	708	259	836	1750	3890	1420	1890	1980
17	40	65	61	185	198	151	946	1780	2720	1420	1960	1970
18	48	69	61	210	194	149	1180	1960	2090	1430	2050	2050
19	43	117	50	174	190	157	1080	2760	2220	2790	1960	371
20	35	88	47	168	192	270	1090	2460	1810	2430	1920	1280
21	39	85	60	153	194	1740	2690	4010	2420	1480	1910	1640
22	42	78	54	147	183	993	3900	3350	2430	1430	1900	1520
23	50	74	57	160	636	710	3870	682	2420	1190	1910	1570
24	445	72	69	140	259	693	3840	485	2430	1120	1920	1550
25	6.7	77	56	167	188	402	1990	1420	2510	1020	1970	1510
26	62	123	60	161	198	383	2180	1780	2370	661	1950	1110
27	44	75	42	122	200	356	1340	1560	2270	2580	1930	1090
28	45	97	56	136	198	610	1260	2190	2450	275	1950	1100
29	43	64	58	135	---	360	2520	2240	2110	240	1900	1120
30	29	75	57	430	---	873	3760	2270	2120	1150	1960	1100
31	38	---	1040	124	---	465	---	2140	---	1350	1920	---
TOTAL	5967.7	3120	2931	8513	9043	11430	52803	70342	117740	51416	57700	46211
MEAN	193	104	94.5	275	323	369	1760	2269	3925	1659	1861	1540
MAX	987	790	1040	2380	732	1740	3900	4130	10600	2790	2050	2180
MIN	6.7	34	42	100	132	148	375	353	1810	240	1330	371
AC-FT	11840	6190	5810	16890	17940	22670	104700	139500	233500	102000	114400	91660

CAL YR 1978 TOTAL 424344.7 MEAN 1163 MAX 3520 MIN 6.7 AC-FT 841700
WTR YR 1979 TOTAL 437216.7 MEAN 1198 MAX 10600 MIN 6.7 AC-FT 867200

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1947 to October 1973. Chemical, biochemical, and pesticide 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, 625 micromhos Dec. 27; minimum daily, 270 micromhos Mar. 21.
WATER TEMPERATURES: Maximum daily, 33.0 °C July 25; minimum daily, 9.0 °C on several days during January.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 16...	0915	36	568	7.7	22.0	0	1.0	5.0	59	.7	200	K36
NOV 13...	0945	64	500	7.5	24.0	5	1.0	5.3	65	.8	190	K30
DEC 04...	0950	148	532	7.7	17.0	5	4.0	9.1	97	.7	640	200
JAN 02...	1030	3170	520	7.9	13.0	1	7.0	10.6	104	.9	2300	640
FEB 06...	0910	639	511	7.6	9.0	5	20	11.5	103	.7	3100	330
MAR 05...	1010	76	496	7.7	18.0	0	2.0	12.1	132	1.0	720	80
APR 02...	1110	3010	520	7.2	17.0	5	10	9.5	102	.7	5300	700
MAY 08...	1115	3670	540	7.4	17.0	3	1.7	10.6	110	.0	1700	64
JUN 11...	1110	3960	530	7.4	18.0	5	1.5	9.1	96	.2	2500	440
JUL 09...	0935	115	560	7.2	23.0	0	1.0	7.3	85	.2	680	160
AUG 06...	1000	64	560	7.1	26.0	5	1.4	7.7	94	1.0	600	140
SEP 24...	1000	185	540	7.4	22.0	5	.30	9.6	110	.3	260	44

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 16...	K12	200	41	46	20	34	1.1	3.7	190	0	39
NOV 13...	K24	180	28	44	16	27	.9	3.5	180	0	32
DEC 04...	260	200	33	51	17	26	.8	3.9	200	0	34
JAN 02...	2200	200	28	52	17	25	.8	2.9	210	0	35
FEB 06...	4000	240	51	68	17	15	.4	2.0	230	0	36
MAR 05...	6	240	39	68	18	17	.5	1.9	250	0	35
APR 02...	480	210	26	58	17	17	.5	1.9	230	0	29
MAY 08...	38	210	59	48	21	30	.9	3.4	180	0	41
JUN 11...	92	190	46	43	21	31	1.0	3.5	180	0	37
JUL 09...	40	190	39	45	20	30	.9	3.5	190	0	39
AUG 06...	100	210	64	50	21	28	.8	3.0	180	0	36
SEP 24...	51	210	58	51	21	27	.8	3.4	190	0	36

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	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)
OCT 16...	63	.2	8.7	308	308	1	0	.06	.01	.07	.01
NOV 13...	48	.2	8.3	278	268	2	0	.11	.01	.12	.02
DEC 04...	49	.2	10	295	290	5	0	.37	.04	.41	.03
JAN 02...	43	.2	8.5	293	287	14	2	.37	.02	.39	.01
FEB 06...	30	.2	7.7	294	289	27	2	.49	.02	.51	.05
MAR 05...	33	.2	5.9	295	302	2	0	.52	.02	.54	.02
APR 02...	26	.2	8.0	293	270	17	2	.22	.04	.26	.04
MAY 08...	52	.2	6.9	302	291	0	0	.11	.00	.11	.00
JUN 11...	50	.3	8.3	309	283	0	0	.27	.02	.29	.04
JUL 09...	50	.3	8.1	317	290	0	0	.29	.02	.31	.04
AUG 06...	48	.2	9.0	315	284	6	4	.20	.04	.24	.01
SEP 24...	48	.3	8.2	294	289	8	4	.58	.00	.58	.03

DATE	NITROGEN, ORGANIC TOTAL (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 16...	1.1	1.1	.51	.010	.060	--	4.4	.4	2	.19	82
NOV 13...	.48	.50	.42	.040	.050	3.3	--	--	14	2.4	74
DEC 04...	.52	.55	.34	.050	.060	2.7	--	--	8	3.2	88
JAN 02...	.39	.40	.32	.060	.060	2.4	--	--	35	300	43
FEB 06...	.25	.30	.31	.060	.160	--	1.9	.8	63	109	83
MAR 05...	.28	.30	.25	.010	.010	1.9	--	--	14	2.9	57
APR 02...	.49	.53	.33	.040	.010	2.7	--	--	32	260	85
MAY 08...	.27	.27	.17	.020	.010	27	--	--	95	941	35
JUN 11...	.25	.29	.26	.000	.000	--	4.5	.4	310	3320	2
JUL 09...	.06	.10	.08	.000	.000	2.4	--	--	3	.93	100
AUG 06...	.19	.20	.27	.020	.050	--	3.9	.1	4	.69	75
SEP 24...	.70	.73	.47	.000	.000	2.5	--	--	1	.50	67

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC 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 16...	0915	2	1	0	0	100	0	0	0	0
FEB 06...	0910	1	1	100	100	0	2	2	0	0
JUN 11...	1110	1	1	0	0	70	1	0	<1	0
AUG 06...	1000	1	1	0	0	80	0	0	<1	0

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)
OCT 16...	0	0	0	0	0	7	3	4	20	10
FEB 06...	0	10	0	0	0	8	6	2	340	340
JUN 11...	0	0	1	0	<3	5	5	0	70	70
AUG 06...	0	10	0	0	<3	3	0	3	60	50

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
OCT 16...	10	0	0	0	30	10	20	.0	.0	.0
FEB 06...	0	10	10	0	20	0	20	.0	.0	.0
JUN 11...	<0	14	14	0	0	0	6	.0	.0	.1
AUG 06...	<10	5	5	0	30	10	20	.2	.1	.1

DATE	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 16...	0	0	0	0	0	0	80	80	0
FEB 06...	1	0	1	0	0	0	20	10	10
JUN 11...	0	0	0	0	0	0	20	20	<3
AUG 06...	0	0	0	0	0	0	0	0	<3

DATE	LENGTH OF EXPO-SURE (DAYS)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS)
JUN 11...	34	16.5	17.3	6.30	.890	127
SEP 24...	49	12.5	18.0	65.1	16.2	84.5

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	DEC 4,78	MAR 5,79	MAY 8,79	JUN 11,79
TIME	0950	1010	1115	1110
TOTAL CELLS/ML	580	350	220	64
DIVERSITY: DIVISION	1.7	1.6	1.0	0.0
.CLASS	1.7	1.6	1.2	0.0
..ORDER	1.9	1.9	2.2	1.0
...FAMILY	2.5	2.5	2.4	1.0
....GENUS	2.5	2.5	2.7	1.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	42	7	--	-	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	56#	25	--	-
....SCENEDESMUS	--	-	--	-	--	-	26#	40
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	28	13	--	-
....CHLAMYDOMONAS	--	-	55#	16	42#	19	39#	60
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	28	5	28	8	42#	19	--	-
..PENNALES								
...CYMBELLACEAE								
....CYMBELLA	14	2	--	-	14	6	--	-
...FRAGILARIACEAE								
....SYNEDRA	14	2	--	-	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	42	7	14	4	--	-	--	-
...NAVICULACEAE								
....NAVICULA	28	5	55#	16	28	13	--	-
...NITZSCHIACEAE								
....NITZSCHIA	83	14	97#	28	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	--	-	--	-	14	6	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	42	7	14	4	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	280#	48	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	83#	24	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	14	2	--	-	--	-	--	-

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 1978 TO SEPTEMBER 1979

DATE	JUL 9,79	AUG 6,79	SEP 24,79
TIME	0935	1000	1000
TOTAL CELLS/ML	26	140	26
DIVERSITY: DIVISION	0.0	0.5	0.0
.CLASS	0.0	0.5	0.0
..ORDER	0.0	0.5	0.0
...FAMILY	0.0	0.9	0.0
....GENUS	0.0	0.9	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	14	10	--	-
...COELASTRACEAE						
....COELASTRUM	--	-	110#	80	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	--	-
....SCENEDESMUS	26#	100	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	--	-
..PENNALES						
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	--	-
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
....NAVICULA	--	-	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	--	-	14	10	--	-
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	--	-	26#	100
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	--	-
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%

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	5967.7	539	300	4760	49	788	35	562	210
NOV. 1978.....	3120	565	310	2600	51	432	36	307	220
DEC. 1978.....	2931	534	290	2310	49	384	34	271	210
JAN. 1979.....	8513	515	280	6500	47	1070	33	763	200
FEB. 1979.....	9043	490	270	6560	44	1080	32	771	190
MAR. 1979.....	11430	463	250	7810	42	1300	30	919	180
APR. 1979.....	52803	533	290	41600	48	6900	34	4890	210
MAY 1979.....	70342	535	290	55700	49	9220	34	6540	210
JUNE 1979.....	117740	549	300	95400	50	15800	36	11300	210
JULY 1979.....	51416	539	290	40800	49	6790	35	4830	210
AUG. 1979.....	57700	548	300	46700	50	7750	35	5500	210
SEPT 1979.....	46211	519	280	35300	47	5870	33	4170	200
TOTAL	437216.64	**	**	346000	**	57400	**	40800	**
WTD.AVG.	1200	536	290	**	49	**	35	**	210

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	524	569	601	475	485	528	400	544	540	560	541	538
2	543	584	560	540	502	567	543	541	543	556	541	539
3	524	598	570	541	472	559	486	536	545	543	540	508
4	521	593	566	541	544	570	469	541	551	548	540	519
5	530	588	567	535	456	573	500	529	546	555	547	530
6	531	514	502	541	462	547	518	550	539	556	560	516
7	539	450	550	550	390	553	536	547	545	553	555	518
8	559	496	603	553	447	570	507	544	553	555	520	509
9	553	525	596	546	454	575	521	547	551	560	547	518
10	545	534	573	562	544	576	532	547	551	550	553	516
11	550	538	604	485	409	588	502	541	540	557	545	505
12	556	533	548	466	451	518	521	540	539	552	553	524
13	552	553	535	410	511	576	530	547	548	552	552	529
14	565	556	603	498	561	570	536	541	550	550	550	532
15	584	613	610	454	489	573	507	483	552	555	547	525
16	594	549	592	556	467	572	515	532	552	536	544	530
17	561	543	615	553	497	570	556	555	551	528	550	522
18	580	557	606	468	561	420	547	552	556	555	549	501
19	598	570	500	546	564	490	545	550	560	547	553	521
20	588	558	556	493	568	468	549	550	552	494	544	535
21	579	577	595	501	612	270	526	544	560	529	547	501
22	609	576	614	462	564	392	551	450	546	534	549	516
23	601	576	610	509	541	456	549	400	552	540	547	518
24	582	560	615	513	489	437	546	466	551	552	550	501
25	623	572	615	559	523	450	545	509	559	536	551	517
26	571	605	622	482	539	449	542	535	555	546	563	523
27	585	570	625	442	552	483	546	540	551	475	555	516
28	595	580	601	574	554	479	549	547	559	454	548	510
29	577	587	596	532	---	504	549	545	559	448	552	523
30	584	583	593	523	---	518	542	541	558	456	546	510
31	602	---	441	527	---	536	---	536	---	525	545	---
MEAN	568	560	580	514	507	514	526	530	550	534	548	519

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.5	---	17.0	12.0	11.0	15.0	18.0	16.5	21.0	20.0	24.0	21.5
2	24.5	22.0	17.0	10.5	10.5	15.0	17.0	16.0	20.0	20.0	23.5	22.0
3	24.5	---	17.0	9.0	11.0	16.0	16.5	---	18.5	19.5	23.5	21.5
4	---	---	17.0	---	11.0	15.0	16.5	---	15.5	20.0	23.5	23.0
5	---	---	17.0	11.0	11.0	15.0	17.0	---	19.0	20.5	24.0	22.0
6	---	---	17.0	11.0	10.0	15.0	17.0	---	13.5	20.5	24.0	22.0
7	24.5	21.5	17.0	11.0	10.0	15.0	18.0	15.0	14.0	20.5	24.0	22.0
8	---	21.0	15.5	11.0	10.0	15.5	18.0	16.0	14.5	20.5	24.0	23.0
9	24.0	18.5	14.5	10.5	10.5	15.5	18.0	16.0	14.5	21.0	24.0	23.0
10	24.0	18.5	13.0	10.0	10.5	16.5	18.5	16.0	16.5	20.5	22.0	22.0
11	23.5	18.5	12.0	10.0	10.5	16.0	18.0	18.0	16.5	20.5	22.0	23.0
12	24.0	18.5	12.0	9.0	10.5	15.5	18.5	16.5	19.0	21.0	23.0	23.0
13	24.5	18.5	12.0	9.0	11.5	15.5	18.5	18.0	16.0	20.5	22.0	22.0
14	24.0	18.5	12.0	9.0	12.0	16.5	18.5	18.5	16.0	20.5	21.5	22.0
15	23.5	20.5	12.0	9.0	13.0	16.0	18.0	19.5	16.5	20.5	21.5	22.0
16	---	19.5	13.0	9.0	14.0	16.0	18.0	18.5	17.0	20.5	21.0	21.5
17	---	19.5	13.5	9.0	11.5	16.0	18.0	18.5	17.0	22.0	21.5	21.0
18	23.0	18.5	13.0	10.0	11.0	16.0	18.0	18.5	17.0	23.0	21.5	21.0
19	23.5	18.5	13.0	11.5	11.0	17.0	17.0	20.5	18.5	23.5	21.0	21.0
20	---	18.5	13.0	13.5	10.0	17.0	18.0	19.0	19.5	23.5	21.0	21.5
21	---	18.5	15.5	13.5	10.0	18.0	18.0	18.5	19.5	23.5	21.5	21.0
22	23.0	---	15.0	13.5	11.5	17.0	18.5	19.5	20.0	23.5	21.5	21.0
23	23.5	18.0	14.5	12.0	13.5	---	18.5	19.5	20.0	23.5	21.0	21.0
24	23.0	18.5	15.0	12.0	11.5	18.0	17.0	20.5	20.0	21.5	21.5	21.0
25	23.0	18.5	14.5	12.0	13.5	16.5	16.5	21.0	20.5	33.0	22.0	23.0
26	---	19.0	14.0	12.0	14.0	16.5	16.5	21.5	20.5	24.5	21.5	21.5
27	---	19.5	14.0	---	14.0	18.0	17.0	22.0	21.0	24.5	21.5	21.5
28	---	18.0	14.0	12.0	14.0	17.0	17.0	19.0	19.5	24.5	22.0	21.5
29	---	18.0	14.0	12.0	---	18.0	17.0	19.0	20.0	23.5	---	21.5
30	---	17.0	14.0	12.0	---	18.0	16.0	20.5	20.0	24.0	21.0	21.5
31	21.5	---	11.0	11.5	---	18.0	---	19.5	---	24.0	21.5	---
MEAN	23.5	19.0	14.5	11.0	11.5	16.5	17.5	18.5	18.0	22.0	22.5	22.0

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. 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 poor. No known regulation or diversions. There is a recording rain gage in the watershed above station. 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.--Peak discharges above base of 1,500 ft³/s (42.5 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)
Nov. 5	2000	1,840	52.1	10.88	3.316	July 19	2115	4,780	135	15.59	4.752
Feb. 23	1200	2,460	69.7	11.76	3.584	July 27	0945	3,740	106	14.18	4.322
May 21	2015	*5,630	159	16.79	5.118						

Minimum discharge, no flow for several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.40	22	.34	3.3	6.0	262	4.8	.73	1.9	.14
2	.00	.01	.34	1.5	1.2	3.5	4.9	10	14	1.1	1.6	.12
3	1.6	.01	3.3	1.0	6.0	5.3	3.5	2.5	2.3	.91	1.6	.12
4	.15	.00	.46	3.5	39	2.5	2.5	2.3	1.4	2.1	1.2	.79
5	.03	269	.25	2.7	29	3.0	2.2	2.0	50	2.4	1.2	.29
6	.00	62	.19	5.6	74	3.7	2.0	1.7	6.6	104	.80	.53
7	.00	3.3	.17	1.5	5.8	6.1	1.8	1.5	4.0	8.1	1.2	.45
8	.00	1.6	.14	.73	3.6	2.8	2.6	1.3	2.9	4.5	1.0	.18
9	.00	1.1	.12	.65	2.3	1.6	1.8	1.1	2.3	4.2	.92	.17
10	.00	1.2	.09	62	2.2	6.9	1.9	1.0	22	4.9	.80	.15
11	.00	1.1	.08	16	1.8	3.4	1.8	15	1.6	7.5	7.8	.21
12	.00	4.9	.06	2.6	1.9	3.7	1.4	1.0	1.3	11	1.8	.28
13	.00	1.0	.06	1.5	1.4	4.2	1.3	.93	1.1	10	.60	.36
14	.00	.86	.05	.94	1.3	3.9	1.3	.88	1.1	22	.55	.43
15	.00	18	.04	.92	1.1	12	1.3	.83	.70	19	8.1	.55
16	.00	46	.04	.82	.97	41	1.3	.80	.40	13	1.7	.70
17	.00	3.3	.03	.80	.86	7.7	41	.72	.40	13	.80	.86
18	.00	1.3	.02	3.8	.80	7.2	10	.67	.31	20	1.1	17
19	.00	20	.03	1.4	.80	7.8	13	.62	.31	560	1.9	24
20	.00	17	.04	1.0	.80	9.8	3.2	.60	1.1	162	.98	.51
21	.00	9.4	.04	.56	.80	190	5.0	956	1.3	45	.60	.04
22	.00	9.3	.06	.51	.87	94	2.2	188	1.6	27	.70	.02
23	.00	2.7	.09	.45	164	18	2.0	13	2.9	17	.55	.01
24	.00	.79	.12	.37	4.3	13	1.7	9.1	4.2	17	.75	.00
25	6.3	.72	.14	1.9	4.4	7.5	1.4	7.6	.40	17	.55	.00
26	5.3	7.9	.21	2.8	3.7	5.9	1.2	5.5	.15	69	.55	.00
27	.05	2.2	.28	.54	3.7	3.9	1.0	4.7	.67	510	.40	.00
28	.03	.80	.38	.40	3.5	3.3	.87	5.4	1.2	8.4	.26	.00
29	.01	2.3	.58	.72	---	2.4	257	6.2	.67	3.6	.17	.00
30	.00	.53	.75	1.0	---	46	5.2	3.7	1.0	2.2	.18	.00
31	.02	---	169	.44	---	6.6	---	3.3	---	2.0	.13	---
TOTAL	13.49	488.32	177.56	140.65	360.44	530.0	382.37	1509.95	132.71	1688.64	42.39	47.91
MEAN	.44	16.3	5.73	4.54	12.9	17.1	12.7	48.7	4.42	54.5	1.37	1.60
MAX	6.3	269	169	62	164	190	257	956	50	560	8.1	24
MIN	.00	.00	.02	.37	.34	1.6	.87	.60	.15	.73	.13	.00
CFSM	.03	1.24	.44	.35	.99	1.31	.97	3.72	.34	4.16	.11	.12
IN.	.04	1.39	.50	.40	1.02	1.50	1.09	4.29	.38	4.79	.12	.14
AC-FT	27	969	352	279	715	1050	758	2990	263	3350	84	95
(††)	1.48	5.29	2.71	1.81	3.43	3.68	3.00	7.53	.85	12.50	.59	1.38

CAL YR 1978 TOTAL 2057.93 MEAN 5.64 MAX 269 MIN .00 CFSM .43 IN 5.84 AC-FT 4080 †† 30.86
WTR YR 1979 TOTAL 5514.43 MEAN 15.1 MAX 956 MIN .00 CFSM 1.15 IN 15.66 AC-FT 10940 †† 44.25

†† Rainfall, in inches, based on one rain gage.
NOTE.--No gage-height record Apr. 29 to May 20.

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Periodic chemical, biochemical, and pesticide analyses: January 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV										
06...	1540	12	287	7.8	17.0	30	50	9.0	96	2.2
DEC										
19...	0910	.05	590	7.9	14.0	0	2.0	9.8	98	.9
FEB										
26...	1445	5.7	830	8.0	14.0	5	5.0	10.8	108	1.2
MAR										
21...	0915	34	323	7.2	16.5	30	200	8.9	94	3.2
22...	1220	52	266	7.7	20.5	40	240	8.5	97	3.8
APR										
23...	1400	2.1	648	8.1	25.0	5	7.0	9.2	114	.8
JUN										
11...	1345	1.3	560	7.7	24.5	5	8.6	9.2	112	.2
SEP										
10...	1155	.10	589	8.2	27.5	5	1.6	10.6	132	.3

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
NOV									
06...	>34000	34000	26000	110	22	39	3.6	10	.4
DEC									
19...	800	180	180	220	27	70	12	35	1.0
FEB									
26...	680	580	110	370	130	130	10	36	.8
MAR									
21...	120000	51000	210000	130	35	48	3.4	10	.4
22...	110000	51000	130000	120	26	42	2.7	7.9	.3
APR									
23...	1600	190	1000	--	--	--	--	--	--
JUN									
11...	>6100	6100	88	200	18	67	7.5	28	.9
SEP									
10...	1100	250	76	--	--	--	--	--	--

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV									
06...	4.3	110	0	28	15	.2	7.4	162	72
DEC									
19...	2.8	240	0	47	45	.3	9.3	340	5
FEB									
26...	3.8	290	0	110	59	.3	12	504	4
MAR									
21...	4.0	120	0	39	11	.2	8.5	183	314
22...	3.4	110	0	26	9.3	.2	8.2	154	436
APR									
23...	--	--	--	--	--	--	--	--	7
JUN									
11...	2.8	220	0	49	31	.4	12	306	8
SEP									
10...	--	--	--	--	--	--	--	--	7

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV									
06...	6	.38	.01	.39	.01	.42	.43	.26	8.1
DEC									
19...	1	.00	.00	.00	.00	.16	.16	.03	2.5
FEB									
26...	1	.74	.02	.76	.01	.19	.20	.03	4.4
MAR									
21...	34	.82	.04	.86	.09	.81	.90	.25	12
22...	44	.70	.06	.76	.15	.85	1.0	.30	11
APR									
23...	1	.14	.00	.14	.04	.16	.20	.03	3.9
JUN									
11...	0	.31	.02	.33	.00	.46	.46	.02	10
SEP									
10...	3	.00	.02	.01	.01	.91	.92	.00	5.8

DATE	TIME	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV							
06...	1540	6	50	<1	0	4	30
FEB							
26...	1445	4	100	0	0	0	10
MAR							
21...	0915	4	0	0	0	2	20
22...	1220	5	0	0	0	2	20
JUN							
11...	1345	3	90	1	0	0	<0

DATE	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)
NOV						
06...	0	1	.0	2	0	<3
FEB						
26...	0	10	.0	1	0	20
MAR						
21...	0	0	.1	0	0	10
22...	0	0	.1	0	0	10
JUN						
11...	0	6	.0	0	0	<3

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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									
06...	1540	.0	.00	.00	.0	.01	.02	.02	.09
FEB									
26...	1445	.0	--	.00	.0	.00	.00	.01	.03
MAR									
21...	0915	.0	--	.00	.1	.03	.03	.10	.20
22...	1220	.0	--	.00	.0	.03	.02	.07	.19
JUN									
11...	1345	.0	--	.00	.0	.02	.00	.01	.07

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)	METHYL PARATHION, TOTAL (UG/L)
NOV									
06...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB									
26...	.01	.00	.00	.00	.00	.00	.00	.00	.00
MAR									
21...	.01	.00	.00	.00	.00	.01	.01	.00	.00
22...	.01	.00	.00	.00	.00	.00	.00	.01	.00
JUN									
11...	.00	.00	.00	.00	.00	.00	.00	.01	.00

DATE	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								
06...	.00	.00	.00	0	.00	.04	.10	.00
FEB								
26...	.00	.00	.00	0	.00	.00	.00	.00
MAR								
21...	.00	.00	.00	0	.00	.13	.02	.00
22...	.00	.00	.00	0	.00	.08	.01	.01
JUN								
11...	.00	.00	.00	0	.00	.01	.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.--13 years, 22.8 ft³/s (0.646 m³/s), 6.04 in/yr (153 mm/yr), 16,520 acre-ft/yr (20.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 ft³/s (297 m³/s) Nov. 23, 1974, gage height, 26.16 ft (7.974 m); no flow at times in 1967 and 1971.
Maximum stage since at least 1891, that of Nov. 23, 1974. Flood of Oct. 11, 1973, reached a stage of 25.56 ft (7.791 m), discharge 10,000 ft³/s (283 m³/s).

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), 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)
Dec. 31	0700	2,430	68.8	13.83	4.215	July 19	2245	1,900	53.8	12.54	3.822
May 21	2115	*10,400	295	26.02	7.931	July 27	0945	2,300	65.1	13.52	4.121

Minimum daily discharge, 1.1 ft³/s (0.031 m³/s) Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.2	4.9	106	13	18	61	218	28	4.7	7.1	4.3
2	1.2	1.2	4.7	26	15	18	58	44	33	4.5	6.6	4.5
3	1.4	1.3	9.6	21	25	21	46	33	19	4.3	6.4	4.5
4	1.4	1.3	5.8	23	84	16	42	28	17	4.3	5.9	4.9
5	1.2	174	5.0	27	140	15	37	25	56	4.5	5.4	21
6	1.1	73	4.7	33	309	15	34	24	21	106	5.2	33
7	1.2	3.9	4.5	24	78	14	32	22	16	19	5.0	7.6
8	1.2	2.8	4.3	19	56	14	35	20	16	12	4.8	5.8
9	1.2	2.6	4.3	18	42	13	30	19	14	10	5.0	5.2
10	1.3	2.3	4.3	89	38	18	28	19	17	9.3	5.0	5.2
11	1.3	2.3	4.3	102	34	15	26	49	12	9.0	14	5.2
12	1.3	5.2	4.1	37	31	14	23	25	11	8.7	8.5	5.0
13	1.2	2.4	4.1	28	29	13	22	17	10	8.2	6.3	4.8
14	1.2	2.3	4.1	21	27	12	20	15	9.6	14	5.7	4.7
15	1.2	18	4.1	20	24	15	20	15	9.3	9.8	7.7	4.5
16	1.2	23	4.1	20	21	67	19	13	8.5	7.9	6.1	4.5
17	1.3	7.0	3.9	19	21	22	73	12	8.1	7.2	5.5	4.5
18	1.2	3.9	3.9	23	20	18	52	12	7.7	6.9	6.9	21
19	1.2	18	3.9	20	20	18	92	11	7.4	191	6.3	20
20	1.2	11	3.8	18	19	17	47	10	6.9	86	5.3	4.1
21	1.3	12	4.0	15	18	306	31	1720	6.6	14	4.9	2.3
22	1.7	9.9	4.1	15	18	261	27	310	6.4	9.6	4.5	2.0
23	1.2	6.2	4.1	15	193	57	25	47	6.1	8.0	4.5	1.8
24	1.2	5.1	4.1	14	33	42	23	30	5.9	7.1	4.3	1.7
25	2.0	5.2	4.1	17	24	37	21	24	5.6	6.6	4.3	1.5
26	3.5	12	4.1	21	22	32	20	21	5.4	17	4.6	1.4
27	1.5	11	4.2	15	21	29	19	20	5.4	377	4.1	1.4
28	1.4	6.1	4.7	14	20	28	18	24	5.4	25	4.1	1.4
29	1.3	6.5	5.2	14	---	28	179	25	5.1	12	4.1	1.3
30	1.3	5.3	5.4	15	---	108	34	32	4.9	9.4	4.1	1.3
31	1.4	---	492	14	---	58	---	21	---	8.0	4.3	---
TOTAL	42.5	436.0	628.4	863	1395	1359	1194	2905	384.3	1021.0	176.5	190.4
MEAN	1.37	14.5	20.3	27.8	49.8	43.8	39.8	93.7	12.8	32.9	5.69	6.35
MAX	3.5	174	492	106	309	306	179	1720	56	377	14	33
MIN	1.1	1.2	3.8	14	13	12	18	10	4.9	4.3	4.1	1.3
CFSM	.03	.28	.40	.54	.97	.85	.78	1.83	.25	.64	.11	.12
IN.	.03	.32	.46	.63	1.01	.99	.87	2.11	.28	.74	.13	.14
AC-FT	84	865	1250	1710	2770	2700	2370	5760	762	2030	350	378
(††)	.52	5.88	3.14	2.35	3.38	4.54	3.24	5.88	1.36	5.91	.51	2.65

CAL YR 1978 TOTAL 4185.89 MEAN 11.5 MAX 492 MIN .50 CFSM .22 IN 3.04 AC-FT 8300 †† 33.02
WTR YR 1979 TOTAL 10595.10 MEAN 29.0 MAX 1720 MIN 1.1 CFSM .57 IN 7.68 AC-FT 21020 †† 39.36

†† Weighted-mean rainfall, 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.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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										
17...	1045	1.2	--	--	11.0	--	--	--	--	--
NOV										
06...	1330	18	304	7.7	17.0	20	60	8.3	88	3.1
DEC										
19...	1005	3.9	682	7.8	13.5	5	1.0	10.2	101	.7
FEB										
26...	1250	22	693	7.9	11.0	0	3.0	11.6	108	.9
MAR										
21...	1330	110	365	7.2	17.0	25	320	8.2	87	4.4
22...	1115	705	336	8.2	17.5	20	1500	8.4	90	6.3
APR										
23...	1202	25	665	7.9	20.5	0	6.0	8.8	100	.5
JUN										
11...	1035	12	629	7.5	21.0	5	1.5	7.8	90	.3
SEP										
10...	1010	5.2	524	7.8	22.5	10	.70	7.8	90	.2
19...	0945	12	--	--	22.0	--	--	--	--	--

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										
17...	--	--	--	--	--	--	--	--	--	--
NOV										
06...	42000	18000	28000	120	37	43	2.9	10	.4	3.5
DEC										
19...	300	72	60	280	80	100	6.5	31	.8	2.7
FEB										
26...	820	320	260	--	--	--	--	--	--	--
MAR										
21...	83000	33000	110000	160	40	60	3.3	10	.3	3.3
22...	140000	63000	180000	150	34	55	2.9	8.3	.3	3.1
APR										
23...	3600	900	2300	300	57	110	5.0	23	.6	2.4
JUN										
11...	8000	1100	740	270	60	100	5.6	24	.6	2.6
SEP										
10...	1800	640	660	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS 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										
17...	--	--	--	--	--	--	--	--	--	--
NOV										
06...	100	0	35	17	.2	5.3	166	86	14	.23
DEC										
19...	240	0	64	57	.4	2.6	383	7	7	.13
FEB										
26...	--	--	--	--	--	--	--	6	1	.97
MAR										
21...	150	0	36	13	.3	8.0	208	588	74	3.1
22...	140	0	31	11	.3	7.4	188	2460	264	.56
APR										
23...	290	0	51	40	.4	8.2	383	10	2	.97
JUN										
11...	260	0	61	26	.4	8.1	356	4	4	.68
SEP										
10...	--	--	--	--	--	--	--	2	4	.15
19...	--	--	--	--	--	--	--	--	--	--

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
OCT									
17...	--	--	--	--	--	--	--	18	.06
NOV									
06...	.01	.24	.00	.40	.40	.120	7.3	--	--
DEC									
19...	.02	.15	.01	.29	.30	.030	3.1	--	--
FEB									
26...	.02	.99	.01	.39	.40	.000	2.9	--	--
MAR									
21...	.25	3.3	.35	1.7	2.0	.190	13	--	--
22...	.04	.60	.12	1.6	1.7	.800	--	--	--
APR									
23...	.02	.99	.02	.25	.27	.050	2.4	--	--
JUN									
11...	.02	.70	.00	.44	.44	.010	9.5	--	--
SEP									
10...	.02	.17	.02	.38	.40	.080	3.6	--	--
19...	--	--	--	--	--	--	--	5	.15

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							
06...	1330	2	40	<1	0	1	20
MAR							
21...	1330	2	0	0	10	0	10
22...	1115	2	0	0	10	1	0
JUN							
11...	1035	1	80	<1	0	0	<0

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						
06...	0	1	.0	0	0	3
MAR						
21...	0	10	.0	0	0	10
22...	0	0	.0	0	0	10
JUN						
11...	0	3	.1	0	0	<3

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L)	NAPHTHALENES, POLY-CHLOR. 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									
06...	1330	.0	.00	.00	.0	.00	.00	.00	.10
MAR									
21...	1330	.0	--	.00	.0	.00	.00	.00	.12
22...	1115	.0	--	.00	.0	.00	.01	.01	.15
JUN									
11...	1035	.0	--	.00	.0	.00	.00	.00	.05

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)	METHYL PARATHION, TOTAL (UG/L)
NOV									
06...	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAR									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
22...	.00	.00	.00	.00	.00	.00	.01	.00	.00
JUN									
11...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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								
06...	.00	.00	.00	0	.00	.03	.13	.00
MAR								
21...	.00	.00	.00	0	.00	.09	.03	.00
22...	.00	.00	.00	0	.00	.09	.02	.00
JUN								
11...	.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 mi^2 (138.6 km^2).

PERIOD OF RECORD.--Periodic chemical, biochemical, and pesticide analyses: January 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV										
06...	1510	53	544	7.1	22.0	10	35	7.2	85	9.0
DEC										
19...	1025	22	840	6.9	21.0	10	6.0	5.0	57	11
FEB										
26...	1325	54	775	7.3	16.0	5	9.0	8.2	85	6.8
MAR										
21...	1015	270	431	6.9	17.0	30	1100	6.9	73	13
APR										
23...	1235	29	754	7.6	22.5	5	8.0	7.2	85	10
JUN										
11...	1200	41	731	7.0	23.5	8	3.2	6.0	72	10
SEP										
10...	1110	29	723	7.1	27.5	20	1.7	3.2	41	15

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
NOV									
06...	3600	140	1300	140	46	43	8.9	49	1.8
DEC									
19...	2300	190	110	160	49	41	15	90	3.1
FEB									
26...	2200	170	150	--	--	--	--	--	--
MAR									
21...	82000	42000	120000	140	16	48	4.6	23	.9
APR									
23...	2200	320	2000	260	75	89	10	51	1.4
JUN									
11...	2100	250	260	210	43	63	12	62	1.9
SEP									
10...	2600000	750000	22000	150	38	35	14	73	2.6

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV									
06...	7.0	120	0	69	58	.7	8.9	304	44
DEC									
19...	11	140	0	86	110	2.2	12	436	9
FEB									
26...	--	--	--	--	--	--	--	--	17
MAR									
21...	4.0	150	0	41	22	.7	9.0	226	1340
APR									
23...	5.8	230	0	68	70	.9	9.2	417	16
JUN									
11...	7.2	200	0	72	73	.9	12	401	9
SEP									
10...	12	130	0	71	79	1.6	9.7	360	4

08158640 WALNUT CREEK AT SOUTHERN PACIFIC RAILROAD BRIDGE, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 06...	10	4.8	.02	4.8	1.3	1.9	3.2	2.8	9.9
DEC 19...	6	9.7	1.3	11	2.8	.50	3.3	6.9	10
FEB 26...	5	1.7	.49	2.2	.97	1.6	2.6	2.4	9.6
MAR 21...	156	1.2	.32	1.5	.59	2.3	2.9	1.2	60
APR 23...	3	2.4	.42	2.8	.22	.98	1.2	2.8	7.9
JUN 11...	9	2.3	.64	2.9	.23	1.3	1.5	1.0	8.5
SEP 10...	6	7.0	3.0	10	4.7	3.3	8.0	7.4	17

DATE	TIME	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 06...	1510	3	20	<1	0	5	20
MAR 21...	1015	2	40	<1	0	3	20
JUN 11...	1200	2	40	<1	0	8	0
SEP 10...	1110	2	10	<1	0	18	40

DATE	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)
NOV 06...	0	10	.0	3	0	8
MAR 21...	0	<1	.0	0	0	<3
JUN 11...	0	8	.0	0	0	6
SEP 10...	0	30	.3	0	0	20

08158640 WALNUT CREEK AT SOUTHERN PACIFIC RAILROAD BRIDGE, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
NOV 06...	1510	.0	.00	.00	.0	.00	.00	.00
MAR 21...	1015	.0	--	.00	.0	.00	.00	.01
JUN 11...	1200	.0	--	.01	.0	.00	.00	.00
SEP 10...	1110	.0	--	.00	.0	.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)
NOV 06...	.25	.01	.00	.00	.00	.00	.06	.00	--
MAR 21...	.21	.00	.00	.00	.00	.00	.00	.01	--
JUN 11...	1.3	.00	.00	.00	.00	.00	.03	.30	--
SEP 10...	1.3	.02	.00	.00	.00	.01	.06	.09	.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 06...	.00	.00	.00	.00	0	.00	.09	.05	.00
MAR 21...	.00	.00	.00	.00	0	.00	.12	.04	.00
JUN 11...	.00	.00	.00	.00	0	.00	.10	.00	.00
SEP 10...	.00	.00	.00	.00	0	.00	<.05	<.05	<.05

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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	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)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 16...	1100	704	7.5	21.0	5	3.0	7.6	87	>23	52	K2	K11
NOV 13...	1115	700	7.2	23.5	10	15	4.6	56	12	580	150	84
DEC 04...	1155	649	7.4	15.5	5	6.0	6.6	68	6.1	120	31	30
JAN 05...	1015	660	8.3	12.0	2	6.0	7.7	74	4.2	860	120	620
FEB 06...	1315	454	7.6	11.5	5	260	10.8	102	4.6	14000	1200	9200
MAR 05...	1205	620	7.7	16.5	5	10	9.0	95	2.6	300	60	50
APR 02...	1340	540	7.2	18.0	10	55	7.5	82	2.5	5700	900	400
MAY 08...	1320	560	7.6	18.5	5	6.6	9.8	105	1.0	2200	140	73
JUN 11...	1400	540	7.5	19.0	5	5.0	10.4	111	.2	270	170	30
JUL 09...	1205	560	7.2	24.0	10	2.1	8.0	94	.8	2800	200	32
AUG 06...	1310	560	7.3	28.0	5	4.5	8.4	106	1.2	90	31	26
SEP 24...	1220	540	7.6	23.5	5	.90	10.2	120	.6	200	26	42

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)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT 16...	210	56	52	20	59	1.8	7.0	190	0	56	87	1.0
NOV 13...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 04...	200	33	51	17	48	1.5	6.5	200	0	49	69	.8
JAN 05...	210	38	56	17	36	1.1	5.0	210	0	48	58	.5
FEB 06...	190	29	56	11	17	.5	2.9	190	0	37	26	.3
MAR 05...	--	--	--	--	--	--	--	--	--	--	--	--
APR 02...	210	25	59	16	18	.5	2.2	230	0	31	27	.2
MAY 08...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 11...	190	40	42	20	32	1.0	3.7	180	0	40	52	.3
JUL 09...	190	34	43	20	32	1.0	3.9	190	0	40	56	.3
AUG 06...	200	57	49	20	31	.9	3.4	180	0	36	50	.3
SEP 24...	210	45	49	21	29	.9	4.0	200	0	37	50	.3

08158650 COLORADO RIVER BELOW AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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...	9.0	385	2	0	2.4	.37	2.8	.69	.71	1.4	4.9	5.8
NOV												
13...	--	--	20	4	1.1	.30	--	2.0	2.1	4.1	3.1	7.3
DEC												
04...	9.3	349	8	0	2.1	.49	2.6	2.6	1.1	3.7	1.0	5.6
JAN												
05...	9.7	334	14	3	2.1	.19	2.3	1.1	1.1	2.2	1.1	4.8
FEB												
06...	7.9	252	486	57	1.2	.12	1.3	.52	.78	1.3	.31	9.8
MAR												
05...	--	--	10	20	1.7	.43	2.1	.71	.59	1.3	.29	3.3
APR												
02...	8.2	275	116	14	.27	.06	.33	.26	.60	.86	.34	5.2
MAY												
08...	--	--	9	7	.14	.04	.18	.12	.54	.66	.27	3.3
JUN												
11...	8.2	287	6	7	.31	.08	.39	.07	.42	.49	.07	4.8
JUL												
09...	8.4	297	0	0	.39	.14	.53	.23	.16	.39	.29	3.8
AUG												
06...	9.4	288	8	3	.19	.12	.31	.03	.27	.30	.23	3.6
SEP												
24...	8.6	298	5	6	.52	.06	.58	.25	2.5	2.7	.28	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)
OCT							
16...	1100	3	100	0	0	3	10
FEB							
06...	1315	2	0	0	0	2	10
JUN							
11...	1400	1	70	1	10	0	<0
AUG							
06...	1310	2	70	<1	10	4	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT						
16...	0	20	.0	1	0	0
FEB						
06...	1	0	.0	0	0	10
JUN						
11...	0	6	.0	0	0	<3
AUG						
06...	0	20	.2	0	0	<3

COLORADO RIVER BASIN

08158650 COLORADO RIVER BELOW AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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...	1100	.0	.00	.00	.0	.00	.00	.00	.13
FEB 06...	1315	.0	--	.00	.0	.01	.03	.03	.07
JUN 11...	1400	.0	--	.00	.0	.00	.00	.00	.00
AUG 06...	1310	.0	--	.00	.0	.01	.00	.00	.04

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)	METHYL PARATHION, TOTAL (UG/L)
OCT 16...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB 06...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN 11...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 06...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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	0	.00	.03	.00	.00
FEB 06...	.00	.00	.00	0	.00	.03	.00	.00
JUN 11...	.00	.00	.00	0	.00	.11	.00	.00
AUG 06...	.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 mi^2 (321 km^2).

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 above 300 ft^3/s (8.50 m^3/s) and good below. Station is part of a hydrologic research project to study rainfall-runoff relationship in the Austin urban-rural areas. There is a digital recording rain gage located in the drainage basin above the station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,900 ft^3/s (53.8 m^3/s) July 27, 1979, gage height, 7.15 ft (2.179 m); minimum daily, 2.3 ft^3/s (0.065 m^3/s) Sept. 15, 1979.
The flood of Mar. 20, 1979, reached a stage of 11.48 ft (3.499 m), discharge unknown.

EXTREMES OUTSIDE PERIOD OF RECORD.--The highest stage since 1938 probably occurred in 1940 or 1941, stage and discharge unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period July to September, 1,900 ft^3/s (53.8 m^3/s) July 27, gage height, 7.15 ft (2.179 m), no other peak above base of 500 ft^3/s (14.2 m^3/s); minimum daily, 2.3 ft^3/s (0.065 m^3/s) Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										14	4.4	5.2
2										14	5.4	5.2
3										14	6.1	5.6
4										14	9.0	5.2
5										13	8.6	5.2
6										14	8.2	5.2
7										18	8.2	5.2
8										16	8.6	5.2
9										13	8.6	4.8
10										13	8.6	4.3
11										14	9.4	3.8
12										13	12	3.8
13										13	11	3.7
14										12	11	3.2
15										12	10	2.3
16										12	9.8	2.5
17										12	9.0	4.3
18										11	9.0	4.3
19										11	8.6	4.0
20										12	7.9	3.5
21										13	7.5	3.2
22										12	7.5	3.8
23										11	6.5	3.8
24										11	6.5	3.8
25										11	6.5	3.8
26										11	6.1	3.8
27										216	5.2	3.8
28										42	5.2	3.2
29										7.8	5.2	3.2
30										9.3	5.2	2.7
31										3.7	5.2	---
TOTAL										612.8	240.0	121.6
MEAN										19.8	7.74	4.05
MAX										216	12	5.6
MIN										3.7	4.4	2.3
CFSM										.16	.06	.03
IN.										.18	.07	.04
AC-FT										1220	476	241
(††)												

WTR YR 1979 TOTAL - MEAN - MAX - MIN - CFSM - IN. - AC-FT - †† -

†† Rainfall, in inches, based on one rain gages.

08158700 ONION CREEK NEAR DRIFTWOOD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Occasional water-quality data: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 06...	1350	8.0	450	7.7	17.0	0	1.0	8.0	85	.9
DEC 18...	1200	10	466	8.2	12.0	0	1.0	9.9	95	.3
FEB 27...	1250	155	513	7.9	13.0	0	2.0	10.4	102	.1
APR 24...	1000	125	498	8.0	19.5	0	3.0	9.4	106	.5
JUN 13...	1350	56	478	7.9	23.0	5	.50	8.8	105	.2
SEP 11...	1030	3.8	434	7.9	24.5	5	.30	7.7	92	.3

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
NOV 06...	3500	360	400	220	31	60	17	7.4	.2
DEC 18...	1000	23	21	--	--	--	--	--	--
FEB 27...	1100	200	520	270	42	84	15	6.3	.2
APR 24...	500	300	2400	--	--	--	--	--	--
JUN 13...	280	29	19	230	22	66	17	8.7	.2
SEP 11...	150	57	56	220	30	61	16	8.2	.2

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 06...	1.6	230	0	33	11	.2	9.3	253	1
DEC 18...	--	250	0	--	--	--	--	--	2
FEB 27...	1.4	230	0	32	14	.2	11	257	0
APR 24...	.9	280	0	21	17	.2	8.1	291	4
JUN 13...	--	--	--	--	--	--	--	--	9
SEP 11...	1.0	260	0	23	6.8	.2	9.8	261	0

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C),
NOV 06...	0	.00	.01	.01	.01	.25	.26	.00	2.6
DEC 18...	1	.18	.01	.19	.01	.13	.14	.01	1.6
FEB 27...	1	.26	.00	.26	.01	.09	.10	.01	1.2
APR 24...	2	.22	.00	.22	.01	.12	.13	.01	1.5
JUN 13...	0	.13	.02	.15	.01	.25	.26	.00	3.7
SEP 11...	2	.00	.00	.00	.00	.34	.34	.00	2.5

08158700 ONION CREEK NEAR DRIFTWOOD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 06...	1350	1	30	<1	0	0	10
FEB 27...	1250	1	0	0	0	0	10
JUN 13...	1350	0	30	<1	10	0	<0
SEPT 11...	1030	1	30	<1	0	0	<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 06...	0	2	.0	1	0	<3
FEB 27...	0	10	.0	2	0	10
JUN 13...	0	3	.1	0	0	<3
SEP 11...	0	<1	.1	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)
NOV 06...	1350	.0	.00	.00	.0	.00	.00	.00
FEB 27...	1250	.0	--	.00	.0	.00	.00	.00
JUN 13...	1350	.0	--	.00	.0	.00	.00	.00
SEP 11...	1030	.0	--	.00	.0	.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)
NOV 06...	.00	.00	.00	.00	.00	.00	.00	.00	--
FEB 27...	.00	.00	.00	.00	.00	.00	.00	.00	--
JUN 13...	.00	.00	.00	.00	.00	.00	.00	.00	--
SEP 11...	.00	.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)
NOV 06...	.00	.00	.00	0	.00	.00	.00	.00
FEB 27...	.00	.00	.00	0	.00	.00	.00	.00
JUN 13...	.00	.00	.00	0	.00	.00	.00	.00
SEP 11...	.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 to September 1979.

GAGE.--Water-stage recorder. Datum of gage is 657.39 ft (200.372 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good above 100 ft³/s (2.83 m³/s) and fair below. The station is part of a hydrologic-research project to study rainfall-runoff relation for the Austin urban-rural areas. There are two digital recording rain gages in watershed above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,430 ft³/s (40.5 m³/s) July 27, 1979, gage height, 6.33 ft (1.929 m); no flow at times.

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.--Maximum discharge during period July to September, 1,430 ft³/s (40.5 m³/s) July 27, gage height, 6.33 ft (1.929 m), no other peak above base of 1,000 ft³/s (28.3 m³/s); no flow Sept. 12-17, 22-30.

DISCHARGE, IN CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										1.5	2.3	2.5
2										1.5	2.3	2.4
3										1.3	2.3	2.3
4										1.2	2.3	2.2
5										1.3	2.3	2.1
6										2.2	2.1	2.5
7										1.9	2.0	34
8										1.7	2.0	3.7
9										1.5	2.1	1.5
10										1.4	2.2	.92
11										1.5	3.2	.42
12										1.5	3.1	.00
13										1.5	2.6	.00
14										1.6	2.5	.00
15										1.7	2.8	.00
16										1.6	2.6	.00
17										1.5	2.6	.00
18										1.6	2.7	.31
19										1.8	2.6	.85
20										1.9	2.5	.72
21										1.9	2.3	.17
22										1.9	2.0	.00
23										1.8	2.4	.00
24										1.6	2.4	.00
25										1.6	2.5	.00
26										1.6	2.5	.00
27										297	2.4	.00
28										130	2.3	.00
29										12	2.3	.00
30										3.0	2.4	.00
31										2.4	2.4	---
TOTAL										486.5	75.0	56.59
MEAN										15.7	2.42	1.89
MAX										297	3.2	34
MIN										1.2	2.0	.00
AC-FT										965	149	112
(††)										5.85	1.64	1.55

WTR YR 1979 TOTAL - MEAN - MAX - MIN - AC-FT - †† -

†† Weighted-mean rainfall, in inches, based on two rain gages.

08158800 ONION CREEK AT BUDA, TX--Continued

WATER-QUALITY RECORDS

LOCATION.--Lat 30°05'09", long 97°50'52", Hays County, Hydrologic Unit 12090205, on Farm Road 967, 0.5 mi (0.8 km) west of Buda.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV										
06...	0945	2.0	352	7.7	18.0	10	30	7.3	79	1.2
DEC										
19...	0800	.15	545	7.5	13.5	0	.00	8.6	85	.6
FEB										
27...	1100	89	471	8.0	12.5	0	8.0	10.5	102	.1
MAR										
20...	0930	610	225	7.6	18.5	40	950	10.2	112	4.4
APR										
24...	0915	256	458	8.1	21.0	0	2.0	9.6	110	.6
JUN										
13...	1205	16	369	7.9	25.0	3	.60	8.2	101	.4
SEP										
11...	0837	.48	439	7.8	22.5	10	66	7.7	89	.4

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
NOV									
06...	25000	3100	6500	160	17	55	6.6	4.2	.1
DEC									
19...	K700	2	940	230	26	79	8.2	15	.4
FEB									
27...	460	300	150	250	37	77	14	5.9	.2
MAR									
20...	32000	30000	80000	99	1	31	5.3	2.7	.1
APR									
24...	370	25	740	--	--	--	--	--	--
JUN									
13...	320	20	290	170	15	42	16	8.6	.3
SEP									
11...	1800	300	720	--	--	--	--	--	--

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV									
06...	2.3	180	0	23	8.5	.1	.2	189	38
DEC									
19...	4.0	250	0	44	22	.2	8.2	304	2
FEB									
27...	1.1	260	0	20	16	.2	7.9	270	9
MAR									
20...	1.9	120	0	9.0	4.4	.2	8.4	122	1290
APR									
24...	--	--	--	--	--	--	--	--	2
JUN									
13...	1.0	190	0	25	11	.2	8.2	206	0
SEP									
11...	--	--	--	--	--	--	--	--	77

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV									
06...	3	.30	.25	.55	.01	.79	.80	.04	4.4
DEC									
19...	2	1.5	.01	1.5	.01	.37	.38	.01	1.7
FEB									
27...	1	.34	.00	.34	.01	.09	.10	.01	2.7
MAR									
20...	172	.24	.02	.26	.08	2.1	2.2	.15	23
APR									
24...	0	.18	.00	.18	.01	.10	.11	.01	2.7
JUN									
13...	0	.02	.00	.02	.01	.33	.34	.01	4.2
SEP									
11...	33	.38	.08	.46	.07	.55	.62	.04	2.3

08158800 ONION CREEK AT BUDA, TX

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 06...	0945	1	20	<1	0	0	<0
FEB 27...	1100	1	0	0	0	0	10
MAR 20...	0930	0	10	<1	0	1	40
JUN 13...	1205	1	20	<1	0	0	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 06...	0	2	.0	1	0	<3
FEB 27...	0	0	.0	1	0	10
MAR 20...	0	<1	.0	0	0	<3
JUN 13...	0	<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)	DI-ELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
NOV 06...	0945	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00
FEB 27...	1100	.0	--	.00	.0	.00	.00	.00	.00	.00	.00	.00
MAR 20...	0930	.0	--	.00	.0	.00	.00	.00	.00	.00	.00	.00
JUN 13...	1205	.0	--	.00	.0	.00	.00	.00	.00	.00	.00	.00

DATE	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	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)
NOV 06...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
FEB 27...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
MAR 20...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
JUN 13...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00

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 mi² (31.6 km²).

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 to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 860 ft (262.1 m), from topographic map.

REMARKS.--Water-discharge records good. Station is part of a hydrologic research project to study rainfall-runoff relation for the Austin urban-rural areas. There is a digital recording rain gage in the watershed above station.

EXTREMES FOR PERIOD OF RECORD.--Maxumum discharge 3,050 ft³/s (86.4 m³/s) Apr. 18, 1979, gage height, 9.24 ft (2.816 m) from floodmarks, from slope-area measurements of peak flow; minimum discharge unknown.

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 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)
Feb. 23	unknown	1,110	31.4	a6.57	2.003	Apr. 18	unknown	*3,050	86.4	a9.24	2.816
Mar. 20	unknown	1,040	29.5	a6.44	1.963	July 27	0930	1,800	51.0	7.60	2.316
Mar. 21	unknown	770	21.8	a5.9	1.80						

a From floodmark.

Minimum daily discharge, 0.70 ft³/s (0.020 m³/s) Sept. 25, 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										---	7.5	1.4
2										---	7.2	1.3
3										---	6.6	1.3
4										---	5.7	1.3
5										---	5.2	2.9
6										---	4.6	1.9
7										2.6	4.3	1.6
8										2.5	4.1	1.4
9										2.4	4.1	1.3
10										2.3	3.6	1.2
11										2.2	7.2	1.2
12										2.1	5.2	1.2
13										2.0	4.3	1.0
14										1.9	4.9	1.0
15										1.9	4.1	.91
16										1.7	3.6	.91
17										1.6	3.6	.91
18										1.7	3.1	1.9
19										1.7	2.5	1.4
20										1.7	2.3	1.2
21										1.7	2.3	1.0
22										1.7	2.1	.91
23										1.6	1.9	.80
24										1.6	1.6	.80
25										1.6	1.9	.70
26										1.4	1.4	.91
27										156	1.3	.80
28										14	1.2	.70
29										10	1.2	.70
30										9.3	1.3	.70
31										8.7	1.4	---
TOTAL										---	111.3	35.25
MEAN										---	3.59	1.18
MAX										---	7.5	2.9
MIN										---	1.2	.70
AC-FT										---	221	70
(††)										5.88	2.00	3.34

WTR YR 1979 TOTAL - MEAN - MAX - MIN - AC-FT - †† -

†† Rainfall, 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.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 06...	1310	1.3	472	7.8	18.0	5	3.0	8.8	96	.5
DEC 18...	1300	3.3	532	7.6	13.0	0	1.0	10.7	105	.1
JAN 12...	1415	30	516	7.4	11.0	5	6.0	10.4	97	.4
FEB 23...	1215	409	272	7.8	15.0	30	500	9.2	94	5.2
MAR 21...	1325	74	362	7.8	17.5	30	45	9.2	99	1.6
APR 25...	1145	30	523	8.0	21.5	5	2.0	9.0	105	.5
JUN 12...	1425	11	500	7.6	25.0	5	.50	9.2	114	.3
SEP 11...	1105	1.2	474	7.9	24.0	10	.80	8.2	96	.0

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
NOV 06...	10000	500	1300	230	33	64	17	9.0	.3
DEC 18...	2200	6	32	280	47	81	18	8.1	.2
JAN 12...	2500	520	1000	260	28	80	14	6.3	.2
FEB 23...	--	--	--	130	19	40	6.2	3.7	.1
MAR 21...	8000	3900	28000	160	1	50	9.7	4.6	.2
APR 25...	1600	58	820	290	37	92	15	7.8	.2
JUN 12...	180	22	80	--	--	--	--	--	--
SEP 11...	420	330	18	--	--	--	--	--	--

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 06...	1.7	240	0	27	17	.2	8.8	263	4
DEC 18...	1.0	280	0	30	18	.2	8.0	302	1
JAN 12...	1.4	280	0	22	13	.1	8.6	284	6
FEB 23...	2.1	130	0	13	8.9	.1	6.8	145	898
MAR 21...	1.9	200	0	12	8.2	.2	9.7	195	66
APR 25...	.9	310	0	19	15	.2	7.3	310	1
JUN 12...	--	--	--	--	--	--	--	--	0
SEP 11...	--	--	--	--	--	--	--	--	1

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 06...	0	.03	.01	.04	.01	.89	.90	.01	2.5
DEC 18...	1	.31	.01	.32	.05	.39	.44	.04	1.5
JAN 12...	1	1.3	.02	1.3	.00	.13	.13	.01	--
FEB 23...	160	.32	.02	.34	.06	2.6	2.7	.09	60
MAR 21...	5	.19	.02	.21	.01	.54	.55	.01	6.9
APR 25...	0	.45	.00	.45	.02	.14	.16	.02	1.9
JUN 12...	0	.15	.00	.15	.01	.28	.29	.01	3.3
SEP 11...	1	.00	.02	.01	.18	.18	.36	.00	2.7

DATE	TIME	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 06...	1310	1	30	<1	0	0	10
JAN 12...	1415	1	20	<1	10	2	10
FEB 23...	1215	1	0	0	0	0	50
APR 25...	1145	0	0	0	0	0	10

DATE	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)
NOV 06...	0	2	.0	0	0	<3
JAN 12...	1	<1	.0	1	0	4
FEB 23...	0	0	.0	1	0	10
APR 25...	0	0	.0	1	0	20

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 06...	1310	.0	.00	.00	.0	.00	.00	.00	.03
JAN 12...	1415	.0	--	.00	.0	.00	.00	.00	.00
FEB 23...	1215	.0	--	.00	.0	.00	.00	.00	.00
APR 25...	1145	.0	.00	.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)	METHYL PARATHION, TOTAL (UG/L)
NOV 06...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JAN 12...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB 23...	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR 25...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 06...	.00	.00	.00	0	.00	.00	.00	.00
JAN 12...	.00	.00	.00	0	.00	.00	.00	.00
FEB 23...	.00	.00	.00	0	.00	.00	.00	.00
APR 25...	.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 mi² (54.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July to September 1979.

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, 1979."

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 640 ft³/s (18.1 m³/s) July 27, 1979, gage height, 6.76 ft (2.060 m), from rating curve extended above 150 ft³/s (4.25 m³/s) on basis of culvert flow computation at gage height 7.23 ft (2.204 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period July to September, 640 ft³/s (18.1 m³/s) July 27, gage height, 6.76 ft (2.060 m), from rating curve extended as explained above.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1978 to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 06...	0900	.11	409	7.7	17.0	50	190	8.0	85	3.4
JAN 11...	1645	11	175	7.7	5.0	170	120	--	--	2.8
FEB 07...	1124	.92	560	7.6	7.5	26	15	9.2	79	.7
MAR 21...	1045	120	143	7.8	15.0	100	65	9.3	95	3.6
APR 24...	0845	.22	523	7.4	20.0	30	20	8.0	91	1.9

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
NOV 06...	51000	24000	26000	190	110	74	1.6	3.2	.1
JAN 11...	66000	5100	30000	80	9	28	2.4	1.5	.1
FEB 07...	25000	240	2300	280	88	110	2.4	5.0	.1
MAR 21...	33000	14000	110000	67	1	23	2.2	1.5	.1
APR 24...	1600	400	3000	--	--	--	--	--	--

08158825 LITTLE BEAR CREEK AT FARM ROAD 1626 NEAR MANCHACA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
NOV 06...	4.4	100	0	110	4.5	.2	10	257	254
JAN 11...	3.3	86	0	8.5	3.6	.1	11	101	114
FEB 07...	2.7	240	0	86	8.6	.2	12	345	16
MAR 21...	2.8	80	0	5.7	2.6	.1	13	90	126
APR 24...	--	--	--	--	--	--	--	--	19

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 06...	24	.77	.01	.78	.01	.74	.75	.25	10
JAN 11...	16	.44	.02	.46	.02	.66	.68	.11	--
FEB 07...	1	1.2	.02	1.2	.03	.37	.40	.05	4.6
MAR 21...	6	.10	.02	.12	.03	.92	.95	.04	10
APR 24...	2	.45	.02	.47	.03	.48	.51	.05	32

DATE	TIME	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 06...	0900	1	20	<1	0	1	40
JAN 11...	1645	1	10	2	10	2	70

DATE	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)
NOV 06...	0	3	.0	2	0	<3
JAN 11...	0	4	.0	0	0	<3

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 06...	0900	.0	.00	.00	.0	.00	.00	.00	.16
JAN 11...	1645	.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)	METHYL PARATHION, TOTAL (UG/L)
NOV 06...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JAN 11...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 06...	.00	.00	.00	0	.00	.00	.00	.00
JAN 11...	.00	.00	.00	0	.00	.00	.00	.00

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 fair. No known regulation or diversion. There is a recording rain gage in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,500 ft³/s (70.8 m³/s) May 21, 1979, gage height, 9.00 ft (2.743 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 500 ft³/s (14.22 m³/s) and maximum (*).

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 23	1100	888	25.1	6.79	2.070
Apr. 18	2015	1,830	51.8	8.25	2.515
May 21	2315	*2,500	70.8	9.00	2.743

Minimum discharge, no flow Oct. 15 to Nov. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	.00	3.1	28	4.8	7.9	28	53	68	2.0	3.7	.52
2	.27	.00	3.1	12	4.4	7.3	26	33	41	1.8	3.1	.52
3	.27	.00	3.7	11	5.0	7.9	24	29	27	1.5	2.8	.52
4	.27	.00	3.2	11	13	6.2	19	22	23	1.5	2.6	.52
5	.27	1.5	3.1	12	48	5.7	16	18	28	1.6	2.3	.59
6	.21	1.6	3.1	14	91	5.6	13	15	22	4.7	2.0	.52
7	.21	.44	2.9	13	37	5.2	13	13	17	2.2	1.9	.52
8	.21	.38	2.7	10	26	4.8	14	11	15	1.9	1.8	.46
9	.21	.38	2.4	9.8	18	4.7	11	11	13	1.8	1.8	.38
10	.21	.38	2.4	69	16	4.1	11	10	10	1.9	1.8	.38
11	.21	.38	2.4	101	14	4.1	9.7	11	9.4	2.1	6.1	.38
12	.20	.46	2.4	42	12	4.1	8.1	9.4	8.3	1.4	2.9	.38
13	.16	.46	2.4	26	10	3.7	7.2	8.2	7.7	1.3	2.3	.34
14	.08	.46	2.4	17	9.7	3.5	6.7	7.2	7.1	1.1	1.9	.30
15	.00	.77	2.4	16	8.7	3.6	6.5	6.7	6.6	1.1	1.8	.30
16	.00	1.1	2.4	15	6.8	5.2	6.2	6.6	6.1	1.0	1.8	.30
17	.00	1.2	2.0	13	6.7	5.7	7.2	6.2	5.3	1.0	1.5	.27
18	.00	1.2	2.1	13	6.2	5.6	161	6.1	5.2	1.1	1.4	.44
19	.00	1.6	2.2	12	5.7	8.2	68	5.7	4.8	1.1	1.2	.44
20	.00	1.8	2.2	11	5.7	13	39	5.6	4.4	11	1.1	.42
21	.00	2.5	2.0	9.2	5.3	88	98	250	4.1	2.6	1.0	.38
22	.00	2.8	2.0	8.4	5.3	66	45	196	4.0	1.4	.98	.34
23	.00	2.9	2.0	7.8	90	33	30	43	3.7	1.3	1.0	.34
24	.00	2.9	2.0	6.8	22	23	23	27	3.4	1.1	.89	.34
25	.00	3.1	2.0	7.1	15	18	18	19	3.1	1.1	.82	.30
26	.00	3.3	1.9	7.8	13	15	15	16	2.9	1.1	.82	.30
27	.00	3.4	1.8	7.0	11	13	13	14	2.9	83	.72	.30
28	.00	3.4	1.8	6.3	9.6	12	11	13	2.8	13	.66	.30
29	.00	3.4	1.8	6.2	---	12	45	11	2.5	7.0	.66	.29
30	.00	3.2	1.8	6.2	---	20	20	16	2.0	5.5	.66	.29
31	.00	---	46	5.5	---	21	---	14	---	4.4	.59	---
TOTAL	3.05	45.01	117.7	534.1	519.9	437.1	812.6	906.7	360.3	164.6	54.60	11.68
MEAN	.098	1.50	3.80	17.2	18.6	14.1	27.1	29.2	12.0	5.31	1.76	.39
MAX	.27	3.4	46	101	91	88	161	250	68	83	6.1	.59
MIN	.00	.00	1.8	5.5	4.4	3.5	6.2	5.6	2.0	1.0	.59	.27
CFSM	.01	.18	.46	2.09	2.26	1.71	3.29	3.54	1.46	.64	.21	.05
IN.	.01	.20	.53	2.41	2.35	1.97	3.67	4.09	1.63	.74	.25	.05
AC-FT	6.0	89	233	1060	1030	867	1610	1800	715	326	108	23
(††)	.42	6.21	2.88	4.15	4.17	4.81	6.79	3.56	.43	7.04	2.15	2.48

CAL YR 1978 TOTAL - MEAN - MAX - MIN - CFSM - IN - AC-FT - †† -
WTR YR 1979 TOTAL 3967.34 MEAN 10.9 MAX 250 MIN .00 CFSM 1.32 IN 17.91 AC-FT 7870 †† 45.09

†† Rainfall, 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, 1979."

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,000 ft³/s (85.0 m³/s) May 22, 1979, gage height, 10.20 ft (3.109 m), from rating curve extended above 100 ft³/s (2.83 m³/s) on basis of computation of flow over dam at gage height 9.64 ft (2.938 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,000 ft³/s (85.0 m³/s) May 22, gage height, 10.20 ft (3.109 m), from rating curve extended as explained above.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1978 to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
DEC										
18...	0815	.00	--	--	--	--	--	--	--	--
18...	0825	.00	--	--	--	--	--	--	--	--
JAN										
11...	1445	53	403	8.0	5.0	30	55	12.4	100	1.8
12...	1330	21	544	8.0	7.0	20	15	11.4	97	.9
FEB										
07...	1000	18	580	8.1	7.0	16	8.0	12.0	102	.6
MAR										
21...	0845	230	327	7.7	15.5	40	100	9.3	96	3.1
APR										
24...	0755	1.5	586	8.0	19.5	5	2.0	8.4	94	.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
DEC									
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
JAN									
11...	80000	3200	22000	180	37	51	12	9.8	.3
12...	2500	1100	8000	250	55	71	18	14	.4
FEB									
07...	8800	260	2100	270	57	77	19	11	.3
MAR									
21...	48000	13000	78000	140	18	42	8.9	7.4	.3
APR									
24...	2000	68	2000	--	--	--	--	--	--

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
DEC									
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
JAN									
11...	2.4	170	0	28	21	.1	7.3	215	72
12...	2.1	240	0	38	31	.1	7.5	300	13
FEB									
07...	1.4	260	0	44	31	.1	7.9	320	7
MAR									
21...	2.2	150	0	19	15	.1	10	179	230
APR									
24...	--	--	--	--	--	--	--	--	2

08158860 SLAUGHTER CREEK AT FARM ROAD 2304 NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
DEC									
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
JAN									
11...	9	.55	.02	.57	.00	.10	.10	.05	7.4
12...	2	.70	.02	.72	.00	.50	.50	.02	5.6
FEB									
07...	2	.25	.02	.27	.02	.18	.20	.03	4.4
MAR									
21...	22	.37	.04	.41	.07	.93	1.0	.10	14
APR									
24...	0	.14	.02	.16	.02	.23	.25	.01	4.4

DATE	TIME	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
JAN							
11...	1445	1	20	1	10	0	30
12...	1330	0	30	2	0	0	10

DATE	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						
11...	0	1	.0	0	0	<3
12...	1	2	.0	0	0	<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)	HEPTACHLOR, TOTAL (UG/L)
JAN												
11...	1445	.0	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
12...	1330	.0	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

DATE	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, 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)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN											
11...	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
12...	.00	.00	.00	.00	.00	.00	0	.00	.00	.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 good. Station is part of a hydrologic-research project to study rainfall-runoff relation for the Austin urban-rural areas. Two digital recording rain gages are in the watershed above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,130 ft³/s (60.3 m³/s) May 21, 1979, gage height, 6.46 ft (1.969 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharge 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)
Feb. 23	1030	555	15.7	3.94	1.201
Apr. 18	1930	1,370	38.8	5.38	1.640
May 21	2300	*2,130	60.3	6.46	1.969

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	2.0	35	2.3	4.0	18	25	33	.37	2.3	.10
2	.00	.00	1.7	12	2.3	3.9	17	16	26	.37	2.3	.06
3	.00	.00	2.7	9.0	2.4	3.5	15	13	20	.37	2.2	.02
4	.00	.00	1.7	7.7	10	2.7	12	8.1	18	.37	1.5	.64
5	.00	14	1.7	8.1	37	2.6	10	5.6	21	.31	1.2	1.2
6	.00	4.0	1.5	11	67	2.3	9.5	4.2	17	5.2	1.2	1.0
7	.00	.22	1.5	10	32	2.0	9.1	3.2	13	.52	1.0	.55
8	.00	.17	1.2	7.4	23	1.7	12	2.7	11	.43	.72	.20
9	.00	.16	1.0	6.4	17	1.7	12	2.7	8.8	.37	.34	.04
10	.00	.00	1.0	52	15	1.5	12	2.2	7.1	.87	.28	.01
11	.00	.00	1.0	67	12	1.5	14	2.1	6.2	.43	3.9	.01
12	.00	.19	1.0	32	10	1.3	14	1.7	5.1	.28	.95	.00
13	.00	.02	1.0	22	8.2	1.2	15	1.5	4.3	.23	.46	.00
14	.00	.00	.70	15	7.9	1.1	18	1.4	3.7	.22	.46	.00
15	.00	1.5	.85	12	6.7	1.3	19	2.0	3.2	.20	.46	.00
16	.00	1.9	.85	11	5.5	3.0	21	2.8	2.7	.19	.44	.00
17	.00	1.5	.78	9.2	5.3	2.7	26	4.0	2.5	.14	.46	.00
18	.00	1.3	.78	8.8	4.9	2.4	102	5.8	1.9	.17	.57	1.7
19	.00	2.5	.78	8.1	4.5	2.8	34	7.3	1.7	.20	.24	.68
20	.00	3.0	.78	7.1	4.3	6.6	26	8.3	1.5	6.9	.14	.13
21	.00	3.3	.78	5.9	4.4	51	81	238	1.4	1.6	.14	.02
22	.00	3.4	.78	5.4	4.0	45	26	140	1.2	.39	.12	.01
23	.00	3.3	.78	4.4	56	20	17	33	1.2	.28	1.8	.06
24	.00	2.7	.78	3.8	20	14	11	23	.92	.23	.25	.02
25	.00	2.7	.78	3.4	14	10	7.6	17	.83	.21	.35	.00
26	.00	2.7	.78	3.4	7.7	7.7	5.3	14	.70	.17	.11	.00
27	.00	2.7	.72	3.2	6.9	6.7	4.1	12	.79	44	.05	.00
28	.00	2.4	.57	3.0	5.4	6.1	3.3	10	.67	12	.09	.00
29	.00	2.0	.51	3.0	---	5.5	24	8.9	.46	5.9	.10	.00
30	.00	2.0	.51	3.0	---	12	9.0	11	.42	3.7	.13	.00
31	.00	---	40	2.4	---	14	---	9.8	---	2.9	.11	---
TOTAL	.00	57.66	71.51	391.7	395.7	241.8	603.9	636.3	216.29	89.52	24.37	6.45
MEAN	.000	1.92	2.31	12.6	14.1	7.80	20.1	20.5	7.21	2.89	.79	.22
MAX	.00	14	40	67	67	51	102	238	33	44	3.9	1.7
MIN	.00	.00	.51	2.4	2.3	1.1	3.3	1.4	.42	.14	.05	.00
CFSM	.000	.31	.37	2.00	2.24	1.24	3.19	3.25	1.14	.46	.13	.04
IN.	.00	.34	.42	2.31	2.34	1.43	3.57	3.76	1.28	.53	.14	.04
AC-FT	.00	114	142	777	785	480	1200	1260	429	178	48	13
(††)	.34	6.68	3.25	3.30	3.69	4.83	6.09	7.69	1.99	6.53	1.80	3.17

CAL YR 1978 TOTAL - MEAN - MAX - MIN - CFSM - IN - AC-FT - †† -
WTR YR 1979 TOTAL 2735.20 MEAN 7.49 MAX 238 MIN .00 CFSM 1.19 IN 16.15 AC-FT 5430 †† 49.36

†† Weighted-mean rainfall, in inches, based on two rain gages.

08158920 WILLIAMSON CREEK AT OAK HILL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 06...	1130	1.2	447	7.7	18.0	20	25	8.5	92	3.0
DEC 18...	1030	4.9	703	7.8	11.0	0	2.0	14.2	133	.6
FEB 28...	1050	4.3	659	8.1	14.0	0	2.0	10.6	106	.2
APR 24...	1155	11	632	7.8	22.0	0	2.0	9.7	114	.7
MAY 22...	1045	62	458	7.8	20.0	30	12	8.7	95	1.2
JUN 12...	0855	5.1	635	7.8	20.0	5	.70	10.0	114	.6
SEP 11...	1240	.01	390	8.6	29.0	10	.20	9.6	125	.3

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
NOV 06...	74000	13000	16000	190	37	54	14	14	.4
DEC 18...	3600	100	45	350	58	97	27	20	.5
FEB 28...	5700	480	390	--	--	--	--	--	--
APR 24...	580	180	1900	350	50	97	25	12	.3
MAY 22...	22000	5000	13000	230	20	67	16	9.8	.3
JUN 12...	>560	560	600	330	24	90	25	12	.3
SEP 11...	200	130	120	180	36	36	22	14	.5

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 06...	3.0	190	0	31	25	.2	7.1	242	27
DEC 18...	1.1	360	0	34	38	.1	2.9	397	2
FEB 28...	--	--	--	--	--	--	--	--	2
APR 24...	.9	360	0	32	19	.2	6.5	370	2
MAY 22...	1.6	260	0	22	9.9	.2	6.9	262	15
JUN 12...	.7	370	0	25	8.7	.2	6.0	350	3
SEP 11...	1.2	160	8	35	24	.2	6.2	226	4

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)
NOV 06...	2	.56	.01	.57	.26	.34	.60	.30	5.7
DEC 18...	2	.01	.00	.01	.00	.20	.20	.07	2.2
FEB 28...	0	.77	.02	.79	.02	.08	.10	.08	2.3
APR 24...	1	.42	.00	.42	.01	.16	.17	.03	2.5
MAY 22...	12	.52	.02	.54	.06	.37	.43	.04	6.5
JUN 12...	3	.13	.00	.13	.01	.34	.35	.01	10
SEP 11...	0	.01	.00	.01	.00	.54	.54	.00	4.4

08158920 WILLIAMSON CREEK AT OAK HILL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 06...	1130	2	30	<1	0	1	20
APR 24...	1155	0	0	0	0	0	10
MAY 22...	1045	1	0	0	0	0	10
JUN 12...	0855	0	30	<1	0	0	0
SEP 11...	1240	1	30	<1	0	0	<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 06...	0	10	.0	2	0	<3
APR 24...	0	20	.0	0	0	10
MAY 22...	0	0	.0	0	0	10
JUN 12...	0	8	.0	0	0	<3
SEP 11...	0	<1	.4	0	0	<3

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)
NOV 06...	1130	.0	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
APR 24...	1155	.0	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
MAY 22...	1045	.0	.00	.0	.00	.00	.00	.09	.00	.00	.00	.00
JUN 12...	0855	.0	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
SEP 11...	1240	.0	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	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)
NOV 06...	.00	.01	.00	--	.00	.00	.00	0	.00	.01	.01	.00
APR 24...	.00	.00	.00	--	.00	.00	.00	0	.00	.00	.00	.00
MAY 22...	.00	.00	.00	--	.00	.00	.00	0	.00	.03	.01	.00
JUN 12...	.00	.00	.00	--	.00	.00	.00	0	.00	.00	.00	.00
SEP 11...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.01	.00

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 above station. There are two 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.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft³/s (286 m³/s) Nov. 23, 1974, gage height, 15.2 ft (4.63 m), from floodmark, by slope-area measurement; 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)
Nov. 5	1845	950	26.9	6.51	1.984	Apr. 19	0030	2,070	58.6	8.64	2.633
Dec. 31	0745	801	22.7	6.12	1.865	May 22	0245	*6,740	191	13.25	4.039
Feb. 23	1245	1,780	50.4	8.17	2.490	July 27	1115	1,870	53.0	8.32	2.536
Mar. 21	0215	667	18.9	5.73	1.747						

Minimum daily discharge, 0.54 ft³/s (0.015 m³/s) Aug. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.83	1.1	2.2	39	3.7	4.4	13	74	13	1.0	1.1	3.2
2	.93	.99	2.4	10	4.2	3.8	14	23	25	1.0	.93	3.0
3	.94	1.0	3.1	5.7	7.9	4.2	11	16	7.9	.93	.84	2.9
4	.97	1.2	3.5	5.7	20	2.9	9.2	13	5.0	.91	.66	2.9
5	1.0	172	2.9	6.4	37	2.7	7.2	14	11	1.0	.72	3.4
6	.93	47	2.9	8.0	102	2.7	5.9	9.3	6.4	20	.66	5.5
7	.93	7.0	2.9	6.8	24	2.6	5.2	6.8	4.0	2.5	.54	2.2
8	.82	4.5	2.6	4.5	15	2.6	5.2	5.4	25	1.4	.77	1.7
9	.77	3.3	2.4	3.6	9.6	2.7	5.0	4.8	5.0	1.5	1.0	1.7
10	.72	2.7	2.6	31	7.8	3.1	4.6	4.5	2.0	1.4	.90	1.5
11	.72	2.5	2.6	90	6.7	3.1	4.0	11	1.4	1.3	3.0	1.7
12	.72	2.4	2.7	20	5.6	2.4	3.5	6.9	1.0	1.2	3.1	1.7
13	.75	2.3	2.7	12	4.7	2.4	3.3	4.0	1.1	1.3	1.2	1.7
14	.72	2.2	2.7	7.9	4.3	2.3	3.1	3.5	1.2	1.7	.89	1.7
15	.79	2.1	2.9	6.2	4.1	3.9	3.1	3.1	1.3	2.3	.82	1.1
16	.93	12	2.9	5.4	3.5	13	3.1	2.9	1.3	2.4	.89	.97
17	.82	1.4	2.7	4.6	3.3	6.0	16	2.9	1.3	2.3	.90	1.4
18	.70	3.0	2.7	4.9	3.3	3.7	87	3.1	1.4	2.0	.82	13
19	.82	2.8	2.4	5.7	3.3	3.1	222	2.9	1.6	2.5	.79	8.7
20	.83	2.5	2.6	4.5	3.4	3.8	30	2.9	1.6	3.4	1.0	4.7
21	.94	2.4	2.6	3.8	3.5	157	82	375	1.7	2.2	1.3	1.9
22	1.3	2.3	2.4	3.5	3.7	63	35	1190	1.8	2.1	1.7	1.2
23	1.4	2.2	2.4	3.7	230	22	26	22	1.7	2.0	2.0	1.2
24	1.6	2.1	2.4	3.6	26	14	21	18	1.7	1.9	2.5	1.2
25	1.7	2.0	2.4	4.5	13	11	18	15	1.7	1.9	2.5	.94
26	1.6	4.8	2.4	7.0	8.8	8.5	15	7.1	1.4	2.1	2.5	.82
27	1.1	5.0	2.4	5.2	7.2	6.9	13	6.1	1.3	317	2.7	.82
28	1.0	2.8	2.4	4.1	5.7	5.5	13	5.8	1.3	8.6	2.7	1.1
29	1.0	2.2	2.6	4.6	---	5.1	89	5.6	1.2	2.5	2.8	1.2
30	1.0	2.2	2.6	4.8	---	21	20	5.2	1.0	1.7	3.1	.96
31	1.0	---	176	4.1	---	15	---	7.8	---	1.4	3.1	---
TOTAL	30.28	301.99	255.0	330.8	571.3	404.4	787.4	1871.6	132.3	395.44	48.43	76.01
MEAN	.98	10.1	8.23	10.7	20.4	13.0	26.2	60.4	4.41	12.8	1.56	2.53
MAX	1.7	172	176	90	230	157	222	1190	25	317	3.1	13
MIN	.70	.99	2.2	3.5	3.3	2.3	3.1	2.9	1.0	.91	.54	.82
CFSM	.04	.37	.30	.39	.74	.47	.95	2.19	.16	.46	.06	.09
IN.	.04	.41	.34	.45	.77	.55	1.06	2.52	.18	.53	.07	.10
AC-FT	60	599	506	656	1130	802	1560	3710	262	784	96	151
(††)	.60	6.73	2.88	3.07	4.18	4.70	5.46	8.08	2.18	6.83	1.55	2.91

CAL YR 1978 TOTAL 1351.44 MEAN 3.70 MAX 176 MIN .39 CFSM .13 IN 1.82 AC-FT 2680 †† 33.33
WTR YR 1979 TOTAL 5204.95 MEAN 14.3 MAX 1190 MIN .54 CFSM .52 IN 7.02 AC-FT 10320 †† 49.17

†† Weighted-mean rainfall, in inches, based on three rain gages.

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Periodic chemical, biochemical, and pesticide analyses: January 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 06...	0815	31	244	7.6	16.5	40	85	8.5	89	2.9
DEC 18...	1400	6.1	824	7.7	16.5	10	4.0	7.0	74	5.0
FEB 28...	1135	6.1	723	7.7	13.5	0	4.0	9.7	96	.4
APR 24...	1120	24	664	7.7	21.0	5	4.0	7.8	90	2.7
JUN 12...	0715	1.0	630	7.2	20.5	8	2.4	6.0	68	1.6
SEP 11...	0720	1.6	798	7.3	21.5	5	.50	3.7	42	1.5

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
NOV 06...	76000	20000	35000	98	23	35	2.6	5.9	.3
DEC 18...	1200	300	100	300	0	100	11	50	1.3
FEB 28...	1600	310	400	--	--	--	--	--	--
APR 24...	3500	280	1600	310	47	99	15	23	.6
JUN 12...	1700	210	640	--	--	--	--	--	--
SEP 11...	1800	290	960	300	0	99	13	50	1.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 06...	3.2	92	0	29	7.9	.1	5.9	135	147
DEC 18...	3.9	360	0	44	66	.4	13	466	5
FEB 28...	--	--	--	--	--	--	--	--	4
APR 24...	2.5	320	0	47	32	.3	9.1	386	3
JUN 12...	--	--	--	--	--	--	--	--	9
SEP 11...	4.4	370	0	34	60	.5	14	458	17

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)
NOV 06...	19	.35	.01	.36	.06	.33	.39	.26	7.7
DEC 18...	3	.59	.15	.74	1.3	.70	2.0	.02	4.5
FEB 28...	0	1.2	.04	1.2	.32	.18	.50	.04	4.2
APR 24...	1	.41	.21	.62	.43	.40	.83	.39	9.3
JUN 12...	8	.40	.25	.65	.25	.58	.83	.01	5.9
SEP 11...	6	.89	.41	1.3	.56	.39	.95	.00	3.4

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 06...	0815	2	30	1	0	2	50
APR 24...	1120	2	100	0	0	1	20
SEP 11.	0720	3	200	<1	0	0	<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 06...	0	5	.0	2	0	6
APR 24...	0	60	.0	0	0	10
SEP 11...	0	50	.3	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)
NOV 06...	0815	.0	.00	.00	.0	.00	.00	.01
APR 24...	1120	.0	--	.00	.0	.00	.00	.00
SEP 11...	0720	.0	--	.00	.0	.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)
NOV 06...	.20	.00	.00	.00	.00	.00	.00	.01	--
APR 24...	.15	.00	.00	.00	.00	.00	.01	.14	--
SEP 11...	.00	.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)
NOV 06...	.00	.00	.00	0	.00	.02	.02	.00
APR 24...	.00	.00	.00	0	.00	.02	.01	.00
SEP 11...	.00	.00	.00	0	.00	.00	.00	.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.

AVERAGE DISCHARGE.--8 years (water years 1925-29, 1977-79), 81.6 ft³/s (2.311 m³/s), 3.45 in/yr (88 mm/yr), 59,120 acre-ft/yr (72.9 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)
Dec. 31	0900	3,130	88.6	10.95	3.338	Mar. 21	1315	7,090	201	16.79	5.118
Feb. 23	1400	4,700	133	13.39	4.081	Apr. 19	0515	7,840	222	17.49	5.331
Mar. 20	0545	5,060	143	13.99	4.264	May 22	0530	*10,000	283	19.40	5.913

Minimum daily discharge, 1.0 ft³/s (0.028 m³/s) Sept. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	3.5	8.2	214	27	120	414	856	183	7.6	20	6.4
2	4.3	3.5	8.0	63	25	108	516	485	405	7.3	15	5.4
3	3.7	3.0	8.0	36	32	105	448	370	204	7.0	12	4.5
4	3.6	2.9	8.0	28	64	99	404	310	141	7.1	11	4.3
5	3.6	136	8.0	30	196	87	355	267	166	7.1	9.6	3.5
6	3.5	388	8.0	31	783	82	323	242	176	53	8.0	9.1
7	3.0	31	8.0	37	429	79	295	221	137	34	8.0	6.1
8	3.0	12	7.7	28	322	74	297	194	171	18	6.3	8.2
9	3.0	7.5	7.1	22	250	70	277	182	133	14	6.3	19
10	3.0	5.3	8.0	39	206	68	250	169	92	11	6.1	8.3
11	3.0	4.8	8.0	895	181	69	240	196	78	9.8	10	5.5
12	2.9	4.8	8.0	339	148	66	210	184	69	9.8	28	3.8
13	2.9	4.8	8.0	228	127	62	184	139	64	9.7	16	2.8
14	2.4	4.8	8.0	149	101	59	169	121	56	8.9	10	2.0
15	2.1	6.4	8.0	104	90	55	153	108	50	13	8.2	1.6
16	2.0	26	8.0	94	78	68	144	98	44	13	7.9	1.2
17	2.0	25	8.0	83	70	72	157	92	39	9.0	6.4	1.0
18	2.0	13	8.0	73	70	73	230	86	34	8.0	7.1	23
19	2.0	9.9	8.0	65	72	70	2500	80	29	15	6.5	26
20	2.0	15	8.0	54	72	1290	336	74	24	24	6.4	30
21	2.0	18	8.0	43	74	3630	858	397	19	12	6.3	10
22	2.0	19	7.7	37	70	1280	467	3790	18	11	5.5	7.3
23	2.0	16	7.1	32	1150	719	313	542	15	8.9	4.1	5.7
24	2.0	13	7.1	28	422	596	254	327	14	8.1	4.2	5.0
25	2.3	11	7.1	27	231	527	217	259	13	7.2	5.0	4.7
26	3.8	10	7.1	33	177	464	188	210	11	7.3	5.0	4.0
27	3.8	13	7.1	33	157	408	165	185	11	2320	4.8	3.5
28	4.1	13	8.0	28	141	373	148	172	9.9	426	4.8	3.0
29	3.5	11	8.0	27	---	340	616	160	9.8	101	5.3	2.9
30	3.5	9.8	8.0	27	---	404	478	143	8.7	51	8.9	2.9
31	3.5	---	845	28	---	514	---	163	---	32	7.0	---
TOTAL	91.4	841.0	1079.2	2955	5765	12031	11606	10822	2424.4	3270.8	269.7	220.7
MEAN	2.95	28.0	34.8	95.3	206	388	387	349	80.8	106	8.70	7.36
MAX	4.9	388	845	895	1150	3630	2500	3790	405	2320	28	30
MIN	2.0	2.9	7.1	22	25	55	144	74	8.7	7.0	4.1	1.0
CFSM	.009	.09	.11	.30	.64	1.21	1.21	1.09	.25	.33	.03	.02
IN.	.01	.10	.13	.34	.67	1.39	1.34	1.25	.28	.38	.03	.03
AC-FT	181	1670	2140	5860	11430	23860	23020	21470	4810	6490	535	438

CAL YR 1978 TOTAL 4042.65 MEAN 11.1 MAX 845 MIN .45 CFSM .04 IN .47 AC-FT 8020
WTR YR 1979 TOTAL 51376.20 MEAN 141 MAX 3790 MIN 1.0 CFSM .44 IN 5.95 AC-FT 101900

08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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										
11...	1415	2.9	--	--	25.5	--	--	--	--	--
18...	1130	1.8	699	7.9	19.0	0	4.0	8.5	94	.7
NOV										
15...	0850	4.8	600	7.8	19.5	10	4.0	6.8	77	.6
30...	1300	9.9	--	--	16.0	--	--	--	--	--
DEC										
06...	1215	8.0	669	8.0	12.0	5	4.0	10.3	100	.4
JAN										
02...	1320	58	360	7.4	4.5	19	95	12.7	102	2.2
05...	1240	30	--	--	6.5	--	--	--	--	--
FEB										
07...	1340	370	482	7.9	10.0	5	30	11.3	104	.9
14...	1325	100	--	--	16.0	--	--	--	--	--
MAR										
07...	0915	81	524	8.0	14.0	5	10	9.0	90	1.8
29...	1446	333	--	--	19.0	--	--	--	--	--
APR										
05...	1230	311	500	7.8	17.0	5	7.0	9.7	103	.5
MAY										
02...	1558	454	--	--	21.5	--	--	--	--	--
10...	1305	172	460	7.5	23.5	0	6.4	9.0	107	.5
22...	1110	1500	--	--	21.0	--	--	--	--	--
JUN										
11...	1540	60	460	7.8	25.0	5	8.3	8.9	107	.3
21...	1202	20	--	--	30.5	--	--	--	--	--
JUL										
09...	1325	15	480	7.8	30.0	5	3.8	9.2	121	.5
31...	1400	30	--	--	29.5	--	--	--	--	--
AUG										
06...	1440	15	510	7.5	31.0	10	2.2	7.3	97	1.1
SEP										
13...	1440	5.6	--	--	29.0	--	--	--	--	--

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										
11...	--	--	--	--	--	--	--	--	--	--
18...	230	30	78	220	8	62	16	61	1.8	3.5
NOV										
15...	200	50	270	220	13	69	11	34	1.0	3.8
30...	--	--	--	--	--	--	--	--	--	--
DEC										
06...	56	K8	K9	260	24	85	12	34	.9	3.6
JAN										
02...	>20000	K20000	100000	140	22	46	5.3	15	.6	3.5
05...	--	--	--	--	--	--	--	--	--	--
FEB										
07...	3100	760	2400	220	22	68	12	10	.3	1.7
14...	--	--	--	--	--	--	--	--	--	--
MAR										
07...	360	15	110	260	53	82	13	15	.4	1.6
29...	--	--	--	--	--	--	--	--	--	--
APR										
05...	200	68	330	250	32	80	13	9.7	.3	1.2
MAY										
02...	--	--	--	--	--	--	--	--	--	--
10...	440	53	400	240	48	70	15	10	.3	1.2
22...	--	--	--	--	--	--	--	--	--	--
JUN										
11...	360	160	210	200	12	59	13	16	.5	1.8
21...	--	--	--	--	--	--	--	--	--	--
JUL										
09...	280	84	180	200	35	65	9.0	18	.6	2.8
31...	--	--	--	--	--	--	--	--	--	--
AUG										
06...	110	28	35	210	35	65	11	22	.7	2.5
SEP										
13...	--	--	--	--	--	--	--	--	--	--

08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
OCT										
11...	--	--	--	--	--	--	--	--	--	--
18...	260	0	38	81	.3	10	400	4	2	.06
NOV										
15...	250	0	40	45	.3	10	336	6	1	.27
30...	--	--	--	--	--	--	--	--	--	--
DEC										
06...	290	0	50	45	.3	7.6	380	6	1	.42
JAN										
02...	140	0	38	20	.2	8.1	205	166	18	.78
05...	--	--	--	--	--	--	--	--	--	--
FEB										
07...	240	0	31	18	.2	8.8	268	40	6	.41
14...	--	--	--	--	--	--	--	--	--	--
MAR										
07...	250	0	38	24	.2	6.1	303	12	0	.86
29...	--	--	--	--	--	--	--	--	--	--
APR										
05...	270	0	25	12	.2	9.2	283	11	2	.28
MAY										
02...	--	--	--	--	--	--	--	--	--	--
10...	230	0	25	14	.2	7.3	256	11	6	.18
22...	--	--	--	--	--	--	--	--	--	--
JUN										
11...	230	0	32	16	.3	11	263	14	9	.43
21...	--	--	--	--	--	--	--	--	--	--
JUL										
09...	200	0	38	22	.3	9.9	264	4	4	.48
31...	--	--	--	--	--	--	--	--	--	--
AUG										
06...	210	0	37	23	.3	12	276	13	7	.21
SEP										
13...	--	--	--	--	--	--	--	--	--	--

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
OCT									
11...	--	--	--	--	--	--	--	16	.13
18...	.01	.07	.01	.73	.74	.01	4.5	--	--
NOV									
15...	.02	.29	.03	.34	.37	.03	4.7	--	--
30...	--	--	--	--	--	--	--	25	.67
DEC									
06...	.01	.43	.01	.55	.56	.03	3.2	--	--
JAN									
02...	.03	.81	.03	.57	.60	.15	7.2	--	--
05...	--	--	--	--	--	--	--	50	4.0
FEB									
07...	.02	.43	.05	.25	.30	.06	3.1	--	--
14...	--	--	--	--	--	--	--	54	15
MAR									
07...	.02	.88	.12	.17	.29	.01	--	--	--
29...	--	--	--	--	--	--	--	35	31
APR									
05...	.00	.28	.01	.16	.17	.01	2.5	--	--
MAY									
02...	--	--	--	--	--	--	--	104	127
10...	.00	.18	.01	.26	.27	.02	1.7	--	--
22...	--	--	--	--	--	--	--	476	1930
JUN									
11...	.06	.49	.03	.37	.40	.01	11	--	--
21...	--	--	--	--	--	--	--	34	1.8
JUL									
09...	.06	.54	.04	.07	.11	.01	4.2	--	--
31...	--	--	--	--	--	--	--	72	5.8
AUG									
06...	.02	.23	.00	.24	.24	.01	--	--	--
SEP									
13...	--	--	--	--	--	--	--	22	.33

08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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...	1130	2	100	0	0	0	0
FEB 07...	1340	1	100	0	0	0	20
JUN 11...	1540	1	50	<1	10	0	<0
AUG 06...	1440	2	60	<1	0	0	<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	10	.0	0	0	0
FEB 07...	0	0	.0	1	0	0
JUN 11...	0	7	.0	0	0	<3
AUG 06...	0	2	.2	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)	DI-ELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
OCT 18...	1130	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00
FEB 07...	1340	.0	--	.00	.0	.00	.00	.00	.00	.00	.00	.00
JUN 11...	1540	.0	--	.00	.0	.00	.00	.00	.03	.00	.00	.00
AUG 06...	1440	.0	--	.00	.0	.00	.00	.00	.00	.00	.00	.00

DATE	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	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)
OCT 18...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
FEB 07...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
JUN 11...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG 06...	.00	.00	.00	.00	.00	.00	.00	0	.00	--	--	--

08159150 WILBARGER CREEK NEAR PFLUGERVILLE, TX

LOCATION.--Lat 30°27'16", long 97°36'02", Travis County, Hydrologic Unit 12090301, on left bank downstream from county road (Pfluger Lane), 800 ft (240 m) downstream from Farm Road 685, 1.6 mi (2.6 km) northeast of Pflugerville, and 1.9 mi (3.1 km) downstream from Missouri-Kansas-Texas Railroad.

DRAINAGE AREA.--4.61 mi² (11.9 km²).

PERIOD OF RECORD.--August 1963 to current year.
Water-quality records: Chemical, biochemical, and pesticide analyses: October 1970 to September 1971.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 670.61 ft (204.402 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years, 1.91 ft³/s (0.054 m³/s), 5.63 in/yr (143 mm/yr), 1,380 acre-ft/yr (1.70 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,760 ft³/s (49.8 m³/s) June 16, 1964, gage height, 6.92 ft (2.109 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1894, occurred in September 1921, stage unknown from information by local residents, discharge, 2,300 ft³/s (65.1 m³/s), from Corps of Engineers publication "Flood Plain Information, Williamson Creek, Austin, Texas".

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 940 ft³/s (26.6 m³/s) June 1, gage height, 5.24 ft (1.597 m), no other peak above base of 400 ft³/s (11.3 m³/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.04	3.0	1.0	1.4	15	36	129	.15	.25	.00
2	.00	.00	.04	.91	1.6	1.5	9.1	10	17	.15	.21	.00
3	.00	.00	.04	1.0	2.8	1.8	7.9	7.9	8.5	.13	.15	.00
4	.00	.00	.04	2.3	12	.91	6.5	6.9	5.7	.13	.11	.00
5	.00	.03	.03	3.3	32	1.1	4.4	5.9	20	.13	.11	.00
6	.00	.01	.03	4.2	58	.99	3.3	5.0	12	.33	.09	.00
7	.00	.00	.04	2.8	12	.94	3.5	4.4	5.7	.21	.09	.00
8	.00	.00	.03	1.6	9.1	.79	4.3	3.9	3.8	.18	.09	.00
9	.00	.00	.03	1.7	6.4	.71	3.5	3.4	3.1	.15	.08	.00
10	.00	.00	.03	16	6.0	.83	4.0	3.1	2.9	.15	.06	.00
11	.00	.00	.03	17	5.1	1.1	2.9	2.7	2.0	.13	.05	.00
12	.00	.00	.03	6.0	3.8	.95	1.4	2.4	1.6	.11	.08	.00
13	.00	.00	.03	3.8	3.8	.71	1.1	2.2	1.5	.11	.06	.00
14	.00	.00	.03	2.6	3.6	.64	1.2	2.0	1.4	.11	.03	.00
15	.00	.00	.03	2.6	3.4	.60	.99	1.8	1.2	.09	.03	.00
16	.00	.05	.02	3.1	2.4	5.1	.99	1.7	1.0	.08	.03	.00
17	.00	.06	.02	3.4	1.8	2.5	5.4	1.6	.89	.08	.02	.00
18	.00	.05	.02	4.9	2.1	2.1	6.4	1.6	.79	.08	.01	.00
19	.00	.11	.02	4.2	2.3	1.8	14	1.8	.70	.33	.00	.00
20	.00	.07	.02	3.1	2.5	2.2	11	1.8	.62	.29	.00	.00
21	.00	.21	.02	1.9	2.5	16	4.3	12	.55	.15	.00	.00
22	.00	.25	.02	1.6	2.7	23	3.8	12	.55	.09	.00	.00
23	.00	.23	.02	1.6	4.2	5.4	3.1	4.6	.49	.08	.00	.00
24	.00	.13	.02	1.3	2.6	2.7	2.6	3.6	.43	.05	.00	.00
25	.00	.11	.02	2.0	1.7	2.6	2.2	3.0	.38	.05	.00	.00
26	.00	.08	.02	3.0	1.5	2.6	2.9	2.6	.38	.04	.00	.00
27	.00	.08	.02	1.8	1.6	2.6	2.4	5.4	.33	28	.00	.00
28	.00	.07	.02	1.3	1.9	2.4	2.2	11	.29	2.7	.00	.00
29	.00	.07	.03	1.6	---	2.6	7.1	8.0	.25	.79	.00	.00
30	.00	.08	.04	1.8	---	12	3.7	6.0	.21	.43	.00	.00
31	.00	---	6.5	1.0	---	18	---	6.5	---	.38	.00	---
TOTAL	.00	1.69	7.33	106.41	190.4	118.57	141.18	180.8	223.26	35.88	1.55	.00
MEAN	.000	.056	.24	3.43	6.80	3.82	4.71	5.83	7.44	1.16	.050	.000
MAX	.00	.25	6.5	17	58	23	15	36	129	28	.25	.00
MIN	.00	.00	.02	.91	1.0	.60	.99	1.6	.21	.04	.00	.00
CFSM	.000	.01	.05	.74	1.48	.83	1.02	1.27	1.61	.25	.01	.000
IN.	.00	.01	.06	.86	1.54	.96	1.14	1.46	1.80	.29	.01	.00
AC-FT	.00	3.4	15	211	378	235	280	359	443	71	3.1	.00

CAL YR 1978 TOTAL 50.51 MEAN .14 MAX 14 MIN .00 CFSM .03 IN .41 AC-FT 100
WTR YR 1979 TOTAL 1007.07 MEAN 2.76 MAX 129 MIN .00 CFSM .60 IN 8.12 AC-FT 2000

08159165 BIG SANDY CREEK NEAR MCDADE, TX

PERIOD OF RECORD.--Chemical, biochemical, radiochemical, and pesticide analyses: May to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAY										
22...	1425	424	126	6.8	21.5	350	240	7.1	80	5.2
23...	1207	35	301	6.6	21.5	150	140	6.4	72	3.9
JUL										
17...	1308	1.4	326	7.1	29.5	120	38	--	--	3.4

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
MAY									
22...	42000	14000	51000	35	7	10	2.5	7.8	.6
23...	44000	4100	19000	86	40	25	5.8	21	1.0
JUL									
17...	2000	64	180	88	29	28	4.4	23	1.1

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
MAY									
22...	5.3	34	0	16	11	.2	6.8	77	.49
23...	6.2	57	0	39	32	.2	9.1	167	.59
JUL									
17...	6.8	72	0	39	34	.4	11	147	.13

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)	PHENOLS (UG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAY									
22...	.10	--	.15	1.4	--	1.5	17	2	.00
23...	.10	--	.16	1.2	--	.12	.1	0	.00
JUL									
17...	.02	.15	.06	1.0	1.1	.15	14	0	.00

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAY							
22...	1425	2	100	1	0	2	240
23...	1207	1	100	1	0	4	280
JUL							
17...	1308	2	100	0	0	2	410

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						
22...	0	40	.0	0	0	10
23...	0	70	.0	0	0	20
JUL						
17...	0	260	.0	0	0	30

08159165 BIG SANDY CREEK NEAR MCDADE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
MAY											
22...	1425	<.7	11	<1.1	16	6.1	11	5.6	11	.23	.11
23...	1207	<1.7	5.0	<2.5	7.4	6.2	<3.5	5.8	<3.5	.08	.24
JUL											
17...	1308	<1.7	2.4	<2.5	3.5	5.9	1.7	5.6	1.7	.04	.44

DATE	TIME	PCB, 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)
MAY								
22...	1425	.0	.00	.0	.00	.00	.00	.01
23...	1207	.0	.00	.0	.00	.00	.00	.01
JUL								
17...	1308	.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)	METHYL PARA-THION, TOTAL (UG/L)
MAY									
22...	.00	.00	.00	.00	.00	.00	.00	.00	.00
23...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL									
17...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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)
MAY								
22...	.00	.00	.00	0	.00	.72	.02	.00
23...	.00	.00	.00	0	.00	.23	.00	.00
JUL								
17...	.00	.00	.00	0	.00	.20	.03	.00

08159170 BIG SANDY CREEK NEAR ELGIN, TX

PERIOD OF RECORD.--Chemical, biochemical, radiochemical, and pesticide analyses: May to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAY 23...	1022	71	220	6.6	21.0	240	160	7.1	79	4.1
JUL 17...	1115	1.8	297	7.0	26.5	100	27	--	--	1.3

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
MAY 23...	58000	6400	22000	63	27	18	4.4	15	.8
JUL 17...	6400	420	720	84	27	23	6.3	22	1.0

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
MAY 23...	5.6	44	0	28	22	.2	9.1	125	.40
JUL 17...	5.7	69	0	24	39	.3	17	172	.20

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)	PHENOLS (UG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAY 23...	.08	.48	.11	.99	1.1	.15	16	1	.00
JUL 17...	.02	.22	.05	.83	.88	.10	9.4	0	.00

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAY 23...	1022	1	100	1	10	3	430
JUL 17...	1115	1	200	1	0	2	560

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 23...	0	20	.0	0	0	10
JUL 17...	0	140	.0	0	0	6

08159170 BIG SANDY CREEK NEAR ELGIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
MAY											
23...	1022	<1.3	7.5	<1.9	11	6.7	<7.1	6.2	<7.3	.08	.15
JUL											
17...	1115	<1.6	1.6	<2.4	2.3	6.1	1.8	5.7	1.8	.08	<.01

DATE	TIME	PCB, 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)
MAY								
23...	1022	.0	.00	.0	.00	.00	.00	.01
JUL								
17...	1115	.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)	METHYL PARA-THION, TOTAL (UG/L)
MAY									
23...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL									
17...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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)
MAY								
23...	.00	.00	.00	0	.00	.54	.02	.00
JUL								
17...	.00	.00	.00	0	.00	.12	.02	.00

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 236.8 (381.0 km).

DRAINAGE AREA.--39,400 mi² (102,000 km²) approximately, of which 12,880 mi² (33,360 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 Geodetic 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, 1,480 acre-ft (1.82 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 2,695 acre-ft (3.32 hm³) above this station into Lake Bastrop. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--19 years, 2,182 ft³/s (61.79 m³/s), 1,581,000 acre-ft/yr (1.95 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, 33,600 ft³/s (952 m³/s) May 22, gage height, 21.28 ft (6.486 m); minimum daily, 114 ft³/s (3.23 m³/s) Oct. 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	794	121	216	1380	467	525	1510	4170	2330	1900	1170	2150
2	824	119	204	2320	294	484	1320	7360	5170	1890	1300	2080
3	828	119	244	3780	285	468	2230	4680	4780	1790	1260	1970
4	956	118	195	846	320	567	1780	4660	6150	1880	1560	1960
5	1040	182	198	464	1250	649	1780	4060	10400	1890	1340	1920
6	1000	1790	208	501	5460	427	1360	3860	12700	1950	1420	1760
7	1030	1300	187	607	7510	391	990	3650	11200	2460	1440	1770
8	897	440	176	505	2480	384	930	2500	7740	2340	1790	1630
9	348	272	171	379	997	382	1890	3180	4370	2070	2130	1380
10	227	218	171	337	758	374	2310	3230	4100	1960	1890	1470
11	200	198	170	1820	668	381	2460	3020	3510	1770	2090	1460
12	192	189	166	1930	656	385	2100	2370	3730	1630	2200	1470
13	181	191	180	1070	645	353	2270	1080	3450	1470	2230	1560
14	165	191	190	871	580	341	2080	779	3710	1470	2100	1660
15	146	191	186	785	540	341	2040	686	3770	1370	2160	1670
16	136	183	181	527	552	332	1460	1090	3360	1310	2110	1870
17	129	271	179	478	843	523	1120	1640	3660	1280	2080	1750
18	123	348	180	458	626	485	1730	1780	2490	1270	2110	1810
19	121	281	178	453	444	404	2620	1840	2040	1280	2250	1960
20	118	409	175	483	428	619	2840	2410	2240	2940	2180	1060
21	116	389	171	411	422	4920	1730	2320	1790	2410	2180	992
22	115	436	156	364	423	6650	3590	23100	2170	1540	2160	1560
23	114	339	164	332	434	4260	4100	10200	2250	1350	2150	1420
24	114	280	165	320	2660	1960	3990	2020	2250	1210	2160	1490
25	137	234	161	314	1180	1540	3700	1340	2230	1010	2150	1500
26	352	355	167	302	714	1240	2290	1850	2280	989	2180	1480
27	183	394	159	337	592	1070	2260	2020	2170	984	2170	1220
28	142	283	156	307	552	970	1610	1580	2090	6030	2170	1130
29	140	243	161	293	---	1020	1850	2780	2140	1410	2180	1170
30	130	228	144	283	---	1040	4120	2460	1890	738	2170	1130
31	126	---	776	339	---	1820	---	2340	---	869	2220	---
TOTAL	11124	10312	6135	23596	32780	35305	66060	110055	122160	54460	60700	47452
MEAN	359	344	198	761	1171	1139	2202	3550	4072	1757	1958	1582
MAX	1040	1790	776	3780	7510	6650	4120	23100	12700	6030	2250	2150
MIN	114	118	144	283	285	332	930	686	1790	738	1170	992
AC-FT	22060	20450	12170	46800	65020	70030	131000	218300	242300	108000	120400	94120

CAL YR 1978 TOTAL 433941 MEAN 1189 MAX 4070 MIN 114 AC-FT 860700
WTR YR 1979 TOTAL 580139 MEAN 1589 MAX 23100 MIN 114 AC-FT 1151000

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 19...	0915	123	685	8.2	20.0	8.8	99	.7	250	40
DEC 22...	0956	136	720	8.6	12.0	12.0	114	.8	250	59
FEB 12...	1712	656	570	8.0	15.0	9.8	100	.4	230	39
APR 11...	1352	3100	538	7.8	21.0	7.4	87	1.4	220	35
JUN 25...	1111	2450	565	7.4	27.5	7.6	95	.1	190	47
AUG 20...	1105	2250	580	7.4	26.5	7.7	96	.3	--	--

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 19...	65	22	44	1.2	4.3	260	0	47	69	.4
DEC 22...	68	19	53	1.5	6.2	220	5	66	73	.5
FEB 12...	68	14	21	.6	2.9	230	0	43	37	.3
APR 11...	60	18	20	.6	2.5	230	0	36	37	.2
JUN 25...	45	20	33	1.0	3.7	180	0	41	50	.3
AUG 20...	--	--	--	--	3.3	170	0	39	51	.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)
OCT 19...	7.7	388	1.2	.01	1.2	.03	.70	.73	.24
DEC 22...	2.1	401	3.5	.05	3.5	.05	.81	.86	1.4
FEB 12...	7.0	307	.46	.02	.48	.03	.46	.49	.27
APR 11...	7.3	294	.47	.00	.47	.05	.63	.68	.24
JUN 25...	7.9	290	.44	.02	.46	.01	.32	.33	.10
AUG 20...	7.6	101	.41	.04	.45	.16	.94	1.1	.16

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, 1.8 mi (2.9 km) 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. 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 except those for September, which are poor. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years, 6.28 ft³/s (0.178 m³/s), 4.93 in/yr (125 mm/yr), 4,550 acre-ft/yr (5.61 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), 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)
Apr. 2	1300	1,720	48.7	18.46	5.627	May 22	0330	*5,360	152	27.19	8.288
Apr. 19	1700	1,420	40.2	17.67	5.386	June 6	1200	1,100	31.2	16.78	5.115
May 4	0115	2,370	67.1	20.20	6.157						

Minimum discharge, 0.52 ft³/s (0.015 m³/s) Oct. 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.82	.63	2.4	44	2.8	3.4	5.6	11	7.2	1.4	1.2	1.0
2	.82	.63	2.2	8.3	4.0	3.2	470	12	45	1.3	1.1	1.0
3	.82	.63	5.2	4.6	7.7	33	51	7.7	29	1.3	1.0	.92
4	.77	.63	3.5	5.1	46	6.0	16	393	9.9	1.6	.98	.97
5	.77	.72	2.4	32	88	3.1	9.4	14	36	1.8	.97	1.1
6	.72	5.0	9.4	123	108	2.6	6.6	8.0	219	1.8	.99	3.0
7	.68	1.5	7.0	26	22	2.2	5.2	6.0	21	1.7	1.1	2.5
8	.68	1.2	3.4	13	14	2.0	4.8	5.4	11	2.3	3.6	1.4
9	.68	1.1	2.4	9.0	9.8	1.8	4.3	5.2	7.7	1.7	5.8	1.1
10	.68	1.1	2.0	52	8.2	1.8	4.0	5.6	6.2	1.4	1.7	.90
11	.68	1.1	1.9	94	7.2	2.2	6.2	53	4.8	1.6	3.4	.80
12	.68	1.1	1.7	16	6.5	2.0	6.4	12	4.1	1.3	1.2	.75
13	.63	1.1	1.7	9.5	6.0	1.9	4.3	3.8	3.7	2.0	1.0	.70
14	.59	1.2	1.8	6.5	6.0	1.7	3.4	2.4	3.6	1.9	.87	.65
15	.55	1.2	3.5	5.7	5.7	1.6	2.8	1.9	3.5	1.6	.80	.62
16	.55	1.2	2.3	5.4	5.0	1.6	2.7	1.6	3.1	1.3	.76	.60
17	.55	1.4	1.8	6.0	5.8	1.6	14	1.1	2.7	2.7	.72	.60
18	.52	1.3	1.7	25	9.0	1.6	16	1.4	2.7	3.8	.68	1.0
19	.68	2.1	1.7	41	8.3	1.8	272	1.3	2.6	1.5	.70	100
20	.59	2.0	1.7	55	6.6	4.3	58	1.3	2.2	1.3	.72	30
21	.59	1.8	1.6	10	6.8	27	17	1.3	2.2	1.3	.72	10
22	.59	1.7	1.6	5.8	6.7	44	12	1030	2.0	1.3	1.4	5.0
23	.59	1.5	1.6	4.8	6.9	12	8.9	25	1.8	1.2	.87	3.5
24	.59	1.4	1.5	3.9	6.4	6.4	6.3	14	1.8	1.1	.92	2.5
25	.59	1.3	1.5	3.5	4.6	5.0	4.6	9.1	1.8	1.1	.98	2.2
26	1.5	23	1.5	7.5	3.9	4.3	3.7	7.2	1.7	1.3	.82	1.9
27	.77	8.0	1.4	5.4	3.7	3.8	3.0	6.5	1.7	2.2	.92	1.7
28	.63	3.7	1.3	3.7	3.7	3.8	2.4	17	1.7	1.5	1.5	1.5
29	.63	3.8	5.5	3.1	---	3.7	22	8.4	1.6	1.3	1.3	1.4
30	.63	3.0	4.6	4.5	---	4.0	13	6.6	1.4	1.2	1.2	1.3
31	.63	---	79	3.9	---	8.2	---	47	---	1.3	1.0	---
TOTAL	21.20	76.04	160.8	637.2	419.3	201.6	1055.6	1719.8	442.7	50.1	40.92	180.61
MEAN	.68	2.53	5.19	20.6	15.0	6.50	35.2	55.5	14.8	1.62	1.32	6.02
MAX	1.5	23	79	123	108	44	470	1030	219	3.8	5.8	100
MIN	.52	.63	1.3	3.1	2.8	1.6	2.4	1.1	1.4	1.1	.68	.60
CFSM	.04	.15	.30	1.19	.87	.38	2.04	3.21	.86	.09	.08	.35
IN.	.05	.16	.35	1.37	.90	.43	2.27	3.70	.95	.11	.09	.39
AC-FT	42	151	319	1260	832	400	2090	3410	878	99	81	358

CAL YR 1978 TOTAL 1291.85 MEAN 3.54 MAX 387 MIN .04 CFSM .21 IN 2.78 AC-FT 2560
WTR YR 1979 TOTAL 5005.87 MEAN 13.7 MAX 1030 MIN .52 CFSM .79 IN 10.76 AC-FT 9930

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.--41,070 mi² (106,370 km²), approximately, of which 12,880 mi² (33,360 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 ft (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 ft (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 2,196 acre-ft (2.71 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); 43 years (water years 1937-79) regulated, 2,967 ft³/s (84.03 m³/s), 2,150,000 acre-ft/yr (2.65 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, 57,800 ft³/s (1,640 m³/s) June 7, gage height, 27.25 ft (8.306 m); minimum daily, 110 ft³/s (3.12 m³/s) Nov. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1150	149	902	8710	890	941	1590	7240	4050	2720	1280	2310
2	1070	134	771	10300	789	875	5730	8550	4830	2560	1280	2270
3	966	121	684	5360	913	1040	14800	10200	7950	2530	1450	2240
4	934	112	590	2290	1160	913	7920	15700	6660	2460	1510	2120
5	931	110	503	3210	7050	786	4230	8030	6130	2460	1480	2100
6	948	190	486	5300	13500	758	3150	5820	23000	2510	1700	2100
7	1010	216	522	8850	13800	873	2740	4780	53000	2520	1560	2040
8	999	1330	476	3650	10700	728	2220	4440	28400	2820	1600	1930
9	1000	1210	402	1950	4690	655	1820	3770	12900	3000	1630	1840
10	986	803	341	1410	2940	610	1690	3210	8160	2890	2040	1650
11	763	599	293	9000	2070	604	2540	4130	6870	2650	2200	1480
12	590	451	262	8820	1900	606	3020	10600	6300	2490	2160	1510
13	467	355	246	5500	1490	601	2760	10600	5650	2260	2240	1490
14	374	293	242	2730	1290	604	2790	3850	5690	2140	2440	1470
15	321	251	256	1820	1170	593	2530	2320	5260	1990	2320	1500
16	286	219	263	1500	1050	585	2500	1780	5360	1890	2360	1550
17	254	215	256	1340	984	610	2530	1510	5060	1870	2330	1640
18	224	210	236	1160	977	641	2080	1710	4810	1990	2280	1840
19	198	230	227	2710	1120	640	3790	2170	4600	1850	2260	2950
20	181	318	221	4740	1120	832	8520	2180	3350	1810	2320	5500
21	167	679	201	2590	938	2570	6540	2530	3280	1970	2360	2460
22	154	611	189	1560	890	6130	3450	18900	3340	3820	2310	1250
23	145	632	182	1120	867	12000	3180	15300	2850	2660	2330	1140
24	135	632	177	967	852	8130	4560	19000	3190	2010	2320	1420
25	131	643	167	890	1620	4290	4450	6990	3180	1780	2360	1340
26	180	2010	159	890	2730	2610	4310	3630	3150	1580	2280	1380
27	167	12000	155	875	1450	2140	3230	2850	3110	1950	2300	1440
28	146	4640	152	805	1080	1760	2740	3770	3050	2420	2310	1420
29	295	1970	193	773	---	1540	2790	3410	2940	3780	2260	1200
30	265	1160	206	837	---	1400	3540	3050	2940	4190	2280	1140
31	186	---	1380	952	---	1440	---	7800	---	1760	2280	---
TOTAL	15623	32493	11340	102609	80030	58505	117740	199820	239060	75330	63830	55720
MEAN	504	1083	366	3310	2858	1887	3925	6446	7969	2430	2059	1857
MAX	1150	12000	1380	10300	13800	12000	14800	19000	53000	4190	2440	5500
MIN	131	110	152	773	789	585	1590	1510	2850	1580	1280	1140
AC-FT	30990	64450	22490	203500	158700	116000	233500	396300	474200	149400	126600	110500

CAL YR 1978 TOTAL 509908 MEAN 1397 MAX 12000 MIN 110 AC-FT 1011000
WTR YR 1979 TOTAL 1052100 MEAN 2882 MAX 53000 MIN 110 AC-FT 2087000

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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...	0920	295	570	7.7	23.0	7.1	85	.8	200	56
FEB 15...	1520	1160	550	8.0	18.5	8.6	95	1.1	220	41
APR 25...	1050	4470	520	7.4	23.5	7.8	97	1.2	220	43
MAY 29...	1345	3220	480	7.8	25.0	7.2	89	1.7	180	36
AUG 06...	1445	1780	520	8.1	31.0	8.0	108	2.1	190	18
SEP 10...	1130	1770	560	8.3	27.0	7.1	90	.9	190	29

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 14...	55	14	34	1.1	6.0	170	0	48	53	.4
FEB 15...	69	12	23	.7	3.3	220	0	43	34	.3
APR 25...	60	16	24	.7	3.4	210	0	36	41	.3
MAY 29...	57	10	22	.7	3.7	180	0	38	28	.3
AUG 06...	53	14	25	.8	3.8	210	0	38	35	.3
SEP 10...	46	19	31	1.0	3.9	200	0	39	52	.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 14...	11	305	1.4	.08	1.5	.41	.79	1.2	.62
FEB 15...	11	304	1.2	.04	1.2	.05	.54	.59	.05
APR 25...	9.7	294	.70	.02	--	.04	--	--	.10
MAY 29...	8.8	257	1.0	.06	1.1	.06	.79	.85	.26
AUG 06...	9.4	282	.20	.02	.22	.00	.51	.51	.22
SEP 10...	6.9	297	.36	.04	.40	.02	.56	.58	.15

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.--41,380 mi² (107,170 km²), approximately, of which 12,880 mi² (33.360 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 ft (0.914 m) higher. June 1, 1966, to Sept. 30, 1975, water-stage recorder at present site at datum 3.00 ft (0.914 m) higher.

REMARKS.--Water-discharge records fair. 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.

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); 41 years (water years 1939-79) regulated, 2,741 ft³/s (77.63 m³/s), 1,986,000 acre-ft/yr (2.45 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 floodwater 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, 43,400 ft³/s (1,230 m³/s) June 8, gage height, 28.55 ft (8.702 m); minimum daily, 312 ft³/s (8.84 m³/s) Nov. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	838	379	1740	1280	996	1380	1360	3600	6680	1660	1900	1700
2	861	349	1350	8580	1060	1180	1700	8160	3590	1560	1290	1800
3	861	329	1110	9650	988	1080	9510	9140	3960	1380	1060	1750
4	815	320	983	5310	1180	1090	14500	13100	6540	1350	1040	1720
5	755	312	876	3020	2010	1180	7230	20200	5970	1360	1040	1790
6	731	505	779	5130	9390	970	4190	9790	6010	1280	1020	1700
7	756	583	858	8310	15200	894	3080	6490	26100	1320	1090	1830
8	855	455	1080	8960	14600	957	2700	5190	41400	1560	1020	1900
9	889	728	825	4250	10200	918	2230	4640	31500	1830	1010	1780
10	986	1410	722	2550	5190	826	1800	3860	13000	2170	1010	1680
11	949	988	641	2870	3550	776	1640	3210	7800	2140	1140	1370
12	811	771	591	10700	2750	749	2190	4100	5920	1950	1310	1100
13	675	639	554	9270	2460	743	2580	10400	5140	1850	1290	1020
14	618	563	536	5700	2070	738	2400	9250	4480	1610	1460	978
15	557	507	526	3310	1770	732	2280	3780	4260	1430	1590	962
16	513	469	518	2360	1570	727	2200	1990	3860	1320	1620	957
17	484	454	515	1910	1420	711	2120	1370	3910	1290	1510	981
18	460	431	512	1760	1310	716	2140	1080	3630	1280	1460	1080
19	432	427	508	1770	1230	743	2020	1110	3380	1460	1360	3910
20	409	447	496	4240	1280	754	6430	1230	3200	1380	1390	11300
21	392	464	483	6170	1370	843	8940	1250	2330	1220	1420	10400
22	382	541	458	3810	1170	2210	6510	3540	2090	1420	1510	4750
23	369	663	438	2390	1100	6530	3840	18800	2000	2750	1490	2940
24	360	634	419	1650	1060	10600	3240	15100	1650	2280	1490	2240
25	351	637	413	1190	1030	7200	4300	15800	1840	1740	1470	2150
26	354	750	403	1120	1370	4100	4240	6140	1970	1480	1460	1920
27	353	2330	398	1080	2710	2720	4030	3240	1960	1380	1430	1840
28	352	9640	382	1070	1820	2210	3170	2390	1920	1550	1450	1780
29	341	4820	459	990	---	1830	2580	2600	1920	2150	1490	1640
30	335	2600	529	948	---	1590	2770	2640	1760	3050	1560	1260
31	387	---	536	936	---	1550	---	2600	---	3620	1610	---
TOTAL	18231	34145	20638	122284	91854	59247	117920	195790	209770	53820	41990	72228
MEAN	588	1138	666	3945	3281	1911	3931	6316	6992	1736	1355	2408
MAX	986	9640	1740	10700	15200	10600	14500	20200	41400	3620	1900	11300
MIN	335	312	382	936	988	711	1360	1080	1650	1220	1010	957
AC-FT	36160	67730	40940	242600	182200	117500	233900	388300	416100	106800	83290	143300

CAL YR 1978 TOTAL 438635 MEAN 1202 MAX 15400 MIN 308 AC-FT 870000
WTR YR 1979 TOTAL 1037917 MEAN 2844 MAX 41400 MIN 312 AC-FT 2059000

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, 704 micromhos Dec. 25; minimum daily, 189 micromhos May 23.
WATER TEMPERATURES: Maximum daily, 30.5°C June 30; minimum daily, 3.0°C Jan. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 25...	0830	348	640	7.7	22.0	30	5.0	6.8	80	.6	14
NOV 14...	1225	530	480	7.7	22.5	20	40	7.6	89	.4	140
DEC 21...	0935	484	657	8.1	14.0	20	10	8.9	89	.8	32
JAN 31...	1245	970	510	7.5	7.5	40	45	11.5	99	1.2	250
FEB 15...	0845	1800	440	8.1	16.0	50	45	9.2	96	1.4	2400
MAR 27...	1100	2740	350	7.9	19.0	50	300	12.5	139	2.0	2700
APR 25...	1445	4430	430	7.9	24.0	25	220	7.8	95	1.7	750
MAY 30...	1115	2640	510	8.1	25.5	10	100	7.7	96	1.9	200
JUN 12...	1315	5810	500	7.8	24.0	250	1000	7.2	88	1.1	520
JUL 11...	0915	2260	580	8.1	28.0	5	46	5.9	76	2.3	64
AUG 07...	1005	1090	530	6.0	31.0	25	33	6.0	81	3.6	40
SEP 10...	1515	1730	570	8.3	28.5	20	33	6.3	82	1.3	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)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 25...	30	240	26	63	20	38	1.1	3.9	260	0	38
NOV 14...	130	170	42	48	11	28	.9	4.7	150	0	44
DEC 21...	24	250	36	75	15	39	1.1	4.8	260	0	42
JAN 31...	210	210	42	66	10	20	.6	3.6	200	0	38
FEB 15...	24	170	26	56	8.2	18	.6	3.3	180	0	41
MAR 27...	1000	130	23	41	6.3	15	.6	3.7	130	0	33
APR 25...	800	170	36	51	9.7	20	.7	3.8	160	0	37
MAY 30...	270	200	17	61	11	21	.7	4.0	220	0	40
JUN 12...	2400	170	26	43	14	25	.8	3.7	170	0	34
JUL 11...	460	210	43	58	15	35	1.1	3.6	200	0	41
AUG 07...	42	210	38	61	14	22	.7	4.1	210	0	40
SEP 10...	520	210	38	53	19	35	1.0	4.0	210	0	37

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	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)
OCT											
25...	61	.3	8.0	364	360	12	7	.04	.01	.05	.01
NOV											
14...	38	.4	9.3	275	257	60	9	.96	.02	.98	.04
DEC											
21...	52	.2	13	382	369	15	6	.99	.01	1.0	.01
JAN											
31...	37	.2	12	297	285	102	27	1.0	.06	1.1	.11
FEB											
15...	26	.3	11	289	253	102	14	.88	.04	.92	.06
MAR											
27...	18	.3	11	206	192	740	104	.44	.02	.46	.01
APR											
25...	31	.3	11	237	243	338	38	.54	.00	.54	.00
MAY											
30...	24	.3	9.3	--	279	210	27	.95	.02	.97	.02
JUN											
12...	38	.3	9.9	273	252	1980	320	.33	.01	.34	.05
JUL											
11...	53	.3	8.6	298	313	122	24	.31	.04	.35	.04
AUG											
07...	38	.3	10	282	293	73	18	.08	.02	.10	.00
SEP											
10...	53	.2	7.6	316	312	73	0	.31	.04	.35	.02

DATE	NITROGEN, ORGANIC TOTAL (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											
25...	1.5	1.5	.54	.080	.070	2.3	--	--	7	6.6	44
NOV											
14...	.44	.48	.62	.250	.170	6.4	--	--	51	73	99
DEC											
21...	.36	.37	.36	.270	.250	--	4.0	.3	13	17	94
JAN											
31...	.99	1.1	1.0	.250	.190	--	--	--	163	427	55
FEB											
15...	.56	.62	.44	.110	.140	6.7	--	--	102	496	88
MAR											
27...	.99	1.0	.44	.180	.040	--	6.6	2.2	672	4970	93
APR											
25...	.83	.83	.45	.210	.040	39	--	--	432	5170	76
MAY											
30...	.54	.56	.43	.140	.010	--	--	--	246	1750	92
JUN											
12...	.62	.67	--	.150	--	45	--	--	369	5790	86
JUL											
11...	.43	.47	.42	.250	.070	4.6	--	--	196	1200	65
AUG											
07...	.86	.86	.38	.100	.040	--	7.1	1.5	68	200	90
SEP											
10...	.64	.66	.41	.170	.090	4.9	--	--	100	467	83

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
DEC 21...	0935	3	3	100	0	200	0	0	1	0
MAR 27...	1100	5	2	100	30	70	0	0	<1	20
AUG 07...	1005	3	3	100	100	0	8	4	4	0

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)
DEC 21...	0	0	2	0	2	6	4	2	250	250
MAR 27...	20	0	6	3	<3	17	15	2	10000	10000
AUG 07...	0	0	0	0	0	6	1	5	1400	1400

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
DEC 21...	0	7	1	6	20	10	10	.0	.0	.0
MAR 27...	20	48	47	1	290	290	<1	.0	.0	.0
AUG 07...	0	38	15	23	70	60	10	.0	.0	.1

DATE	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
DEC 21...	0	0	1	1	1	0	10	0	10
MAR 27...	1	1	0	0	0	0	60	60	<3
AUG 07...	1	0	1	0	0	0	30	20	10

DATE	LENGTH OF EXPO-SURE (DAYS)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
DEC 21...	37	3.62	4.17	.910	.000

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)
NOV 14...	1225	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DEC 21...	0935	.0	0	.00	.0	.0	0	.00	.0	.00	.0	.00
JAN 31...	1245	.0	0	.00	.0	.0	0	.00	.0	.00	.0	.00
FEB 15...	0845	ND	--	ND	--	ND	--	ND	--	ND	--	ND
MAY 30...	1115	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 14...	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND
DEC 21...	.0	.01	--	.00	.0	.00	.00	.0	.00	--	.00	.0
JAN 31...	.0	.01	--	.00	.0	.00	.00	.0	.00	--	.00	.0
FEB 15...	--	ND	--	ND	--	--	ND	--	ND	--	ND	--
MAY 30...	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND

DATE	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)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRITHION, TOTAL (UG/L)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DEC 21...	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
JAN 31...	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
FEB 15...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
MAY 30...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 14...	ND	--	ND	ND	ND	ND	ND	ND	--	--	--
DEC 21...	--	.00	.00	--	0	0	.00	--	.00	.00	.00
JAN 31...	--	.00	.00	--	0	0	.00	--	.08	.00	.00
FEB 15...	--	--	ND	--	ND	--	ND	--	--	--	--
MAY 30...	ND	--	ND	ND	ND	ND	ND	ND	--	--	--

08162000 COLORADO RIVER AT WHARTON, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	MAR 27,79	MAY 30,79	JUN 12,79	JUL 11,79	AUG 7,79	SEP 10,79
TIME	1100	1115	1315	0915	1005	1515
TOTAL CELLS/ML	3400	620	460	11000	87000	17000
DIVERSITY: DIVISION	0.6	1.6	0.0	1.2	0.9	0.4
.CLASS	0.6	1.6	0.0	1.2	0.9	0.4
..ORDER	0.7	2.0	0.5	1.3	1.0	0.4
...FAMILY	1.3	2.0	0.5	1.3	1.0	0.5
....GENUS	1.4	2.2	0.5	1.5	1.2	0.6

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	*	0	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	--	-	100	1	--	-	--	-
....FRANCEIA	--	-	--	-	--	-	--	-	450	1	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-	380	2
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	410#	89	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	200	2	--	-	--	-
....SCENEDESMUS	--	-	210#	33	--	-	200	2	--	-	*	0
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	--	-	51	11	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	100	3	51	8	--	-	4800#	44	23000#	26	*	0
....MELOSIRA	50	1	100#	17	--	-	--	-	--	-	--	-
..PENNALES												
...FRAGILARIACEAE												
....SYNEDRA	50	1	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	100	3	--	-	--	-	--	-	*	0	99	1
....NEIDIUM	--	-	--	-	--	-	--	-	--	-	*	0
...NITZSCHIACEAE												
....NITZSCHIA	150	4	100#	17	--	-	100	1	1100	1	430	3
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	5200#	48	60000#	69	15000#	92
....ANACYSTIS	--	-	--	-	--	-	200	2	2300	3	330	2
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	400	12	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	2500#	75	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	150#	25	--	-	--	-	--	-	--	-

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 WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	18231	621	340	16700	51	2530	42	2050	230
NOV. 1978.....	34145	411	220	20600	34	3140	28	2550	150
DEC. 1978.....	20638	484	260	14700	40	2240	33	1810	180
JAN. 1979.....	122284	292	160	52900	24	8020	20	6500	110
FEB. 1979.....	91854	356	190	48400	30	7360	24	5970	130
MAR. 1979.....	59247	461	250	40000	38	6120	31	4950	170
APR. 1979.....	117920	417	230	72800	35	11000	28	8910	160
MAY 1979.....	195790	338	180	97300	28	14900	23	12000	130
JUNE 1979.....	209770	416	230	128000	35	19600	28	15800	160
JULY 1979.....	53820	573	310	45300	48	6910	39	5600	220
AUG. 1979.....	41990	523	290	32400	43	4920	35	3990	200
SEPT 1979.....	72228	418	230	44300	35	6780	28	5480	160
TOTAL	1037917	**	**	613000	**	93500	**	75600	**
WTD.AVG.	2840	401	220	**	33	**	27	**	150

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	567	660	336	402	510	572	510	529	477	566	452	551
2	569	679	293	250	528	540	524	448	309	580	403	554
3	577	671	300	235	558	530	509	345	460	588	417	556
4	584	679	316	323	559	520	248	343	493	606	447	558
5	582	681	340	312	480	513	289	259	446	612	460	545
6	591	603	359	286	321	514	288	300	445	670	470	548
7	600	496	387	276	251	541	392	398	400	650	490	555
8	607	521	417	245	232	559	434	456	243	625	534	514
9	613	563	318	233	250	602	485	430	312	607	505	542
10	611	677	380	240	296	615	508	446	463	571	519	558
11	620	697	445	246	310	620	534	470	498	548	537	560
12	618	552	490	270	334	631	541	477	538	589	540	567
13	615	523	547	250	356	619	566	300	540	584	545	570
14	611	487	569	280	402	609	579	283	548	573	537	575
15	620	505	602	330	442	604	572	361	552	578	539	575
16	632	550	622	369	482	607	579	397	563	609	540	577
17	642	579	651	370	506	617	584	377	574	577	547	577
18	640	596	666	404	528	629	582	381	576	596	545	567
19	651	603	659	423	550	637	561	454	585	550	550	371
20	653	590	676	328	566	629	314	500	590	589	548	298
21	662	582	685	332	574	617	344	547	592	612	548	223
22	669	582	696	282	588	641	352	520	596	616	540	267
23	671	537	699	290	595	467	332	189	585	622	548	368
24	673	550	694	337	602	375	360	250	575	614	547	395
25	680	565	704	360	610	360	399	332	573	560	550	438
26	673	579	701	398	619	338	500	325	574	522	548	495
27	675	400	699	443	643	365	527	349	585	517	545	515
28	678	276	686	454	617	410	547	392	571	545	545	520
29	685	227	660	465	---	426	540	442	578	542	548	530
30	696	245	620	482	---	469	535	497	577	514	543	545
31	689	---	584	496	---	416	---	452	---	452	545	---
MEAN	634	549	542	336	475	535	468	395	514	580	520	500

08162000 COLORADO RIVER AT WHARTON, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	21.0	16.0	6.0	6.0	15.0	22.0	23.0	28.0	30.0	29.0	29.0
2	25.0	21.0	20.0	---	9.0	17.0	22.0	23.0	25.0	30.0	29.0	28.0
3	25.0	21.0	---	3.0	10.0	---	18.0	28.0	27.5	30.0	28.0	28.0
4	25.0	21.0	13.0	5.0	10.0	---	15.0	22.0	27.0	30.0	29.0	28.0
5	25.0	21.0	---	7.0	---	14.0	16.0	19.0	26.0	29.0	---	27.0
6	24.0	19.5	17.0	7.0	8.0	14.0	17.0	---	26.0	---	29.0	27.0
7	23.0	17.0	15.0	6.0	8.0	15.0	20.0	21.5	26.0	---	29.0	27.0
8	22.0	15.0	10.5	4.0	7.0	16.0	20.5	23.0	26.0	---	29.0	27.0
9	22.0	15.0	6.5	4.0	---	18.0	20.5	24.0	26.0	28.5	29.0	26.0
10	21.0	17.5	---	5.0	7.0	19.0	21.0	25.0	26.0	29.5	28.0	26.0
11	23.0	19.0	8.5	6.0	---	---	22.0	20.0	25.0	29.0	29.0	27.0
12	24.0	21.0	7.0	6.0	11.0	15.0	23.0	21.5	25.0	29.0	---	27.0
13	24.0	22.0	10.0	---	13.0	17.0	23.0	---	---	29.0	29.0	26.0
14	21.0	23.0	11.0	---	14.0	17.0	23.0	20.0	26.0	30.0	29.0	25.0
15	---	23.0	11.0	---	16.0	18.0	23.0	22.0	26.0	30.0	29.0	25.0
16	21.0	19.0	13.0	7.0	14.0	16.0	24.0	23.0	26.0	29.0	29.0	28.0
17	19.0	---	13.0	10.0	9.0	17.0	24.0	24.0	27.0	30.0	29.0	23.0
18	19.0	---	12.0	13.0	7.0	20.0	23.0	24.0	27.0	30.0	29.0	24.0
19	19.0	---	16.0	13.0	7.0	20.0	23.0	25.0	---	---	29.0	23.0
20	19.0	---	18.0	16.0	8.0	20.0	21.0	25.0	28.0	30.0	29.0	22.0
21	21.0	---	15.0	14.0	11.0	20.0	23.0	25.0	29.0	---	28.0	22.0
22	23.0	---	11.0	12.0	14.0	19.0	22.0	25.0	28.0	30.0	---	23.0
23	22.0	---	12.0	13.0	17.0	18.0	21.5	---	29.0	30.0	28.0	24.0
24	21.0	---	13.0	9.0	17.0	18.0	23.0	24.0	29.0	20.0	28.0	24.0
25	22.0	---	11.0	---	---	18.0	24.0	22.0	28.0	---	27.0	24.0
26	23.0	22.0	14.0	12.0	13.0	18.0	25.0	23.0	30.0	28.0	28.0	24.0
27	20.0	19.0	14.0	10.0	14.0	19.0	23.0	25.0	29.0	28.0	28.0	24.0
28	19.0	15.0	12.0	9.0	15.0	20.0	23.0	25.0	29.0	28.0	27.0	25.0
29	19.5	15.5	15.0	8.0	---	20.0	---	26.0	30.0	29.0	28.0	25.0
30	23.5	15.0	18.0	8.0	---	20.0	22.0	27.0	30.5	29.0	28.0	25.0
31	20.0	---	13.0	7.0	---	21.0	---	26.0	---	29.0	28.0	---
MEAN	22.0	19.0	13.0	8.5	11.0	18.0	21.5	23.5	27.5	29.0	28.5	25.5

08162500 COLORADO RIVER NEAR BAY CITY, TX

LOCATION.--Lat 28°58'26", long 96°00'44", Matagorda County, Hydrologic Unit 12090302, on right bank 6,300 ft (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.--41,650 mi² (107,870 km²), approximately, of which 12,880 mi² (33,360 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.

AVERAGE DISCHARGE.--31 years (water years 1949-79), 2,444 ft³/s (69.21 m³/s), 1,771,000 acre-ft/yr (2.18 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, 40,400 ft³/s (1,140 m³/s) June 9, elevation, 29.90 ft (9.114 m); minimum daily, 363 ft³/s (10.3 m³/s) Oct. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	548	402	2340	1710	1170	1630	1200	2930	4890	803	2790	915
2	482	388	1670	5900	1180	1310	1220	7650	6740	794	1550	1190
3	550	366	1290	10100	1150	1180	4390	10300	4840	660	1040	1240
4	815	368	1090	7900	1150	1090	16000	12300	7810	613	897	1230
5	758	365	976	4060	2980	1160	10000	21800	7680	664	794	1330
6	616	803	866	6750	11400	1080	5470	15000	6410	899	706	1440
7	650	1400	784	12000	17200	934	3040	8000	17100	928	692	1320
8	656	858	966	13000	16300	912	2430	6000	35200	896	692	1760
9	703	565	1030	6970	12700	973	2010	5000	36500	1180	637	1660
10	730	1030	870	3490	7710	909	1470	4200	18300	1540	638	1350
11	789	1230	707	3560	4690	839	1190	3500	9950	1750	641	1110
12	774	887	617	8480	3350	773	1250	4000	6250	1710	794	777
13	620	707	586	10500	2700	749	1790	9000	4740	1540	830	542
14	509	600	556	6780	2420	740	1890	11000	3670	1440	815	454
15	557	533	545	3890	2050	650	1550	5000	3410	1140	911	419
16	788	486	564	2440	1780	526	1680	2280	2980	977	1050	394
17	716	459	549	1860	1620	521	1630	1170	2850	843	926	379
18	475	443	527	1940	1500	569	1800	600	2790	775	815	577
19	452	430	520	1880	1400	547	1830	500	2420	848	683	14200
20	435	420	513	3090	1340	555	4970	600	2290	1120	624	24800
21	436	430	516	6690	1450	1820	11300	700	1770	958	664	22900
22	423	436	506	5800	1410	2760	7950	800	1100	1460	728	14900
23	397	558	496	3240	1270	5910	4760	14500	990	1870	861	9260
24	386	624	486	2230	1200	10600	3380	16700	881	2620	850	4430
25	381	611	476	1720	1150	9440	3790	18700	847	1960	824	2710
26	379	686	469	1480	1110	5680	4140	11000	870	6330	778	2110
27	373	1160	462	1330	2120	3240	3760	4300	1040	6130	735	1560
28	383	7620	459	1300	1970	2170	3190	2580	1060	5300	716	1380
29	384	7730	496	1180	---	1640	2340	1900	1030	3710	807	1260
30	363	4080	932	1170	---	1320	2770	2810	947	3040	821	1090
31	367	---	1010	1180	---	1160	---	2220	---	4560	883	---
TOTAL	16895	36675	23874	143620	107470	63387	114190	207040	197355	59058	27192	118687
MEAN	545	1223	770	4633	3838	2045	3806	6679	6579	1905	877	3956
MAX	815	7730	2340	13000	17200	10600	16000	21800	36500	6330	2790	24800
MIN	363	365	459	1170	1110	521	1190	500	847	613	624	379
AC-FT	33510	72740	47350	284900	213200	125700	226500	410700	391500	117100	53940	235400

CAL YR 1978 TOTAL 335335 MEAN 919 MAX 16600 MIN 161 AC-FT 665100
WTR YR 1979 TOTAL 1115443 MEAN 3056 MAX 36500 MIN 363 AC-FT 2212000

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.

AVERAGE DISCHARGE.--9 years (water years 1971-79), 155 ft³/s (4.390 m³/s), 112,300 acre-ft/yr (138 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 (revised) and 35 ft (10.7 m) in August 1945 (revised), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s (45.3 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)
Jan. 7	1200	2,510	71.1	25.24	7.693	Apr. 20	2100	1,710	48.4	21.76	6.632
Jan. 12	0200	2,640	74.8	25.65	7.818	May 4	2400	1,760	49.8	21.99	6.703
Feb. 6	2300	3,530	100	27.60	8.412	July 27	1800	2,520	71.4	25.36	7.730
Mar. 21	2400	4,050	115	28.35	8.641	Sept. 20	--	*8,810	249	a31.73	9.671

a From floodmark.

Minimum daily discharge, 10 ft³/s (0.028 m³/s) Nov. 3-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	1.1	72	954	27	17	33	393	126	38	154	53
2	25	1.1	44	968	24	17	59	1120	836	36	95	195
3	24	1.0	33	338	26	17	177	519	901	31	61	274
4	72	1.0	46	150	46	16	240	975	669	29	55	670
5	291	1.0	47	473	1010	15	153	1580	278	54	48	600
6	163	313	31	1520	2860	14	62	769	161	291	38	427
7	81	522	26	2340	3140	12	39	225	115	380	33	331
8	45	262	24	1790	1440	11	29	90	69	229	31	798
9	31	128	32	1280	342	11	26	52	41	141	35	513
10	25	50	24	405	135	11	19	38	32	319	40	232
11	22	35	18	1600	83	11	17	283	26	279	37	114
12	24	29	15	2160	59	11	13	960	25	149	34	79
13	18	22	14	870	48	10	17	251	23	126	37	60
14	14	17	13	271	39	9.3	14	82	22	205	32	46
15	12	15	14	120	30	9.3	12	49	23	156	31	36
16	9.1	13	15	79	23	9.2	11	34	24	114	30	31
17	6.6	11	15	64	19	8.8	19	26	25	75	30	39
18	5.1	10	14	54	17	8.6	38	23	26	47	28	295
19	4.8	10	14	49	16	8.7	53	22	26	47	30	5260
20	4.5	13	13	149	15	8.7	1120	23	31	144	64	8590
21	3.7	17	10	239	15	2220	1390	27	26	151	125	6890
22	3.5	19	9.8	100	13	3590	505	36	23	372	175	4500
23	3.0	15	9.8	50	13	2370	154	53	24	239	302	3180
24	2.5	12	9.5	35	13	810	68	43	24	124	159	2430
25	2.2	10	9.4	28	13	188	45	31	31	86	107	1810
26	1.9	147	9.1	28	17	93	31	25	81	1240	295	956
27	1.7	511	8.3	32	16	58	26	19	63	2460	135	389
28	1.5	298	7.8	31	16	43	19	25	60	2360	72	210
29	1.3	145	428	26	---	32	93	27	59	1450	62	137
30	1.2	114	775	24	---	26	320	25	39	579	66	89
31	1.2	---	571	30	---	24	---	113	---	263	61	---
TOTAL	928.8	2743.2	2371.7	16257	9515	9689.6	4802	7938	3909	12214	2502	39234
MEAN	30.0	91.4	76.5	524	340	313	160	256	130	394	80.7	1308
MAX	291	522	775	2340	3140	3590	1390	1580	901	2460	302	8590
MIN	1.2	1.0	7.8	24	13	8.6	11	19	22	29	28	31
AC-FT	1840	5440	4700	32250	18870	19220	9520	15750	7750	24230	4960	77820

CAL YR 1978 TOTAL 31010.8 MEAN 85.0 MAX 1290 MIN 1.0 AC-FT 61510
WTR YR 1979 TOTAL 112104.3 MEAN 307 MAX 8590 MIN 1.0 AC-FT 222400

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 31...	1040	2.2	1260	7.9	20.0	10	8.2	93	1.3	300	34
DEC 12...	1612	14	894	7.8	11.0	45	9.9	93	1.6	230	30
JAN 23...	1405	47	477	7.4	14.0	300	7.6	76	4.4	130	10
MAR 08...	1105	11	1300	8.1	17.0	2.0	9.4	96	2.6	360	76
APR 18...	1055	43	960	7.8	22.0	72	6.6	75	2.5	240	39
MAY 15...	1620	48	639	7.8	24.0	130	6.9	80	4.3	180	28
JUL 06...	1200	269	512	7.6	25.5	150	4.2	50	3.8	130	0
AUG 15...	1245	31	962	7.8	28.0	6.6	8.5	108	1.7	280	38
SEP 20...	1620	8540	78	7.1	23.0	56	6.2	81	2.2	28	3

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 31...	84	23	140	3.5	6.0	330	0	53	210	.5	16
DEC 12...	61	18	85	2.5	5.2	240	0	21	150	.3	19
JAN 23...	37	9.9	44	1.7	4.6	150	0	15	62	.2	19
MAR 08...	99	28	150	3.4	4.2	350	0	39	240	.5	8.6
APR 18...	68	18	93	2.6	4.2	250	0	46	150	.4	12
MAY 15...	49	13	56	1.8	4.1	180	0	29	91	.4	14
JUL 06...	37	10	49	1.8	4.1	170	0	22	67	.4	21
AUG 15...	74	22	94	2.5	6.0	290	0	34	150	.4	27
SEP 20...	8.1	1.8	4.5	.4	2.8	30	0	13	5.1	.2	8.5

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 31...	695	20	.52	.01	.53	.01	.51	.52	1.5	5.3
DEC 12...	478	72	.58	.01	.59	.03	.58	.61	.37	6.7
JAN 23...	266	392	.40	.14	.54	.22	.38	.60	.42	11
MAR 08...	742	4	.13	.02	.15	.11	.32	.43	.15	4.5
APR 18...	515	116	1.9	.39	2.3	.24	.86	1.1	.28	7.1
MAY 15...	345	180	.15	--	--	--	.85	--	--	15
JUL 06...	294	298	.70	.06	.76	.08	1.0	1.1	.53	12
AUG 15...	551	5	.23	.02	.25	.11	.37	.48	.10	9.2
SEP 20...	59	34	.10	.02	.12	.04	.62	.66	.20	7.3

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
DEC 12...	1612	3	200	<1	0	1
MAR 08...	1105	3	200	0	0	0
MAY 15...	1620	2	100	0	0	3
AUG 15...	1245	3	200	0	0	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
DEC 12...	40	0	70	.0	0	0	<3
MAR 08...	10	0	50	.0	1	0	20
MAY 15...	80	1	20	.0	0	0	10
AUG 15...	30	0	20	.1	0	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)
DEC 12...	1612	.0	0	--	.00	.0	.0	0	.00	.6
MAR 08...	1105	.0	0	--	.00	.0	.0	3	.00	.4
MAY 15...	1620	.0	0	.00	.00	.0	.0	0	.00	.4
AUG 15...	1245	.0	1	.00	.00	.0	.0	1	.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)
DEC 12...	.00	2.1	.00	.2	.02	.00	.3	.00	.00	.0
MAR 08...	.00	.7	.00	.6	.00	.00	.1	.00	.00	.0
MAY 15...	.00	.4	.00	.0	.04	.00	.0	.00	.00	.0
AUG 15...	.00	2.1	.00	.0	.04	.00	.1	.00	.00	.0

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
DEC 12...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAR 08...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAY 15...	.00	.00	.0	.00	.0	.00	.0	.00	.00
AUG 15...	.00	.00	.0	.00	.0	.00	.0	.00	.25

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
DEC 12...	.00	.00	.00	0	0	.00	.01	.01	.00
MAR 08...	.00	.00	.00	0	0	.00	.02	.00	.00
MAY 15...	.00	.00	.00	0	0	.00	.02	.01	.00
AUG 15...	.00	.00	.00	0	0	.00	.00	.00	.00

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 31...	1045	.50	1580	7.7	20.0	9.0	6.2	70	1.8	370	14
DEC 12...	1357	2.2	941	7.8	10.0	50	10.0	92	1.6	240	30
JAN 23...	1540	14	636	7.6	14.0	280	8.2	82	4.2	150	19
MAR 08...	1411	2.7	1600	7.8	20.0	5.0	11.9	129	1.4	430	98
APR 18...	1410	27	790	8.0	22.5	--	7.2	81	4.2	170	10
MAY 15...	1010	31	426	7.6	23.0	150	6.9	78	3.1	130	10
JUL 06...	1507	340	328	7.8	26.0	180	6.1	74	3.2	86	0
AUG 15...	1600	20	845	7.5	31.5	14	7.1	95	3.1	180	0
SEP 20...	1350	4500	73	7.1	23.0	24	5.6	65	2.9	23	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 31...	81	40	180	4.1	5.2	430	0	38	280	.7	28
DEC 12...	53	25	93	2.6	4.9	250	0	29	160	.4	19
JAN 23...	37	14	64	2.3	4.3	160	0	21	100	.3	15
MAR 08...	93	47	160	3.4	3.4	400	0	61	250	.8	12
APR 18...	40	16	88	3.0	3.9	190	0	34	120	.5	12
MAY 15...	32	11	36	1.4	3.6	140	0	20	50	.3	12
JUL 06...	22	7.5	33	1.6	3.2	110	0	15	39	.3	14
AUG 15...	42	19	120	3.9	5.3	285	0	30	130	.6	38
SEP 20...	5.8	2.0	4.2	.4	2.8	30	0	1.1	5.0	.1	7.7

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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 31...	865	12	.01	.01	.02	.02	.66	.68	.06	7.3
DEC 12...	508	79	.11	.01	.12	.01	.89	.90	.08	11
JAN 23...	334	460	.17	.08	.25	.11	1.3	1.4	.20	20
MAR 08...	825	8	.01	.00	.01	.02	.23	.25	.01	6.8
APR 18...	408	--	1.9	.16	2.1	.10	1.0	1.1	.11	15
MAY 15...	234	214	.27	.19	.46	.57	.63	1.2	.11	19
JUL 06...	188	256	.33	.04	.37	.04	.90	.94	.28	13
AUG 15...	526	25	.00	.02	.01	.03	.53	.56	.09	48
SEP 20...	43	21	.04	.02	.06	.02	.67	.69	.18	7.5

08162700 EAST CARANCAHUA CREEK NEAR BLESSING, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
DEC 12...	1357	2	200	<1	0	1	60
MAR 08...	1411	1	200	0	0	0	0
MAY 15...	1010	2	100	0	10	4	90
AUG 15...	1600	4	200	<1	20	0	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)
DEC 12...	0	50	.1	1	0	<3
MAR 08...	0	30	.1	1	0	10
MAY 15...	1	0	.0	0	0	10
AUG 15...	0	8	.1	0	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)
DEC 12...	1357	.0	0	.00	.00	.0	.0	0	.00	.3
MAR 08...	1411	.0	0	--	.00	.0	.0	0	.00	.8
MAY 15...	1010	.0	0	.00	.00	.0	.0	0	.00	.0
AUG 15...	1600	.1	0	.00	.00	.0	.0	0	.00	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
DEC 12...	.00	.7	.00	.0	.00	.00	.0	.00	.00	.0
MAR 08...	.00	1.2	.00	.0	.00	.00	.1	.00	.00	.0
MAY 15...	.00	.3	.00	.0	.00	.00	.0	.00	.00	.0
AUG 15...	.00	.0	.00	.0	.00	.00	1.7	.00	.00	.0

08162700 EAST CARANCAHUA CREEK NEAR BLESSING, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
DEC 12...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAR 08...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAY 15...	.00	.00	.0	.00	.0	.00	.0	.00	.00
AUG 15...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
DEC 12...	.00	.00	.00	0	0	.00	.00	.00	.00
MAR 08...	.00	.00	.00	0	0	.00	.05	.00	.00
MAY 15...	.00	.00	.00	0	0	.00	.00	.01	.00
AUG 15...	.00	.00	.00	0	0	.00	.00	.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 mi² (280 km²).

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.--40 years, 49.0 ft³/s (1.388 m³/s), 6.16 in/yr (156 mm/yr), 35,500 acre-ft/yr (43.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 93,100 ft³/s (2,640 m³/s) June 30, 1940, gage height, 40.60 ft (12.375 m), from floodmarks, from rating curve extended above 23,000 ft³/s (651 m³/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 June 30, 1940.

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 ft³/s (65.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 4	unknown	3,160	89.5	unknown	--
May 12	unknown	*16,500	467	a28.5	8.69
June 6	1230	3,530	100	19.22	5.858

a From floodmark.

Minimum discharge, 1.5 ft³/s (0.042 m³/s) Nov. 2, 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	1.6	9.1	754	18	11	29	313	55	11	7.8	4.3
2	3.3	1.6	7.8	110	18	11	131	682	148	10	7.7	4.3
3	3.0	1.6	7.2	38	22	193	461	87	313	10	7.0	4.2
4	2.9	1.6	6.6	29	59	48	109	1740	93	11	6.7	4.2
5	2.8	3.1	6.5	151	693	16	68	209	57	14	6.1	5.8
6	2.8	42	10	524	960	12	53	49	1360	18	5.9	23
7	2.6	15	6.1	448	178	9.6	44	35	103	125	5.8	8.6
8	2.6	5.9	5.1	64	58	7.9	40	31	78	36	5.6	7.2
9	2.6	4.3	4.6	37	40	7.3	38	29	54	23	5.6	6.4
10	2.4	3.7	4.4	76	32	7.0	35	26	43	19	5.5	5.8
11	2.4	3.4	4.3	1180	29	7.8	35	4300	35	75	5.1	5.3
12	2.3	3.3	4.3	132	26	7.6	32	5520	30	27	5.8	5.0
13	2.2	3.2	4.4	58	25	6.8	28	150	27	24	5.4	4.9
14	1.9	3.0	4.9	41	23	6.5	25	68	25	19	5.2	4.7
15	1.9	2.9	5.4	34	21	5.8	24	49	23	16	4.6	4.5
16	1.9	2.9	5.4	30	18	6.0	23	40	22	16	4.4	4.4
17	1.9	3.0	5.2	35	17	6.8	23	35	20	14	4.2	4.4
18	1.9	3.2	4.8	193	18	7.4	27	32	19	13	4.2	6.7
19	1.8	5.0	4.7	859	18	8.0	27	29	17	12	4.2	86
20	1.9	4.9	4.8	285	18	8.7	285	27	17	12	4.1	90
21	1.9	5.0	4.5	78	19	571	63	25	16	14	4.0	23
22	1.9	4.6	4.2	41	20	320	35	235	15	12	3.9	10
23	1.9	4.5	4.2	33	20	107	26	85	14	11	3.9	7.0
24	1.8	4.4	4.2	26	19	54	23	44	14	10	4.0	5.0
25	1.8	4.1	4.0	24	15	41	20	31	13	9.5	6.3	4.4
26	3.5	331	4.0	33	12	36	18	25	13	9.1	6.4	4.2
27	3.9	478	4.0	33	12	33	17	22	14	9.5	6.9	4.0
28	2.5	42	4.2	22	12	31	15	28	12	9.9	5.4	3.8
29	1.9	18	4.8	19	---	30	43	28	12	8.9	4.6	3.7
30	1.7	12	5.3	31	---	29	169	30	11	8.4	4.3	3.5
31	1.6	---	501	25	---	30	---	129	---	7.8	4.2	---
TOTAL	72.9	1018.8	660.0	5443	2420	1676.2	1966	14133	2673	615.1	164.8	358.3
MEAN	2.35	34.0	21.3	176	86.4	54.1	65.5	456	89.1	19.8	5.32	11.9
MAX	3.9	478	501	1180	960	571	461	5520	1360	125	7.8	90
MIN	1.6	1.6	4.0	19	12	5.8	15	22	11	7.8	3.9	3.5
CFSM	.02	.32	.20	1.63	.80	.50	.61	4.22	.83	.18	.05	.11
IN.	.03	.35	.23	1.87	.83	.58	.68	4.87	.92	.21	.06	.12
AC-FT	145	2020	1310	10800	4800	3320	3900	28030	5300	1220	327	711

CAL YR 1978 TOTAL 10177.92 MEAN 27.9 MAX 2810 MIN .40 CFSM .26 IN 3.51 AC-FT 20190
WTR YR 1979 TOTAL 31201.10 MEAN 85.5 MAX 5520 MIN 1.6 CFSM .79 IN 10.75 AC-FT 61890

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.--41 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 12	1600	10,100	286	23.41	7.135	May 3	0800	10,400	295	23.50	7.163
Jan. 21	1200	6,160	174	21.35	6.507	May 14	0200	8,350	236	22.71	6.922
Feb. 7	0900	6,910	196	21.95	6.690	June 5	1200	5,850	166	21.07	6.422
Apr. 5	0200	4,620	131	19.55	5.959	June 8	1900	*12,600	357	24.14	7.358
Apr. 21	0900	5,900	167	21.12	6.437	Sept. 21	0900	11,200	317	23.51	7.166

Minimum discharge, 48 ft³/s (1.36 m³/s) Sept. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	204	75	125	580	280	163	164	5340	1500	149	95	63
2	187	73	107	2210	235	159	163	6350	1050	141	89	66
3	282	72	98	1000	322	161	1840	9920	2360	135	84	67
4	386	72	91	293	316	161	3790	7790	3590	138	81	65
5	230	74	86	817	1790	308	2340	8210	5090	159	78	124
6	175	385	82	1840	5290	175	444	6870	1810	196	76	197
7	147	205	93	2140	6410	146	321	1390	4890	236	74	114
8	133	206	94	2390	2810	137	270	684	10700	323	75	116
9	124	115	81	765	684	134	237	521	7830	355	77	92
10	118	88	71	388	452	131	214	428	1110	226	78	77
11	116	77	68	3740	355	127	200	951	648	256	80	72
12	112	71	66	8720	309	127	189	4870	507	206	75	63
13	107	68	65	7560	283	127	176	8000	424	272	76	57
14	101	66	64	1590	262	128	158	6490	370	204	79	53
15	94	64	64	516	245	125	146	949	335	183	75	50
16	91	64	64	382	230	121	138	548	310	155	73	48
17	90	64	64	327	212	120	142	440	287	140	71	48
18	88	63	63	307	205	123	151	384	266	128	67	55
19	86	63	63	449	198	127	369	347	248	122	65	2100
20	85	66	63	2720	198	131	4150	320	238	125	63	7480
21	84	68	62	5440	201	1290	5850	299	219	124	76	9770
22	83	78	61	1490	205	2930	3340	304	206	120	71	2240
23	82	79	59	501	213	2440	658	892	195	120	65	558
24	80	76	60	354	214	941	447	1310	189	112	60	349
25	79	76	59	292	210	393	309	402	183	104	57	255
26	88	75	58	281	193	279	248	308	180	99	66	198
27	89	82	58	305	175	227	203	271	175	142	70	166
28	86	889	58	286	168	199	179	253	169	166	76	142
29	89	376	76	238	---	181	762	341	166	135	67	126
30	82	176	80	253	---	171	4640	479	159	116	69	117
31	77	---	71	319	---	165	---	591	---	102	68	---
TOTAL	3875	4006	2274	48493	22665	12147	32238	76252	45404	5189	2276	24928
MEAN	125	134	73.4	1564	809	392	1075	2460	1513	167	73.4	831
MAX	386	889	125	8720	6410	2930	5850	9920	10700	355	95	9770
MIN	77	63	58	238	168	120	138	253	159	99	57	48
CFSM	.15	.16	.09	1.91	.99	.48	1.32	3.01	1.85	.20	.09	1.02
IN.	.18	.18	.10	2.21	1.03	.55	1.47	3.47	2.07	.24	.10	1.14
AC-FT	7690	7950	4510	96190	44960	24090	63940	151200	90060	10290	4510	49440

CAL YR 1978 TOTAL 123273.1 MEAN 338 MAX 17800 MIN 8.0 CFSM .41 IN 5.61 AC-FT 244500
WTR YR 1979 TOTAL 279747.0 MEAN 766 MAX 10700 MIN 48 CFSM .94 IN 12.74 AC-FT 554900

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 current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1977 to August 1978.
WATER TEMPERATURES: November 1977 to August 1978.

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.
WATER TEMPERATURES:(1977-78): Maximum daily, 33.0°C July 16, 1978; minimum daily, 5.0°C January 22, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 839 micromhos Mar. 16; minimum daily, 100 micromhos May 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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											
17...	1045	90	777	8.0	19.0	7.0	7.8	87	2.8	--	--
NOV											
07...	1140	203	381	7.6	17.0	170	7.0	74	3.5	--	--
DEC											
20...	1000	63	812	8.0	18.0	10	9.3	102	1.3	120	160
JAN											
16...	1145	381	462	7.8	8.0	50	6.3	55	1.8	760	2600
FEB											
21...	0950	201	784	7.9	11.0	10	10.0	93	.5	190	120
MAR											
20...	1208	1300	840	8.2	22.5	10	8.8	100	3.0	190	K160
APR											
11...	1350	201	770	7.9	22.0	.50	8.0	92	1.2	180	4000
MAY											
10...	1020	431	579	7.8	23.5	35	7.2	83	1.9	390	2200
JUN											
05...	1010	5780	207	8.0	25.0	120	5.8	71	2.6	2600	2600
JUL											
10...	1150	213	555	7.8	28.0	90	7.0	89	1.8	1400	2100
16...	1200	293	--	--	--	--	--	--	--	--	--
31...	1440	101	752	8.1	29.0	10	7.5	96	2.0	260	430
AUG											
29...	1010	67	761	8.0	26.5	14	6.8	84	1.0	680	480

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT										
17...	330	24	120	6.8	48	1.2	2.6	370	0	22
NOV										
07...	130	3	44	3.8	26	1.0	3.4	150	0	14
DEC										
20...	300	14	110	6.3	51	1.3	2.9	350	0	27
JAN										
16...	160	9	59	4.2	28	1.0	3.8	190	0	17
FEB										
21...	300	22	110	6.4	53	1.3	2.4	340	0	32
MAR										
20...	300	15	110	6.7	59	1.5	2.4	330	10	31
APR										
11...	280	13	100	6.2	45	1.2	3.2	320	0	24
MAY										
10...	250	19	89	5.5	32	.9	3.4	276	0	19
JUN										
05...	77	0	29	1.0	8.4	.4	3.7	96	0	10
JUL										
10...	200	12	73	4.5	41	1.3	3.2	230	0	23
16...	--	--	--	--	--	--	--	--	--	--
31...	270	0	100	6.0	58	1.5	2.0	340	0	32
AUG										
29...	270	0	98	5.8	56	1.5	3.0	340	0	26

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	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)
OCT										
17...	68	.3	28	480	478	.20	.01	.21	.01	.45
NOV										
07...	36	.2	14	231	216	.17	.01	.18	.02	.85
DEC										
20...	74	.3	23	478	467	.42	.02	.44	.01	.29
JAN										
16...	39	.2	15	259	260	.31	.02	.33	.06	.60
FEB										
21...	74	.3	19	460	465	.15	.02	.17	.02	.28
MAR										
20...	80	.4	19	474	481	.08	.02	.10	.01	.70
APR										
11...	66	.3	22	437	424	.52	.02	.54	.05	.36
MAY										
10...	43	.3	20	354	349	.36	.02	--	.03	.51
JUN										
05...	10	.2	11	124	121	.17	.06	.23	.05	.93
JUL										
10...	51	.4	21	350	330	.36	.04	.40	.05	.58
16...	--	--	--	--	--	--	--	--	--	--
31...	60	.4	25	433	451	.13	.02	.15	.01	.32
AUG										
29...	60	.4	29	425	446	.47	.02	.49	.02	.86

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										
17...	.46	.40	.050	.040	3.9	--	--	150	36	18
NOV										
07...	.87	.38	.180	.070	--	8.3	3.2	381	209	100
DEC										
20...	.30	.21	.080	.070	3.2	--	--	62	11	23
JAN										
16...	.66	.38	.120	.120	6.5	--	--	92	95	96
FEB										
21...	.30	.28	.040	.030	--	4.1	--	183	99	35
MAR										
20...	.71	.19	1.00	.020	--	--	--	23	81	57
APR										
11...	.41	.32	.080	.030	11	--	--	89	48	70
MAY										
10...	--	--	.100	--	8.6	--	--	168	196	81
JUN										
05...	.98	.43	.170	.100	11	--	--	142	2220	82
JUL										
10...	.63	.58	.140	.080	1.2	--	--	--	--	--
16...	--	--	--	--	--	--	--	161	127	91
31...	.33	.10	.080	.050	--	3.5	.9	119	32	42
AUG										
29...	.88	.69	.070	.090	9.1	--	--	46	8.3	82

DATE	TIME	ARSENIC 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										
07...	1140	4	2	300	100	200	0	0	<1	10
FEB										
21...	0950	3	2	400	100	300	1	1	0	0
MAY										
10...	1020	4	3	300	0	300	0	0	0	10
JUL										
31...	1440	5	4	400	200	200	0	0	0	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)
NOV										
07...	10	0	4	1	<3	5	3	2	4800	4800
FEB										
21...	0	10	0	0	0	1	1	0	340	330
MAY										
10...	10	0	1	0	2	25	23	2	1300	1300
JUL										
31...	0	10	0	0	0	1	1	0	510	510

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
NOV 07...	30	6	6	0	280	280	1	.1	.0	.2
FEB 21...	10	21	21	0	50	30	20	.0	.0	.0
MAY 10...	20	18	17	1	170	170	0	.1	.1	.0
JUL 31...	0	6	6	0	80	60	20	.1	.0	.1

DATE	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 07...	1	0	1	0	0	0	20	20	<3
FEB 21...	1	0	1	0	0	0	20	0	20
MAY 10...	1	0	1	0	0	0	110	100	10
JUL 31...	0	0	1	0	0	0	0	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)
OCT 17...	1045	.0	0	.00	.00	.0	.0	0	.00	.0
APR 11...	1350	.0	0	.00	.00	.0	.0	0	.00	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
OCT 17...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
APR 11...	.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)	METHYL PARA-THION, TOTAL (UG/L)
OCT 17...	.00	.00	.0	.00	.0	.00	.0	.00	.00
APR 11...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT 17...	.00	.00	.00	0	0	.00	.00	.00	.00
APR 11...	.00	.00	.00	0	0	.00	.02	.00	.00

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE	NOV 7,78	MAR 20,79	MAY 10,79	JUN 5,79
TIME	1140	1208	1020	1010
TOTAL CELLS/ML	1500	6400	1200	77
DIVERSITY: DIVISION	1.3	1.4	1.2	0.0
.CLASS	1.3	1.4	1.2	0.0
..ORDER	1.5	1.9	2.0	0.0
...FAMILY	1.8	2.1	2.2	0.0
....GENUS	1.8	2.5	2.4	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	22	1	280	4	26	2	--	-
....CHLORELLA	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	52	4	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
....SELENASTRUM	22	1	--	-	13	1	--	-
....TREUBARIA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	47	1	--	-	--	-
....SCENEDESMUS	--	-	1200#	18	100	9	--	-
....TETRASTRUM	--	-	--	-	52	4	--	-
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	22	1	190	3	26	2	--	-
....PLATYMONAS	--	-	--	-	--	-	--	-
...PHACOTACEAE								
....PEDINOPTERA	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	66	4	3100#	48	26	2	--	-
....STEPHANODISCUS	--	-	520	8	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	22	1	--	-	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	94	1	--	-	--	-
...NAVICULACEAE								
....GYROSIGMA	--	-	47	1	--	-	--	-
....NAVICULA	44	3	47	1	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	270#	18	380	6	--	-	77#	100
...SURIRELLACEAE								
....SURIRELLA	22	1	--	-	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	--	-	--	-	--	-	--	-
.XANTHOPHYCEAE								
..HETEROCOCCALES								
...CHLOROTHECIACEAE								
....OPHIOCYTIUM	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE	--	-	--	-	--	-	--	-
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	94	1	77	6	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	280	4	320#	27	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	950#	64	--	-	520#	43	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	22	1	190	3	--	-	--	-
....EUTREPTIA	--	-	--	-	--	-	--	-
....PHACUS	22	1	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-

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 1978 TO AUGUST 1979

DATE	JUL 10,79	JUL 31,79	AUG 29,79
TIME	1150	1448	1010
TOTAL CELLS/ML	1300	6500	2900
DIVERSITY: DIVISION	0.7	1.5	1.2
.CLASS	0.7	1.5	1.2
..ORDER	1.2	1.8	0.0
...FAMILY	1.3	2.4	0.0
....GENUS	1.3	3.2	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....CHLOROCOCCUM	--	-	--	-	150	5
...MICRACTINIACEAE						
....GOLENKINIA	--	-	--	-	25	1
...OOCYSTACEAE						
....ANKISTRODESMUS	13	1	760	12	600#	21
....CHLORELLA	--	-	--	-	230	8
....DICTYOSPHAERIUM	--	-	1000#	15	--	-
....KIRCHNERIELLA	--	-	76	1	--	-
....SELENASTRUM	--	-	130	2	--	-
....TREUBARIA	--	-	*	0	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	200	3	100	3
....SCENEDESMUS	--	-	1500#	22	300	10
....TETRASTRUM	--	-	200	3	--	-
..TETRASPORALES						
...PALMELLACEAE						
....SPHAEROCYSTIS	--	-	200	3	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	26	2	50	1	25	1
....PLATYMONAS	--	-	--	-	50	2
...PHACOTACEAE						
....PEDINOPTERA	--	-	--	-	25	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	26	2	130	2	500#	17
....STEPHANODISCUS	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	--	-	25	1
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	50	2
...NAVICULACEAE						
....GYROSIGMA	--	-	*	0	--	-
....NAVICULA	39	3	--	-	50	2
...NITZSCHIACEAE						
....NITZSCHIA	39	3	450	7	600#	21
...SURIRELLACEAE						
....SURIRELLA	--	-	--	-	50	2
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	76	1	--	-
.XANTHOPHYCEAE						
..HETEROCOCCALES						
...CHLOROTHECIACEAE						
....OPHIOCYTIUM	--	-	*	0	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE	--	-	--	-	100	3
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	130	2	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	100	8	--	-	--	-
....ANACYSTIS	--	-	1500#	23	--	-
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	1000#	79	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	13	1	*	0	--	-
....EUTREPTIA	--	-	--	-	25	1
....PHACUS	--	-	--	-	--	-
....TRACHELOMONAS	13	1	76	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

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	3875	701	410	4300	67	701	24	248	250
NOV. 1978.....	4006	531	310	3370	51	550	18	194	190
DEC. 1978.....	2274	728	430	2620	70	428	25	151	260
JAN. 1979.....	48493	225	130	17300	21	2790	8	989	82
FEB. 1979.....	22665	327	190	11700	31	1910	11	672	120
MAR. 1979.....	12147	452	270	8750	43	1410	15	505	160
APR. 1979.....	32238	269	160	13700	26	2240	9	798	98
MAY 1979.....	76252	236	140	28400	23	4660	8	1620	85
JUNE 1979.....	45404	276	160	19800	26	3240	9	1140	100
JULY 1979.....	5189	665	390	5470	64	891	22	315	240
AUG. 1979.....	2276	745	440	2690	71	438	25	156	270
SEPT 1979.....	24928	180	110	7100	17	1160	6	424	65
TOTAL	279747	**	**	125000	**	20400	**	7210	**
WTD.AVG.	766	283	170	**	27	**	9.5	**	100

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	745	795	485	450	664	775	745	270	350	760	725	735
2	770	797	540	260	647	792	763	131	320	780	721	720
3	700	788	595	230	600	785	250	110	290	635	732	710
4	570	790	649	500	620	790	210	120	250	700	730	730
5	590	785	676	286	250	610	296	100	236	750	727	376
6	605	292	690	260	192	657	424	250	337	725	729	310
7	625	411	720	254	201	680	671	375	191	600	726	485
8	640	681	740	240	225	772	675	470	194	520	724	376
9	658	649	748	264	335	775	679	525	160	509	729	525
10	676	643	750	328	405	778	712	579	285	542	726	687
11	693	660	752	150	500	782	745	384	420	546	730	721
12	710	680	753	120	575	790	770	240	525	670	740	720
13	730	709	793	130	620	799	794	210	646	682	745	718
14	746	726	811	275	690	805	800	264	744	675	750	719
15	765	741	757	391	722	816	810	495	664	670	755	715
16	781	756	770	471	748	839	829	581	660	667	757	710
17	787	760	780	535	755	830	800	637	665	724	770	701
18	757	764	805	575	760	829	735	683	667	703	780	677
19	739	770	816	515	766	825	700	710	779	684	760	139
20	765	758	821	200	729	827	190	740	813	714	770	119
21	787	740	811	180	795	368	140	753	754	730	761	134
22	750	775	824	299	751	286	200	725	765	745	755	175
23	712	756	820	387	741	285	311	410	773	754	751	324
24	793	775	810	502	730	350	407	392	784	750	763	359
25	790	770	812	560	750	400	503	580	792	748	770	386
26	747	780	824	612	765	486	585	725	788	745	760	444
27	740	730	822	570	790	560	651	730	763	748	765	500
28	760	300	825	650	807	620	690	790	773	701	768	547
29	730	360	728	700	---	679	450	734	737	700	750	560
30	784	428	700	680	---	712	163	600	745	698	751	590
31	790	---	680	554	---	725	---	543	---	728	725	---
MEAN	724	679	745	391	612	678	557	479	562	687	747	520

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	23.0	---	15.0	9.5	20.5	---					
2	---	23.0	---	12.0	12.0	20.0	11.5					
3	---	23.0	---	---	---	---	---					
4	---	---	16.0	---	---	---	---					
5	---	---	16.5	11.5	12.0	---	19.0					
6	---	21.0	---	---	10.5	17.0	19.5					
7	---	19.0	---	7.0	10.5	19.0	19.5					
8	---	17.0	12.0	---	---	20.5	---					
9	---	18.0	11.0	5.5	---	---	21.0					
10	---	21.0	---	7.0	---	19.0	21.5					
11	---	---	---	8.5	---	---	24.5					
12	---	---	12.5	---	16.0	18.0	25.0					
13	---	24.0	13.0	---	---	19.0	24.0					
14	---	24.5	12.0	---	---	---	---					
15	---	25.0	13.5	9.5	20.5	19.0	---					
16	---	19.0	---	11.0	13.5	18.0	25.0					
17	23.0	---	---	10.0	---	---	---					
18	22.0	---	16.5	15.0	---	---	22.5					
19	21.5	---	19.0	18.0	9.5	---	23.5					
20	---	16.0	21.0	---	14.5	12.0	21.0					
21	23.0	16.0	17.5	---	15.5	20.5	---					
22	---	20.0	15.0	13.0	20.0	21.5	---					
23	23.0	19.5	---	13.5	21.0	20.5	15.5					
24	24.0	21.5	---	12.0	---	---	19.5					
25	23.0	---	13.0	---	---	---	22.0					
26	22.0	---	15.0	14.0	---	21.0	24.0					
27	21.0	19.0	16.0	11.0	---	21.5	24.0					
28	---	---	17.0	---	15.0	---	---					
29	17.0	---	17.5	10.0	---	21.0	---					
30	21.5	18.5	---	---	---	21.0	---					
31	---	---	---	10.0	---	---	---					
MEAN	22.0	20.5	15.0	11.0	14.5	19.5	21.5					

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.--18 years, 164 ft³/s (4.644 m³/s), 6.71 in/yr (170 mm/yr), 118,800 acre-ft/yr (146 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 7	1700	3,070	86.9	20.41	6.221	May 4	unknown	18,200	515	unknown	--
Jan. 12	0100	5,170	146	22.83	6.959	May 12	0200	3,310	93.7	20.15	6.142
Feb. 6	2000	3,080	87.2	20.43	6.227	May 23	0300	12,600	357	27.81	8.476
Apr. 3	1600	9,590	272	26.21	7.989	June 7	0400	*20,900	592	30.45	9.281

Minimum discharge, 3.9 ft³/s (0.11 m³/s) Oct. 30, caused by construction work upstream from station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	13	54	1860	79	56	66	1090	182	47	31	14
2	22	13	47	705	76	54	1310	4140	165	42	61	14
3	21	13	42	143	89	170	7990	913	764	38	34	14
4	22	13	37	112	183	178	2620	9610	293	37	27	13
5	20	13	35	310	1720	74	244	4290	152	40	25	15
6	19	51	40	663	2660	60	165	471	4250	46	24	76
7	19	57	41	2640	1550	55	137	316	14300	119	23	33
8	18	23	34	431	247	52	127	266	1600	87	22	19
9	17	19	31	139	164	50	116	238	265	54	24	17
10	17	17	29	136	132	47	108	221	215	43	20	12
11	16	17	29	3940	119	47	102	1070	184	64	19	11
12	16	16	28	2720	109	47	95	2460	161	66	21	9.6
13	16	16	28	243	102	46	86	329	143	47	23	8.8
14	15	16	29	147	97	44	79	143	130	62	20	7.6
15	14	16	32	116	91	42	75	121	119	43	18	6.5
16	14	16	33	103	81	42	74	109	110	36	17	5.5
17	14	16	29	96	77	45	72	101	101	33	16	5.1
18	14	17	27	129	81	46	78	91	94	31	16	7.8
19	14	18	28	1150	81	46	305	85	88	30	20	321
20	14	23	28	1060	80	46	1710	83	83	29	22	1250
21	13	26	26	930	81	362	229	81	77	47	18	153
22	13	23	24	171	83	668	114	3100	73	55	16	59
23	13	22	24	126	81	631	92	8570	69	34	14	39
24	13	21	25	101	78	138	82	686	65	28	13	31
25	13	19	24	91	70	92	73	206	62	26	24	27
26	21	112	24	107	62	78	67	167	59	25	27	24
27	27	1780	24	108	60	70	60	144	58	129	17	23
28	16	309	23	85	59	65	56	136	62	102	34	22
29	14	98	26	77	---	63	417	127	57	48	27	21
30	13	70	28	184	---	62	815	115	51	35	22	20
31	13	---	275	114	---	65	---	349	---	31	16	---
TOTAL	514	2883	1204	18937	8392	3541	17564	39828	24032	1554	711	2278.9
MEAN	16.6	96.1	38.8	611	300	114	585	1285	801	50.1	22.9	76.0
MAX	27	1780	275	3940	2660	668	7990	9610	14300	129	61	1250
MIN	13	13	23	77	59	42	56	81	51	25	13	5.1
CFSM	.05	.29	.12	1.84	.90	.34	1.76	3.87	2.41	.15	.07	.23
IN.	.06	.32	.13	2.12	.94	.40	1.97	4.46	2.69	.17	.08	.26
AC-FT	1020	5720	2390	37560	16650	7020	34840	79000	47670	3080	1410	4520

CAL YR 1978 TOTAL 24871.28 MEAN 68.1 MAX 5700 MIN .60 CFSM .21 IN 2.79 AC-FT 49330
WTR YR 1979 TOTAL 121438.90 MEAN 333 MAX 14300 MIN 5.1 CFSM 1.00 IN 13.61 AC-FT 240900

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 except those for period of no gage-height record, July 3 to Aug. 8, which are fair. 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 7	1400	2,750	77.9	13.94	4.249	Apr. 30	0900	1,510	42.8	11.49	3.502
Jan. 12	0200	3,450	97.7	15.06	4.590	May 2	2000	4,580	130	16.06	4.895
Jan. 21	0400	3,470	98.3	15.09	4.599	May 5	0800	6,680	189	18.32	5.584
Feb. 7	0500	3,560	101	15.24	4.645	May 12	1100	1,560	44.2	11.41	3.478
Mar. 21	1100	1,560	44.2	11.72	3.572	Sept. 20	2400	*8,650	245	19.96	6.084
Apr. 20	1800	4,460	126	15.90	4.846						

Minimum discharge, 0.02 ft³/s (0.001 m³/s) June 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	144	.64	62	612	113	16	5.0	775	22	.49	100	17
2	112	.36	40	952	51	14	5.0	3900	65	.66	95	28
3	201	.18	27	376	254	13	170	2320	77	.57	90	48
4	367	.15	38	175	349	13	42	3220	90	.60	80	76
5	235	.63	60	896	1880	12	23	5700	273	20	70	86
6	166	446	53	2100	3190	11	19	2320	200	30	60	123
7	144	808	79	2530	3030	9.9	16	1370	470	50	40	154
8	101	618	184	1580	1540	8.7	14	669	320	100	50	291
9	59	198	120	899	710	8.3	13	311	150	180	30	275
10	37	77	75	374	281	7.8	12	184	48	130	31	162
11	30	34	46	2160	149	7.9	12	152	19	120	33	120
12	31	17	31	2670	100	8.0	11	1060	4.4	130	26	88
13	28	12	24	1530	75	8.0	10	480	.30	150	26	60
14	21	9.1	19	808	59	7.7	9.1	214	.14	190	27	41
15	17	9.1	17	298	47	7.7	8.8	91	.11	230	29	28
16	13	11	15	139	35	7.4	8.0	47	.08	170	20	22
17	9.2	11	18	101	29	7.4	42	31	.07	130	9.3	24
18	7.5	8.6	16	82	30	7.4	48	26	.05	110	6.5	36
19	6.4	7.6	16	915	31	7.4	57	27	.03	90	6.4	1060
20	5.1	10	9.7	2420	29	8.4	2830	12	.03	120	5.9	6440
21	3.7	26	7.1	3130	27	866	3620	6.9	.03	140	4.0	6880
22	3.0	38	5.6	1810	29	691	1930	43	.03	120	5.0	4220
23	2.4	43	4.4	858	31	776	768	611	.02	120	8.9	2600
24	4.3	35	3.4	388	33	237	317	157	.11	115	8.2	1360
25	4.3	24	2.5	152	32	71	160	59	.29	100	19	775
26	154	18	2.0	106	26	29	78	24	.29	110	2.9	454
27	154	31	1.4	254	21	17	29	12	.57	120	1.3	277
28	40	104	.93	119	18	11	15	9.2	.75	135	4.9	178
29	12	123	53	48	---	7.9	402	5.0	1.6	150	19	125
30	3.3	86	195	116	---	5.9	1180	4.0	1.9	140	17	90
31	1.2	---	224	365	---	5.2	---	5.4	---	125	17	---
TOTAL	2116.4	2806.36	1449.03	28963	12199	2908.0	11853.9	23845.5	1744.80	3327.32	942.3	26138
MEAN	68.3	93.5	46.7	934	436	93.8	395	769	58.2	107	30.4	871
MAX	367	808	224	3130	3190	866	3620	5700	470	230	100	6880
MIN	1.2	.15	.93	48	18	5.2	5.0	4.0	.02	.49	1.3	17
CFSM	.24	.32	.16	3.23	1.51	.33	1.37	2.66	.20	.37	.11	3.01
IN.	.27	.36	.19	3.73	1.57	.37	1.53	3.07	.22	.43	.12	3.36
AC-FT	4200	5570	2870	57450	24200	5770	23510	47300	3460	6600	1870	51840

CAL YR 1978	TOTAL	71114.48	MEAN 195	MAX 11400	MIN .00	CFSM .68	IN 9.15	AC-FT 141100				
WTR YR 1979	TOTAL	118293.61	MEAN 324	MAX 6880	MIN .02	CFSM 1.12	IN 15.23	AC-FT 234600				

NOTE.--No gage-height record July 3 to Aug. 8.

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 31...	1500	.75	349	7.5	24.0	6.0	7.4	90	3.6	97	7
DEC 13...	1315	18	184	7.4	10.0	55	10.2	94	2.5	46	7
JAN 24...	0950	413	114	7.4	9.0	100	10.0	89	3.6	32	0
MAR 07...	1612	9.5	380	7.6	20.0	7.0	11.6	126	1.7	93	27
APR 19...	1021	46	290	7.7	22.0	72	7.5	85	3.8	87	16
MAY 16...	1335	44	158	7.6	25.5	30	8.3	101	2.4	57	9
JUN 28...	0948	.75	580	7.5	26.5	2.4	6.2	76	--	150	10
AUG 08...	1212	39	703	7.8	28.0	5.0	7.6	96	1.7	210	81
SEP 18...	1500	21	546	8.1	23.5	11	8.0	93	3.1	160	21

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 31...	27	7.3	27	1.2	3.7	110	0	7.4	48	.2	23
DEC 13...	12	3.9	13	.8	5.0	48	0	8.7	25	.1	12
JAN 24...	8.7	2.5	6.4	.5	3.5	40	0	7.3	11	.1	7.7
MAR 07...	29	5.0	33	1.5	3.4	80	0	19	62	.1	12
APR 19...	28	4.1	20	.9	3.8	86	0	13	35	.2	11
MAY 16...	17	3.5	9.0	.5	2.9	58	0	9.8	15	.2	9.4
JUN 28...	47	7.8	59	2.1	1.8	170	0	17	83	.4	23
AUG 08...	62	13	57	1.7	2.4	155	0	24	130	.3	25
SEP 18...	41	14	45	1.5	7.2	170	0	17	70	.3	41

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 31...	198	6	.01	.00	.01	.05	.47	.52	.11	7.6
DEC 13...	104	56	.13	.00	.13	.05	1.1	1.1	.08	13
JAN 24...	67	156	.09	.02	.11	.10	1.3	1.4	.12	12
MAR 07...	203	8	.03	.00	.03	.02	.41	.43	.02	6.0
APR 19...	158	120	.12	.02	.14	.13	.97	1.1	.15	11
MAY 16...	96	21	.09	--	--	--	.61	--	--	11
JUN 28...	323	9	.00	.02	.02	.03	.58	.61	.00	7.8
AUG 08...	390	19	.10	.00	.10	.02	.58	.60	.06	--
SEP 18...	319	19	.08	.02	.10	.03	1.1	1.1	.19	14

08164450 SANDY CREEK NEAR LOUISE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
DEC 13...	1315	1	60	<1	0	1	250
MAR 07...	1612	1	100	0	0	0	20
MAY 16...	1335	1	100	0	0	2	160
AUG 08...	1212	1	100	<1	0	1	10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
DEC 13...	0	10	.0	0	0	<3
MAR 07...	0	40	.0	0	0	10
MAY 16...	1	10	.0	0	0	10
AUG 08...	0	9	.0	0	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)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
DEC 13...	1315	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
MAR 07...	1612	.0	0	--	.00	.0	.0	0	.00	.0	.00	.0
MAY 16...	1335	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
AUG 08...	1212	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0

DATE	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)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	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)
DEC 13...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
MAR 07...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
MAY 16...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
AUG 08...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0

DATE	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
DEC 13...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
MAR 07...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
MAY 16...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
AUG 08...	.00	.0	.00	.05	.00	.00	0	0	.00	.00	.00	.00

08164500 NAVIDAD RIVER NEAR GANADO, TX

LOCATION.--Lat 29°01'32", long 96°33'08", Jackson County, Hydrologic Unit 12100102, at downstream side near center of upstream bridge of two bridges on U.S. Highway 59, 170 ft (52 m) upstream from Texas and New Orleans Railroad Co. bridge, 0.2 mi (0.3 km) downstream from Sandy Creek, and 2.5 mi (4.0 km) southwest of Ganado.

DRAINAGE AREA.--1,062 mi² (2,751 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 13.62 ft (4.151 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to May 7, 1958, nonrecording gage at site 70 ft (21 m) downstream at same datum. Mar. 7, 1958, to Mar. 22, 1961, nonrecording gages at same site and datum.

REMARKS.--Water-discharge records good. Numerous diversions for irrigation above station. Much of low flow during the April to September irrigation season comes from Sandy Creek; see station 08164450 for water-discharge records during the current year. This low flow is drainage from ricefields irrigated by water originally diverted from the Colorado River.

AVERAGE DISCHARGE.--40 years, 572 ft³/s (16.20 m³/s), 414,400 acre-ft/yr (511 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 88,000 ft³/s (2,490 m³/s) June 15, 1973, gage height, 39.8 ft (12.13 m); no flow at times in 1955-56, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1876, 39.8 ft (12.13 m) May 27, 1936, and June 15, 1973, from information by local resident, Texas and New Orleans Railroad Co., and State Department of Highways and Public Transportation; discharge, 94,000 ft³/s (2,660 m³/s) May 27, 1936, from rating curve extended above 57,000 ft³/s (1,610 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,500 ft³/s (156 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)
Jan. 7	2000	6,230	176	22.74	6.931	Apr. 21	0700	12,000	340	26.68	8.132
Jan. 12	1500	9,650	273	25.65	7.818	May 6	0200	13,700	388	27.19	8.288
Jan. 21	1700	8,840	250	25.20	7.681	June 10	1500	6,780	192	23.45	7.148
Feb. 7	0900	10,400	295	26.07	7.946	Sept. 21	1700	*20,800	589	28.85	8.793
Mar. 22	0100	6,830	193	23.51	7.166						

Minimum discharge, 29 ft³/s (0.82 m³/s) Dec. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	381	77	207	605	624	168	157	3010	371	107	175	94
2	339	74	155	2600	440	164	157	5770	802	103	156	114
3	494	73	119	1960	690	160	1280	8880	599	99	131	115
4	1040	71	107	695	869	159	3690	7760	922	105	131	157
5	665	71	150	1600	2690	363	4270	11400	720	171	109	299
6	500	907	134	4660	7930	203	3030	12700	604	421	107	297
7	382	1260	115	5940	9170	165	523	9820	1270	533	94	256
8	316	854	281	5310	6680	147	361	3480	3050	413	101	330
9	239	419	195	3100	2220	139	296	952	4360	579	98	200
10	194	212	136	1090	915	129	264	644	6060	344	96	150
11	170	138	99	4730	657	122	242	1000	1250	307	104	125
12	170	98	76	8850	533	115	224	2660	288	329	99	105
13	165	79	64	7210	455	113	213	2680	220	443	94	85
14	147	66	57	4090	396	109	196	1290	198	527	90	72
15	126	56	55	1070	349	106	182	547	184	462	92	64
16	113	48	53	749	305	105	176	376	175	360	88	60
17	105	46	57	627	271	103	182	295	169	281	74	60
18	98	45	59	577	254	102	184	246	162	332	69	83
19	93	43	54	1150	253	98	300	230	153	344	74	3800
20	89	47	48	4500	250	95	7850	206	145	640	75	13300
21	87	64	40	7700	237	3510	11500	191	139	689	73	19600
22	85	97	38	5840	237	5310	7400	192	131	492	78	14500
23	81	110	36	1760	237	3970	2360	1160	132	428	88	6700
24	80	100	33	959	237	1640	967	2690	136	364	82	3250
25	84	81	31	682	235	603	594	3910	191	287	80	1670
26	103	69	30	582	207	352	404	1980	158	281	82	1040
27	107	87	29	721	185	255	272	385	132	300	80	712
28	97	1020	30	601	172	212	206	287	129	356	85	511
29	98	1070	113	448	---	184	964	250	117	433	82	370
30	87	309	303	469	---	168	4380	236	112	268	83	297
31	80	---	292	880	---	162	---	233	---	195	90	---
TOTAL	6815	7691	3196	81755	37698	19231	52824	85460	23079	10993	2960	68416
MEAN	220	256	103	2637	1346	620	1761	2757	769	355	95.5	2281
MAX	1040	1260	303	8850	9170	5310	11500	12700	6060	689	175	19600
MIN	80	43	29	448	172	95	157	191	112	99	69	60
AC-FT	13520	15260	6340	162200	74770	38140	104800	169500	45780	21800	5870	135700

CAL YR 1978 TOTAL 201780.9 MEAN 553 MAX 28500 MIN 1.8 AC-FT 400200
WTR YR 1979 TOTAL 400118.0 MEAN 1096 MAX 19600 MIN 29 AC-FT 793600

08164500 NAVIDAD RIVER NEAR GANADO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1959 to current year. Chemical, biochemical, and pesticide analyses: January 1968 to current year. Sediment records: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1959 to current year.
WATER TEMPERATURES: October 1959 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,350 micromhos Oct. 26, 28, 1963; minimum daily, 44 micromhos Mar. 24, 25, 1973.
WATER TEMPERATURES (1959-73): Maximum daily, 37.0°C July 21, 27, 28, 1962, Aug. 19, 1969; minimum daily, 0.0°C Jan. 9-11, 1962, Feb. 22, 1963.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 772 micromhos June 29; minimum daily, 81 micromhos Apr. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 07...	0920	1320	155	7.3	17.5	200	170	7.9	85	5.2
JAN 16...	0915	767	212	7.5	6.5	120	80	11.4	96	2.8
FEB 13...	1700	461	439	--	15.5	--	--	--	--	--
MAR 20...	0932	94	756	8.2	20.5	20	10	8.0	86	2.4
APR 21...	1400	10900	--	--	22.5	--	--	--	--	--
24...	0800	1050	104	--	22.0	--	--	--	--	--
MAY 10...	1305	636	333	7.3	25.5	50	50	7.1	85	2.2
JUL 10...	0833	357	495	7.8	27.0	30	63	6.7	84	2.0
AUG 29...	0832	81	758	8.2	26.0	30	7.1	6.8	83	1.3
SEP 06...	1700	273	556	--	25.5	--	--	--	--	--

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)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
NOV 07...	39	3	12	2.2	12	.8	3.9	44	0
JAN 16...	64	4	22	2.3	12	.7	3.6	74	0
FEB 13...	160	12	57	4.2	27	.9	3.2	180	0
MAR 20...	260	10	97	5.3	52	1.4	2.7	310	0
APR 21...	--	--	--	--	--	--	--	--	--
24...	38	4	13	1.4	5.8	.4	2.5	42	0
MAY 10...	130	7	48	3.0	18	.7	3.1	153	0
JUL 10...	130	0	41	6.7	44	1.7	2.7	170	0
AUG 29...	230	0	79	7.3	74	2.1	4.1	290	0
SEP 06...	150	0	42	11	52	1.8	10	190	0

08164500 NAVIDAD RIVER NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF 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)
NOV									
07...	11	18	.1	8.4	89	440	44	.16	.01
JAN									
16...	11	17	.1	8.2	113	142	8	.19	.00
FEB									
13...	16	34	.3	12	242	--	--	--	--
MAR									
20...	22	76	.3	19	427	37	23	.08	.00
APR									
21...	--	--	--	--	--	--	--	--	--
24...	13	6.5	.1	8.8	72	--	--	--	--
MAY									
10...	11	23	.2	12	194	115	22	.22	--
JUL									
10...	22	55	.3	20	276	150	28	.15	.08
AUG									
29...	20	83	.4	28	439	23	1	.06	.02
SEP									
06...	21	73	.3	39	342	--	--	--	--

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV									
07...	.17	.02	.96	.98	.180	16	--	--	--
JAN									
16...	.19	.02	.66	.68	.100	9.7	--	--	--
FEB									
13...	--	--	--	--	--	--	--	--	--
MAR									
20...	.08	.01	.28	.29	.060	4.2	--	--	--
APR									
21...	--	--	--	--	--	--	316	9300	73
24...	--	--	--	--	--	--	--	--	--
MAY									
10...	--	--	.81	--	--	12	--	--	--
JUL									
10...	.23	.05	.63	.68	.090	8.4	--	--	--
AUG									
29...	.08	.02	.89	.91	.070	6.1	--	--	--
SEP									
06...	--	--	--	--	--	--	--	--	--

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							
07...	0920	1	60	<1	0	2	100
MAY							
10...	1305	2	100	0	0	3	110
JUL							
10...	0833	2	100	<1	0	2	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						
07...	3	<1	.0	0	0	<3
MAY						
10...	1	10	.0	0	0	20
JUL						
10...	0	<1	.2	0	0	<3

08164500 NAVIDAD RIVER NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
JAN 16...	0915	.0	0	--	.00	.0	.0	0	.00	.0
JUL 10...	0833	.1	0	.00	.00	.0	.0	0	.00	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
JAN 16...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
JUL 10...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
JAN 16...	.00	.00	.0	.00	.0	.00	.0	.00	.00
JUL 10...	.00	.00	.0	.00	.0	.00	.0	.08	.10

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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	.00	0	0	.00	.00	.00	.00
JUL 10...	.00	.00	.04	0	0	.00	.02	.01	.00

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	STREAM WIDTH (FT)	STREAM VELOCITY, MEAN (FPS)	STREAM DEPTH, MEAN (FT)	NUMBER OF SAMPLING POINTS	SEDIMENT DISCH. TOTAL, SUSP.+ BEDLOAD (T/DAY)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
APR 21...	1400	10900	22.5	276	3.6	10	5	12000	316	9300	67	68

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM
APR 21...	70	70	73	73	78	91	100	4	32	82	96	99

08164500 NAVIDAD RIVER NEAR GANADO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	6815	411	240	4440	44	813	14	250	130
NOV. 1978.....	7691	324	190	3920	34	703	12	251	100
DEC. 1978.....	3196	329	190	1650	35	300	12	102	100
JAN. 1979.....	81755	158	92	20300	17	3680	6	1300	50
FEB. 1979.....	37698	197	120	11700	21	2160	7	707	63
MAR. 1979.....	19231	231	130	6930	24	1260	8	424	74
APR. 1979.....	52824	151	88	12500	16	2270	5	773	48
MAY 1979.....	85460	184	110	24700	19	4460	7	1570	59
JUNE 1979.....	23079	398	230	14500	42	2640	14	862	130
JULY 1979.....	10993	465	270	8040	49	1460	16	483	150
AUG. 1979.....	2960	648	380	3050	72	577	18	145	220
SEPT 1979.....	68416	162	94	17400	17	3140	6	1120	52
TOTAL	400118	**	**	129000	**	23500	**	7990	**
WTD.AVG.	1100	205	120	**	22	**	7.4	**	65

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	375	606	319	155	252	648	185	136	564	680	636	620
2	386	290	350	115	249	400	191	114	450	664	674	600
3	300	439	380	168	220	275	250	96	620	509	585	585
4	156	450	400	218	200	250	189	150	587	480	600	548
5	218	460	322	134	150	765	196	120	369	467	615	557
6	397	288	406	120	140	545	81	100	288	478	629	555
7	410	146	410	110	130	530	175	137	340	420	620	554
8	425	498	300	118	129	610	350	390	451	500	705	548
9	444	445	310	202	124	213	580	237	350	481	700	300
10	398	284	320	250	200	217	640	389	270	442	670	210
11	442	275	331	200	280	222	709	430	342	402	640	106
12	601	265	405	164	330	226	243	350	513	453	635	204
13	621	255	488	150	432	300	360	340	587	405	628	155
14	625	439	550	153	454	671	500	448	544	390	690	105
15	627	502	619	154	471	473	640	420	556	440	616	140
16	629	405	624	185	709	292	719	397	565	470	709	180
17	591	324	622	131	690	400	720	491	579	500	705	205
18	625	300	620	164	675	510	723	526	592	405	690	215
19	640	275	159	200	662	657	343	550	603	640	680	108
20	647	262	153	227	570	756	123	590	646	395	666	107
21	655	411	212	122	757	232	90	630	683	370	758	95
22	665	328	114	177	587	116	95	688	622	390	551	85
23	671	300	200	148	540	157	116	375	600	410	547	300
24	694	305	225	167	535	300	105	188	575	404	549	407
25	701	315	245	180	530	260	200	125	552	636	600	398
26	550	325	260	210	529	239	262	300	691	665	670	204
27	537	331	280	170	716	305	339	415	762	647	749	425
28	600	350	300	190	537	422	360	594	700	575	763	434
29	655	337	310	215	---	485	300	667	772	400	758	450
30	705	259	200	214	---	162	115	649	700	413	549	475
31	743	---	230	190	---	180	---	600	---	648	600	---
MEAN	540	349	344	171	421	381	330	376	549	490	651	329

08164500 NAVIDAD RIVER NEAR GANADO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	20.0	14.0	---	7.0	15.0	---	21.0	25.0	---	29.0	---
2	25.0	20.0	---	6.0	7.0	14.0	18.5	21.0	---	27.0	28.5	---
3	25.0	20.5	---	6.5	---	---	17.0	22.0	---	28.0	29.0	---
4	24.0	---	12.0	7.0	---	---	16.0	21.5	25.0	---	---	25.5
5	24.5	---	11.0	7.0	---	9.0	16.0	---	25.5	27.0	---	25.0
6	24.5	18.5	11.5	---	---	10.5	16.0	---	26.0	27.0	30.0	25.5
7	---	18.0	13.0	---	6.5	14.0	---	21.0	25.5	---	30.0	25.5
8	---	17.0	---	7.0	8.0	13.5	---	21.5	25.5	---	29.5	---
9	21.0	17.0	---	6.0	8.5	14.0	18.5	24.0	---	28.0	---	---
10	21.0	15.5	---	---	---	---	19.5	25.0	---	28.0	---	25.0
11	22.0	---	7.0	---	---	---	20.5	25.0	25.0	27.0	---	25.5
12	21.5	---	6.0	6.0	15.5	15.0	21.5	---	23.5	28.0	---	25.0
13	21.5	21.0	9.5	---	15.5	15.0	21.0	---	24.0	28.5	26.5	25.0
14	---	22.0	---	---	15.0	16.0	---	19.5	23.5	---	27.0	25.5
15	---	23.0	11.5	5.5	17.0	15.5	---	20.0	---	---	26.5	---
16	19.5	22.0	13.0	6.5	16.5	16.0	23.0	21.0	---	28.5	27.0	---
17	18.5	22.0	---	7.0	---	---	23.0	21.5	---	28.0	26.5	24.5
18	18.0	---	13.0	7.0	---	---	22.0	21.5	---	28.5	26.5	23.5
19	16.0	---	13.5	---	15.0	20.5	21.0	---	26.5	26.5	---	23.0
20	17.0	15.5	14.0	20.5	15.0	21.0	20.5	---	26.5	27.0	26.5	22.0
21	---	15.0	14.0	14.5	14.5	---	---	22.0	26.5	---	26.5	---
22	---	14.5	---	12.0	15.0	19.5	---	21.5	26.5	---	26.5	---
23	20.0	---	---	12.0	16.0	18.5	21.0	21.5	---	28.0	26.5	---
24	20.0	---	---	10.0	---	---	22.0	21.5	---	28.5	27.0	23.5
25	20.5	---	---	---	---	---	23.0	22.0	25.5	29.0	---	23.5
26	20.0	---	---	---	15.0	18.0	24.0	---	26.0	---	---	23.5
27	19.5	15.5	---	---	15.5	19.5	21.0	---	26.5	28.0	26.5	23.5
28	---	---	---	---	16.0	19.5	---	---	26.5	---	26.0	24.0
29	---	14.5	---	9.5	---	20.5	---	21.5	27.0	---	26.0	---
30	17.0	13.5	---	9.0	---	20.0	20.0	25.0	---	29.5	26.5	---
31	18.5	---	---	8.0	---	---	---	25.0	---	29.5	26.0	---
MEAN	20.5	18.0	11.5	9.0	13.5	16.5	20.0	22.0	25.5	28.0	27.5	24.5

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 mi² (461 km²).

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 Water and Power Resources Service).

REMARKS.--Water-discharge records 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, 8,880 ft³/s (251 m³/s) Sept. 20, 1979, gage height, 21.17 ft (6.453 m), from floodmark; minimum, 0.15 ft³/s (0.004 m³/s) Jan. 11, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s), revised, and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 7	0700	2,290	64.9	14.78	4.505
Jan. 12	0500	1,640	46.4	13.86	4.225
Feb. 7	0100	3,310	93.7	15.49	4.721
Apr. 4	1600	1,910	64.9	a14.3	4.36
Apr. 21	0500	3,430	97.1	15.59	4.752
May 5	1200	1,770	50.1	14.10	4.298
Sept. 20	1900	*8,880	251	b21.17	6.453

a From estimated graph.
b From floodmark.

Minimum discharge, 0.61 ft³/s (0.017 m³/s) Mar. 18.

DISCHARGE, IN CUBIC FEET PER SECOND , WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	1.7	57	567	101	2.4	44	486	44	38	118	83
2	67	1.3	30	818	30	2.0	182	996	642	39	114	95
3	164	.88	19	250	88	1.8	959	1100	763	33	113	109
4	602	.92	14	120	191	1.4	1770	1080	535	26	95	164
5	360	1.4	20	602	947	1.2	1240	1710	363	32	81	736
6	232	853	36	1730	2610	1.0	282	1140	230	105	74	838
7	200	1170	24	2190	2580	.97	123	538	189	166	71	484
8	140	535	17	1230	993	.97	58	176	146	187	81	371
9	87	199	22	416	348	1.0	23	82	102	213	93	263
10	66	96	17	181	142	.90	15	39	46	172	80	162
11	73	50	10	1090	68	.80	10	56	26	141	56	118
12	57	27	6.9	1520	34	.77	7.0	99	13	157	42	85
13	36	16	5.4	788	22	.77	5.0	37	8.8	192	38	72
14	29	9.9	4.2	299	17	.75	3.5	20	9.5	278	42	52
15	27	7.1	3.5	113	13	.68	2.3	16	13	277	38	34
16	19	5.1	2.9	54	11	.69	1.9	11	13	219	35	20
17	12	4.5	2.3	36	9.6	.64	1.7	7.9	17	156	35	16
18	7.6	4.2	2.0	29	8.9	.61	1.7	13	13	114	36	29
19	8.1	3.5	3.5	106	8.4	.68	120	18	16	101	30	2270
20	6.1	6.1	2.5	809	7.8	.70	1460	13	14	145	33	7740
21	5.9	27	1.6	1200	7.4	620	2930	26	18	185	44	7120
22	6.2	37	1.2	950	6.5	1190	1840	38	17	165	72	4400
23	5.5	30	.99	336	6.2	1200	920	103	14	169	100	2560
24	8.1	19	.82	96	6.1	400	260	111	11	165	88	1750
25	7.7	12	.80	56	5.3	74	133	56	16	147	80	1300
26	12	14	.80	38	4.3	22	77	25	28	164	73	479
27	20	89	.72	40	3.3	12	50	18	41	196	56	201
28	11	102	.90	34	2.8	7.7	31	20	52	220	46	136
29	6.8	54	431	22	---	5.6	389	30	54	235	44	105
30	4.3	78	934	18	---	4.6	863	15	48	207	62	89
31	2.6	---	457	197	---	31	---	11	---	146	61	---
TOTAL	2368.9	3454.60	2129.03	15935	8271.6	3587.63	13802.1	8090.9	3502.3	4790	2031	31881
MEAN	76.4	115	68.7	514	295	116	460	261	117	155	65.5	1063
MAX	602	1170	934	2190	2610	1200	2930	1710	763	278	118	7740
MIN	2.6	.88	.72	18	2.8	.61	1.7	7.9	8.8	26	30	16
CFSM	.43	.65	.39	2.89	1.66	.65	2.58	1.47	.66	.87	.37	5.97
IN.	.50	.72	.44	3.33	1.73	.75	2.88	1.69	.73	1.00	.42	6.66
AC-FT	4700	6850	4220	31610	16410	7120	27380	16050	6950	9500	4030	63240

CAL YR 1978 TOTAL 53470.98 MEAN 146 MAX 4500 MIN .17 CFSM .82 IN 11.17 AC-FT 106100
WTR YR 1979 TOTAL 99844.06 MEAN 274 MAX 7740 MIN .61 CFSM 1.54 IN 20.87 AC-FT 198000

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 31...	1300	2.5	543	7.6	21.0	15	6.9	79	2.6	150	44
DEC 13...	1033	5.4	404	7.6	8.5	70	10.0	88	1.9	110	29
JAN 24...	1330	88	168	7.3	10.0	170	9.8	90	3.6	51	2
MAR 07...	1306	.91	550	7.6	17.0	15	9.7	100	3.6	180	43
APR 19...	0923	3.8	485	7.7	22.5	54	6.6	75	3.8	160	27
MAY 16...	1035	11	291	7.5	21.0	130	6.4	71	4.0	100	26
JUN 27...	1342	41	690	7.6	28.0	6.8	6.8	86	--	200	80
AUG 09...	1320	92	651	8.0	28.0	12	6.4	81	.7	200	65
SEP 18...	1145	24	624	7.8	23.0	16	6.2	72	2.9	180	34

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 31...	46	8.6	46	1.6	5.4	130	0	19	98	.2	28
DEC 13...	31	7.8	29	1.2	8.5	98	0	23	58	.2	20
JAN 24...	15	3.3	10	.6	3.9	60	0	12	16	.1	13
MAR 07...	58	9.2	40	1.3	3.6	170	0	31	71	.2	14
APR 19...	49	7.9	34	1.2	3.7	156	0	25	51	.2	18
MAY 16...	33	4.9	17	.7	3.4	94	0	17	31	.2	14
JUN 27...	60	11	60	1.9	2.9	140	0	44	120	.4	20
AUG 09...	62	11	51	1.6	2.8	165	0	20	110	.3	26
SEP 18...	53	12	47	1.5	9.1	180	0	20	95	.3	43

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 31...	315	22	.01	.01	.02	.04	.96	1.0	.14	14
DEC 13...	226	116	.25	.01	.26	.03	1.2	1.2	.14	16
JAN 24...	103	276	.11	.04	.15	.09	1.2	1.3	.20	14
MAR 07...	311	16	.00	.02	.01	.03	.49	.52	.02	7.3
APR 19...	266	125	.23	.02	.25	.04	.90	.94	.10	44
MAY 16...	167	103	.63	--	--	--	.90	--	--	14
JUN 27...	387	24	.35	.08	.43	.04	.70	.74	.09	7.9
AUG 09...	365	57	.12	.02	.14	.06	.86	.92	.07	8.6
SEP 18...	368	49	.09	.04	.13	.05	1.3	1.3	.19	15

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
DEC 13...	1033	2	90	<1	0	1	240
MAR 07...	1306	2	100	0	0	0	10
MAY 16...	1035	2	100	0	0	3	40
AUG 09...	1320	2	200	<1	0	2	10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
DEC 13...	0	20	.0	1	0	5
MAR 07...	0	30	.0	0	0	10
MAY 16...	1	10	.0	1	0	10
AUG 09...	0	3	.0	0	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)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
DEC 13...	1033	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.5
MAR 07...	1306	.0	0	--	.00	.0	.0	0	.00	.2	.00	.3
MAY 16...	1035	.0	0	.00	.00	.0	.0	0	.00	.2	.00	.5
AUG 09...	1320	.1	0	.00	.00	.0	.0	0	.00	.0	.00	.0

DATE	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)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	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)
DEC 13...	.00	.0	.00	.00	.2	.00	.0	.00	.00	.0	.00	.0
MAR 07...	.00	.0	.00	.00	.1	.00	.0	.00	.00	.0	.00	.0
MAY 16...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
AUG 09...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0

DATE	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
DEC 13...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
MAR 07...	.00	.0	.00	.00	.00	.00	0	0	.00	.01	.00	.00
MAY 16...	.00	.0	.00	.00	.00	.00	0	0	.00	.01	.00	.00
AUG 09...	.00	.0	.00	.71	.00	.00	0	0	.00	.00	.00	.00

08164600 CARCITAS 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 mi² (238 km²).

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.--9 years (water years 1971-79), 59.0 ft³/s (1.671 m³/s), 8.74 in/yr (222 mm/yr), 42,750 acre-ft/yr (52.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft³/s (481 m³/s) Sept. 14, 1978, gage height, 27.85 ft (8.489 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 ft³/s (42.5 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)
Jan. 11	1800	2,860	81.0	17.03	5.191	May 12	0600	*11,000	312	24.56	7.486
Feb. 6	1600	1,820	51.5	15.01	4.575	June 2	1700	1,880	53.2	15.15	4.618
May 2	1100	2,530	71.6	16.54	5.041	Sept. 20	1100	7,280	206	23.46	7.151
May 4	2200	2,460	69.7	16.40	4.999						

Minimum discharge, 1.9 ft³/s (0.054 m³/s) Aug. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	3.0	4.4	8.3	21	5.0	4.6	455	11	4.1	12	3.0
2	12	2.9	4.5	45	18	4.8	4.1	2030	1250	3.7	9.4	2.3
3	20	2.9	4.4	35	52	4.7	6.6	438	1050	3.5	7.0	4.6
4	14	2.9	4.4	22	49	4.6	5.2	1210	362	4.2	5.7	5.5
5	12	4.6	4.3	97	313	4.2	4.1	981	159	9.4	4.6	28
6	13	41	4.0	430	1420	4.2	4.4	173	102	19	4.1	61
7	11	39	3.8	380	589	4.1	4.4	79	76	40	3.7	279
8	9.4	22	3.8	162	167	4.2	4.1	37	47	34	3.6	109
9	8.3	16	3.7	86	89	4.1	4.1	19	32	30	3.5	45
10	7.5	13	3.5	73	46	4.1	4.2	12	23	21	3.2	20
11	6.7	10	3.4	2000	26	4.0	4.8	2040	20	16	3.2	12
12	6.1	7.9	3.4	1270	18	4.1	5.7	6990	19	11	3.0	8.8
13	5.6	6.4	3.4	264	14	4.1	4.2	628	18	13	2.8	7.3
14	5.1	5.4	3.4	137	12	4.2	3.5	178	16	16	5.6	5.9
15	4.7	5.0	3.7	81	10	4.3	3.5	88	15	18	40	5.0
16	4.4	4.8	3.6	51	8.4	4.4	4.8	51	14	12	6.9	4.4
17	4.2	4.7	3.4	36	7.1	4.4	7.0	36	13	8.0	3.9	4.6
18	4.0	4.3	3.5	30	6.9	4.6	15	27	11	6.1	3.0	12
19	3.8	4.2	3.6	48	6.7	4.6	72	21	10	4.4	2.7	1520
20	3.7	4.3	3.7	273	6.6	4.9	242	17	9.7	3.9	2.5	5780
21	3.7	4.3	3.4	343	6.4	35	197	13	8.6	38	2.4	1350
22	3.8	4.3	3.0	92	6.6	68	97	12	7.8	241	2.2	281
23	3.7	4.3	3.0	48	6.7	34	47	10	6.8	66	2.4	167
24	3.5	4.3	3.0	29	6.8	15	25	9.4	5.9	26	2.3	112
25	3.5	4.3	3.0	20	6.5	9.2	15	7.3	5.0	14	2.2	86
26	4.8	5.5	3.0	17	6.1	6.9	10	5.8	5.2	42	2.3	63
27	4.2	7.8	3.0	19	5.5	5.9	8.2	4.8	5.2	239	2.0	48
28	3.6	5.3	3.5	17	5.3	5.4	6.8	4.5	4.6	148	2.0	38
29	3.3	5.3	4.8	13	---	5.0	293	4.1	4.2	60	2.6	32
30	3.2	4.8	3.8	13	---	4.8	843	4.3	4.1	28	3.0	27
31	3.0	---	3.9	46	---	4.8	---	13	---	17	3.8	---
TOTAL	208.8	254.5	113.3	6185.3	2929.6	281.6	1950.3	15598.2	3315.1	1196.3	157.6	10121.4
MEAN	6.74	8.48	3.65	200	105	9.08	65.0	503	111	38.6	5.08	337
MAX	20	41	4.8	2000	1420	68	843	6990	1250	241	40	5780
MIN	3.0	2.9	3.0	8.3	5.3	4.0	3.5	4.1	4.1	3.5	2.0	2.3
CFSM	.07	.09	.04	2.18	1.15	.10	.71	5.49	1.21	.42	.06	3.68
IN.	.08	.10	.05	2.51	1.19	.11	.79	6.33	1.34	.49	.06	4.11
AC-FT	414	505	225	12270	5810	559	3870	30940	6580	2370	313	20080

CAL YR 1978	TOTAL	28860.60	MEAN	79.1	MAX	10500	MIN	.38	CFSM .86	IN 11.71	AC-FT	57240
WTR YR 1979	TOTAL	42312.00	MEAN	116	MAX	6990	MIN	2.0	CFSM 1.27	IN 17.16	AC-FT	83930

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 01...	0930	3.2	704	7.9	22.0	5.0	7.8	92	.9	280	44
DEC 13...	0902	3.4	671	8.0	10.0	6.0	10.5	96	.6	250	27
JAN 24...	1600	26	287	7.4	12.0	170	9.1	88	3.0	100	3
MAR 07...	1048	4.1	680	8.1	17.5	3.0	12.4	130	1.6	260	26
APR 18...	1655	15	780	8.2	24.0	14	8.8	103	4.5	220	12
MAY 14...	1640	150	168	7.3	25.0	78	7.2	87	2.4	61	0
JUN 27...	0938	5.2	680	8.0	27.0	1.9	6.8	84	--	260	29
AUG 07...	1532	3.7	568	8.2	34.0	3.4	7.8	108	1.5	200	5
SEP 17...	1550	4.8	571	8.1	25.0	10	7.6	92	1.7	220	27

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 01...	93	12	44	1.1	1.4	290	0	58	47	.3	35
DEC 13...	83	10	40	1.1	1.6	270	0	45	55	.3	29
JAN 24...	33	4.5	17	.7	2.7	120	0	19	22	.1	16
MAR 07...	84	11	40	1.1	1.4	280	0	46	59	.3	22
APR 18...	67	12	68	2.0	6.0	250	0	33	93	.4	23
MAY 14...	20	2.6	9.0	.5	1.8	74	0	8.8	9.7	.2	7.7
JUN 27...	87	10	41	1.1	1.6	280	0	44	51	.3	32
AUG 07...	68	7.8	30	.9	1.9	240	0	37	40	.2	29
SEP 17...	70	10	36	1.1	2.4	230	0	36	51	.3	30

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 01...	434	8	.01	.00	.01	.01	.30	.31	.01	4.4
DEC 13...	397	8	.01	.00	.01	.01	.42	.43	.01	4.7
JAN 24...	173	248	.03	.02	.05	.04	1.1	1.1	.07	20
MAR 07...	402	3	.00	.02	.01	.04	.35	.39	.14	7.4
APR 18...	426	32	.17	.16	.33	.58	1.0	1.6	.24	10
MAY 14...	96	42	.02	.04	--	.10	.71	--	.04	11
JUN 27...	405	9	.00	.02	.02	.00	.35	.35	.06	5.3
AUG 07...	332	24	.01	.00	.01	.01	.48	.49	.02	8.5
SEP 17...	349	31	.00	.02	.01	.02	.76	.78	.02	8.7

08164600 GARCITAS CREEK NEAR INEZ, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
DEC 13...	0902	2	200	<1	0	0
MAR 07...	1048	5	200	0	0	0
MAY 14...	1640	1	0	0	0	4
AUG 07...	1532	3	200	<1	10	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
DEC 13...	10	0	30	.0	1	0	<3
MAR 07...	0	0	50	.0	1	0	40
MAY 14...	130	1	20	.0	0	0	10
AUG 07...	<10	0	30	.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)
MAR 07...	1048	.0	0	--	.00	.0	.0	0	.00	.0
AUG 07...	1532	.0	0	.00	.00	.0	.0	0	.00	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAR 07...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
AUG 07...	.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)	METHYL PARA-THION, TOTAL (UG/L)
MAR 07...	.00	.00	.0	.00	.0	.00	.0	.00	.00
AUG 07...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR 07...	.00	.00	.00	0	0	.00	.00	.00	.00
AUG 07...	.00	.00	.00	0	0	.00	.37	.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 mi² (177 km²).

WATER-DISCHARGE RECORDS

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.--Water-discharge records good. No known diversion above station. Recording rain gage at station.

AVERAGE DISCHARGE.--9 years, 70.6 ft³/s (1.999 m³/s), 51,150 acre-ft/yr (63.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,100 ft³/s (428 m³/s) Sept. 14, 1978, gage height, 29.64 ft (9.034 m); no flow Sept. 8, 9, 1971.

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 ft³/s (42.5 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)
Jan. 11	1000	5,970	169	24.47	7.458	May 11	2300	6,080	172	24.56	7.486
Feb. 6	0800	1,850	52.4	19.49	5.941	July 26	2000	4,540	129	23.19	7.068
May 2	0100	2,670	75.6	20.93	6.379	Sept. 2	1500	2,340	66.3	20.40	6.218
May 4	1400	3,110	88.1	21.56	6.571	Sept. 19	2100	*10,100	286	27.25	8.306

Minimum discharge, 0.16 ft³/s (0.005 m³/s) Dec. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	.77	.45	1.5	.45	1.1	1.3	604	4.1	1.2	7.0	4.5
2	1.6	.73	.45	5.6	1.6	.99	1.3	1330	254	1.8	4.9	1100
3	3.2	.71	.45	6.5	2.8	.97	1.3	188	359	2.8	4.3	546
4	41	.71	.45	1.5	11	.83	2.2	1770	304	10	3.5	114
5	18	2.1	.45	74	209	.64	8.2	533	93	14	5.3	429
6	5.6	214	.45	436	1390	.53	2.9	89	42	96	5.4	598
7	2.3	83	.45	330	368	.50	1.6	35	25	40	3.2	355
8	6.0	19	.45	89	96	.49	1.3	19	12	80	2.5	502
9	4.8	7.3	.44	29	41	.50	1.1	11	6.7	185	2.3	157
10	3.1	3.1	.41	68	21	.41	.98	7.0	3.9	40	2.3	46
11	6.9	1.5	.41	4200	13	.41	.91	2190	3.0	80	29	20
12	7.3	.85	.45	819	7.4	.45	.90	2900	2.6	53	49	11
13	4.2	.52	.50	168	4.6	.54	.96	289	3.0	20	13	6.5
14	2.5	.44	.50	59	3.2	.71	.97	61	3.2	13	4.3	4.3
15	1.5	.55	.65	22	2.6	.83	1.0	27	2.4	21	105	3.5
16	1.0	.39	.65	11	1.9	.97	1.1	14	2.2	21	318	3.5
17	.79	.42	.60	6.9	2.0	.97	2.0	8.1	2.1	32	78	3.5
18	.67	.45	.60	6.1	2.4	1.0	20	5.7	1.9	22	85	10
19	.61	.45	.60	7.5	2.3	.92	64	4.6	1.9	28	180	5440
20	.60	.49	.77	139	2.2	.77	394	4.1	1.8	176	164	7260
21	.60	.50	.71	64	2.2	51	109	3.8	1.9	152	223	1620
22	.60	.50	.54	16	2.2	76	52	4.2	1.8	28	64	292
23	.60	.50	.36	5.9	2.1	21	13	4.1	2.7	20	329	105
24	.60	.50	.29	2.5	2.0	7.4	5.2	3.4	1.7	7.3	109	51
25	.73	.50	.20	.92	1.3	2.9	2.9	3.1	1.5	3.4	28	27
26	1.2	.50	.20	1.1	1.1	1.7	2.1	3.2	1.4	2000	28	16
27	1.3	.50	.20	1.1	1.1	1.3	1.6	3.0	1.4	2180	30	11
28	.95	.45	.39	.74	1.1	1.3	1.4	3.0	1.4	699	12	7.4
29	.90	.45	.56	.65	---	1.3	354	3.0	1.4	125	27	5.9
30	.86	.45	.26	.65	---	1.3	591	3.4	1.3	29	12	5.0
31	.80	---	.16	.49	---	1.3	---	5.3	---	13	4.9	---
TOTAL	122.81	342.33	14.05	6573.65	2195.55	181.03	1640.22	10129.0	1144.3	6193.5	1932.9	18754.1
MEAN	3.96	11.4	.45	212	78.4	5.84	54.7	327	38.1	200	62.4	625
MAX	41	214	.77	4200	1390	76	591	2900	359	2180	329	7260
MIN	.60	.39	.16	.49	.45	.41	.90	3.0	1.3	1.2	2.3	3.5
AC-FT	244	679	28	13040	4350	359	3250	20090	2270	12280	3830	37200

CAL YR 1978 TOTAL 31940.06 MEAN 87.5 MAX 10900 MIN .01 AC-FT 63350
WTR YR 1979 TOTAL 49223.44 MEAN 135 MAX 7260 MIN .16 AC-FT 97630

08164800 PLACEDO CREEK NEAR PLACEDO, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV											
01...	1050	11	3840	7.5	21.0	10	3.5	41	2.2	810	510
DEC											
12...	1122	.45	4250	7.7	8.5	3.0	7.5	66	.9	850	520
JAN											
24...	1730	2.2	1460	7.2	11.5	60	8.4	80	2.4	290	120
MAR											
06...	1330	.54	3600	7.6	16.0	3.0	9.0	91	1.3	660	340
APR											
17...	1410	1.9	3950	7.6	21.5	20	4.5	51	3.2	760	450
MAY											
24...	1608	1.5	2509	7.8	24.5	7.5	5.8	70	1.7	530	220
JUL											
07...	1342	29	294	--	27.0	130	6.2	77	3.7	74	3
AUG											
18...	1107	37	265	7.6	28.0	130	6.2	78	5.0	68	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV											
01...	260	38	510	7.8	4.2	360	0	59	1100	.5	26
DEC											
12...	270	43	530	7.9	4.3	400	0	48	1200	.5	27
JAN											
24...	92	15	160	4.1	4.5	210	0	33	320	.2	24
MAR											
06...	200	40	490	8.3	3.7	390	0	66	990	.6	23
APR											
17...	240	40	480	7.6	4.0	388	0	63	1000	.6	26
MAY											
24...	170	25	300	5.7	3.6	372	0	46	570	.5	25
JUL											
07...	24	3.4	24	1.2	2.4	86	0	12	36	.2	12
AUG											
18...	21	3.8	24	1.3	7.5	85	0	5.3	38	.2	17

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										
01...	2180	18	.02	.00	.02	.01	.39	.40	.07	4.7
DEC										
12...	2320	4	.02	.00	.02	.01	.22	.23	.02	3.1
JAN										
24...	752	95	1.9	.10	2.0	.05	.75	.80	.14	7.5
MAR										
06...	2010	5	.02	.00	.02	.03	.22	.25	.01	5.0
APR										
17...	2040	64	.12	.06	.18	.06	.61	.67	.06	7.4
MAY										
24...	1320	15	.08	.02	.10	.06	.19	.25	.06	7.5
JUL										
07...	156	174	.30	.06	.36	.04	.91	.95	.01	8.9
AUG										
18...	159	65	.03	.02	.05	.03	.94	.97	.11	16

08164800 PLACEDO CREEK NEAR PLACEDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
DEC 12...	1122	3	1100	0	0	0
MAR 06...	1330	2	800	0	10	0
MAY 24...	1608	5	400	0	0	0
AUG 18...	1107	5	0	1	10	2

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)
DEC 12...	10	0	70	.0	0	0	40
MAR 06...	10	0	130	.0	0	0	20
MAY 24...	10	0	110	.0	0	0	20
AUG 18...	140	0	10	.0	0	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)
DEC 12...	1122	.0	0	.00	.00	.0	.0	0	.00	.3
MAR 06...	1330	.0	0	--	.00	.0	.0	1	.00	.2
AUG 18...	1107	.0	--	.00	.00	--	.0	--	.00	--

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
DEC 12...	.00	.3	.00	.0	.00	.00	.0	.00	.00	.0
MAR 06...	.00	.2	.00	.0	.00	.00	.0	.00	.00	.0
AUG 18...	.00	--	.00	--	.84	.00	--	.00	.00	--

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)	METHYL PARA-THION, TOTAL (UG/L)
DEC 12...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAR 06...	.00	.00	.0	.00	.0	.00	.0	.00	.00
AUG 18...	.00	.00	--	.00	--	.00	--	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
DEC 12...	.00	.00	.00	0	0	.00	.00	.00	.00
MAR 06...	.00	.00	.00	0	0	.00	.01	.00	.00
AUG 18...	.00	.00	.00	0	--	.00	.01	.01	.00

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 31...	0900	.20	5840	7.4	19.5	3.0	3.6	41	3.5	1500	1300
DEC 12...	0932	.30	4680	7.6	7.0	4.0	10.9	92	2.3	1100	790
JAN 25...	0900	3.8	868	7.4	9.5	160	9.0	82	2.2	190	100
MAR 06...	1130	.40	4600	7.6	14.0	3.0	10.8	106	4.5	1000	790
APR 17...	1250	.00	--	--	--	--	--	--	--	--	--
MAY 24...	0940	2.4	2213	7.5	--	21	6.7	80	2.9	400	230
JUL 07...	1138	29	917	8.0	26.5	96	5.8	71	3.0	180	71
AUG 16...	1156	2.5	3170	7.9	29.5	16	9.3	121	5.1	620	350
SEP 26...	1430	32	305	7.4	24.5	13	6.2	73	5.4	64	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 31...	380	140	690	7.7	7.1	320	0	390	1600	.5	19
DEC 12...	300	76	570	7.6	6.6	330	0	310	1200	.5	18
JAN 25...	58	12	92	2.9	4.8	110	0	48	190	.2	22
MAR 06...	290	73	600	8.2	5.9	290	0	330	1200	.5	13
APR 17...	--	--	--	--	--	--	--	--	--	--	--
MAY 24...	120	25	290	6.3	6.0	214	0	120	490	.6	6.8
JUL 07...	53	11	100	3.3	5.4	130	0	30	190	.3	24
AUG 16...	180	42	460	8.0	6.9	335	0	190	810	.8	28
SEP 26...	19	4.0	28	1.5	5.8	90	0	13	36	.2	30

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 31...	3380	5	.28	.10	.38	.44	.66	1.1	.41	7.1
DEC 12...	2640	4	.35	.04	.39	.76	.54	1.3	.38	7.5
JAN 25...	481	236	.83	.06	.89	.14	.96	1.1	.21	15
MAR 06...	2660	6	.19	.02	.21	.40	.60	1.0	.12	7.1
APR 17...	--	--	--	--	--	--	--	--	--	--
MAY 24...	1160	38	.76	.34	1.1	.13	.87	1.0	.05	9.0
JUL 07...	478	208	4.3	.14	4.4	.07	1.1	1.2	.33	13
AUG 16...	1880	34	.00	.02	.00	.02	.54	.56	.40	10
SEP 26...	180	17	.03	.02	.05	.07	.36	.43	.16	12

08164850 CHOCOLATE BAYOU NEAR PORT LAVACA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
DEC 12...	0932	2	400	1	0	1	10
MAR 06...	1130	2	300	0	0	0	10
MAY 24...	0940	4	200	0	0	1	10
AUG 16...	1156	6	400	0	0	0	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)
DEC 12...	0	250	.0	1	0	40
MAR 06...	0	320	.0	1	0	20
MAY 24...	0	80	.1	0	0	10
AUG 16...	0	60	.1	0	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)
DEC 12...	0932	.0	2	.00	.00	.0	.0	18	.00	77
MAR 06...	1130	.0	--	--	.00	--	.0	--	.00	--
MAY 22...	0940	.0	6	--	.00	.0	.0	12	.00	.0
AUG 16...	1156	.0	--	.00	.00	--	.0	--	.00	--

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
DEC 12...	.00	44	.00	38	.01	.00	.2	.00	.00	.0
MAR 06...	.00	--	.00	--	.00	.00	--	.00	.00	--
MAY 22...	.00	35	.00	10	.00	.00	.1	.00	.00	.0
AUG 16...	.00	--	.00	--	.00	.00	--	.00	.00	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
DEC 12...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAR 06...	.00	.00	--	.00	--	.00	--	.00	.00
MAY 22...	.00	.00	.0	.00	.0	.00	.0	.00	.00
AUG 16...	.00	.00	--	.00	--	.00	--	.00	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
DEC 12...	.00	.00	.00	0	0	.00	.00	.00	.00
MAR 06...	.00	.00	.00	0	--	.00	.30	.00	.00
MAY 22...	.00	.00	.00	0	0	.00	.00	.00	.00
AUG 16...	.00	.00	.00	0	--	.00	.00	.00	.00

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 upstream from station 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. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years, 38.3 ft^3/s (1.085 m^3/s), 3.10 in/yr (79 mm/yr), 27,750 acre-ft/yr (34.2 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 kiver 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.--Maximum discharge, 1,890 ft^3/s (53.5 m^3/s) June 6, gage height, 8.75 ft (2.667 m), no other peak above base of 500 ft^3/s (14.2 m^3/s); minimum, 21 ft^3/s (0.59 m^3/s) Nov. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	24	26	25	23	23	33	31	29	33	27	26
2	28	24	26	24	23	23	32	31	36	32	27	26
3	29	24	26	23	22	25	35	31	56	31	28	25
4	29	24	25	23	25	24	33	30	42	30	27	25
5	28	27	24	23	27	23	31	29	436	30	28	25
6	29	31	24	24	30	22	30	28	107	31	24	25
7	32	28	24	24	31	23	29	28	78	33	25	25
8	32	27	24	23	28	22	30	28	67	31	25	25
9	33	27	24	23	27	22	29	27	59	30	25	28
10	30	23	24	24	26	22	29	27	52	34	25	25
11	29	25	24	25	26	22	29	29	51	32	35	24
12	29	25	24	25	26	22	29	29	51	29	39	25
13	28	25	24	24	26	22	28	27	51	28	30	25
14	28	25	24	23	26	22	28	27	50	28	28	24
15	26	31	25	23	25	23	28	26	48	29	27	24
16	26	40	25	24	24	27	27	26	45	30	26	24
17	26	34	24	24	23	28	28	26	43	28	26	23
18	26	30	24	24	23	27	29	26	40	30	26	23
19	26	30	24	25	23	26	28	26	40	32	26	24
20	26	29	24	24	24	27	27	26	40	31	25	25
21	26	28	24	24	23	50	39	29	40	33	24	25
22	26	27	24	22	23	64	38	31	39	30	25	24
23	26	27	24	24	24	51	37	28	38	29	29	24
24	25	27	24	24	25	44	35	27	36	29	30	24
25	26	27	23	24	24	40	33	26	36	28	27	23
26	26	29	24	24	22	38	32	26	35	28	27	23
27	26	29	23	24	22	37	31	25	35	27	27	22
28	25	27	23	24	23	36	30	26	35	28	26	22
29	25	26	24	24	---	35	31	27	34	28	26	24
30	25	26	24	24	---	35	32	31	34	27	26	24
31	24	---	24	24	---	33	---	27	---	26	26	---
TOTAL	849	826	750	739	694	938	930	861	1783	925	842	731
MEAN	27.4	27.5	24.2	23.8	24.8	30.3	31.0	27.8	59.4	29.8	27.2	24.4
MAX	33	40	26	25	31	64	39	31	436	34	39	28
MIN	24	23	23	22	22	22	27	25	29	26	24	22
CFSM	.16	.16	.14	.14	.15	.18	.19	.17	.35	.18	.16	.15
IN.	.19	.18	.17	.16	.15	.21	.21	.19	.39	.20	.19	.16
AC-FT	1680	1640	1490	1470	1380	1860	1840	1710	3540	1830	1670	1450

CAL YR 1978 TOTAL 21383.7 MEAN 58.6 MAX 6370 MIN 8.8 CFSM .35 IN 4.73 AC-FT 42410
WTR YR 1979 TOTAL 10868.0 MEAN 29.8 MAX 436 MIN 22 CFSM .18 IN 2.41 AC-FT 21560

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. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years, 72.5 ft³/s (2.053 m³/s), 3.42 in/yr (87 mm/yr), 52,530 acre-ft/yr (64.8 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)
Mar. 20	2315	2,610	73.9	8.87	2.704
June 1	0945	2,910	82.4	9.20	2.804
June 5	0600	1,810	51.3	7.49	2.283

Minimum discharge, 32 ft³/s (0.91 m³/s) May 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	62	68	63	54	62	109	76	426	76	61	61
2	86	61	68	59	54	62	106	76	171	74	62	56
3	86	61	68	58	55	73	112	76	219	71	63	56
4	86	61	65	56	59	67	106	72	265	70	61	58
5	83	89	64	56	66	62	100	68	843	71	60	58
6	81	88	63	56	94	61	96	67	366	75	57	57
7	91	73	63	56	92	61	94	64	219	83	55	55
8	90	66	63	56	82	60	94	65	171	74	55	55
9	92	67	61	55	73	58	93	68	167	71	57	65
10	88	63	59	58	71	58	93	66	153	83	53	58
11	84	62	59	62	70	58	90	71	142	75	76	58
12	83	62	59	62	69	57	86	66	133	66	89	58
13	79	63	59	60	68	58	83	60	127	66	70	58
14	74	62	60	57	67	58	82	58	123	63	62	58
15	71	88	63	55	66	61	81	56	117	63	60	56
16	69	145	62	55	64	82	78	55	111	63	59	58
17	69	108	61	55	64	85	82	54	110	62	58	56
18	69	91	59	58	63	85	80	41	108	70	56	56
19	69	84	59	61	63	81	75	51	102	75	55	58
20	68	81	59	60	63	230	78	52	101	78	55	56
21	66	77	59	56	65	563	93	80	97	82	54	56
22	66	76	58	55	66	219	93	84	95	70	59	56
23	66	76	57	55	71	173	93	57	92	65	94	56
24	66	74	57	54	70	152	84	56	88	63	76	56
25	68	74	57	54	65	139	79	44	86	62	65	55
26	69	74	56	56	61	130	86	46	84	60	63	55
27	66	74	58	57	61	123	75	54	83	80	61	56
28	65	71	58	56	62	121	71	57	82	76	62	55
29	64	69	58	55	---	118	71	57	81	66	61	57
30	63	68	59	55	---	116	77	56	78	62	61	60
31	62	---	62	55	---	110	---	52	---	60	64	---
TOTAL	2328	2270	1881	1766	1878	3443	2640	1905	5040	2175	1944	1713
MEAN	75.1	75.7	60.7	57.0	67.1	111	88.0	61.5	168	70.2	62.7	57.1
MAX	92	145	68	63	94	563	112	84	843	83	94	65
MIN	62	61	56	54	54	57	71	41	78	60	53	55
CFSM	.26	.26	.21	.20	.23	.39	.31	.21	.58	.24	.22	.20
IN.	.30	.29	.24	.23	.24	.44	.34	.25	.65	.28	.25	.22
AC-FT	4620	4500	3730	3500	3730	6830	5240	3780	10000	4310	3860	3400

CAL YR 1978 TOTAL 49255 MEAN 135 MAX 16300 MIN 16 CFSM .47 IN 6.36 AC-FT 97700
WTR YR 1979 TOTAL 28983 MEAN 79.4 MAX 843 MIN 41 CFSM .28 IN 3.74 AC-FT 57490

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 mi² (295 km²).

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.--36 years (water years 1942-59, 1962-79), 19.4 ft³/s (0.549 m³/s), 2.31 in/yr (59 mm/yr), 14,060 acre-ft/yr (17.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,900 ft³/s (2,720 m³/s) Oct. 4, 1959, gage height, 24.25 ft (7.391 m), from rating curve extended above 4,400 ft³/s (125 m³/s) on basis of slope-area measurements of 9,100 and 16,000 ft³/s (258 and 453 m³/s) and conveyance study; minimum daily, 0.4 ft³/s (0.011 m³/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 ft³/s (3,910 m³/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 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 1	1000	745	21.1	3.64	1.109
June 5	0830	*1,230	34.8	4.50	1.372

Minimum discharge, 7.9 ft³/s (0.22 m³/s) Feb. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	16	19	17	16	14	31	38	213	31	24	21
2	23	11	22	15	15	14	32	39	101	31	27	22
3	26	16	23	15	14	15	35	35	64	29	27	23
4	24	14	16	15	19	13	30	31	64	27	25	23
5	21	29	18	17	21	13	28	31	410	28	24	23
6	21	22	17	15	28	11	26	31	132	29	23	21
7	21	16	16	15	20	13	24	31	90	38	21	20
8	23	22	16	14	17	13	24	31	76	33	21	23
9	23	16	15	15	20	11	23	32	60	30	25	20
10	22	15	15	19	22	9.8	26	31	55	28	22	19
11	21	15	15	19	19	10	23	28	56	28	44	23
12	21	16	18	18	19	11	22	24	56	28	39	21
13	20	17	25	16	17	11	22	23	48	28	30	19
14	18	16	20	14	16	10	22	25	43	28	28	18
15	17	27	15	16	12	14	22	26	44	29	26	19
16	18	25	12	18	7.9	36	22	23	41	30	25	19
17	20	20	12	17	8.5	26	26	22	42	30	25	19
18	21	20	14	18	12	21	42	21	47	34	24	20
19	21	21	15	17	14	20	41	22	45	37	24	23
20	20	20	15	14	14	62	35	22	42	32	24	21
21	18	19	16	13	17	120	109	38	38	32	24	20
22	25	19	15	14	17	88	83	30	41	30	25	18
23	25	19	15	14	18	58	69	24	37	28	31	17
24	30	19	14	13	16	49	50	24	36	28	27	17
25	18	20	14	15	14	43	44	20	35	25	24	18
26	18	20	15	15	12	41	36	19	33	24	23	17
27	15	19	16	14	24	37	38	21	35	29	23	17
28	15	19	17	16	17	35	34	23	34	35	24	17
29	16	19	17	19	---	35	43	23	33	22	24	17
30	15	20	17	17	---	32	38	23	33	25	24	17
31	14	---	19	16	---	32	---	20	---	24	24	---
TOTAL	640	567	513	490	466.4	917.8	1100	831	2084	910	801	592
MEAN	20.6	18.9	16.5	15.8	16.7	29.6	36.7	26.8	69.5	29.4	25.8	19.7
MAX	30	29	25	19	28	120	109	39	410	38	44	23
MIN	14	11	12	13	7.9	9.8	22	19	33	22	21	17
CFSM	.18	.17	.15	.14	.15	.26	.32	.24	.61	.26	.23	.17
IN.	.21	.19	.17	.16	.15	.30	.36	.27	.68	.30	.26	.19
AC-FT	1270	1120	1020	972	925	1820	2180	1650	4130	1800	1590	1170

CAL YR 1978 TOTAL 28555.1 MEAN 78.2 MAX 17200 MIN 6.6 CFSM .69 IN 9.32 AC-FT 56640
WTR YR 1979 TOTAL 9912.2 MEAN 27.2 MAX 410 MIN 7.9 CFSM .24 IN 3.23 AC-FT 19660

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 (183 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 mi² (1,280 km²).

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 ft³/s (11.3 m³/s). Numerous diversions for irrigation above station, amounts unknown. Serveral 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 ft³/s (0.65 m³/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 PERIOD APRIL TO SEPTEMBER 1978.--Maximum stage, 32.79 ft (9.994 m) Aug. 3 (discharge not determined); minimum daily discharge, 23 ft³/s (0.65 m³/s) July 22.

EXTREMES FOR CURRENT YEAR.--Maxumum stage, 6.80 ft (2.073 m) June 5 (Discharge not determined); minimum daily discharge, 79 ft³/s (2.24 m³/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, APRIL TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							---	72	48	36	---	193
2							---	89	64	34	---	183
3							---	93	108	34	---	143
4							---	81	96	33	---	161
5							---	59	67	32	---	180
6							---	57	---	32	---	180
7							---	65	264	32	---	168
8							---	63	145	31	---	---
9							---	58	110	27	328	---
10							---	58	88	27	297	345
11							---	60	80	28	284	303
12							---	59	72	28	275	279
13							---	49	65	27	266	263
14							---	43	62	25	253	236
15							---	44	60	24	245	---
16							---	66	58	25	230	---
17							---	60	58	27	221	246
18							---	45	52	28	207	219
19							---	44	48	27	198	202
20							---	34	45	27	187	192
21							---	35	43	26	187	201
22							---	47	43	23	162	209
23							---	48	42	24	161	194
24							---	50	38	28	154	190
25							---	47	36	33	150	181
26							---	46	36	32	147	176
27							61	40	39	31	147	177
28							59	34	36	39	147	180
29							61	46	37	40	147	180
30							64	51	35	39	152	175
31							---	45	---	39	148	---
TOTAL							---	1688	---	938	---	---
MEAN							---	54.5	---	30.3	---	---
MAX							---	93	---	40	---	---
MIN							---	34	---	23	---	---
AC-FT							---	3350	---	1860	---	---

WTR YR 1978 TOTAL - MIN - MAX - MIN - AC-FT -

08166140 GUADALUPE RIVER ABOVE BEAR CREEK AT KERRVILLE, TX--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	180	100	126	140	109	117	215	193	---	165	109	125
2	180	94	124	123	109	117	217	192	---	157	116	120
3	168	94	129	109	114	132	223	187	323	149	131	115
4	168	94	121	106	134	130	215	175	---	138	114	113
5	175	150	116	109	156	119	210	163	---	142	107	115
6	175	188	116	112	195	113	204	155	---	151	104	114
7	165	146	118	110	196	109	201	149	416	180	98	111
8	195	133	117	108	183	109	205	146	331	157	94	122
9	200	130	111	104	174	108	195	148	310	143	98	138
10	183	114	107	120	170	106	192	152	284	153	95	126
11	175	104	105	145	166	106	191	153	263	154	170	117
12	165	106	103	137	158	105	181	152	253	134	208	114
13	150	109	114	130	164	103	177	133	247	126	157	109
14	146	105	122	120	159	102	174	127	241	120	135	104
15	150	146	123	114	156	106	172	126	240	117	124	100
16	134	222	111	114	153	158	172	120	235	116	120	99
17	134	197	103	115	153	173	190	118	228	114	116	98
18	140	168	103	128	153	160	200	106	225	139	104	99
19	143	157	104	135	153	151	203	103	219	150	103	104
20	131	153	106	122	153	---	194	112	216	143	99	109
21	134	146	106	114	153	---	251	150	210	145	96	106
22	131	142	104	109	161	402	226	201	208	134	92	100
23	128	138	101	107	161	308	220	142	202	123	160	93
24	128	135	100	106	157	259	204	122	196	117	171	91
25	135	135	100	110	141	245	192	114	191	113	149	90
26	130	135	100	118	126	235	180	95	187	109	145	99
27	121	145	100	115	129	230	189	109	183	155	141	85
28	110	138	100	112	126	226	170	121	182	176	137	82
29	107	131	103	118	---	224	206	117	178	121	134	79
30	104	128	108	120	---	222	204	114	171	116	130	79
31	100	---	138	115	---	216	---	112	---	112	129	---
TOTAL	4585	4083	3439	3645	4262	---	5973	4307	---	4269	3886	3156
MEAN	148	136	111	118	152	---	199	139	---	138	125	105
MAX	200	222	138	145	196	---	251	201	---	180	208	138
MIN	100	94	100	104	109	---	170	95	---	109	92	.79
AC-FT	9090	8100	6820	7230	8450	---	11850	8540	---	8470	7710	6260

CAL YR 1978 TOTAL - MEAN - MAX - MIN - AC-FT -
WTR YR 1979 TOTAL - MEAN - MAX - MIN - AC-FT -

08167000 GUADALUPE RIVER AT COMFORT, TX

LOCATION.--Lat 29°57'55", long 98°53'49", Kendall County, Hydrologic Unit 12100201, on left bank at downstream side of pier of bridge on U.S. Highway 87, 0.1 mi (0.2 km) downstream from Cypress Creek, and at mile 396.6 (638.1 km).

DRAINAGE AREA.--838 mi² (2,170 km²).

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 1,372.05 ft (418.201 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 27, 1939, nonrecording gage.

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

AVERAGE DISCHARGE.--40 years (water years 1940-79), 181 ft³/s (5.126 m³/s), 131,100 acre-ft/yr (162 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 240,000 ft³/s (6,800 m³/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 ft³/s (2,100 m³/s) on basis of current-meter measurement of 124,000 ft³/s (3,510 m³/s) at gage height 32.47 ft (9.897 m) and slope-area measurement of 182,000 ft³/s (5,150 m³/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.
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.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,600 ft³/s (73.6 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. 21	1000	3,660	104	11.26	3.463	June 1	1600	*8,610	244	14.89	4.538
Apr. 21	0200	7,570	214	14.36	4.377	June 5	1800	5,610	159	13.17	4.014

Minimum discharge, 126 ft³/s (3.57 m³/s) Sept. 28, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	302	204	215	268	228	315	612	529	3330	362	217	174
2	296	207	213	233	228	318	616	526	2070	348	219	171
3	286	203	215	221	233	466	613	518	974	335	225	166
4	281	201	210	218	260	382	574	494	907	326	221	163
5	277	238	204	218	331	356	538	457	3990	319	203	163
6	272	427	204	218	615	335	519	442	2380	336	193	165
7	265	284	203	218	538	314	510	422	1280	342	186	166
8	285	239	202	215	497	306	521	413	986	353	179	163
9	300	224	197	211	451	299	497	408	870	319	177	167
10	286	215	193	229	445	302	495	421	836	333	175	163
11	273	207	193	303	425	304	487	457	755	331	570	158
12	279	203	193	268	407	304	459	429	702	304	608	154
13	262	202	193	260	391	294	438	395	665	282	379	154
14	249	200	212	243	382	284	430	364	629	269	291	148
15	245	205	206	239	374	284	416	343	603	261	252	146
16	242	298	200	239	348	451	403	321	576	253	231	144
17	236	322	194	239	343	501	461	307	553	248	220	146
18	234	274	193	246	341	483	497	301	536	318	219	144
19	235	254	193	268	341	462	684	288	528	334	203	144
20	235	248	193	261	343	455	547	289	513	334	196	143
21	232	240	190	246	345	2390	2090	402	501	366	189	142
22	226	233	189	243	344	1280	769	570	490	297	185	140
23	224	229	186	244	477	933	660	409	473	269	274	139
24	223	224	186	233	428	774	609	352	455	254	299	135
25	232	225	183	235	367	703	563	315	447	242	241	136
26	236	227	180	243	345	663	531	281	441	229	214	132
27	221	237	180	239	332	631	496	267	462	391	197	131
28	213	228	180	232	331	620	478	295	415	504	188	130
29	208	220	183	235	---	633	727	300	395	321	182	131
30	208	217	186	241	---	629	581	282	379	253	176	127
31	206	---	352	231	---	585	---	307	---	226	174	---
TOTAL	7769	7135	6221	7437	10490	17056	17821	11904	28141	9659	7483	4485
MEAN	251	238	201	240	375	550	594	384	938	312	241	150
MAX	302	427	352	303	615	2390	2090	570	3990	504	608	174
MIN	206	200	180	211	228	284	403	267	379	226	174	127
AC-FT	15410	14150	12340	14750	20810	33830	35350	23610	55820	19160	14840	8900

CAL YR 1978 TOTAL 206713 MEAN 566 MAX 74200 MIN 36 AC-FT 410000
WTR YR 1979 TOTAL 135601 MEAN 372 MAX 3990 MIN 127 AC-FT 269000

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX

LOCATION.--Lat 29°51'38", long 98°22'58", Comal County, Hydrologic Unit 12100201, on right bank at downstream side of bridge on county road, 226 ft (69 m), downstream from 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).

DRAINAGE AREA.--1,315 mi² (3,406 km²).

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.--Records good. Several small diversions above station for irrigation. Several observations of water temperature were made during the year. Guadalupe-Blanco River Authority gage-height telemeter located at station.

AVERAGE DISCHARGE.--57 years, 308 ft³/s (8.723 m³/s), 223,100 acre-ft (275 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)
Dec. 31	1600	4,620	131	8.63	2.630	June 1	1200	5,380	152	9.45	2.880
Mar. 21	0600	*11,800	334	15.08	4.596	June 2	1300	7,070	200	11.14	3.395
Apr. 21	2100	5,610	159	9.69	2.954	June 6	1200	5,920	168	10.02	3.054

Minimum discharge, 182 ft³/s (5.15 m³/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	485	267	327	1230	496	788	1610	1500	1780	899	450	268
2	467	263	326	768	490	769	2230	1430	4910	870	428	264
3	460	265	324	628	497	940	1740	1380	3260	843	423	258
4	445	263	312	580	515	927	1650	1320	2140	799	420	256
5	434	281	310	566	722	821	1500	1200	2710	782	410	250
6	421	925	308	546	1540	792	1400	1140	5200	769	385	245
7	400	528	300	529	1690	759	1330	1100	3390	783	365	244
8	390	405	293	502	1350	739	1330	1060	2650	797	350	240
9	401	356	291	480	1190	723	1300	1030	2330	767	340	238
10	413	337	287	572	1100	699	1230	1020	2130	713	338	233
11	410	330	283	1620	1080	692	1210	998	2290	701	357	237
12	393	318	279	1050	1030	685	1140	1040	1890	676	811	232
13	385	309	279	918	988	684	1070	959	1760	622	710	226
14	359	304	279	793	951	662	1030	912	1670	587	509	221
15	341	306	297	730	936	628	1000	876	1580	546	416	215
16	333	312	296	715	884	642	976	837	1540	516	374	206
17	329	374	287	697	832	844	994	801	1460	495	344	205
18	322	402	284	684	834	916	1060	776	1400	517	327	210
19	317	388	283	690	808	883	1160	757	1350	601	321	213
20	315	377	285	692	807	867	1360	738	1300	673	305	215
21	309	365	276	639	798	6380	3210	729	1250	626	291	215
22	308	356	268	596	790	4410	2720	1190	1230	638	285	212
23	301	345	266	591	1010	3220	1850	1010	1180	563	284	210
24	296	341	266	561	1350	2550	1590	852	1150	528	377	211
25	295	340	260	549	943	2190	1450	774	1080	507	397	200
26	299	357	259	569	863	1960	1340	716	1070	483	341	198
27	304	340	259	559	842	1780	1230	692	1290	968	311	193
28	294	345	259	534	818	1680	1140	662	1080	1030	292	196
29	278	344	259	522	---	1630	1680	669	996	778	283	184
30	276	332	259	529	---	1900	2040	646	936	580	276	182
31	271	---	2240	514	---	1730	---	596	---	494	270	---
TOTAL	11051	10775	10801	21153	26154	44890	44570	29410	58002	21151	11790	6677
MEAN	356	359	348	682	934	1448	1486	949	1933	682	380	223
MAX	485	925	2240	1620	1690	6380	3210	1500	5200	1030	811	268
MIN	271	263	259	480	490	628	976	596	936	483	270	182
AC-FT	21920	21370	21420	41960	51880	89040	88400	58330	115000	41950	23390	13240

CAL YR 1978 TOTAL 240049 MEAN 658 MAX 76500 MIN 23 AC-FT 476100
WTR YR 1979 TOTAL 296424 MEAN 812 MAX 6380 MIN 182 AC-FT 588000

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 ft (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, 340,700 acre-ft (420 hm³) Oct. 6, 1975, elevation, 903.81 ft (275.481 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 414,400 acre-ft (511 hm³) June 7, elevation, 912.83 ft (278.231 m); minimum, 348,000 acre-ft (429 hm³) Sept. 30, elevation, 904.75 ft (275.768 m).

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

904.0	342,200	910.0	390,300
906.0	357,800	912.0	407,300
908.0	373,800	914.0	424,600

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	390300	368300	373800	389100	394200	382700	392800	405900	388500	384700	374400	355000
2	389200	367600	374200	390100	393900	383200	395300	404700	395400	384100	373400	354600
3	388300	367000	374400	390900	393800	383600	393600	403500	399200	383600	372800	354300
4	387300	366400	374500	390800	393800	383700	387400	403100	401000	383200	371900	353900
5	386200	368000	374600	390600	394500	384000	383500	404000	404300	383000	371200	353500
6	384900	368700	375000	390300	396600	384100	383100	404900	412400	383100	370400	353300
7	383600	368300	375100	389900	398300	384300	385000	401800	412600	382800	369500	352900
8	382400	367900	375100	389300	399700	384400	386300	394300	406500	382400	368600	352400
9	381300	367400	374900	388800	400600	384500	387400	388500	400800	381800	367500	352000
10	380500	367000	375000	390500	401700	384500	388500	384100	396100	382000	366600	351500
11	380200	366600	375200	393300	402400	384300	389500	382200	396000	381400	366300	351000
12	379800	366200	375600	395400	401800	384100	390200	382600	395300	380800	366200	350600
13	379300	366200	376000	396300	397100	384200	390800	382800	390000	380000	365800	350200
14	378700	366500	376500	396200	394200	384000	391300	383200	385000	379500	365400	349900
15	378100	367100	376900	396500	391800	383800	391700	383600	382700	378700	364600	349600
16	377600	367400	377300	396800	391700	384000	392200	384100	383500	378000	363600	349400
17	376900	367700	377600	397100	391800	384500	390600	384500	384000	377200	362900	349200
18	376500	368100	378100	397400	392000	385100	386700	385000	384500	376700	362000	349600
19	375900	368800	378600	397700	392100	387400	385100	385100	385000	376300	361000	349600
20	375400	369300	379100	397500	392400	389900	386600	385200	385300	376000	360100	349500
21	374700	369700	379200	397200	392800	401300	390800	385700	385600	375500	359100	349300
22	374200	370100	379500	397100	393100	409000	393900	386600	385700	375000	358000	349200
23	373700	370400	379900	396900	394100	408900	395800	387200	385700	374300	357200	349100
24	373000	370800	380200	396600	395400	404200	397400	387300	385700	373600	356900	348900
25	372700	371200	380500	396600	395600	398600	398700	387100	385700	372800	356800	348800
26	372000	371800	380800	396300	394100	392700	399800	387000	385600	372600	356600	348700
27	371500	372600	381000	396000	389900	386700	400800	386800	385600	376300	356400	348500
28	370900	372800	381400	395700	386000	384600	401500	386700	385700	376500	356100	348400
29	370300	373200	382000	395500	---	386600	405600	386800	385600	376300	355700	348100
30	369600	373400	382600	395200	---	389000	406400	386600	385300	375900	355700	348000
31	369000	---	387000	394700	---	390900	---	386300	---	375100	355400	---
MAX	390300	373400	387000	397700	402400	409000	406400	405900	412600	384700	374400	355000
MIN	369000	366200	373800	388800	386000	382700	383100	382200	382700	372600	355400	348000
(†)	907.40	907.95	909.60	910.52	909.48	910.07	911.90	909.52	909.40	908.16	905.70	904.75
(‡)	-22300	+4400	+13600	+7700	-8700	+4900	+15500	-20100	-1000	-10200	-19700	-7400

CAL YR 1978 MAX 588400 MIN 354700 ‡ +32300
WTR YR 1979 MAX 412600 MIN 348000 ‡ -43300

† 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.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
FEB 05...	1330	410	9.0	180	6	45	16	9.1	.3

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
FEB 05...	2.3	210	0	20	14	.3	11	221

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 mi² (3,719 km²), of which 1,432 mi² (3,709 km²) is above Canyon Dam.

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.--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. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years (water years 1962-79) since regulation began at Canyon Lake, 406 ft³/s (11.50 m³/s), 294,100 acre-ft/yr (363 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft³/s (589 m³/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 ft³/s (166 m³/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, 5,530 ft³/s (157 m³/s) May 7, gage height, 8.22 ft (2.505 m); minimum, 20 ft³/s (0.57 m³/s) Jan. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	936	568	206	90	755	2120	772	3080	791	781	772	426
2	936	568	206	88	755	747	772	2430	791	781	771	425
3	936	568	205	451	755	746	2740	2420	791	781	763	416
4	936	568	203	740	755	746	5030	1540	805	781	763	421
5	936	575	203	737	751	746	3400	809	802	781	763	421
6	936	571	203	737	746	740	1330	809	800	787	763	422
7	927	561	203	737	746	741	772	2860	2810	781	763	421
8	926	561	203	737	746	746	772	5490	5470	776	762	421
9	926	561	203	737	746	746	772	4840	5490	781	755	421
10	791	561	203	744	746	746	772	3660	4490	784	755	421
11	574	561	149	288	748	746	772	2240	1690	781	755	421
12	574	561	88	461	1790	746	772	800	2130	781	750	421
13	574	331	88	755	3080	746	772	800	4090	781	746	329
14	574	203	88	755	3080	746	772	800	4100	781	746	224
15	569	204	88	755	1930	746	764	735	2450	781	746	224
16	568	203	88	755	746	746	763	657	791	781	737	224
17	568	203	88	755	746	746	1980	656	791	781	737	224
18	568	203	88	755	746	746	2980	666	791	784	737	225
19	568	203	88	755	746	595	2030	730	791	791	737	224
20	568	203	88	755	746	217	764	755	791	791	741	224
21	568	203	88	755	746	457	765	633	791	791	746	222
22	568	203	88	755	746	573	763	744	791	787	746	221
23	568	203	88	755	757	3000	763	781	791	781	746	224
24	568	203	88	755	755	5180	763	781	791	781	560	224
25	568	203	88	755	755	5120	755	781	791	781	426	224
26	568	208	88	755	1890	5110	755	781	791	785	426	224
27	568	207	88	755	3080	5110	755	781	791	1000	426	224
28	568	206	87	755	3080	2820	755	781	791	1060	426	224
29	568	206	87	755	---	776	392	781	783	781	426	221
30	568	206	87	755	---	772	1320	787	781	781	426	221
31	568	---	90	755	---	772	---	793	---	781	426	---
TOTAL	21139	10585	3946	20892	33668	45294	37287	45201	49347	24756	20842	9184
MEAN	682	353	127	674	1202	1461	1243	1458	1645	799	672	306
MAX	936	575	206	755	3080	5180	5030	5490	5490	1060	772	426
MIN	568	203	87	88	746	217	392	633	781	776	426	221
AC-FT	41930	21000	7830	41440	66780	89840	73960	89660	97880	49100	41340	18220

CAL YR 1978 TOTAL 213679 MEAN 585 MAX 5680 MIN 84 AC-FT 423800
WTR YR 1979 TOTAL 322141 MEAN 883 MAX 5490 MIN 87 AC-FT 639000

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); 17 years (water year 1963-79) regulated, 502 ft³/s (14.22 m³/s), 363,700 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, 13,000 ft³/s (368 m³/s) July 27, gage height, 11.77 ft (3.587 m); minimum, 149 ft³/s (4.22 m³/s) Dec. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1130	614	331	226	942	2850	1040	3790	1000	918	973	465
2	1120	615	328	218	946	974	1030	2740	1020	918	949	463
3	1120	613	323	361	952	955	1980	2710	1020	918	937	459
4	1120	607	317	911	958	943	5490	2210	1020	918	928	471
5	1110	782	313	911	974	942	4420	1090	1040	918	906	473
6	1110	740	313	917	1040	942	2010	1070	1040	966	891	474
7	1100	670	310	913	1030	942	1000	2140	2200	918	882	468
8	1100	667	305	906	1030	942	992	5660	5720	918	882	466
9	1100	659	299	906	1020	943	985	5370	5700	906	878	467
10	1030	657	299	984	1020	945	983	3920	5170	906	873	475
11	652	649	291	988	1010	942	981	3130	2300	894	886	475
12	647	642	188	451	1640	942	976	1050	1710	894	890	475
13	644	554	178	1060	3350	942	972	1030	4220	894	865	461
14	640	256	176	1030	3360	942	972	1020	4220	894	859	302
15	640	289	176	1010	2720	947	970	981	3260	894	859	299
16	640	302	174	1000	989	947	972	842	1020	894	859	305
17	640	300	170	994	978	950	1660	837	979	894	859	301
18	640	297	170	991	966	947	3310	838	966	904	856	320
19	640	300	170	981	966	1150	2980	909	966	911	854	318
20	640	310	170	973	966	467	1000	961	966	907	882	312
21	638	318	164	962	966	1060	1090	856	966	908	879	308
22	633	318	161	956	966	951	1040	976	966	908	868	305
23	631	318	161	955	998	2550	1020	983	954	902	870	305
24	631	312	158	953	983	5810	1020	990	954	900	741	305
25	636	309	157	958	971	5750	1020	979	942	900	492	305
26	628	371	155	954	1620	5690	1020	994	930	915	475	303
27	621	347	153	946	3330	5650	1010	973	930	2820	472	305
28	621	345	153	942	3320	4330	1000	999	930	1220	467	305
29	621	343	153	947	---	1100	1040	1010	918	1060	468	305
30	620	337	153	943	---	1060	832	997	918	1020	466	305
31	618	---	193	942	---	1050	---	979	---	992	465	---
TOTAL	24361	13841	6762	27189	40011	55555	44815	53034	54945	30729	24431	11300
MEAN	786	461	218	877	1429	1792	1494	1711	1832	991	788	377
MAX	1130	782	331	1060	3360	5810	5490	5660	5720	2820	973	475
MIN	618	256	153	218	942	467	832	837	918	894	465	299
AC-FT	48320	27450	13410	53930	79360	110200	88890	105200	109000	60950	48460	22410

CAL YR 1978 TOTAL 237747 MEAN 651 MAX 5600 MIN 112 AC-FT 471600
WTR YR 1979 TOTAL 386973 MEAN 1060 MAX 5810 MIN 153 AC-FT 767600

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 four floodwater-retarding structures with combined detention capacity of 9,875 acre-ft (12.2 hm³). These structures control runoff from 44.4 mi² (115 km²). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--47 years (water years 1933-79), 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 5	2300	*3,390	96.0	9.28	2.829	Mar. 21	0700	1,240	35.1	5.91	1.801
Nov. 26	1200	1,560	44.2	6.45	1.966	Apr. 21	0600	1,370	38.8	6.13	1.868
Jan. 11	2300	1,500	42.5	6.35	1.935	July 28	0100	1,380	39.1	6.15	1.875

Minimum daily discharge, 330 ft³/s (9.36 m³/s) Oct. 1-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	330	335	385	536	418	396	402	508	390	429	429	424
2	330	335	385	402	418	396	402	424	402	424	440	424
3	330	330	375	385	424	390	407	412	396	418	429	424
4	330	330	375	390	440	390	396	407	396	418	440	412
5	336	793	375	390	517	380	396	402	465	418	440	407
6	345	759	375	402	632	375	385	402	456	440	434	407
7	345	360	375	402	462	375	385	407	451	429	424	402
8	345	355	375	390	434	375	390	418	451	429	424	412
9	345	345	375	390	424	375	385	418	451	418	429	412
10	345	345	375	598	424	380	385	418	451	418	424	407
11	345	345	375	744	424	370	385	412	451	418	429	402
12	345	345	375	440	424	370	380	402	446	418	451	402
13	345	345	375	418	424	370	380	402	440	407	429	402
14	345	345	375	412	424	370	375	396	440	424	424	402
15	345	370	375	412	418	380	380	396	440	418	412	402
16	345	424	375	418	407	385	375	390	440	418	418	402
17	345	380	375	412	407	380	385	390	440	408	424	396
18	345	355	375	412	407	380	390	385	440	412	424	424
19	345	355	375	418	407	412	412	390	440	407	424	402
20	345	355	375	424	407	427	396	390	440	412	424	402
21	345	355	375	412	402	728	760	390	440	429	424	402
22	345	360	375	412	402	591	407	390	434	429	412	407
23	340	360	375	412	418	412	396	390	446	424	429	402
24	335	360	375	412	412	396	390	390	446	418	424	396
25	335	355	375	412	402	396	385	390	440	418	429	396
26	340	802	375	418	402	396	385	385	429	418	424	396
27	340	434	375	418	402	390	385	385	429	766	424	396
28	340	380	375	418	402	385	380	385	429	720	412	396
29	340	375	375	418	---	385	542	380	418	456	414	396
30	340	375	375	424	---	390	438	390	424	440	424	396
31	335	---	553	424	---	390	---	385	---	429	412	---
TOTAL	10566	12062	11823	13375	11984	12535	12259	12429	13061	13730	13200	12150
MEAN	341	402	381	431	428	404	409	401	435	443	426	405
MAX	345	802	553	744	632	728	760	508	465	766	451	424
MIN	330	330	375	385	402	370	375	380	390	407	412	396
AC-FT	20960	23920	23450	26530	23770	24860	24320	24650	25910	27230	26180	24100

CAL YR 1978 TOTAL 120938 MEAN 331 MAX 1210 MIN 226 AC-FT 239900
WTR YR 1979 TOTAL 149174 MEAN 409 MAX 802 MIN 330 AC-FT 295900

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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	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)	CALCIUM DISSOLVED (MG/L AS CA)
NOV										
20...	1007	506	7.9	17.5	7.9	85	1.4	230	9	66
JAN										
02...	1120	474	7.9	9.0	11.0	98	1.3	200	7	60
MAR										
26...	1118	445	8.0	14.0	10.7	102	1.4	210	20	57
APR										
30...	1250	452	7.6	20.0	6.0	67	2.5	220	18	63
JUN										
11...	1535	484	7.9	21.0	9.9	111	1.5	230	28	67

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
NOV									
20...	16	12	.3	1.8	270	0	22	16	.2
JAN									
02...	13	13	.4	2.6	240	0	25	17	.2
MAR									
26...	16	9.6	.3	2.0	230	0	20	10	.2
APR									
30...	14	12	.4	2.4	240	0	21	18	.2
JUN									
11...	16	11	.3	1.8	250	0	23	16	.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)
NOV									
20...	11	278	1.2	.01	1.2	.07	.35	.42	.06
JAN									
02...	11	260	1.3	.02	1.3	.02	.57	.59	.10
MAR									
26...	10	238	.59	.02	.61	.04	.30	.34	.03
APR									
30...	8.7	258	.82	.06	.88	.13	.32	.45	.05
JUN									
11...	11	269	.71	.08	.79	.03	.06	.09	.02

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.--23 years (water years 1957-79), 170 ft³/s (4.814 m³/s), 123,200 acre-ft/yr (152 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily spring discharge, 316 ft³/s (8.95 m³/s) June 12, 1975; 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, 277 ft³/s (7.84 m³/s) May 3; maximum gage height, 19.52 ft (5.950 m) Apr. 19 (flood runoff); minimum daily spring discharge, 112 ft³/s (3.17 m³/s) Nov. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	113	143	162	173	221	240	262	244	218	224	200
2	129	112	143	158	175	222	241	266	246	214	224	198
3	129	113	146	155	176	222	246	277	248	214	222	197
4	129	115	145	155	179	222	243	271	247	212	222	194
5	129	115	145	155	190	221	238	270	247	215	221	193
6	124	119	144	160	203	219	235	269	247	216	219	193
7	128	122	144	154	216	219	236	267	249	216	218	192
8	129	122	143	150	216	221	238	267	248	217	216	188
9	128	122	143	151	216	222	233	264	246	216	216	186
10	127	122	143	158	214	223	233	262	244	212	213	182
11	128	121	140	194	213	221	234	264	241	210	215	180
12	127	122	138	206	211	220	231	264	240	209	215	180
13	125	123	139	200	210	219	227	262	238	207	215	180
14	125	122	140	194	212	219	225	262	237	206	216	182
15	125	122	141	190	211	221	222	260	238	207	217	181
16	124	122	140	190	207	220	222	259	237	204	213	181
17	121	122	138	189	206	219	221	259	236	203	214	182
18	122	122	136	190	205	221	228	259	233	203	213	183
19	122	125	139	189	205	219	237	258	233	203	210	186
20	122	133	138	187	207	225	242	258	231	204	207	183
21	121	133	136	186	207	237	247	258	231	206	204	180
22	121	135	135	183	207	250	254	256	226	203	203	178
23	120	134	134	179	215	255	258	256	226	200	201	177
24	120	134	134	178	226	259	259	254	225	198	201	179
25	118	134	134	180	219	256	258	252	223	196	200	177
26	118	135	133	182	216	254	254	250	224	194	198	174
27	116	144	135	179	214	248	251	248	222	206	200	172
28	118	144	135	178	217	242	251	248	220	231	201	170
29	118	143	133	178	---	242	256	246	218	232	203	172
30	114	141	133	179	---	240	263	244	217	231	203	172
31	113	---	138	174	---	240	---	,242	---	230	201	---
TOTAL	3820	3786	4308	5463	5766	7139	7223	8034	7062	6533	6545	5492
MEAN	123	126	139	176	206	230	241	259	235	211	211	183
MAX	130	144	146	206	226	259	263	277	249	232	224	200
MIN	113	112	133	150	173	219	221	242	217	194	198	170
AC-FT	7580	7510	8540	10840	11440	14160	14330	15940	14010	12960	12980	10890

CAL YR 1978 TOTAL 44074 MEAN 121 MAX 146 MIN 100 AC-FT 87420
WTR YR 1979 TOTAL 71171 MEAN 195 MAX 277 MIN 112 AC-FT 141200

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 mi² (919 km²).

WATER-DISCHARGE RECORDS

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. 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.--Water-discharge 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 m³). This structure controls runoff from 0.61 mi² (1.58 km²) in the Town Creek drainage basin.

AVERAGE DISCHARGE.--53 years (water years 1925-26, 1929-79), 125 ft³/s (3.540 m³/s), 4.78 in/yr (121 mm/yr), 90,560 acre-ft/yr (112 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 113,000 ft³/s (3,200 m³/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 ft³/s (850 m³/s) on basis of slope-area measurements of 95,000 and 113,000 ft³/s (2,690 and 3,200 m³/s); minimum, 0.6 ft³/s (0.017 m³/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 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)
Mar. 19	1700	*11,100	314	12.54	3.822	Apr. 21	0445	3,880	110	8.29	2.527
Mar. 21	0915	5,690	161	9.52	2.902	May 1	2030	2,450	69.4	7.12	2.170

Minimum daily discharge, 33 ft³/s (0.93 m³/s) Nov. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	34	62	363	176	291	752	1100	256	113	143	78
2	68	35	62	237	175	286	1030	932	419	108	133	78
3	68	35	63	184	178	319	837	747	400	105	124	75
4	66	33	62	177	194	291	779	673	334	103	116	78
5	61	75	63	175	327	270	724	589	355	101	110	81
6	58	104	63	173	790	264	689	554	405	153	106	86
7	56	68	61	166	700	258	646	521	338	192	102	81
8	54	66	58	156	589	253	663	500	313	158	97	78
9	52	60	56	149	516	248	594	493	301	119	94	78
10	52	56	57	215	487	240	560	480	278	116	92	75
11	49	52	57	820	461	232	542	456	277	109	110	78
12	46	47	56	523	435	231	482	465	252	100	110	78
13	44	46	56	428	407	226	456	410	239	94	133	78
14	42	43	58	358	390	217	434	388	233	92	117	75
15	41	49	60	332	371	210	428	374	219	90	97	75
16	42	52	58	322	339	215	409	358	209	87	91	75
17	40	54	58	305	321	242	424	356	197	85	81	73
18	40	51	58	291	316	251	526	341	187	101	81	90
19	38	57	58	288	308	1810	425	325	174	185	81	74
20	38	58	58	270	304	736	429	316	167	346	78	75
21	38	63	56	249	296	3080	1640	303	159	202	75	75
22	37	63	54	234	287	1680	833	675	155	145	75	74
23	37	63	54	230	412	1290	702	430	149	126	75	74
24	36	61	54	216	492	1080	614	345	142	115	75	75
25	38	61	53	211	342	938	562	311	138	106	78	78
26	37	63	55	217	314	819	510	294	129	99	81	79
27	36	63	54	209	313	754	482	285	126	386	81	77
28	36	61	52	192	308	718	449	283	125	477	81	75
29	36	62	52	189	---	694	796	276	122	252	81	75
30	35	61	52	191	---	819	660	271	116	189	78	73
31	35	---	111	184	---	810	---	259	---	157	78	---
TOTAL	1429	1696	1831	8254	10548	19772	19077	14110	6914	4811	2954	2314
MEAN	46.1	56.5	59.1	266	377	638	636	455	230	155	95.3	77.1
MAX	73	104	111	820	790	3080	1640	1100	419	477	143	90
MIN	35	33	52	149	175	210	409	259	116	85	75	73
CFSM	.13	.16	.17	.75	1.06	1.80	1.79	1.28	.65	.44	.27	.22
IN.	.15	.18	.19	.86	1.11	2.07	2.00	1.48	.72	.50	.31	.24
AC-FT	2830	3360	3630	16370	20920	39220	37840	27990	13710	9540	5860	4590

CAL YR 1978	TOTAL	18362	MEAN	50.3	MAX	613	MIN 18	CFSM .14	IN 1.92	AC-FT	36420	
WTR YR 1979	TOTAL	93710	MEAN	257	MAX	3080	MIN 33	CFSM .72	IN 9.82	AC-FT	185900	

08171000 BLANCO RIVER AT WIMBERLEY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to September 1979 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: December 1976 to September 1978 (discontinued).

INSTRUMENTATION.--Continuous recording of water temperature was discontinued at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 36.0°C July 16, 1978, minimum daily, 2.5°C Jan. 20, 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 18...	0930	39	463	8.0	17.0	0	2.0	8.5	91	.4
DEC 06...	0950	63	492	7.8	14.0	0	1.0	9.5	97	.0
FEB 07...	1015	713	476	7.6	10.0	0	30	10.9	100	.6
APR 05...	0950	720	500	7.4	16.5	0	6.0	9.0	97	.1
JUN 13...	1310	360	420	7.9	26.0	5	2.5	8.7	107	.1
AUG 08...	1040	123	470	7.3	26.0	0	1.3	8.0	100	1.2

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
OCT 18...	120	54	36	220	25	59	18	8.4	.2
DEC 06...	80	22	35	240	20	67	18	8.0	.2
FEB 07...	3100	300	2700	240	16	72	14	6.1	.2
APR 05...	110	84	140	230	0	69	14	7.3	.2
JUN 13...	320	100	27	210	9	56	16	8.0	.2
AUG 08...	96	57	47	230	46	66	15	7.5	.2

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
OCT 18...	1.4	240	0	29	15	.2	9.4	259	2
DEC 06...	1.3	270	0	25	14	.2	8.5	275	5
FEB 07...	1.0	270	0	18	13	.1	8.5	266	39
APR 05...	1.1	280	0	15	11	.2	9.5	265	11
JUN 13...	1.1	240	0	19	11	.2	9.7	239	0
AUG 08...	1.2	220	0	20	12	.2	9.7	240	4

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 18...	1	.22	.01	.23	.01	.22	.23	.00	1.5
DEC 06...	3	.37	.01	.38	.02	.03	.05	.06	1.2
FEB 07...	4	.37	.00	.37	.01	.09	.10	.04	2.3
APR 05...	2	.49	.00	.49	.00	.14	.14	.01	2.2
JUN 13...	0	.38	.04	.42	.03	.12	.15	.00	9.8
AUG 08...	0	.17	.02	.19	.00	.10	.10	.00	--

08171000 BLANCO RIVER AT WIMBERLEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 07...	1015	0	0	0	10	0	0
JUN 13...	1310	0	30	<1	0	0	<0
AUG 08...	1040	1	30	<1	0	2	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
FEB 07...	0	0	.0	1	0	10
JUN 13...	0	2	.0	0	0	<3
AUG 08...	0	<1	.1	0	0	<3

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
FEB 07...	1015	.0	.00	.0	.00	.00	.00	.00
AUG 08...	1040	.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)	METHYL PARA-THION, TOTAL (UG/L)
FEB 07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 08...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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)
FEB 07...	.00	.00	.00	0	.00	.00	.00	.00
AUG 08...	.00	.00	.00	0	.00	--	--	--

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 mi² (1,067 km²).

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.--23 years (water years 1957-79), 157 ft³/s (4.446 m³/s), 5.17 in/yr (131 mm/yr), 113,700 acre-ft/yr (140 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,000 ft³/s (2,780 m³/s) May 2, 1958, gage height, 36.3 ft (11.06 m); from floodmark, from rating curve extended above 37,000 ft³/s (1,050 m³/s) on basis of slope-area measurement of 139,000 ft³/s (3,940 m³/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 ft³/s (3,940 m³/s). Flood of Sept. 11, 1952, reached a stage of 38.0 ft (11.58 m), discharge, 115,000 ft³/s (3,260 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 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. 19	2100	*12,900	365	18.08	5.511	Apr. 21	0900	3,870	110	12.27	3.740
Mar. 21	1245	5,600	159	13.78	4.200	May 1	2345	2,560	72.5	10.79	3.289

Minimum discharge, 16 ft³/s (0.45 m³/s) Nov. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	17	57	305	200	320	661	943	246	112	130	54
2	34	17	57	266	198	309	956	1210	387	107	120	52
3	33	17	57	193	204	332	782	786	387	104	110	51
4	35	17	56	174	218	331	704	710	353	101	100	50
5	32	40	54	172	330	292	631	641	335	102	94	53
6	30	161	54	175	767	281	586	610	407	137	91	56
7	28	65	55	170	834	274	557	581	341	186	87	57
8	27	51	53	161	676	265	566	554	310	173	82	50
9	28	48	51	153	596	260	532	531	291	107	78	49
10	28	44	50	169	555	261	502	517	278	96	77	47
11	27	41	50	906	532	250	492	504	265	99	84	46
12	26	39	49	649	502	246	447	517	253	83	111	46
13	25	36	48	514	470	239	414	458	236	76	108	46
14	22	34	49	430	446	230	388	426	225	73	118	45
15	20	38	52	381	426	224	371	404	218	73	91	43
16	20	56	49	365	397	227	351	382	207	69	78	44
17	22	62	47	339	370	247	348	363	197	66	74	44
18	21	52	46	317	363	265	583	346	189	73	71	59
19	20	53	47	314	351	1470	642	330	179	79	70	60
20	19	66	47	301	344	889	393	314	174	350	67	51
21	19	67	46	276	336	3260	1700	307	166	227	65	47
22	19	71	44	257	322	1820	941	551	160	137	64	45
23	19	69	44	251	368	1440	735	504	155	109	62	44
24	18	65	44	241	602	1130	653	365	148	96	62	43
25	19	63	43	236	408	982	606	315	141	88	63	42
26	22	65	43	242	356	907	568	291	135	83	65	40
27	20	65	42	238	346	829	531	280	130	281	64	40
28	18	60	42	220	340	714	504	283	127	583	61	40
29	18	59	42	214	---	613	772	278	126	285	60	40
30	18	59	42	215	---	664	786	267	117	181	58	39
31	17	---	101	210	---	821	---	255	---	148	59	---
TOTAL	741	1597	1561	9054	11857	20392	18702	14823	6883	4484	2524	1423
MEAN	23.9	53.2	50.4	292	423	658	623	478	229	145	81.4	47.4
MAX	37	161	101	906	834	3260	1700	1210	407	583	130	60
MIN	17	17	42	153	198	224	348	255	117	66	58	39
CFSM	.06	.13	.12	.71	1.03	1.60	1.51	1.16	.56	.35	.20	.12
IN.	.07	.14	.14	.82	1.07	1.84	1.69	1.34	.62	.40	.23	.13
AC-FT	1470	3170	3100	17960	23520	40450	37100	29400	13650	8890	5010	2820

CAL YR 1978 TOTAL 12055.53 MEAN 33.0 MAX 678 MIN .00 CFSM .08 IN 1.09 AC-FT 23910
WTR YR 1979 TOTAL 94041.00 MEAN 258 MAX 3260 MIN 17 CFSM .63 IN 8.49 AC-FT 186500

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.

AVERAGE DISCHARGE.--40 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 discharges above base of 4,000 ft³/s (113 m³/s), revised, and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	1200	5,040	143	23.16	7.059
Apr. 19	2200	*5,510	156	24.11	7.349

Minimum discharge, 129 ft³/s (3.653 m³/s) Nov. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	134	242	2140	431	589	1190	1850	594	339	530	286
2	162	133	234	870	424	573	1270	2730	631	331	482	282
3	159	132	229	632	423	566	1650	1820	722	321	443	277
4	157	133	224	512	449	564	1250	1600	701	315	414	276
5	155	184	222	455	924	568	1120	1290	763	312	392	280
6	155	1070	221	427	1120	537	1040	1160	869	333	380	273
7	152	433	214	441	978	523	990	1100	778	427	367	283
8	152	303	210	398	1140	508	961	1040	675	406	353	280
9	151	253	207	368	932	499	954	995	622	408	348	270
10	150	222	207	457	860	493	917	956	589	346	339	260
11	148	207	206	2740	816	488	888	1020	566	320	333	253
12	148	196	204	1480	782	482	867	977	546	311	350	251
13	147	191	203	1080	748	477	814	926	535	296	377	255
14	141	188	202	877	718	467	774	859	516	289	360	251
15	139	183	204	751	692	456	748	814	503	282	381	250
16	139	185	206	676	658	453	728	779	492	273	360	248
17	139	199	205	643	627	453	912	752	479	262	336	249
18	135	210	203	614	607	464	1160	733	471	257	335	290
19	137	219	200	588	594	484	2630	713	459	277	324	282
20	137	217	202	593	587	1470	2390	693	444	298	316	270
21	135	233	199	557	584	2610	2600	683	432	530	310	258
22	136	234	195	527	580	4560	2680	720	417	465	300	252
23	137	238	194	501	571	2720	1700	903	408	371	300	248
24	136	240	192	482	771	1860	1450	865	401	277	296	242
25	139	237	193	475	837	1540	1320	746	392	252	293	235
26	154	888	192	475	680	1360	1220	690	379	240	289	232
27	148	700	187	475	618	1220	1130	662	374	1140	288	228
28	140	354	186	466	600	1110	1040	651	363	1000	284	227
29	139	287	189	452	---	1050	1350	636	354	840	296	231
30	140	257	193	446	---	1060	1780	620	347	733	294	229
31	138	---	1140	439	---	1180	---	611	---	607	287	---
TOTAL	4508	8660	7305	22037	19751	31384	39523	30594	15822	12858	10757	7748
MEAN	145	289	236	711	705	1012	1317	987	527	415	347	258
MAX	163	1070	1140	2740	1140	4560	2680	2730	869	1140	530	290
MIN	135	132	186	368	423	453	728	611	347	240	284	227
AC-FT	8940	17180	14490	43710	39180	62250	78390	60680	31380	25500	21340	15370

CAL YR 1978 TOTAL 64193 MEAN 176 MAX 1140 MIN 91 AC-FT 127300
WTR YR 1979 TOTAL 210947 MEAN 578 MAX 4560 MIN 132 AC-FT 418400

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 10...	1212	149	586	21.5	280	38	79	19	21
NOV 27...	1525	527	399	18.0	160	8	48	8.8	15
JAN 03...	1550	612	416	6.0	180	22	53	11	15
FEB 12...	1220	780	532	14.5	240	20	72	15	16
MAR 27...	1250	1200	521	19.0	260	29	79	15	13
APR 30...	1545	1740	491	21.0	220	33	69	12	16
JUN 18...	1310	473	550	25.5	250	36	70	18	18
JUL 30...	1130	310	451	27.5	210	30	63	13	14
SEP 10...	1140	260	566	25.0	260	32	75	18	19

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 10...	.6	2.1	290	0	32	29	.2	9.6	335
NOV 27...	.5	4.3	180	0	36	15	.3	14	230
JAN 03...	.5	3.1	190	0	33	19	.3	9.6	238
FEB 12...	.4	1.7	270	0	31	27	.2	8.9	305
MAR 27...	.4	1.9	280	0	26	18	.3	11	302
APR 30...	.5	2.4	230	0	30	26	.3	11	280
JUN 18...	.5	1.8	260	0	28	29	.2	10	303
JUL 30...	.4	2.1	220	0	28	21	.2	12	262
SEP 10...	.5	1.9	280	0	29	33	.2	12	326

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 mi² (290 km²).

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

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. 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 hm³). These structures control runoff from 67.8 mi² (175.6 km²) above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 49.3 ft³/s (1.396 m³/s), 35,720 acre-ft/yr (44.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft³/s (753 m³/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.--Maximum discharge, 3,130 ft³/s (88.6 m³/s) Dec. 31, gage height, 15.36 ft (4.682 m), no other peak above base of 2,000 ft³/s (56.6 m³/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	12	877	27	33	85	603	7.0	.10	15	.00
2	.00	.00	9.7	402	24	29	165	365	19	.05	10	.00
3	.00	.00	8.0	321	29	28	178	203	42	.03	7.2	.00
4	.00	.00	6.5	242	62	27	104	310	39	.02	4.6	.00
5	.00	.00	5.8	175	300	24	80	250	45	.00	3.7	.00
6	.00	20	4.3	141	797	22	65	70	100	.00	3.1	.00
7	.00	9.0	3.7	129	368	20	55	46	55	.00	2.6	.00
8	.00	7.0	3.4	90	199	18	50	36	40	.00	2.1	.00
9	.00	4.6	3.2	63	118	17	47	30	28	.00	1.7	.00
10	.00	2.7	2.9	114	77	16	43	25	22	.00	1.2	.00
11	.00	1.7	2.6	694	61	17	41	33	18	.00	.85	.00
12	.00	1.3	2.3	324	54	17	36	310	15	.00	.96	.00
13	.00	.93	2.3	200	44	16	28	80	13	.00	.31	.00
14	.00	.74	2.2	126	37	15	22	50	11	.00	.19	.00
15	.00	.74	2.5	84	33	15	19	39	9.5	.00	.13	.00
16	.00	.59	3.0	64	29	15	17	31	8.0	.00	.05	.00
17	.00	.88	3.5	52	26	19	31	25	7.0	.00	.01	.00
18	.00	1.3	3.0	51	24	23	51	20	6.4	.00	.00	.00
19	.00	1.8	2.8	68	23	24	109	16	5.8	.00	.00	.00
20	.00	3.2	2.7	68	23	23	113	14	5.2	.00	.00	.00
21	.00	11	2.7	57	23	940	275	12	4.5	.00	.00	.00
22	.00	10	2.6	42	24	643	226	15	3.4	.00	.00	.00
23	.00	9.9	2.4	37	185	371	104	12	2.5	.00	.00	.00
24	.00	8.3	2.0	32	201	223	62	13	1.9	.00	.00	.00
25	.00	6.5	1.9	27	95	142	45	11	1.7	.00	.00	.00
26	.00	118	1.9	36	58	104	34	10	1.4	.00	.00	.00
27	.00	52	1.8	48	45	84	25	9.4	1.1	45	.00	.00
28	.00	29	1.7	39	39	72	20	8.8	.93	126	.00	.00
29	.00	20	1.8	33	---	67	183	8.2	.70	62	.00	.00
30	.00	15	2.3	34	---	70	152	7.6	.29	34	.00	.00
31	.00	---	1290	35	---	87	---	7.1	---	22	.00	---
TOTAL	.00	336.18	1397.5	4705	3025	3221	2465	2670.1	514.32	289.20	53.70	.00
MEAN	.000	11.2	45.1	152	108	104	82.2	86.1	17.1	9.33	1.73	.000
MAX	.00	118	1290	877	797	940	275	603	100	126	15	.00
MIN	.00	.00	1.7	27	23	15	17	7.1	.29	.00	.00	.00
AC-FT	.00	667	2770	9330	6000	6390	4890	5300	1020	574	107	.00

CAL YR 1978 TOTAL 1770.89 MEAN 4.85 MAX 1290 MIN .00 AC-FT 3510
WTR YR 1979 TOTAL 18677.00 MEAN 51.2 MAX 1290 MIN .00 AC-FT 37050

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 mi² (800 km²).

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 mi² (308 km²) above this station was partly controlled by 27 floodwater-retarding structures with a combined detention capacity of 41,840 acre-ft (51.6 hm³). No known diversion above station.

AVERAGE DISCHARGE.--49 years (water years 1931-79), 105 ft³/s (2.974 m³/s), 76,070 acre-ft/yr (93.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,500 ft³/s (2,220 m³/s) July 1, 1936, gage height, 30.7 ft (9.36 m), from floodmarks, present datum, from rating curve extended above 37,500 ft³/s (1,060 m³/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.--Maximum discharge, 2,280 ft³/s (64.6 m³/s) Feb. 6, gage height, 18.30 ft (5.578 m), no peak above base of 2,300 ft³/s (65.1 m³/s); minimum daily, 2.2 ft³/s (0.062 m³/s) Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	4.6	67	1450	72	67	142	656	21	9.6	31	8.7
2	4.7	4.8	51	993	67	56	238	2080	26	9.6	24	7.7
3	4.3	4.9	38	408	68	52	606	734	105	9.2	20	7.4
4	4.0	4.9	30	292	92	48	228	436	101	9.2	17	7.7
5	7.7	8.2	26	224	547	44	148	220	122	9.2	15	14
6	5.7	287	25	192	1840	39	115	150	255	15	13	10
7	3.9	74	22	199	1660	36	93	125	151	22	13	8.6
8	3.6	28	19	172	554	33	81	103	103	13	11	8.3
9	3.7	20	17	136	272	31	73	86	75	12	10	7.5
10	3.7	17	16	138	177	29	65	76	58	11	9.7	7.4
11	3.8	14	15	1330	136	31	60	383	46	10	9.0	6.6
12	3.9	13	15	1000	110	30	55	1000	39	13	9.0	6.1
13	3.8	14	14	367	96	29	47	232	34	12	10	6.0
14	2.9	11	14	217	80	29	38	145	30	9.9	9.2	5.7
15	2.4	10	14	167	70	28	33	104	28	14	8.3	5.0
16	2.5	10	16	139	58	32	30	84	27	12	7.8	5.0
17	2.5	13	14	125	50	30	168	72	26	9.2	7.5	5.0
18	2.6	13	14	117	45	34	1130	63	22	9.3	7.0	6.6
19	2.9	20	14	116	40	40	279	52	21	20	6.8	10
20	3.1	51	14	200	38	42	191	45	19	15	6.4	14
21	2.9	24	13	177	37	871	360	41	17	9.8	6.4	11
22	3.0	33	12	121	38	1560	379	51	16	9.3	6.3	8.3
23	3.0	29	12	102	42	1070	191	45	15	9.2	6.1	7.4
24	3.2	25	12	88	420	460	124	47	14	8.6	5.9	7.3
25	3.9	23	12	81	215	257	93	39	13	8.0	6.3	6.9
26	7.6	880	11	84	135	182	73	31	9.8	7.5	7.6	6.7
27	17	931	11	85	96	146	57	27	14	500	6.7	6.4
28	8.1	187	11	83	78	123	45	26	12	208	8.5	6.5
29	6.1	136	11	76	---	105	220	23	12	127	7.5	6.6
30	4.8	88	12	77	---	107	858	23	10	71	19	6.1
31	4.6	---	273	77	---	172	---	21	---	44	9.5	---
TOTAL	141.1	2978.4	845	9033	7133	5813	6220	7220	1441.8	1246.6	334.5	230.5
MEAN	4.55	99.3	27.3	291	255	188	207	233	48.1	40.2	10.8	7.68
MAX	17	931	273	1450	1840	1560	1130	2080	255	500	31	14
MIN	2.4	4.6	11	76	37	28	30	21	9.8	7.5	5.9	5.0
AC-FT	280	5910	1680	17920	14150	11530	12340	14320	2860	2470	663	457

CAL YR 1978 TOTAL 11313.9 MEAN 31.0 MAX 2460 MIN 1.4 AC-FT 22440
WTR YR 1979 TOTAL 42636.9 MEAN 117 MAX 2080 MIN 2.4 AC-FT 84570

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.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,210 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, 2,030 micromhos July 7; minimum daily, 200 micromhos Jan 1.
WATER TEMPERATURES: Maximum daily, 30.0°C on many days during summer months; minimum daily, 12.0°C Jan. 6, 7, 11, 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 10...	0954	3.6	1530	19.5	380	66	130	13	180
NOV 27...	1145	1070	336	17.5	120	10	41	3.5	18
JAN 03...	1247	395	347	3.0	130	36	48	3.6	20
FEB 12...	1110	110	714	11.0	220	79	74	8.1	56
MAR 27...	1005	149	597	17.5	180	46	60	6.6	47
APR 30...	1300	989	470	21.0	150	60	49	6.8	34
MAY 31...	1700	21	1630	25.0	480	210	160	19	170
JUL 30...	1025	74	642	26.0	170	42	60	5.7	62
AUG 31...	1800	8.7	1290	30.0	320	90	110	11	140

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 10...	4.0	5.0	380	0	93	250	.4	19	878
NOV 27...	.7	6.0	130	0	23	28	.2	12	196
JAN 03...	.8	2.8	120	0	40	22	.4	7.8	204
FEB 12...	1.7	3.9	170	0	73	94	.4	9.4	403
MAR 27...	1.5	4.8	160	0	64	61	.4	12	335
APR 30...	1.2	6.7	110	0	60	54	.2	12	277
MAY 31...	3.4	5.2	330	0	160	270	.5	18	965
JUL 30...	2.1	4.6	160	0	75	73	.6	14	374
AUG 31...	3.4	7.3	280	0	97	210	.5	19	733

08173000 PLUM CREEK NEAR LULING, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	141.1	1520	880	334	260	98	130	48	420
NOV. 1978.....	2978.4	554	310	2530	63	510	46	372	150
DEC. 1978.....	845	980	560	1290	150	342	82	186	270
JAN. 1979.....	9033	619	350	8610	79	1920	51	1260	170
FEB. 1979.....	7133	498	280	5460	54	1050	42	801	140
MAR. 1979.....	5813	647	370	5830	82	1290	54	844	180
APR. 1979.....	6220	727	420	7000	97	1630	60	1010	200
MAY 1979.....	7220	540	310	5990	63	1220	45	876	150
JUNE 1979.....	1441.8	763	440	1700	100	392	64	248	210
JULY 1979.....	1246.6	1100	630	2130	170	584	92	309	300
AUG. 1979.....	334.5	1330	760	689	220	196	110	100	360
SEPT 1979.....	230.5	1400	800	501	230	145	120	72	380
TOTAL	42636.88	**	**	42100	**	9380	**	6130	**
WTD.AVG.	117	639	360	**	81	**	53	**	180

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1490	1390	1420	200	1030	850	773	450	1600	559	772	1290
2	1470	1460	573	250	888	785	1270	283	1640	1670	952	1600
3	1650	1420	1460	350	877	1150	438	417	422	1660	1070	1590
4	1600	1520	1470	1250	1600	1170	552	509	658	281	1060	1600
5	1530	1360	1520	651	619	1120	1340	527	910	1670	1350	1290
6	1490	515	891	1450	250	1240	489	1230	500	1680	1520	1450
7	1690	987	1470	1560	298	913	898	740	609	2030	1550	1610
8	1490	1770	923	574	405	1360	1580	692	525	1680	1260	1400
9	1520	1300	1050	1530	569	1380	1060	933	777	612	1460	1350
10	1540	1070	1490	1490	536	1290	1470	1590	548	1900	1360	1430
11	1740	804	1200	359	468	1170	1180	1000	702	1730	1380	1580
12	1490	796	1240	322	584	1470	1480	291	1020	1760	1210	1030
13	1720	921	1110	1070	340	1180	1250	1060	878	1540	1640	1450
14	1510	1460	1060	1390	892	1470	1350	532	921	1200	1390	1500
15	1470	1420	1390	1490	670	1220	1410	464	1100	1050	1430	1520
16	1510	1480	1470	619	550	1290	1610	745	1250	923	1450	1480
17	1540	1160	1820	897	440	1560	1310	881	1020	1750	1710	1180
18	1890	1140	1490	1210	369	1390	470	987	442	1570	1420	1480
19	1580	1520	1550	900	1190	1260	404	1080	1310	1220	1520	1420
20	1570	653	1210	596	362	1360	425	1540	747	1550	1540	1360
21	1540	1460	966	663	1290	401	472	987	1400	1450	1340	1450
22	1490	1020	1440	1390	1310	383	1160	1250	1150	1610	1500	893
23	1540	1060	1310	462	1320	399	620	1380	1300	1380	1620	1350
24	1520	1370	1400	889	1060	898	987	1230	1370	1580	1400	1350
25	1550	1520	1460	1570	522	1290	863	1280	1520	1630	1660	1330
26	1560	500	1500	1060	1320	545	1350	458	1450	1560	1410	1360
27	1400	336	1530	953	787	1000	1080	1450	1660	891	1500	1380
28	1390	276	1550	848	906	1460	1470	1670	541	1340	1400	1450
29	1550	462	1560	785	---	797	1230	1230	541	1280	1570	1480
30	1400	987	1530	723	---	1030	407	1390	1560	330	1770	1440
31	1420	---	331	1250	---	697	---	1610	---	773	1330	---
MEAN	1540	1100	1300	927	766	1080	1010	964	1000	1350	1400	1400

08173000 PLUM CREEK NEAR LULING, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	28.0	24.0	---	14.0	---	16.0	---	22.0	23.0	26.0	30.0
2	28.0	28.0	24.0	---	16.0	16.0	18.0	22.0	24.0	25.0	30.0	26.0
3	28.0	28.0	16.0	14.0	17.0	15.0	16.0	22.0	22.0	28.0	30.0	26.0
4	29.0	28.0	18.0	14.0	14.0	15.0	18.0	18.0	24.0	22.0	26.0	30.0
5	29.0	26.0	20.0	14.0	15.0	17.0	18.0	22.0	24.0	27.0	26.0	28.0
6	26.0	22.0	16.0	12.0	---	17.0	18.0	20.0	25.0	27.0	30.0	28.0
7	28.0	20.0	14.0	12.0	14.0	18.0	16.0	22.0	25.0	28.0	30.0	30.0
8	28.0	22.0	14.0	14.0	15.0	18.0	16.0	24.0	25.0	22.0	28.0	28.0
9	26.0	26.0	15.0	14.0	15.0	19.0	18.0	24.0	22.0	24.0	30.0	28.0
10	28.0	26.0	16.0	13.0	16.0	14.0	18.0	24.0	20.0	28.0	28.0	28.0
11	28.0	24.0	18.0	12.0	15.0	14.0	22.0	---	22.0	28.0	30.0	30.0
12	29.0	22.0	18.0	15.0	16.0	18.0	22.0	22.0	24.0	28.0	26.0	28.0
13	28.0	24.0	16.0	14.0	16.0	18.0	18.0	22.0	22.0	---	26.0	30.0
14	24.0	24.0	18.0	12.0	17.0	16.0	18.0	24.0	25.0	---	30.0	28.0
15	24.0	18.0	18.0	14.0	17.0	17.0	18.0	24.0	25.0	24.0	28.0	26.0
16	28.0	16.0	18.0	14.0	---	14.0	24.0	24.0	25.0	30.0	28.0	26.0
17	28.0	20.0	20.0	14.0	---	15.0	18.0	24.0	22.0	30.0	30.0	26.0
18	29.0	20.0	20.0	15.0	14.0	14.0	22.0	25.0	22.0	29.0	30.0	28.0
19	29.0	20.0	21.0	15.0	15.0	15.0	18.0	24.0	26.0	24.0	28.0	---
20	29.0	18.0	20.0	14.0	15.0	16.0	22.0	22.0	26.0	26.0	28.0	28.0
21	28.0	18.0	20.0	16.0	16.0	16.0	21.0	24.0	26.0	29.0	30.0	28.0
22	24.0	20.0	18.0	16.0	16.0	18.0	20.0	24.0	27.0	24.0	30.0	28.0
23	26.0	18.0	16.0	15.0	17.0	18.0	24.0	25.0	24.0	30.0	26.0	28.0
24	26.0	22.0	18.0	15.0	15.0	18.0	20.0	25.0	24.0	28.0	26.0	28.0
25	26.0	22.0	20.0	16.0	14.0	18.0	24.0	---	27.0	28.0	30.0	26.0
26	24.0	---	19.0	16.0	15.0	18.0	18.0	20.0	24.0	26.0	26.0	28.0
27	26.0	18.0	20.0	16.0	16.0	16.0	24.0	20.0	27.0	28.0	26.0	30.0
28	22.0	16.0	20.0	14.0	16.0	15.0	18.0	24.0	22.0	28.0	30.0	30.0
29	26.0	18.0	20.0	---	---	18.0	18.0	25.0	27.0	26.0	30.0	26.0
30	28.0	22.0	15.0	16.0	---	16.0	24.0	25.0	22.0	26.0	30.0	26.0
31	24.0	---	16.0	14.0	---	18.0	---	25.0	---	28.0	30.0	---
MEAN	27.0	22.0	18.5	14.5	15.5	16.5	19.5	23.0	24.0	26.5	28.5	28.0

08174600 PEACH CREEK BELOW DILWORTH, TX

LOCATION.--Lat 29°28'26", long 97°18'59", Gonzales County, Hydrologic Unit 12100202, on right bank at downstream side of bridge on U.S. Highway 90-A, 1.3 mi (2.1 km) downstream from Mitchell Creek, 3.1 mi (5.0 km) southwest of Dilworth, 6.4 mi (10.3 km) upstream from mouth, and 8.5 mi (13.7 km) southeast of Gonzales.

DRAINAGE AREA.--460 mi² (1,191 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1959 to September 1979 (discontinued).

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Prior to Feb. 11, 1960, nonrecording gage at same site and datum. Datum of gage is 213.53 ft (65.084 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good.

AVERAGE DISCHARGE.--20 years, 167 ft³/s (4.729 m³/s), 4.93 in/yr (125 mm/yr), 121,000 acre-ft/yr (149 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,800 ft³/s (2,170 m³/s) Apr. 20, 1977, gage height, 33.11 ft (10.092 m); no flow at times in 1959-67, 1969-74, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1840, 35.3 ft (10.76 m) in June 1940. A stage of 32.8 ft (10.00 m) was reached June 30, 1936, but may have been affected by backwater from Guadalupe River, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges 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)
Jan. 2	1700	2,540	71.9	24.94	7.602	Apr. 2	2400	3,180	90.1	25.82	7.870
Jan. 12	2400	2,690	76.2	25.28	7.705	May 2	0900	3,630	103	26.62	8.114
Feb. 7	2400	3,020	85.5	25.92	7.900	May 11	2300	3,540	100	26.48	8.071
Mar. 23	0200	2,540	71.9	24.01	7.318	June 7	0300	*14,000	396	29.64	9.034

Minimum discharge, 1.0 ft³/s (0.028 m³/s) Oct. 29.

DISCHARGE, IN CUBIC FEET PER SECOND , WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	1.3	13	1890	73	37	36	2200	300	9.6	11	2.4
2	2.5	1.3	9.5	2390	44	36	1060	3530	429	9.0	22	2.4
3	2.3	1.6	8.3	1560	38	377	2890	3220	718	8.5	14	2.4
4	2.1	1.3	7.0	167	57	283	2590	3090	532	8.3	9.2	2.9
5	2.0	1.5	6.3	96	1240	88	1120	1660	673	8.3	7.5	3.6
6	1.9	5.0	5.6	521	2240	49	159	992	6010	8.7	6.7	3.3
7	1.8	7.8	4.8	1020	2840	41	74	241	11000	106	5.7	3.3
8	1.8	6.0	4.4	928	2440	37	55	80	5130	137	5.2	3.7
9	2.0	5.0	4.0	230	488	36	48	58	2160	52	4.8	3.2
10	1.9	4.1	3.8	92	131	35	43	49	258	20	4.3	3.1
11	1.8	3.9	3.6	2120	87	34	40	1430	83	27	4.0	2.9
12	1.9	5.8	3.4	2330	71	34	37	2860	55	23	5.0	2.5
13	1.7	3.5	3.4	1930	62	34	34	1570	43	12	5.9	2.2
14	1.6	2.5	3.3	242	57	34	31	776	37	9.3	4.6	2.0
15	1.5	2.1	3.3	64	54	33	29	132	32	8.2	4.1	1.8
16	1.6	2.4	3.4	44	49	33	28	69	29	7.7	4.0	1.7
17	1.7	2.9	3.4	37	46	33	27	54	26	7.3	3.6	1.5
18	1.9	2.8	3.4	184	45	33	28	48	23	7.2	4.2	1.8
19	1.9	4.3	3.3	1130	44	34	81	43	21	8.0	3.9	3.7
20	2.0	6.7	3.2	1410	43	34	315	38	19	23	3.5	4.7
21	1.8	7.6	3.2	1110	43	1510	539	36	18	37	3.3	33
22	1.6	12	3.2	588	43	2280	338	312	17	17	3.0	19
23	1.7	7.9	3.3	131	43	2190	67	1220	16	11	2.8	8.9
24	1.6	5.9	3.3	57	44	911	44	1380	14	9.0	2.8	6.0
25	1.7	4.8	3.2	46	43	163	35	359	13	8.4	2.9	4.4
26	3.1	208	3.1	46	41	69	32	63	12	7.3	2.9	3.4
27	2.4	621	3.1	48	39	49	30	39	14	113	2.5	2.9
28	1.7	751	3.1	49	38	42	27	33	12	567	2.4	2.6
29	1.2	196	3.3	45	---	37	475	31	11	160	2.4	2.4
30	1.4	26	3.5	41	---	36	1010	30	10	35	2.7	2.1
31	1.3	---	750	74	---	36	---	141	---	17	2.7	---
TOTAL	58.0	1912.0	882.7	20620	10483	8678	11322	25784	27715	1481.8	163.6	139.8
MEAN	1.87	63.7	28.5	665	374	280	377	832	924	47.8	5.28	4.66
MAX	3.1	751	750	2390	2840	2280	2890	3530	11000	567	22	33
MIN	1.2	1.3	3.1	37	38	33	27	30	10	7.2	2.4	1.5
CFSM	.004	.14	.06	1.45	.81	.61	.82	1.81	2.01	.10	.01	.01
IN.	.00	.15	.07	1.67	.85	.70	.92	2.09	2.24	.12	.01	.01
AC-FT	115	3790	1750	40900	20790	17210	22460	51140	54970	2940	325	277

CAL YR 1978 TOTAL 15660.82 MEAN 42.9 MAX 2090 MIN .00 CFSM .09 IN 1.27 AC-FT 31060
WTR YR 1979 TOTAL 109239.90 MEAN 299 MAX 11000 MIN 1.2 CFSM .65 IN 8.83 AC-FT 216700

08174600 PEACH CREEK BELOW DILWORTH, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1962 to September 1979 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 03...	1453	2.2	456	--	25.0	--	--	98	0	31	5.1
NOV 17...	1115	2.6	500	8.1	14.5	--	--	95	0	29	5.5
DEC 14...	0842	3.4	502	7.4	8.5	--	--	110	0	33	6.6
JAN 23...	1040	131	288	7.0	11.0	8.6	80	82	31	25	4.7
MAR 09...	1434	36	1010	7.6	19.5	11.1	123	300	210	89	20
APR 27...	1325	30	908	7.6	22.5	--	--	280	170	84	17
MAY 17...	0857	55	716	7.4	20.5	--	--	220	130	70	12
JUN 29...	1053	11	1150	7.6	26.0	5.8	72	370	230	110	24
AUG 10...	1250	4.4	657	7.0	27.0	4.7	59	180	83	53	12

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 03...	52	2.3	5.9	160	0	40	37	.2	21	271
NOV 17...	66	2.9	5.2	160	0	51	48	.1	17	301
DEC 14...	59	2.5	5.9	150	0	61	44	.1	18	302
JAN 23...	17	.8	5.6	62	0	40	28	.1	15	166
MAR 09...	85	2.1	6.8	120	0	240	120	.2	14	634
APR 27...	76	2.0	6.4	140	0	180	98	.2	22	553
MAY 17...	55	1.6	6.3	120	0	130	72	.2	21	426
JUN 29...	110	2.5	6.7	170	0	270	140	.3	28	773
AUG 10...	59	1.9	5.9	120	0	130	68	.3	18	405

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 mi² (1,422 km²).

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.--24 years (water years 1931-34, 1960-79), 136 ft³/s (3.852 m³/s), 3.36 in/yr (85 mm/yr), 98,530 acre-ft/yr (121 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,700 ft³/s (2,260 m³/s) Sept. 22, 1967, gage height, 32.34 ft (9.857 m), from rating curve extended above 21,000 ft³/s (595 m³/s) on basis of slope-area measurement of 92,700 ft³/s (2,630 m³/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1864, 92,700 ft³/s (2,630 m³/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 ft³/s (56.6 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)
Jan. 12	2400	3,880	110	21.47	6.544	Apr. 21	2000	*6,030	171	23.05	7.026
Feb. 8	0300	2,180	61.7	17.56	5.352	May 1	2000	4,820	137	22.25	6.782
Apr. 4	1700	2,030	57.5	16.93	5.160	May 13	1000	5,420	153	22.66	6.907

Minimum discharge, 5.8 ft³/s (0.16 m³/s) Oct. 21.

DISCHARGE, IN CUBIC FEET PER SECOND , WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	35	1120	38	31	26	3270	334	18	21	12
2	11	8.9	28	1870	37	31	126	3920	558	18	16	12
3	11	7.9	24	1370	35	30	731	4020	1020	16	14	9.8
4	9.6	7.5	20	381	36	29	1820	2500	978	15	12	9.0
5	8.8	10	18	117	346	31	1080	1230	778	15	11	8.9
6	8.4	62	16	101	1070	36	209	1400	838	23	9.9	9.0
7	8.2	133	15	217	1990	30	99	493	532	24	9.2	24
8	8.0	179	13	377	1950	28	69	140	185	39	8.6	126
9	8.4	72	13	249	603	26	57	91	103	53	8.2	40
10	8.6	34	13	200	146	26	52	76	72	39	8.2	22
11	8.3	22	12	2100	89	25	49	686	59	59	9.3	13
12	8.0	17	12	3450	67	24	46	2750	52	21	9.8	9.6
13	7.5	14	12	3380	57	24	42	4910	48	16	10	8.0
14	7.3	13	12	1290	59	24	39	2630	44	13	17	7.2
15	7.1	12	12	159	59	24	36	793	40	11	14	6.6
16	6.9	12	13	84	53	24	35	147	36	9.5	16	6.7
17	6.9	12	12	63	46	24	35	79	32	8.8	11	6.3
18	7.0	12	13	58	41	24	35	61	30	8.4	10	6.4
19	6.3	12	13	234	39	25	56	52	28	11	9.3	14
20	5.9	15	13	535	38	26	1300	47	28	139	8.8	18
21	5.8	14	12	699	38	46	5410	43	27	225	9.5	15
22	6.3	19	11	453	38	52	4700	65	27	178	8.3	15
23	6.4	17	11	155	38	95	1400	142	26	63	8.0	13
24	6.1	16	11	76	39	76	312	198	23	26	7.5	11
25	6.4	16	11	56	38	49	116	93	22	18	13	9.5
26	7.7	19	11	51	37	37	85	55	21	15	54	8.2
27	7.2	17	11	47	35	31	70	43	20	36	73	7.2
28	11	150	11	49	33	29	58	63	20	29	46	6.8
29	14	97	11	48	---	28	351	265	19	53	27	6.7
30	14	52	12	43	---	27	773	232	19	46	18	6.6
31	12	---	376	39	---	26	---	334	---	30	13	---
TOTAL	261.1	1082.3	807	19071	7095	1038	19217	30828	6019	1275.7	510.6	467.5
MEAN	8.42	36.1	26.0	615	253	33.5	641	994	201	41.2	16.5	15.6
MAX	14	179	376	3450	1990	95	5410	4910	1020	225	73	126
MIN	5.8	7.5	11	39	33	24	26	43	19	8.4	7.5	6.3
CFSM	.02	.07	.05	1.12	.46	.06	1.17	1.81	.37	.08	.03	.03
IN.	.02	.07	.05	1.29	.48	.07	1.30	2.09	.41	.09	.03	.03
AC-FT	518	2150	1600	37830	14070	2060	38120	61150	11940	2530	1010	927

CAL YR 1978	TOTAL	13042.88	MEAN	35.7	MAX	1210	MIN	.74	CFSM .07	IN .88	AC-FT	25870
WTR YR 1979	TOTAL	87672.20	MEAN	240	MAX	5410	MIN	5.8	CFSM .44	IN 5.94	AC-FT	173900

NOTE.--No gage-height record Mar. 24 to Apr. 1, Apr. 5-20, 22-26, May 15, and June 5-20.

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 02...	1329	11	825	--	24.0	--	--	180	28	52	11
NOV 15...	1210	12	670	7.2	21.5	--	--	130	0	40	7.6
DEC 14...	1106	12	1030	7.9	9.0	--	--	190	0	55	13
JAN 22...	1415	420	285	7.0	11.5	7.8	74	59	8	17	4.1
MAR 09...	1343	26	--	8.1	18.5	9.3	99	310	120	86	22
APR 27...	--	70	659	7.7	22.0	--	--	160	75	49	10
MAY 10...	1525	76	831	7.5	--	--	--	190	71	58	12
JUN 21...	1245	27	1360	--	28.0	--	--	270	78	74	20
AUG 09...	1503	8.4	1340	7.7	28.0	--	--	240	28	72	15
SEP 21...	1525	16	890	7.7	22.5	--	--	140	0	42	9.3

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 02...	98	3.2	10	180	0	93	120	.3	23	496
NOV 15...	91	3.5	9.0	170	0	54	92	.2	18	396
DEC 14...	140	4.4	10	240	0	100	150	.3	20	607
JAN 22...	24	1.4	7.5	62	0	28	33	.1	15	159
MAR 09...	160	4.0	9.4	220	0	200	200	.3	12	798
APR 27...	68	2.3	8.2	108	0	93	87	.2	20	389
MAY 10...	91	2.8	8.4	150	0	150	110	.2	21	524
JUN 21...	170	4.5	8.5	230	0	180	200	.3	29	795
AUG 09...	190	5.3	9.4	260	0	120	220	.4	20	775
SEP 21...	130	4.7	9.9	200	0	76	150	.4	18	534

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 flood-detention pools of 50 floodwater-retarding structures with combined detention capacity of 68,060 acre-ft (83.9 hm³). These structures control runoff from 220 mi² (570 km²) in the Comal, San Marcos, and Plum Creek drainage basins. Many small diversions above station. National Weather Service 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); 15 years (water years 1965-79) regulated, 2,179 ft³/s (61.71 m³/s), 1,579,000 acre-ft/yr (1.95 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 101,000 ft³/s (2,860 m³/s) May 30, 1929, gage height, 35.2 ft (10.73 m), site and datum then in use, from rating curve extended above 45,000 ft³/s (1,270 m³/s); maximum gage height, 36.90 ft (11.247 m) May 14, 1972; minimum daily discharge, 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, 19,200 ft³/s (544 m³/s) June 6, gage height, 25.28 ft (7.705 m); minimum, 786 ft³/s (22.3 m³/s) Dec. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1700	1130	1320	4710	2130	3820	3350	8510	3560	2060	2510	1290
2	1680	1080	1260	7610	2110	4270	3670	14400	4810	2070	2230	1660
3	1630	1150	1290	8570	2070	4290	7270	15600	9850	2220	2020	1320
4	1620	1130	1250	5620	2060	3560	8810	16800	5410	1940	1930	1380
5	1620	1200	1180	2520	2940	2600	8780	17100	4870	1950	2000	1450
6	1620	1440	1130	2610	6050	2400	7980	13800	16100	2060	2040	1460
7	1620	2710	1060	3650	8930	2340	6580	6880	18000	2280	1930	1490
8	1600	5710	1080	3620	11700	2260	4590	3950	17000	2460	1860	1450
9	1590	2690	1100	3380	11700	2200	3340	3820	16900	2620	1850	1480
10	1540	1840	1100	2700	5230	2060	3060	5640	12300	2380	1810	1310
11	1590	1400	1040	8800	3470	2090	2940	9380	7060	2260	1790	1320
12	1610	1450	1070	11100	3130	2110	2820	15300	6270	2200	1740	1400
13	1520	1480	1020	12600	2930	2110	2660	14800	4840	2220	1760	1340
14	1200	1360	1000	11800	2940	2100	2590	13000	3300	2060	1820	1260
15	1220	1360	979	4510	4180	2060	2560	7480	4580	1960	1880	1230
16	1220	1130	938	2960	4530	2040	2520	3880	5080	1970	1860	1080
17	1210	1050	977	2650	4380	2040	2460	3090	4940	2070	1870	1050
18	1190	1160	934	2530	2990	2080	2470	2910	3090	1980	1850	1230
19	1190	1140	945	3300	2530	2100	4120	2830	2630	2050	1800	1580
20	1190	1120	1060	4670	2450	2100	8190	2570	2520	2210	1780	1600
21	1170	1150	853	4770	2440	2530	10600	2490	2460	2260	1770	1170
22	1180	1170	993	4210	2390	6000	11400	2630	2510	2340	1740	1280
23	1150	1160	888	3110	2390	7870	12600	3320	2400	2310	1730	1210
24	1210	1130	920	2450	2370	9190	9520	4030	2220	2290	1720	1150
25	1230	1110	914	2280	2430	8120	5220	4030	2150	2150	1720	1180
26	1030	1140	806	2230	2880	7100	3650	2990	2250	2080	1700	1280
27	1250	1700	888	2190	2740	7090	3300	2570	2310	2140	1610	1060
28	1300	4280	906	2160	2610	6880	3070	2930	2180	2620	1510	983
29	1150	4040	859	2140	---	6720	3840	2930	2160	4490	1510	1050
30	1160	1810	909	2140	---	6270	5900	2750	2090	4280	1440	1080
31	1160	---	1400	2120	---	3860	---	3140	---	2910	1460	---
TOTAL	42350	51420	32069	139710	108700	122260	159860	215550	175840	72890	56240	38823
MEAN	1366	1714	1034	4507	3882	3944	5329	6953	5861	2351	1814	1294
MAX	1700	5710	1400	12600	11700	9190	12600	17100	18000	4490	2510	1660
MIN	1030	1050	806	2120	2060	2040	2460	2490	2090	1940	1440	983
AC-FT	84000	102000	63610	277100	215600	242500	317100	427500	348800	144600	111600	77010

CAL YR 1978 TOTAL 510003 MEAN 1397 MAX 8030 MIN 484 AC-FT 1012000
WTR YR 1979 TOTAL 1215712 MEAN 3331 MAX 18000 MIN 806 AC-FT 2411000

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT											
02...	1520	1680	405	--	26.0	--	--	180	11	52	11
NOV											
15...	1545	1370	430	7.6	21.0	--	--	170	18	50	10
DEC											
14...	1000	997	540	8.2	10.0	--	--	220	17	66	14
JAN											
22...	1535	4140	370	7.7	11.0	8.8	82	140	19	43	8.5
MAR											
09...	1318	2220	552	8.0	17.5	--	--	230	34	66	16
APR											
27...	0915	3310	466	8.0	22.5	--	--	190	45	59	11
MAY											
10...	1030	5720	513	8.0	--	--	--	240	30	71	16
JUN											
21...	1035	2480	573	--	26.0	--	--	230	13	66	17
AUG											
09...	1207	1840	528	8.1	29.0	--	--	250	32	75	15
SEP											
21...	1300	1160	507	7.8	24.0	--	--	220	12	64	14

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT										
02...	13	.4	2.5	200	0	14	20	.2	12	223
NOV										
15...	17	.6	3.4	180	0	22	25	.2	11	227
DEC										
14...	22	.6	3.1	250	0	30	33	.2	13	305
JAN										
22...	15	.5	4.2	150	0	24	26	.1	12	207
MAR										
09...	22	.6	2.4	240	0	31	33	.2	10	299
APR										
27...	19	.6	3.4	180	0	33	28	.2	11	253
MAY										
10...	17	.5	3.4	260	0	29	29	.2	11	305
JUN										
21...	25	.7	2.7	270	0	31	33	.2	14	322
AUG										
09...	18	.5	2.0	260	2	25	27	.2	13	305
SEP										
21...	27	.8	3.0	250	0	30	33	.3	14	309

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 that during the year they discharged about 7,460 acre-ft (9.20 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); 17 year (water years 1963-79) regulated, 2,095 ft³/s (59.33 m³/s), 1,518,000 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, 19,300 ft³/s (547 m³/s) May 12, gage height, 28.36 ft (8.644 m); minimum, 743 ft³/s (21.0 m³/s) Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1910	1290	1580	2550	2170	2880	3660	7330	3360	2020	2870	1500
2	1870	1260	1350	5720	2190	3980	3490	13900	4970	2000	2600	1490
3	1860	1240	1280	7760	2150	4200	5060	13800	7380	2040	2360	1630
4	1840	1300	1310	7920	2120	4060	7700	15800	8030	2160	2170	1400
5	1800	1310	1230	4780	2680	2970	8340	16900	5590	1900	2120	1440
6	1790	2300	1180	2890	6110	2450	8190	16100	8170	1960	2230	1620
7	1770	1730	1110	3320	7710	2320	7420	12400	14100	2090	2160	1600
8	1770	4310	1050	3890	9120	2250	6080	6200	16000	2270	2080	1500
9	1740	4860	1080	3700	10500	2170	4130	4340	15900	2490	2040	1500
10	1720	2390	1090	3220	9410	2110	3330	5020	15500	2470	2020	1450
11	1670	1810	1070	8670	4690	2010	3080	9070	10700	2290	2000	1340
12	1730	1580	1030	10400	3490	2040	2940	18000	7200	2150	1970	1350
13	1720	1610	1050	10400	3070	2040	2790	15300	6220	2090	1930	1390
14	1560	1590	1010	11200	2880	2040	2630	13900	4560	2090	1940	1320
15	1380	1510	991	9570	3320	2010	2560	11500	4110	1910	2020	1260
16	1380	1480	946	4180	4360	1970	2500	6670	5220	1840	2030	1200
17	1370	1260	930	3080	4520	1960	2540	4110	5420	1860	2020	1080
18	1350	1240	956	2790	3940	1970	2450	3520	4530	1930	2010	1100
19	1340	1340	901	2760	2730	2000	2680	3250	3080	1840	1980	3250
20	1320	1300	947	5350	2510	2010	5820	3100	2780	2040	1920	8550
21	1320	1290	1010	5420	2450	2190	8420	2780	2620	2070	1890	2590
22	1330	1330	838	5050	2430	3670	9800	2730	2530	2180	1870	1490
23	1320	1300	934	4100	2400	6620	10300	3000	2560	2220	1850	1360
24	1300	1320	875	2910	2380	7830	10700	3790	2350	2170	1830	1240
25	1380	1270	905	2490	2340	8450	7960	4390	2210	2110	1810	1180
26	1360	1260	867	2400	2530	7440	4770	4000	2150	2180	1800	1200
27	1230	1400	758	2330	2750	7050	3740	2950	2290	2310	1760	1230
28	1460	2320	896	2250	2550	6950	3350	2670	2210	2320	1670	1050
29	1380	4780	881	2210	---	6790	3840	3260	2140	3070	1590	1040
30	1310	3350	845	2240	---	6670	6430	2890	2080	5010	1570	1070
31	1320	---	953	2230	---	5580	---	2960	---	3780	1520	---
TOTAL	47600	56330	31853	147780	109500	118680	156700	235630	175960	70860	61630	50420
MEAN	1535	1878	1028	4767	3911	3828	5223	7601	5865	2286	1988	1681
MAX	1910	4860	1580	11200	10500	8450	10700	18000	16000	5010	2870	8550
MIN	1230	1240	758	2210	2120	1960	2450	2670	2080	1840	1520	1040
AC-FT	94410	111700	63180	293100	217200	235400	310800	467400	349000	140600	122200	100000

CAL YR 1978 TOTAL 564495 MEAN 1547 MAX 11500 MIN 571 AC-FT 1120000
WTR YR 1979 TOTAL 1262943 MEAN 3460 MAX 18000 MIN 758 AC-FT 2505000

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 andloads 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, 155 micromhos Sept. 22, 1967.
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, 631 micromhos Dec. 27; minimum daily, 164 micromhos Sept. 20.
WATER TEMPERATURES: Maximum daily, 30.0°C July 17; minimum daily, 6.0°C on several days during January.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 17...	1330	1370	460	8.0	22.0	30	10	7.8	92	1.0	--
NOV 07...	1445	1720	362	8.0	19.5	40	110	7.2	81	2.1	--
DEC 20...	1350	957	635	8.2	17.0	15	10	9.4	100	1.1	88
JAN 16...	1445	3750	304	7.7	7.5	90	190	10.6	91	2.7	320
FEB 21...	1400	2450	543	8.1	13.0	10	30	9.8	96	1.4	840
MAR 20...	1633	2010	594	8.2	19.5	--	15	9.2	101	1.2	K35
APR 10...	1330	3290	530	8.0	20.0	5	72	8.6	96	1.0	140
MAY 09...	1645	4160	440	7.8	23.0	30	97	6.0	70	1.4	430
JUN 05...	1450	5500	383	8.0	25.0	60	80	6.2	76	2.3	1000
JUL 12...	0903	2170	576	8.2	27.0	20	33	7.4	92	1.6	120
31...	1001	3800	417	8.2	28.5	25	140	6.3	81	2.8	720
AUG 29...	1415	1460	573	8.0	28.0	0	10	7.0	89	1.4	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)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 17...	--	200	19	60	12	17	.5	2.5	220	0	19
NOV 07...	--	150	16	44	9.0	15	.5	3.1	160	0	17
DEC 20...	49	270	41	82	16	27	.7	2.6	280	0	32
JAN 16...	5300	110	25	34	5.4	15	.6	4.5	100	0	27
FEB 21...	70	240	37	72	15	20	.6	2.2	250	0	32
MAR 20...	K40	240	27	70	16	24	.7	2.2	260	0	33
APR 10...	960	230	22	66	15	17	.5	2.5	250	0	25
MAY 09...	1200	190	25	60	10	19	.6	3.9	202	0	26
JUN 05...	2800	150	23	47	9.0	17	.6	4.3	160	0	23
JUL 12...	340	250	27	73	16	25	.7	2.5	270	0	35
31...	440	180	14	50	13	19	.6	3.0	200	0	26
AUG 29...	100	240	18	68	17	26	.7	2.0	270	0	31

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	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)
OCT											
17...	25	.2	12	264	256	28	4	.57	.01	.58	.01
NOV											
07...	25	.2	9.5	209	202	226	38	.20	.01	.21	.02
DEC											
20...	40	.2	12	352	350	18	4	1.3	.01	1.3	.01
JAN											
16...	23	.2	11	177	169	384	64	.69	.02	.71	.08
FEB											
21...	31	.2	11	301	307	71	12	.55	.02	.57	.02
MAR											
20...	39	.2	9.4	321	322	70	24	.14	.00	.14	.01
APR											
10...	24	.2	10	279	283	133	11	.68	.02	.70	.01
MAY											
09...	26	.2	11	260	256	195	31	.65	--	--	--
JUN											
05...	24	.2	11	234	214	178	60	.70	.02	.72	.03
JUL											
12...	33	.3	13	332	331	67	6	.44	.02	.46	.02
31...	32	.2	10	264	252	322	60	.65	.02	.67	.01
AUG											
29...	34	.3	13	276	324	20	21	.94	.02	.96	.01

DATE	NITROGEN, ORGANIC TOTAL (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											
17...	.43	.44	.47	.030	.020	3.9	--	--	32	118	89
NOV											
07...	.68	.70	.62	.160	.100	--	5.3	2.6	187	868	94
DEC											
20...	.18	.19	.21	.070	.060	3.2	--	--	21	54	43
JAN											
16...	1.1	1.2	.67	.200	.130	11	--	--	350	3540	93
FEB											
21...	.28	.30	.20	.030	.010	--	3.8	--	78	516	93
MAR											
20...	.20	.21	.14	.060	.030	3.2	--	--	73	396	74
APR											
10...	.37	.38	.40	.060	.030	9.5	--	--	162	1440	90
MAY											
09...	.62	--	--	--	--	--	5.9	--	223	2510	94
JUN											
05...	.63	.66	.51	.180	.090	12	--	--	195	2900	91
JUL											
12...	.29	.31	.21	.060	.050	2.0	--	--	141	826	85
31...	.74	.75	.26	.150	.070	--	4.0	3.0	299	3070	96
AUG											
29...	.70	.71	.44	.050	.030	4.1	--	--	64	252	90

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC 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 07...	1445	3	2	0	0	70	0	0	<1	10
FEB 21...	1400	2	2	100	0	100	0	0	0	0
MAY 09...	1645	3	1	100	100	0	0	0	0	10
JUL 31...	1001	3	2	200	100	60	0	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)
NOV 07...	0	10	1	0	<3	4	3	1	3500	3500
FEB 21...	0	0	0	0	0	7	7	0	960	950
MAY 09...	10	0	2	0	2	10	8	2	3100	3100
JUL 31...	10	0	0	0	<3	8	7	1	5000	5000

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
NOV 07...	30	13	12	1	100	100	<1	.0	.0	.0
FEB 21...	10	9	9	0	40	40	0	.0	.0	.0
MAY 09...	40	14	13	1	120	120	0	.1	.1	.0
JUL 31...	<10	11	11	0	170	170	<1	.1	.1	.0

DATE	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 07...	1	0	1	0	0	0	20	20	<3
FEB 21...	1	0	1	0	0	0	20	20	0
MAY 09...	0	0	0	0	0	0	20	10	10
JUL 31...	0	0	1	0	0	0	20	20	<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)
OCT 17...	1330	.0	1	.00	.00	.0	.0	2	.00	.3
JAN 16...	1445	.0	0	--	.00	.0	.0	0	.00	.0
APR 10...	1330	.2	--	.00	.00	--	.0	--	.00	--
JUL 12...	0903	.0	0	.00	.00	.0	.0	0	.00	.0

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT										
17...	.00	.2	.00	.7	.00	.00	.0	.00	.00	.0
JAN										
16...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
APR										
10...	.00	--	.00	--	.02	.00	--	.00	.00	--
JUL										
12...	.00	.4	.00	.0	.00	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
OCT									
17...	.00	.00	.0	.00	.0	.00	.0	.00	.00
JAN									
16...	.00	.00	.0	.00	.0	.00	.0	.00	.00
APR									
10...	.00	.00	--	.00	--	.00	--	.00	.00
JUL									
12...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
OCT									
17...	.00	.00	.00	0	0	.00	.23	.00	.00
JAN									
16...	.00	.00	.00	0	0	.00	.02	.02	.00
APR									
10...	.00	.00	.00	0	--	.00	--	--	--
JUL									
12...	.00	.00	.00	0	0	.00	.04	.00	.00

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE	NOV 7,78	MAR 20,79	MAY 9,79	JUN 5,79
TIME	1445	1633	1645	1450
TOTAL CELLS/ML	860	610	3500	64
DIVERSITY: DIVISION	1.2	0.3	0.0	0.0
.CLASS	1.2	0.3	0.0	0.0
..ORDER	1.4	1.1	0.0	0.0
...FAMILY	1.7	1.5	0.0	0.0
....GENUS	1.7	1.8	0.0	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	22	3	20	3	--	-	--	-
....CHLORELLA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	89	10	20	3	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-
....PLATYMONAS	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	22	3	25	4	--	-	--	-
....MELOSIRA	--	-	390#	63	--	-	--	-
..PENNALES								
...FRAGILARIACEAE								
....FRAGILARIA	22	3	--	-	--	-	--	-
....SYNEDRA	--	-	10	2	--	-	--	-
...NAVICULACEAE								
....GYROSIGMA	44	5	--	-	--	-	--	-
....NAVICULA	--	-	25	4	--	-	--	-
....PINNULARIA	--	-	--	-	--	-	64#	100
....PLEUROSIGMA	--	-	--	-	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	89	10	120#	19	--	-	--	-
...SURIRELLACEAE								
....SURIRELLA	--	-	10	2	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	580#	67	--	-	3500#	100	--	-
....SCHIZOTHRIX	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-

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 1978 TO AUGUST 1979

DATE	JUL 12,79	JUL 31,79	AUG 29,79
TIME	0903	1001	1415
TOTAL CELLS/ML	980	90	1600
DIVERSITY: DIVISION	1.0	0.0	1.1
.CLASS	1.0	0.0	1.1
..ORDER	1.1	0.0	1.8
...FAMILY	1.2	0.0	2.0
....GENUS	1.2	0.0	2.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....CHLOROCOCCUM	--	-	--	-	15	1
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	50	3
....CHLORELLA	--	-	--	-	35	2
...SCENEDESMACEAE						
....SCENEDESMUS	26	3	--	-	30	2
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	13	1	--	-	--	-
....PLATYMONAS	--	-	--	-	*	0
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	26	3	--	-	40	2
....MELOSIRA	--	-	--	-	--	-
..PENNALES						
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-
...NAVICULACEAE						
....GYROSIGMA	--	-	--	-	--	-
....NAVICULA	26	3	--	-	81	5
....PINNULARIA	--	-	--	-	--	-
....PLEUROSIGMA	--	-	--	-	10	1
...NITZSCHIACEAE						
....NITZSCHIA	90	9	90#	100	55	3
...SURIRELLACEAE						
....SURIRELLA	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	25	2
CYÁNOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	970#	59
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	770#	79	--	-	75	5
....SCHIZOTHRIX	--	-	--	-	220	14
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	26	3	--	-	15	1
....PHACUS	--	-	--	-	*	0
....TRACHELOMONAS	--	-	--	-	*	0

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 WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	47600	445	260	32800	31	3940	25	3210	190
NOV. 1978.....	56330	470	270	41100	32	4920	26	4010	200
DEC. 1978.....	31853	549	320	27100	38	3250	31	2660	230
JAN. 1979.....	147780	347	200	79700	24	9570	20	7810	150
FEB. 1979.....	109500	456	260	77800	31	9260	26	7580	190
MAR. 1979.....	118680	498	290	91500	34	11000	28	9040	210
APR. 1979.....	156700	425	240	103000	29	12300	24	10100	180
MAY 1979.....	235630	365	210	133000	25	16000	21	13100	160
JUNE 1979.....	175960	390	220	106000	27	12800	22	10500	170
JULY 1979.....	70860	549	320	60300	38	7210	31	5920	230
AUG. 1979.....	61630	520	300	49600	36	5950	29	4870	220
SEPT 1979.....	50420	468	270	36600	32	4380	26	3580	200
TOTAL	1262943	**	**	838000	**	101000	**	82400	**
WTD.AVG.	3460	429	250	**	29	**	24	**	180

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	390	493	415	480	565	552	482	372	575	590	503	534
2	392	511	405	423	570	545	515	292	435	595	478	542
3	398	515	450	362	577	534	509	296	350	587	466	551
4	423	516	486	314	586	525	422	265	285	593	506	556
5	434	514	475	284	570	515	334	283	373	521	523	551
6	426	450	464	297	393	544	370	290	366	582	504	529
7	430	394	497	356	396	540	439	323	244	602	450	478
8	434	514	503	366	385	548	485	353	257	586	443	547
9	432	505	529	348	328	556	485	421	224	570	503	553
10	434	433	558	357	288	564	499	491	252	590	534	560
11	434	401	582	228	336	565	519	519	336	565	535	587
12	436	390	586	273	396	567	531	285	472	581	540	529
13	434	356	586	287	439	573	541	300	491	586	545	560
14	444	357	574	260	479	580	555	282	505	570	544	558
15	441	383	587	253	511	582	563	299	536	556	543	556
16	446	416	561	289	533	585	569	301	534	554	541	556
17	460	423	569	362	540	586	553	422	529	565	539	560
18	455	460	594	395	535	584	576	509	524	559	538	561
19	453	484	590	434	528	585	570	552	543	567	525	482
20	458	463	617	400	533	580	509	582	577	560	513	164
21	465	455	621	360	550	544	427	588	580	550	535	357
22	468	467	620	365	544	563	414	599	581	561	531	449
23	470	501	620	363	557	490	283	611	589	531	529	499
24	470	536	630	411	568	410	306	619	592	547	527	561
25	470	557	618	488	570	406	333	579	597	552	530	569
26	468	577	611	528	577	404	361	472	602	570	532	590
27	475	574	631	536	581	450	411	502	605	352	534	553
28	483	570	599	554	603	473	468	545	607	530	535	579
29	485	459	610	562	---	471	420	582	597	527	551	580
30	502	433	610	566	---	471	346	535	584	500	564	570
31	500	---	530	562	---	475	---	582	---	466	548	---
MEAN	449	470	559	389	501	528	460	440	478	554	522	527

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

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

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 mi² (925 km²).

PERIOD OF RECORD.--October 1978 to September 1979. 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.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,600 ft³/s (555 m³/s) May 11, 1979, gage height, 15,54 ft (4.737 m); minimum daily, 8.4 ft³/s (0.24 m³/s) Nov. 4, 1978.

EXTREMES OUTSIDE PERIOD OR RECORD.--Maximum discharges since at least 1872 at site 3.5 mi (5.6 km) downstream, 122,000 ft³/s (3,460 m³/s) Sept. 21, 1967 (slope-area measurement of peak flow), 63,700 ft³/s (1,800 m³/s) Oct. 16, 1946, and 46,700 ft³/s (1,320 m³/s) in October 1925, 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)
Jan. 11	1000	12,400	351	--	--
May 11	2100	*19,600	555	15.54	4.737
June. 6	1000	5,970	169	11.57	3.527

Minimum daily discharge, 8.4 ft³/s (0.24 m³/s) Nov. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	9.4	20	230	35	45	45	711	124	32	28	19
2	29	8.9	19	159	35	45	45	979	2110	30	26	21
3	29	8.5	18	84	35	45	47	183	1680	29	24	18
4	31	8.4	17	61	36	44	67	2280	238	31	23	19
5	28	17	16	80	234	44	56	578	189	38	22	23
6	25	629	16	103	1540	44	49	171	3020	43	22	79
7	23	220	15	108	337	44	45	107	649	45	22	39
8	23	70	14	77	134	43	45	84	182	39	22	42
9	22	47	13	62	110	43	45	79	111	43	22	26
10	22	39	13	615	97	43	45	78	92	34	24	21
11	21	35	13	8040	88	43	45	5820	77	30	22	19
12	20	31	13	549	80	43	45	5320	68	27	73	18
13	18	27	13	184	76	44	42	362	65	27	48	18
14	15	25	14	126	72	43	39	210	63	26	32	16
15	14	23	16	101	67	43	39	180	60	25	26	16
16	14	20	16	94	62	45	39	160	56	25	25	16
17	14	19	16	93	60	45	46	140	53	25	22	15
18	14	20	16	92	60	45	50	130	51	23	21	24
19	13	23	16	91	60	45	45	125	49	25	21	1390
20	12	25	17	578	60	45	1790	118	45	78	21	1070
21	13	27	16	321	60	51	578	115	45	48	25	147
22	13	27	15	136	60	49	194	110	44	36	20	76
23	12	26	15	70	60	46	115	105	43	29	19	53
24	13	25	15	55	54	43	82	100	42	26	19	44
25	13	23	15	50	49	43	65	93	41	25	18	38
26	17	21	15	46	47	41	55	88	39	28	18	34
27	18	19	15	43	46	41	48	86	38	89	19	31
28	18	17	15	38	46	41	44	88	39	63	18	29
29	16	20	16	35	---	42	60	90	37	53	19	28
30	12	22	20	43	---	42	503	80	35	36	20	26
31	10	---	30	38	---	45	---	93	---	31	20	---
TOTAL	574	1532.2	498	12402	3700	1365	4413	18863	9385	1139	761	3415
MEAN	18.5	51.1	16.1	400	132	44.0	147	608	313	36.7	24.5	114
MAX	32	629	30	8040	1540	51	1790	5820	3020	89	73	1390
MIN	10	8.4	13	35	35	41	39	78	35	23	18	15
AC-FT	1140	3040	988	24600	7340	2710	8750	37410	18620	2260	1510	6770

WTR YR 1979 TOTAL 58047.2 MEAN 159 MAX 8040 MIN 8.4 AC-FT 115100

08177000 COLETO CREEK NEAR SCHROEDER, TX

LOCATION.--Lat 28°49'53", long 97°11'10", Goliad-Victoria County line, Hydrologic Unit 12100204, on left bank 373 ft (114 m) downstream from bridge on Farm Road 622, 2.5 mi (4.0 km) northeast of Schroeder, 4.2 mi (6.8 km) downstream from confluence of Twelvemile and Fifteenmile Creeks, 9.1 mi (14.6 km) upstream from Perdido Creek, 11.1 mi (17.9 km) west of Victoria, and 21.8 mi (35.1 km) upstream from mouth.

DRAINAGE AREA.--369 mi² (956 km²).

PERIOD OF RECORD.--January 1930 to December 1933, October 1952 to September 1979 (discontinued).

REVISED RECORDS.--WSP 1312: 1930(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 87.59 ft (26.697 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 31, 1933, nonrecording gage at site 0.7 mi (1.1 km) downstream at same datum; Oct. 20, 1952, to Jan. 17, 1955, and Sept. 22 to Nov. 8, 1967, nonrecording gage at site 0.6 mi (1.0 km) downstream at same datum. Jan. 18, 1955, to Sept. 21, 1967, water-stage recorder at same site and datum.

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

AVERAGE DISCHARGE.--30 years, 98.0 ft³/s (2.775 m³/s), 3.61 in/yr (92 mm/yr), 71,000 acre-ft/yr (87.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 122,000 ft³/s (3,460 m³/s) Sept. 21, 1967, gage height, 33.47 ft (10.202 m), from floodmark, from rating curve extended above 28,000 ft³/s (793 m³/s) on basis of slope-area measurement of peak flow; no flow for many days in 1956, 1963-65, and 1971.
Maximum stage since at least 1872 at present site and datum, that of Sept. 21, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Other outstanding floods on Oct. 16, 1946, 26.0 ft (7.92 m), discharge 63,700 ft³/s (1,800 m³/s) and October 1925, 23.0 ft (7.01 m), discharge 46,700 ft³/s (1,320 m³/s), from information by local resident.

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)
Jan. 11	1100	12,400	351	13.16	4.011	May 11	2100	*19,100	541	a15.46	4.712
Feb. 6	0600	2,570	72.8	8.52	2.597	June 3	0300	3,640	103	9.22	2.810
Apr. 20	1500	3,400	97.4	9.12	2.780	June 6	1100	6,280	178	10.59	3.228
May 4	1100	3,360	95.2	9.07	2.765	Sept. 19	1900	3,880	110	9.34	2.847

a From floodmark.

Minimum discharge, 8.0 ft³/s (0.23 m³/s) Nov. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	9.8	20	235	35	42	50	588	83	30	28	22
2	28	9.1	20	187	37	42	49	897	2230	29	24	32
3	28	8.6	19	97	36	43	48	171	1810	27	21	23
4	30	8.4	20	53	36	37	68	2120	246	32	21	25
5	26	11	18	84	225	37	64	532	196	52	21	38
6	24	646	17	125	1610	38	54	190	3070	64	21	109
7	22	259	16	121	325	39	49	118	670	61	21	105
8	22	86	15	77	157	37	49	96	191	46	20	106
9	21	54	14	46	112	39	48	97	131	52	18	56
10	21	40	13	448	92	37	46	89	108	32	22	33
11	20	37	13	8420	89	37	45	5670	94	30	19	26
12	19	33	13	718	83	38	42	6260	83	27	91	22
13	17	29	13	264	76	39	41	372	77	27	106	19
14	14	26	14	179	75	39	40	217	70	26	52	17
15	13	23	16	145	72	37	40	177	64	25	32	14
16	13	20	16	124	61	42	41	155	60	25	27	13
17	13	20	16	114	62	43	45	143	55	25	22	12
18	13	20	16	109	61	44	50	134	52	23	21	43
19	12	25	17	105	59	43	45	127	48	25	21	1390
20	11	29	18	563	60	42	1570	121	44	98	20	1130
21	12	27	16	337	60	56	564	115	43	74	38	150
22	12	27	15	123	60	52	204	116	40	51	23	80
23	11	27	15	78	60	43	122	112	39	29	18	55
24	9.7	25	15	57	57	39	84	103	38	25	18	45
25	11	23	15	50	50	38	65	96	36	25	16	40
26	19	23	15	50	49	39	51	91	35	43	16	35
27	22	20	15	45	47	39	42	87	33	117	17	32
28	21	17	15	39	46	40	36	90	37	96	16	30
29	17	24	18	35	---	42	61	94	36	94	17	30
30	13	23	20	48	---	44	436	89	32	53	22	28
31	10	---	30	41	---	46	---	82	---	37	21	---
TOTAL	555.7	1629.9	513	13117	3792	1273	4149	19349	9751	1400	850	3760
MEAN	17.9	54.3	16.5	423	135	41.1	138	624	325	45.2	27.4	125
MAX	31	646	30	8420	1610	56	1570	6260	3070	117	106	1390
MIN	9.7	8.4	13	35	35	37	36	82	32	23	16	12
CFSM	.05	.15	.05	1.15	.37	.11	.37	1.69	.88	.12	.07	.34
IN.	.06	.16	.05	1.32	.38	.13	.42	1.95	.98	.14	.09	.38
AC-FT	1100	3230	1020	26020	7520	2520	8230	38380	19340	2780	1690	7460

CAL YR 1978 TOTAL 25561.2 MEAN 70.0 MAX 5720 MIN 1.6 CFSM .19 IN 2.58 AC-FT 50700
WTR YR 1979 TOTAL 60139.6 MEAN 165 MAX 8420 MIN 8.4 CFSM .45 IN 6.06 AC-FT 119300

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 mi² (72.5 km²).

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. Guadalupe-Blanco River Authority gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,620 ft³/s (244 m³/s) May 11, 1979, gage height, 11.92 ft (3.633 m); minimum daily, 0.19 ft³/s (0.005 m³/s) July 18, Oct. 30 to Nov. 4, 1978.

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 Texas Department of Highways and Public Transportation.

EXTREMES FOR 1978 WATER YEAR.--Maximum discharge for period June to September 1978, 876 ft³/s (24.8 m³/s) Sept. 11, gage height, 7.32 ft (2.231 m), no other peak above base of 400 ft³/s (11.3 m³/s); minimum daily, 0.19 ft³/s (0.005 m³/s) July 18.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 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)
Nov. 6	0600	484	13.7	6.60	2.012	May 11	1330	*8,620	244	11.92	3.633
Jan. 10	2130	2,890	81.8	9.29	2.832	July 26	1400	2,660	75.3	9.12	2.780
Feb. 6	0100	740	21.0	7.10	2.164	Sept. 19	1700	1,540	43.6	8.15	2.484

Minimum daily discharge, 0.19 ft³/s (0.005 m³/s) Oct. 30 to Nov. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, JUNE TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									---	.35	.57	.28
2									---	.38	.45	.25
3									---	.31	.44	.25
4									---	.30	.44	.22
5									---	.30	.44	.22
6									---	.31	.44	.22
7									---	.31	.49	.22
8									---	.32	.49	.23
9									---	.32	.49	.83
10									---	.32	.44	.61
11									---	.31	.44	150
12									---	.31	.45	52
13									---	.27	.44	165
14									---	.27	.45	118
15									---	.23	.44	58
16									---	.22	.45	2.5
17									---	.20	.45	1.2
18									---	.19	.44	1.1
19									---	.36	.44	.98
20									---	.29	.44	.96
21									---	.28	.40	6.0
22									---	.22	.40	2.0
23									---	.22	.36	.91
24									---	.28	.36	.77
25									---	.25	.32	.59
26									---	.22	.32	.54
27									---	.25	.28	.54
28									.42	.22	.25	.49
29									.32	.22	.25	.49
30									.32	.28	.28	.49
31									---	.54	.30	---
TOTAL									---	8.85	12.65	565.89
MEAN									---	.29	.41	18.9
MAX									---	.54	.57	165
MIN									---	.19	.25	.22
CFSM									---	.01	.02	.68
IN.									---	.01	.02	.75
AC-FT									---	18	25	1120

CAL YR 1977 TOTAL - MEAN - MAX - MIN - CFSM - IN - AC-FT -
WTR YR 1978 TOTAL - MEAN - MAX - MIN - CFSM - IN - AC-FT -

08177300 PERDIDO CREEK AT FARM ROAD 622 NEAR FANNIN, TX--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.49	.19	.44	1.3	1.5	1.0	.49	.46	.36	.44	.48	.49
2	.49	.19	.44	.54	2.2	1.0	.54	.49	1.4	.42	.44	.49
3	.84	.19	.44	.49	2.0	.99	.65	.49	23	.46	.41	.49
4	.77	.19	.43	.78	2.0	.92	.62	87	7.8	.66	.39	.49
5	.44	2.7	.36	1.4	22	.92	.54	8.7	2.0	.90	.88	1.4
6	.44	362	.36	1.2	183	.92	.49	2.2	11	1.3	.60	1.2
7	.41	135	.36	.91	7.7	.85	.49	1.4	2.8	1.2	.39	.52
8	.39	5.3	.37	.66	2.5	.78	.49	1.2	1.4	1.1	.41	.44
9	.40	3.1	.32	.65	1.6	.78	.49	1.1	1.1	.95	.49	.44
10	.34	2.4	.32	514	1.5	.78	.49	.92	1.1	.78	.48	.49
11	.30	2.0	.30	402	1.5	.78	.49	921	1.2	.76	.44	.44
12	.32	1.6	.30	12	1.5	.78	.49	17	1.3	.75	.64	.40
13	.28	1.4	.36	3.4	1.4	.72	.49	2.1	1.3	.80	.49	.40
14	.28	1.2	.44	2.5	1.3	.72	.49	1.2	1.3	.93	.44	.36
15	.28	1.1	.49	2.6	1.3	.72	.44	.94	1.3	.88	.40	.36
16	.28	1.0	.49	2.6	1.2	.80	.44	.78	1.2	.77	.40	.36
17	.28	.92	.44	3.1	1.2	.90	1.1	.77	1.1	.77	.40	.32
18	.28	.85	.44	2.5	1.2	.85	.63	.71	1.1	.83	.40	.78
19	.28	.78	.42	2.5	1.2	.78	.55	.65	.98	4.1	.40	370
20	.28	.72	.42	2.6	1.2	.77	1.2	.65	.78	1.6	.44	62
21	.28	.66	.44	2.0	1.2	1.2	.79	.65	.65	1.2	.66	11
22	.28	.60	.41	1.9	1.2	.84	.64	.77	.65	1.2	.49	4.2
23	.28	.54	.41	1.9	1.2	.74	.59	.59	.58	1.1	.40	2.8
24	.28	.54	.44	1.6	1.1	.65	.54	.49	.60	1.2	.40	2.3
25	.28	.54	.44	2.1	1.1	.60	.48	.48	.58	1.3	.40	1.6
26	.77	.49	.44	2.1	1.1	.58	.44	.45	.59	399	.40	1.4
27	.54	.49	.44	1.8	1.1	.54	.44	.47	.49	28	.44	1.3
28	.22	.49	.43	1.6	1.1	.56	.43	.68	.49	4.6	.91	1.2
29	.22	.49	.31	1.8	---	.54	.97	.48	.49	1.3	.80	1.1
30	.19	.44	.28	2.4	---	.54	.57	.43	.47	.87	.54	.92
31	.19	---	.36	1.5	---	.49	---	.40	---	.67	.54	---
TOTAL	11.40	528.11	12.34	978.43	248.1	24.04	17.50	1055.65	69.11	460.84	15.40	469.69
MEAN	.37	17.6	.40	31.6	8.86	.78	.58	34.1	2.30	14.9	.50	15.7
MAX	.84	362	.49	514	183	1.2	1.2	921	23	399	.91	370
MIN	.19	.19	.28	.49	1.1	.49	.43	.40	.36	.42	.39	.32
CFSM	.01	.63	.01	1.13	.32	.03	.02	1.22	.08	.53	.02	.56
IN.	.02	.70	.02	1.30	.33	.03	.02	1.40	.09	.61	.02	.62
AC-FT	23	1050	24	1940	492	48	35	2090	137	914	31	932

CAL YR 1978	TOTAL	-	MEAN	-	MAX	-	MIN	-	CFSM	-	IN	-	AC-FT	-
WTR YR 1979	TOTAL	3890.61	MEAN	10.7	MAX	921	MIN	.19	CFSM	.38	IN	5.17	AC-FT	7720

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 mi² (1,331 km²).

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 poor. No large diversion above station. Several observations of water temperature were made during the year. Guadalup-Blanco River Authority gage-height telemeters at station.

AVERAGE DISCHARGE.--16 years (water years 1940-54, 1979), 92.7 ft³/s (2.625 m³/s), 67,160 acre-ft/yr (82.8 hm³/yr).

EXTREMES FOR PERIOD OR RECORD.--Maximum discharge, 89,000 ft³/s (2,520 m³/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 ft³/s (6,680 m³/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 1978 WATER YEAR.--Maximum discharge during period June to September 1978, 24,500 ft³/s (694 m³/s) Sept. 12, gage height, 22.75 ft (6.934 m); minimum daily, 7.3 ft³/s (0.21 m³/s) Aug. 29.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 15,500 ft³/s (439 m³/s) May 11, gage height, 18.70 ft (5.700 m); minimum daily, 15 ft³/s (0.42 m³/s) Nov. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, JUNE TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									---	19	40	8.9
2									---	18	24	9.3
3									---	17	20	8.9
4									---	16	26	9.6
5									---	16	21	8.9
6									---	14	18	9.6
7									---	14	16	9.6
8									---	14	18	12
9									---	14	15	14
10									---	13	14	24
11									---	13	13	150
12									---	13	13	8300
13									---	12	12	3230
14									---	12	12	4630
15									---	12	11	4330
16									---	12	10	532
17									---	12	9.3	214
18									---	11	8.9	160
19									---	21	9.3	125
20									---	16	10	110
21									---	11	11	120
22									---	9.6	13	180
23									---	9.3	10	130
24									---	10	9.6	97
25									---	10	9.6	75
26									---	9.3	11	63
27									21	8.9	12	56
28									22	11	10	50
29									22	18	7.3	46
30									19	14	9.6	44
31									---	33	16	---
TOTAL									---	433.1	439.6	22756.8
MEAN									---	14.0	14.2	759
MAX									---	33	40	8300
MIN									---	8.9	7.3	8.9
CFSM									---	859	872	45140
IN.												
AC-FT												

CAL YR 1977	TOTAL	-	MEAN	-	MAX	-	MIN	-	CFSM	-	IN	-	AC-FT	-
WTR YR 1978	TOTAL	-	MEAN	-	MAX	-	MIN	-	CFSM	-	IN	-	AC-FT	-

08177500 COLETO CREEK NEAR VICTORIA, TX--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	16	36	69	42	49	54	800	95	52	40	37
2	40	16	33	288	42	48	58	1300	2040	51	33	45
3	40	15	30	168	41	47	65	300	3540	57	30	34
4	44	15	32	86	40	45	80	2800	2330	68	30	36
5	41	18	29	92	600	43	70	1200	616	80	30	50
6	38	642	28	186	3170	42	64	550	2660	90	30	70
7	35	444	27	192	847	41	58	170	1900	80	30	150
8	35	162	24	136	226	41	54	120	624	90	29	140
9	33	110	23	72	140	41	50	108	388	70	28	85
10	33	80	22	276	120	41	47	100	185	55	30	58
11	31	60	21	8480	108	41	43	6150	150	42	28	47
12	29	50	21	1820	98	41	42	7630	130	36	40	40
13	26	43	21	511	92	41	42	1330	117	32	230	36
14	24	40	21	236	88	42	42	649	100	30	80	34
15	22	37	22	186	84	45	43	240	90	29	45	33
16	22	35	23	138	80	46	45	190	82	28	33	32
17	22	35	23	122	76	47	47	165	75	26	29	32
18	22	35	23	122	73	47	49	150	70	25	26	48
19	21	42	23	114	70	46	50	140	66	25	25	3840
20	20	52	25	346	68	50	2800	130	63	80	25	3220
21	22	48	22	769	66	60	1000	120	61	120	50	455
22	22	47	20	206	64	58	400	110	59	60	35	178
23	21	47	20	108	62	54	180	105	58	41	25	112
24	20	43	20	77	59	50	100	100	56	30	25	82
25	21	38	20	67	57	48	80	97	55	30	25	68
26	30	38	21	66	55	47	64	96	53	100	25	56
27	35	34	21	58	53	47	57	96	53	353	25	50
28	32	31	23	51	50	48	52	96	55	157	25	46
29	25	44	25	48	---	49	90	100	56	107	27	42
30	20	40	27	54	---	50	500	98	54	80	30	39
31	17	---	40	54	---	53	---	95	---	50	32	---
TOTAL	885	2357	766	15198	6571	1448	6326	25335	15881	2174	1195	9195
MEAN	28.5	78.6	24.7	490	235	46.7	211	817	529	70.1	38.5	307
MAX	44	642	40	8480	3170	60	2800	7630	3540	353	230	3840
MIN	17	15	20	48	40	41	42	95	53	25	25	32
AC-FT	1760	4680	1520	30150	13030	2870	12550	50250	31500	4310	2370	18240

CAL YR 1978 TOTAL - MEAN - MAX - MIN - AC-FT -
WTR YR 1979 TOTAL 87331 MEAN 239 MAX 8480 MIN 15 AC-FT 173200

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, 45 ft³/s (1.27 m³/s) Mar. 21, gage height, 3.12 ft (0.951 m), no peak above base of 50 ft³/s (1.42 m³/s); water-quality samples were made on this date.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: May 1970 to current year. Water temperatures: May 1970 to current year. Bacteria analyses: April 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	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)
MAR												
21...	0230	44	143	8.1	16.5	220	85	4.6	K90000	32000	150000	57
21...	0440	32	167	8.1	16.0	280	50	4.4	K91000	K65000	K260000	68

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
MAR												
21...	3	21	1.1	3.5	.2	5.2	66	0	7.5	4.0	.0	12
21...	6	25	1.4	3.3	.2	5.4	76	0	11	5.4	.0	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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR												
21...	87	164	36	.23	.02	.25	.06	1.3	1.4	.43	20	.00
21...	104	44	20	.31	.04	.35	.04	.96	1.0	.37	16	.10

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAR							
21...	0230	1	10	<1	0	20	110
21...	0440	1	10	<1	0	13	100

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

08177600 OLMOS CREEK TRIBUTARY AT FARM ROAD 1535, SHAVANO PARK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
MAR								
21...	0230	.0	.00	.0	.00	.00	.00	.37
21...	0440	.0	.00	.0	.00	.00	.00	.16

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)	METHYL PARATHION, TOTAL (UG/L)
MAR									
21...	.00	.00	.00	.00	.00	.00	.01	.61	.00
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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)
MAR								
21...	.00	.00	.00	0	.00	.00	.01	.00
21...	.00	.00	.00	0	.00	.00	.04	.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 mi² (54.9 km²).

WATER-DISCHARGE RECORDS

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.--Water-discharge records good. Recording rain gage located at station, with three additional recording rain gages located in watershed. City of San Antonio rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--11 years, 4.60 ft³/s (0.130 m³/s), 2.95 in/yr (75 mm/yr), 3,330 acre-ft/yr (4.11 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,450 ft³/s (211 m³/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 ft³/s (11.3 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)
Nov. 5	1930	882	25.0	6.95	2.118	Apr. 21	0030	932	26.4	7.08	2.158
Nov. 26	0900	530	15.0	b5.89	1.795	aApr. 29	0900	577	16.3	6.05	1.844
aJan. 10	1915	336	9.52	5.14	1.567	aJune 1	1130	*1,080	30.6	b7.44	2.268
aMar. 15	1215	187	5.30	4.38	1.335						

a Water-quality samples were obtained on this date.
b From floodmark.

Minimum discharge, no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	.63	1.2	28	.82	.33	1.4	1.6	173	.10	.03	.00
2	1.6	.57	1.1	3.5	.72	3.4	4.8	1.9	4.5	.05	.00	.01
3	1.1	.66	1.2	1.5	2.4	8.2	1.4	1.5	.65	.05	.00	.08
4	1.1	.78	.63	2.6	7.5	.30	.91	1.3	.32	.07	.00	.15
5	1.1	168	.80	2.6	8.5	.33	1.0	1.2	89	45	.00	.27
6	.93	26	.61	1.9	11	.33	1.1	1.3	2.6	.98	.03	.10
7	.68	.59	.67	1.4	1.4	.34	1.2	1.3	.61	12	.00	.05
8	4.5	.32	.59	1.2	.82	.33	1.2	1.2	.71	3.6	.00	.04
9	1.6	.30	.63	1.4	.62	.40	1.2	.82	.43	.11	.00	.05
10	1.2	.38	.63	81	.54	8.5	1.1	.90	.22	.14	.01	.05
11	.93	.59	.63	28	.54	1.2	.99	5.1	.25	.08	1.5	.05
12	.80	1.2	.63	3.0	.54	.95	.89	.84	.26	.06	14	.05
13	.79	1.1	.63	1.4	.54	.99	1.1	.67	.21	.07	.01	.06
14	.32	.95	.72	1.2	.62	.97	1.1	.74	.22	.11	.01	.09
15	.18	15	.72	1.2	.62	20	1.2	.71	.20	.15	.01	.09
16	.18	8.2	.65	1.2	.38	2.0	1.2	.66	.20	.07	.01	.08
17	.11	2.7	.63	1.3	.38	5.6	20	.67	.21	.09	.02	.09
18	.08	.77	.72	5.2	.38	.66	3.3	.66	.19	55	.04	2.0
19	.08	3.5	.72	2.2	.46	.40	28	.67	.16	1.8	.01	1.4
20	.14	3.5	.79	7.6	.54	.71	14	.98	.17	.49	.01	.24
21	.18	1.0	.75	.93	.46	71	243	.75	.18	.17	.05	.09
22	.23	.72	.72	.93	.46	24	3.6	12	.19	.12	.00	.07
23	.23	.72	.77	.82	1.2	1.4	1.6	.73	.14	.15	2.6	.10
24	.36	.72	.94	.72	.45	1.0	1.4	.66	.15	.15	.20	.11
25	1.9	.72	1.1	3.3	.24	.96	1.5	.54	.12	.15	.00	.10
26	4.9	121	1.1	2.6	.35	.90	1.4	.58	.12	.05	.00	.09
27	1.7	4.0	.92	.82	.41	.78	1.6	.59	.11	46	.00	.09
28	.75	1.0	.87	.62	.35	.75	1.7	4.2	.12	.33	.00	.08
29	.72	.85	.92	5.0	---	.99	93	.71	.12	.01	.00	.10
30	.66	1.1	.95	1.3	---	1.7	4.0	.63	.10	.00	.01	1.1
31	.63	---	24	.72	---	1.2	---	.63	---	.00	.00	---
TOTAL	31.88	367.57	47.94	195.16	43.24	160.62	439.89	46.74	275.46	167.15	18.55	6.88
MEAN	1.03	12.3	1.55	6.30	1.54	5.18	14.7	1.51	9.18	5.39	.60	.23
MAX	4.9	168	24	81	11	71	243	12	173	55	14	2.0
MIN	.08	.30	.59	.62	.24	.30	.89	.54	.10	.00	.00	.00
CFSM	.05	.58	.07	.30	.07	.24	.69	.07	.43	.25	.03	.01
IN.	.06	.64	.08	.34	.08	.28	.77	.08	.48	.29	.03	.01
AC-FT	63	729	95	387	86	319	873	93	546	332	37	14
(††)	.36	6.36	1.71	3.12	1.16	3.14	5.86	1.05	4.87	4.48	1.20	1.17

CAL YR 1978 TOTAL 2183.72 MEAN 5.98 MAX 791 MIN .00 CFSM .28 IN 3.83 AC-FT 4330 †† 35.36
WTR YR 1979 TOTAL 1801.08 MEAN 4.93 MAX 243 MIN .00 CFSM .23 IN 3.16 AC-FT 3570 †† 34.48

†† Weighted-mean rainfall, in inches, based on four rain gages.

08177700 OLMOS CREEK AT DRESDEN DRIVE, SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.---Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: October 1972 to September 1973. Water temperatures: November 1968 to current year. Bacteria analyses: April 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
JAN										
10...	1505	81	210	7.4	7.0	90	380	10.8	92	7.1
10...	1610	81	196	6.9	6.0	180	560	--	--	11
11...	0940	28	231	6.9	5.5	180	120	11.0	90	2.9
MAR										
15...	1250	140	177	8.2	12.0	100	260	9.2	87	6.3
JUN										
01...	1536	81	134	8.0	22.5	100	430	8.2	96	3.8

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)
JAN										
10...	94000	6200	72000	86	8	31	2.1	9.1	.4	3.5
10...	65000	6400	63000	69	8	25	1.5	8.9	.5	3.0
11...	57000	5900	84000	95	14	35	1.8	8.0	.4	3.6
MAR										
15...	K28000	K7600	66000	60	19	23	.6	4.4	.2	2.3
JUN										
01...	220000	K38000	45000	54	4	20	.9	4.3	.3	3.1

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS 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)
JAN									
10...	95	0	17	11	.1	7.1	128	720	185
10...	74	0	14	8.0	.1	5.5	103	1220	150
11...	98	0	15	7.8	.1	9.9	130	160	40
MAR									
15...	50	0	--	--	.1	3.5	--	518	152
JUN									
01...	60	0	5.1	4.4	.1	5.6	73	760	132

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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
JAN									
10...	.37	.06	.43	.02	.48	.50	.56	20	.00
10...	.42	.12	.54	.02	.35	.37	.89	28	.00
11...	.79	.02	.81	.01	.37	.38	.24	12	.00
MAR									
15...	.57	.14	.71	.23	.36	.59	.12	15	.10
JUN									
01...	.44	.10	.54	.07	--	--	--	21	.00

08177700 OLMOS CR AT DRESDEN DRIVE, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
JAN						
10...	1505	1	30	<1	0	3
10...	1610	2	20	<1	0	5
11...	0940	1	20	<1	0	5
MAR						
15...	1250	2	0	0	10	0

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN							
10...	80	10	20	.0	0	1	<3
10...	100	15	20	.0	0	1	<3
11...	110	2	10	.0	0	1	<3
MAR							
15...	90	3	20	.0	0	0	10

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN									
10...	1505	.0	--	.00	.2	.00	.01	.01	.12
10...	1610	.0	--	.00	.3	.00	.01	.02	.13
11...	0940	.0	--	.00	.0	.00	.00	.00	.05
MAR									
15...	1250	.0	--	.00	.3	.01	.01	.01	.61
JUN									
01...	1536	.0	.00	.00	.1	.00	.00	.00	.48

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)	METHYL PARA-THION, TOTAL (UG/L)
JAN									
10...	.01	.00	.00	.00	.02	.01	.01	.04	.00
10...	.00	.00	.00	.00	.04	.01	.04	.41	.00
11...	.00	.00	.00	.00	.00	.00	.00	.01	.00
MAR									
15...	.01	.00	.00	.00	.01	.01	.03	.23	.00
JUN									
01...	.01	.00	.00	.00	.01	.01	.00	.02	.00

DATE	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								
10...	.00	.00	.00	0	.00	.00	.01	.00
10...	.00	.00	.00	0	.00	.02	.02	.00
11...	.00	.00	.00	0	.00	.00	.00	.00
MAR								
15...	.00	.00	.00	0	.00	.46	.11	.01
JUN								
01...	.00	.00	.00	0	.00	.03	.04	.00

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 1,740 ft (530 m). There is a 24-foot-wide (7.31 m) roadway (Olmos Drive) along the top of the dam. The outlet structure consists of six vertical slide-gate-controlled concrete conduits with entrance dimensions of 6.5 ft (2.0 m) wide by 8.5 ft (2.6 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 1,050 acres (424 hm²) at top of the dam. The dam is owned by the city of San Antonio. National Weather Service rain gage and gage-height telemeters at station. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	728.5	15,500
Design flood	725.5	12,600
Floor of gate operating room	714.0	5,000
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, 698.27 ft (212.833 m) June 1.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	681.09	680.68	682.66	683.53	682.24	682.07	682.02	682.68	696.14	681.73	681.75	681.99
2	681.08	680.79	682.88	683.32	682.42	685.17	682.47	682.68	683.54	681.69	681.75	682.09
3	681.07	680.73	683.57	684.67	682.96	682.19	681.74	682.65	682.73	681.69	681.70	682.10
4	681.03	680.65	682.23	684.17	684.67	681.98	681.58	682.58	682.66	682.28	681.75	682.07
5	680.98	692.34	682.33	684.05	683.81	681.88	682.51	682.57	685.01	684.12	681.72	682.08
6	680.99	683.24	682.21	683.93	682.98	681.86	682.54	682.72	683.10	682.35	681.72	682.03
7	680.94	682.02	682.05	683.32	682.26	681.32	682.47	682.54	682.91	686.89	681.73	682.02
8	681.14	681.58	682.03	683.08	682.13	681.31	682.38	682.52	683.20	682.12	681.71	681.99
9	680.97	681.51	682.08	682.98	682.06	681.29	682.37	682.52	682.93	682.07	681.72	681.96
10	680.89	681.50	682.06	692.64	682.10	681.87	682.42	682.56	682.93	682.83	681.71	682.00
11	680.88	681.47	682.05	684.46	682.05	681.42	682.26	684.56	682.92	682.00	682.78	681.95
12	680.85	681.39	682.44	684.14	681.66	681.34	682.27	682.54	682.91	681.76	682.47	681.95
13	680.82	681.45	682.75	683.38	682.30	681.34	682.19	682.52	682.90	681.70	682.18	682.00
14	680.78	681.46	682.34	682.95	682.10	681.30	682.14	682.36	682.85	682.64	682.10	681.91
15	680.85	683.22	682.29	683.07	682.16	682.40	682.17	682.33	682.81	681.75	682.11	682.04
16	680.91	684.75	682.38	682.93	682.06	684.71	682.00	682.32	682.77	681.69	682.08	681.93
17	680.80	682.06	682.31	683.00	682.14	682.07	683.46	682.17	682.77	681.68	682.07	682.14
18	680.80	681.65	682.12	684.61	682.12	681.64	682.10	682.43	682.82	684.01	682.05	682.75
19	680.70	682.44	681.28	684.26	682.33	681.73	682.50	682.36	682.76	682.32	682.06	682.60
20	680.73	682.37	681.05	684.16	681.72	681.57	686.98	682.55	682.75	683.05	682.07	682.12
21	680.68	681.89	681.97	683.61	682.21	682.74	684.88	682.36	681.93	681.88	682.05	682.00
22	680.69	681.78	681.80	683.07	682.37	682.63	682.45	682.57	681.90	681.79	682.09	681.99
23	680.71	681.70	681.77	682.18	682.59	682.16	682.36	682.30	681.97	681.74	682.47	681.96
24	680.75	681.70	681.74	682.13	682.07	681.90	682.31	682.21	681.88	681.75	682.14	681.94
25	680.94	681.88	681.74	684.38	682.02	681.86	682.31	682.18	681.84	681.74	682.12	681.94
26	680.86	684.67	681.73	682.47	682.02	681.87	682.30	682.14	681.53	681.76	682.06	681.91
27	680.75	683.06	681.74	682.21	682.07	681.88	682.41	682.77	681.78	686.09	682.04	681.91
28	680.72	682.54	682.35	682.10	682.08	681.92	682.41	682.35	681.78	681.91	682.00	681.95
29	680.70	682.37	681.99	683.32	---	682.07	685.08	682.12	681.77	681.79	681.99	681.96
30	680.69	682.41	684.50	682.37	---	682.19	682.77	682.13	681.76	681.80	682.01	681.94
31	680.70	---	684.48	682.14	---	681.88	---	682.10	---	681.76	682.00	---
MEAN	680.85	682.38	682.29	683.63	682.35	682.05	682.66	682.50	683.05	682.40	682.01	682.04
MAX	681.14	692.34	684.50	692.64	684.67	685.17	686.98	684.56	696.14	686.89	682.78	682.75

CAL YR 1978 MAX - MIN -
WTR YR 1979 MAX 696.14 MIN 680.65

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 mi² (108.3 km²). Flow of river comes from intermittent spring flow and from artesian wells; drainage area of streams not applicable.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1895 to June 1906 periodic discharge measurements only, January 1915 to November 1929, February 1939 to current year. Ground-water discharge into river is discussed by Petit and George, Texas Board of Water Engineers Bull. 5608, vol. 1 (1956, p. 45).

REVISED RECORDS.--WSP 1312: 1917. WSP 1923: Drainage area. 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 15,500 acre-ft (19.1 hm³) about 8.5 mi (13.7 km) upstream. Dam completed in 1926. Springs emerge intermittently from the Edwards and associated limestones along the Balcones Fault Zone. City of San Antonio rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--54 years, 56.1 ft³/s (1.589 m³/s), 18.23 in/yr (463 mm/yr), 40,640 acre-ft/yr (50.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft³/s (433 m³/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 ft³/s (56.6 m³/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, 3,340 ft³/s (94.6 m³/s) June 1, gage height, 12.41 ft (3.783 m); no flow at times due to regulation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	30	85	135	92	83	117	166	1060	37	85	80
2	49	29	91	66	97	160	154	178	656	34	80	76
3	47	28	92	63	102	126	117	193	206	31	82	75
4	45	29	90	67	127	83	116	150	217	29	79	92
5	43	286	72	77	153	82	107	175	801	281	77	76
6	28	266	98	74	154	81	117	190	264	32	79	77
7	41	45	88	67	88	79	119	172	208	40	73	60
8	48	51	89	71	92	82	120	173	207	55	71	73
9	46	52	85	69	93	78	119	172	208	42	69	88
10	43	54	82	319	95	101	120	173	203	57	67	66
11	42	54	79	257	94	80	118	230	211	35	94	66
12	52	55	82	68	94	70	116	147	215	45	169	68
13	40	59	85	83	94	76	117	159	204	46	80	53
14	37	56	84	81	94	75	108	157	198	43	62	64
15	36	66	84	95	97	183	103	152	195	40	74	58
16	39	98	83	74	102	122	112	149	187	41	75	60
17	36	50	79	85	102	139	168	150	181	34	79	59
18	35	57	81	108	102	102	109	173	175	356	72	104
19	34	72	81	113	102	105	170	201	158	85	73	74
20	32	66	64	120	102	100	156	197	136	122	72	70
21	31	50	77	89	102	193	672	228	136	74	70	68
22	30	59	75	92	104	188	178	306	139	76	67	68
23	32	57	77	92	113	96	158	158	106	78	106	67
24	31	60	73	89	104	111	166	203	94	67	92	67
25	51	62	76	111	100	109	169	199	85	84	80	64
26	47	335	77	114	102	119	172	196	100	131	78	64
27	34	74	73	94	98	114	169	205	88	188	77	62
28	33	62	74	94	106	115	169	344	55	100	75	59
29	32	85	74	122	---	111	505	202	34	82	75	57
30	34	105	75	97	---	126	191	217	36	91	80	53
31	32	---	161	81	---	118	---	195	---	82	66	---
TOTAL	1210	2452	2586	3167	2905	3407	5032	5910	6763	2538	2478	2068
MEAN	39.0	81.7	83.4	102	104	110	168	191	225	81.9	79.9	68.9
MAX	52	335	161	319	154	193	672	344	1060	356	169	104
MIN	28	28	64	63	88	70	103	147	34	29	62	53
CFSM	.93	1.96	2.00	2.44	2.49	2.63	4.02	4.57	5.38	1.96	1.91	1.65
IN.	1.08	2.18	2.30	2.82	2.59	3.03	4.48	5.26	6.02	2.26	2.21	1.84
AC-FT	2400	4860	5130	6280	5760	6760	9980	11720	13410	5030	4920	4100

CAL YR 1978 TOTAL 22964.2 MEAN 62.9 MAX 1160 MIN 1.6 CFSM 1.51 IN 20.44 AC-FT 45550
WTR YR 1979 TOTAL 40516.0 MEAN 111 MAX 1060 MIN 28 CFSM 2.66 IN 36.06 AC-FT 80360

08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: May 1970 to September 1973. Water temperatures: November 1968 to current year. Bacteria analyses: May 1976 to current year.

REMARKS.--Peak discharges for storm events during which water-quality samples were obtained are given in the following table:

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 21	1215	292	8.27	7.13	2.173
Apr. 29	0730	1,640	46.4	10.02	3.054
July 5	0930	1,210	34.3	9.31	2.838

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAR										
21...	0828	193	513	7.7	20.0	45	190	8.3	93	5.4
APR										
29...	0937	866	265	8.5	21.5	20	100	8.2	96	12
MAY										
02...	0905	178	458	7.5	20.0	--	2.0	--	--	--
JUN										
01...	1144	2830	125	7.9	22.1	70	300	8.2	95	5.3
JUL										
05...	1336	7.4	172	7.8	25.5	45	40	7.4	91	9.6

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)
MAR										
21...	360000	K26000	130000	210	42	66	10	21	.6	3.4
APR										
29...	120000	32000	47000	110	16	34	6.4	5.1	.2	3.0
MAY										
02...	--	--	--	240	26	76	12	7.3	.2	.9
JUN										
01...	310000	84000	110000	50	50	16	2.4	3.3	.2	2.4
JUL										
05...	450000	250000	150000	75	13	24	3.7	4.0	.2	3.0

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR									
21...	200	0	52	26	.2	11	288	314	76
APR									
29...	116	0	14	7.8	.1	9.5	137	352	45
MAY									
02...	260	0	22	13	.2	10	270	0	0
JUN									
01...	--	--	4.2	4.1	.1	3.1	36	828	156
JUL									
05...	76	0	14	5.6	.1	4.4	96	141	20

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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR									
21...	.54	.04	.58	.04	1.3	1.3	.320	21	.10
APR									
29...	.96	.04	1.0	.23	1.6	1.8	.360	8.8	.10
MAY									
02...	--	--	--	--	--	--	--	--	--
JUN									
01...	.51	.06	.57	.11	2.3	2.4	.660	36	.00
JUL									
05...	.59	.08	.67	.05	.93	.98	.340	20	.20

08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAR 21...	0828	2	60	<1	10	11	10
APR 29...	0937	1	0	0	0	1	30

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR 21...	3	2	.0	0	0	6
APR 29...	11	20	.0	1	0	20

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 21...	0828	.1	--	.00	.3	.00	.01	.03	.00
APR 29...	0937	.4	.00	.00	.2	.00	.00	.20	.20
JUN 01...	1144	.5	.00	.00	1.6	.00	.09	.35	.31

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)	METHYL PARA-THION, TOTAL (UG/L)
MAR 21...	.00	.00	.00	.00	.01	.00	.01	.00	.00
APR 29...	.03	.00	.00	.00	.00	.00	.00	.00	.00
JUN 01...	.00	.00	.00	.00	.00	.00	.00	.07	.00

DATE	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 21...	.00	.00	.00	0	.00	.01	.04	.00
APR 29...	.00	.00	.00	0	.00	.01	.00	.00
JUN 01...	.00	.00	.00	0	.00	.58	.25	.00

08178300 ALAZAN CREEK AT ST. CLOUD STREET, SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°27'29", long 98°32'59", Bexar County, Hydrologic Unit 12100301, at bridge on St. Cloud Street in San Antonio and 1.5 mi (2.4 km) upstream from Woodlawn Lake Dam.

DRAINAGE AREA.--3.26 mi² (8.44 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1968 to September 1979 (discontinued).

GAGE.--Digital recorders (stage and rainfall) and crest-stage gages. Gage not referenced to National Geodetic Vertical 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,380 ft³/s (124 m³/s) May 8, 1975, elevation, 16.08 ft (4.901 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Elevation (ft)	Elevation (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Elevation (ft)	Elevation (m)
Nov. 5	unknown	731	20.7	9.40	2.865	Mar. 22	0555	407	11.5	8.01	2.441
Nov. 27	unknown	*940	26.6	10.07	3.069	aApr. 29	unknown	781	22.1	9.59	2.923
aFeb. 23	1110	40	1.13	5.58	1.701	aJune 1	1115	790	22.4	9.62	2.932
Mar. 4	2220	768	21.7	9.54	2.908	June 5	0445	453	12.8	8.23	2.509
aMar. 15	1030	451	12.8	8.22	2.505	aJuly 5	1015	359	10.2	7.77	2.368

a Water-quality samples were made on this date.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to September 1979 (discontinued). Sediment analyses: September 1970 to September 1973. Water temperatures: November 1968 to September 1979 (discontinued). Bacteria analyses: December 1975 to September 1979 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
FEB 23...	1120	38	817	7.9	18.5	80	140	8.2	90	>8.0
MAR 15...	1119	154	165	7.6	11.5	180	680	10.1	94	7.8
JUN 01...	1053	577	112	8.3	22.0	40	200	9.0	104	8.3
JUL 05...	1007	231	87	8.3	23.5	40	190	8.0	96	8.7

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)
FEB 23...	210000	38000	40000	280	80	96	9.1	84	2.2	3.2
MAR 15...	46000	K26000	160000	49	8	18	.9	3.3	.2	2.9
JUN 01...	570000	92000	110000	36	6	13	.8	5.0	.4	2.0
JUL 05...	260000	220000	72000	33	5	12	.7	4.7	.4	2.1

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS 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)
FEB 23...	240	0	120	99	.7	10	540	280	50
MAR 15...	50	0	16	3.3	.1	3.4	73	878	168
JUN 01...	36	0	12	7.5	.1	2.2	60	542	190
JUL 05...	34	0	11	3.9	.1	1.9	53	378	38

08178300 ALAZAN CREEK AT ST. CLOUD STREET, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
FEB 23...	.26	.04	.30	.02	1.1	1.1	.22	24	.00
MAR 15...	.88	.06	.94	.29	1.0	1.3	.61	17	.00
JUN 01...	.27	.06	.33	.06	1.6	1.7	.34	24	.10
JUL 05...	.23	.06	.29	.03	.78	.81	.30	18	.10

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
FEB 23...	1120	1	0	0	0	0	50
MAR 15...	1119	1	0	0	0	1	70
JUN 01...	1053	1	10	<1	10	3	50

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
FEB 23...	3	60	.1	1	0	30
MAR 15...	0	30	.1	0	0	20
JUN 01...	21	10	.1	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)
FEB 23...	1120	.0	--	.00	.1	.03	.01	.03	.08
MAR 15...	1119	.0	--	.00	.2	.02	.01	.02	.11
JUN 01...	1053	.0	.00	.00	.1	.00	.00	.00	.40

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)	METHYL PARA-THION, TOTAL (UG/L)
FEB 23...	.00	.00	.00	.00	.00	.00	.00	.02	.00
MAR 15...	.02	.00	.00	.00	.01	.00	.00	.00	.00
JUN 01...	.03	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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)
FEB 23...	.00	.00	.00	0	.00	.19	.02	.00
MAR 15...	.00	.00	.00	0	.00	.15	.15	.00
JUN 01...	.00	.00	.00	0	.00	.03	.05	.00

08178555 HARLANDALE CREEK AT WEST HARDING BOULEVARD, SAN ANTONIO, TX

LOCATION.--Lat 29°21'05", long 98°29'32", Bexar County, Hydrologic Unit 12100301, at mid-channel, 71 ft (22 m) upstream from West Harding Boulevard, and 1.3 mi (2.1 km) upstream from Sixmile Creek.

DRAINAGE AREA.--2.43 mi² (6.29 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Digital recorders (stage and rainfall) and crest-stage gages. Gage is not referenced to National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 365 ft³/s (10.3 m³/s) June 1, 1979, elevation, 13.21 ft (4.026 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)	Elevation (ft)	Elevation (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Elevation (ft)	Elevation (m)
aMar. 15	1150	0.37	0.010	10.41	3.173	June 1	1215	*365	10.3	13.21	4.026
aApr. 20	2355	201	5.69	12.29	3.746	June 5	0750	236	6.68	12.48	3.804
aApr. 29	1015	16	.45	10.86	3.310	aJuly 5	1235	175	4.96	12.13	3.697

a Water-quality samples were made on this date.

Minimum discharge, no flow most of time.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAR										
15...	1150	.40	293	7.7	13.0	60	680	5.2	50	16
APR										
21...	0130	82	110	8.4	20.0	60	110	7.8	87	13
29...	1015	16	135	---	21.0	50	120	7.8	91	19
JUN										
01...	1131	275	82	8.3	22.5	50	270	8.4	98	7.1
JUL										
05...	1253	163	126	8.0	26.0	70	60	6.0	75	11

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)
MAR										
15...	100000	K24000	K22000	130	24	48	2.5	9.9	.4	4.3
APR										
21...	680000	130000	460000	40	3	15	.7	1.1	.1	3.3
29...	220000	K22000	50000	46	1	17	.8	3.1	.2	3.7
JUN										
01...	820000	K130000	K100000	31	31	12	.3	1.9	.1	2.2
JUL										
05...	1000000	K320000	K180000	41	13	15	.8	6.3	.4	4.3

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR									
15...	130	0	34	11	.2	6.3	180	984	288
APR									
21...	46	0	8.1	2.3	.1	3.7	57	788	118
29...	54	0	10	3.9	.1	2.5	68	359	100
JUN									
01...	--	--	5.6	2.1	.1	2.4	27	466	146
JUL									
05...	34	0	11	11	.1	1.6	67	148	23

08178555 HARLANDALE CREEK AT WEST HARDING BOULEVARD, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR									
15...	.35	.08	.43	.41	3.1	3.5	.44	.2	.40
APR									
21...	.31	.06	.37	.20	1.2	1.4	.36	34	.10
29...	.38	.08	.46	.39	2.0	2.4	.27	16	.40
JUN									
01...	.28	.06	.34	.06	1.7	1.8	.37	27	.10
JUL									
05...	.22	.04	.26	.08	1.3	1.4	.40	29	.30

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAR							
15...	1150	2	0	0	0	0	50
APR							
21...	0130	1	0	0	0	7	80
29...	1015	2	0	0	0	4	70

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR						
15...	0	100	.0	1	0	20
APR						
21...	11	20	.0	0	0	40
29...	34	30	.0	0	0	20

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									
15...	1150	.0	--	.00	.8	1.3	.16	.28	.03
APR									
21...	0130	.2	.00	.00	.3	.20	.00	.17	.66
29...	1015	.2	--	.00	1.0	.13	.06	.08	.64
JUN									
01...	1131	.0	.00	.00	.4	.00	.06	.09	.28

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)	METHYL PARA-THION, TOTAL (UG/L)
MAR									
15...	.00	.00	.00	.00	.03	.00	.01	.02	.00
APR									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
29...	.05	.00	.00	.00	.01	.00	.03	1.2	.00
JUN									
01...	.06	.00	.00	.00	.00	.00	.00	.03	.00

DATE	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								
15...	.00	.00	.00	0	.00	.07	.02	.00
APR								
21...	.00	.00	.00	0	.00	.03	.01	.00
29...	.00	.00	.00	0	.00	.00	.00	.00
JUN								
01...	.00	.00	.00	0	.00	.09	.01	.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 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 mi² (6.35 km²).

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, 335 ft³/s (9.49 m³/s) Sept. 28 1976, elevation, 4.30 ft (1.311 m).

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)	Elevation (ft)	Elevation (m)
aJan. 10	1920	108	3.06	3.59	1.094
aMar. 21	0305	*156	4.42	3.80	1.158
aJune 1	1220	154	4.36	3.79	1.155

a Water-quality samples were made on this date.

Minimum discharge, 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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAR										
21...	0635	1.2	166	8.0	16.0	180	40	12.6	130	2.9
JUN										
01...	1106	12	84	8.6	20.5	250	600	8.2	93	3.0
01...	1331	32	122	8.1	20.5	50	15	7.2	81	2.6

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)
MAR										
21...	96000	48000	190000	77	1	29	1.0	1.5	.1	3.2
JUN										
01...	390000	20000	29000	39	6	15	.3	.6	.0	2.4
01...	370000	K26000	K34000	53	2	20	.7	1.2	.1	2.9

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR									
21...	92	0	6.9	3.0	.0	11	101	61	22
JUN									
01...	40	0	7.6	1.7	.1	9.5	57	632	272
01...	62	0	3.0	3.7	.0	9.3	71	24	12

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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR									
21...	.04	.02	.06	.03	.70	.73	.04	14	.00
JUN									
01...	.45	.12	.57	.11	2.6	2.7	.19	30	.00
01...	.65	.08	.73	.05	.89	.94	.09	13	.10

08178640 WEST ELM CREEK AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAR 21...	0635	0	10	<1	0	9	40

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR 21...	0	2	.0	0	0	0	8

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 21...	0635	.0	--	.00	.0	.00	.02	.02	.00
JUN 01...	1106	.0	.00	.00	.0	.00	.00	.00	.00
01...	1331	.0	.00	.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)	METHYL PARA-THION, TOTAL (UG/L)
MAR 21...	.00	.00	.00	.00	.00	.00	.01	.00	.00
JUN 01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 21...	.00	.00	.00	0	.00	.00	.00	.00
JUN 01...	.00	.00	.00	0	.00	.00	.01	.00
01...	.00	.00	.00	0	.00	.00	.00	.00

08178645 EAST ELM CREEK AT SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°37'04", long 98°25'41", Bexar County, Hydrologic Unit 12100301, at mid-channel, 2.1 mi (3.4 km) upstream from West Elm Creek, 2.4 mi (3.9 km) upstream from Farm Road 1604, and 6.9 mi (11.1 km) north of San Antonio International Airport.

DRAINAGE AREA.--2.33 mi² (6.03 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Digital recorders (stage and rainfall) and crest-stage gages. Gage is not referenced to National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 310 ft³/s (8.78 m³/s) May 7, 1976, elevation, 6.78 ft (2.067 m).

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)	Elevation (ft)	Elevation (m)
Jan. 10	0940	*101	2.86	4.88	1.487
aMar. 21	0315	90	2.55	4.76	1.451
aJune 1	1050	71	2.01	4.55	1.387

a Water-quality samples were made on this date.

Minimum discharge, 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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAR										
21...	0830	8.0	138	8.2	17.0	200	25	13.0	136	2.3
JUN										
01...	1200	69	75	7.9	20.0	100	2.9	7.1	79	3.9
01...	1417	47	90	7.9	20.5	50	3.9	7.0	79	3.0

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)
MAR										
21...	43000	4000	28000	59	0	22	1.0	1.2	.1	3.2
JUN										
01...	430000	K18000	33000	30	4	11	.6	.6	.0	4.4
01...	440000	K19000	32000	38	5	14	.7	1.2	.1	4.1

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR									
21...	73	0	5.9	2.1	.0	15	87	30	14
JUN									
01...	32	0	7.6	1.7	.0	13	55	13	11
01...	40	0	7.1	1.7	.1	14	63	6	6

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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR									
21...	.03	.02	.05	.06	.74	.80	.02	9.6	.00
JUN									
01...	.70	.10	.80	.11	.89	1.0	.08	13	.00
01...	.47	.08	.55	.04	.92	.96	.08	13	.00

08178645 EAST ELM CREEK AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAR							
21...	0830	0	8	<1	0	25	70

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR							
21...	0	2	.0	0	0	0	30

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									
21...	0830	.0	--	.00	.0	.00	.00	.00	.00
JUN									
01...	1200	.0	.00	.00	.0	.00	.00	.00	.00
01...	1417	.0	.00	.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)	METHYL PARA-THION, TOTAL (UG/L)
MAR									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN									
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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								
21...	.00	.00	.00	0	.00	.00	.00	.00
JUN								
01...	.00	.00	.00	0	.00	.00	.02	.00
01...	.00	.00	.00	0	.00	.00	.01	.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 current year.

GAGE.--Digital recorders (stage and rainfall). 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, elevation, 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)	Elevation (ft)	Elevation (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Elevation (ft)	Elevation (m)
Nov. 26	0745	*190	5.38	6.73	2.051	May 11	1230	79	2.24	4.58	1.396
aMar. 15	1040	68	1.93	4.37	1.332	aJune 1	1035	139	3.94	5.78	1.762
Apr. 17	0610	55	1.56	4.08	1.244	aJuly 5	0905	55	1.56	4.09	1.247
Apr. 20	2245	112	3.17	5.24	1.597	July 10	1710	62	1.76	4.23	1.289
Apr. 29	0725	81	2.29	4.62	1.408	July 27	1145	109	3.09	5.18	1.579

a Water-quality samples were made on this day.

Minimum discharge, no flow most of time.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: April to September 1973. Water temperatures: November 1968 to current year. Bacteria analyses: April 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAR 15...	1150	16	108	7.9	11.5	70	20	9.6	101	5.7
JUN 01...	1035	139	63	8.6	--	60	84	--	--	4.9
JUL 05...	1130	17	77	7.4	26.0	40	6.8	6.7	83	4.7

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)
MAR 15...	48000	7800	62000	36	11	13	.8	1.0	.1	3.6
JUN 01...	K730000	90000	120000	27	0	10	.4	1.0	.1	2.1
JUL 05...	K1200000	K1200000	46000	34	3	13	.3	1.1	.1	2.7

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR 15...	30	0	14	2.0	.1	1.9	51	29	20
JUN 01...	32	0	2.5	1.5	.1	1.2	35	308	62
JUL 05...	38	0	9.7	1.6	.1	2.1	49	9	3

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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR 15...	1.2	.12	1.3	.50	.44	.94	.44	7.8	.10
JUN 01...	.25	.04	.29	.11	1.1	1.2	.36	17	.00
JUL 05...	.18	.10	.28	.01	.61	.62	.27	--	.10

08178690 SALADO CREEK TRIBUTARY AT BITTERS ROAD, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 15...	1150	1	0	0	0	0	10
JUN 01...	1035	1	0	0	0	11	300

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR 15...	9	10	.0	1	0	20
JUN 01...	27	10	.1	0	0	30

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 15...	1150	.0	--	.00	.1	.00	.00	.00	.46
JUN 01...	1035	.0	.00	.00	.4	.00	.00	.03	1.6
JUL 05...	1130	.2	.00	.00	.0	.00	.00	.00	1.7

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)	METHYL PARA-THION, TOTAL (UG/L)
MAR 15...	.01	.00	.00	.00	.01	.01	.01	.20	.00
JUN 01...	.00	.00	.00	.00	.00	.03	.00	.00	.00
JUL 05...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 15...	.00	.00	.00	0	.00	.04	.00	.01
JUN 01...	.00	.00	.00	0	.00	.01	.01	.00
JUL 05...	.00	.00	.00	0	.00	.02	.01	.00

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX

LOCATION.--Lat 29°30'57", long 98°25'51", Bexar County, Hydrologic Unit 12100301, on upstream side of upstream bridge of two bridges 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 good. 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 seven floodwater-retarding structures with combined detention capacity of 17,390 acre-ft (21.4 hm³). These structures control runoff from 48.4 mi² (125.4 km²) above this station.

AVERAGE DISCHARGE.--19 years, 10.3 ft³/s (0.292 m³/s), 1.02 in/yr (26 mm/yr), 7,460 acre-ft/yr (9.20 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), 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)
Nov. 26	0915	732	20.7	b6.58	2.006	aApr. 21	0330	*6,120	173	9.74	2.969
Jan. 11	0045	416	11.8	5.62	1.713	aApr. 29	1000	395	11.2	5.50	1.676
aMar. 15	1300	99	2.80	3.51	1.070	June 1	1215	1,980	56.1	7.80	2.377

a Water-quality samples were obtained on this date.
b From floodmark.

Minimum discharge, no flow Sept. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	.08	5.7	11	4.9	2.6	8.6	14	648	.13	2.5	2.0
2	4.6	.08	5.7	4.9	4.8	3.9	8.6	12	90	1.4	3.3	2.0
3	4.4	.08	5.7	.95	5.6	2.9	5.8	11	13	4.6	6.4	1.8
4	4.2	.07	5.4	.85	8.3	3.9	4.6	11	12	3.1	4.7	1.9
5	3.8	5.8	5.0	2.1	17	3.9	4.2	10	104	8.1	2.5	5.3
6	.67	6.2	4.9	5.1	22	4.2	4.2	10	37	7.9	2.5	5.8
7	.14	4.6	4.7	4.9	8.6	4.2	4.2	9.7	15	8.9	2.5	3.8
8	.14	4.2	3.9	4.3	6.1	3.1	4.2	9.6	14	11	5.1	.23
9	.18	3.6	.90	.87	5.3	.38	4.2	9.2	14	7.8	5.2	.03
10	.14	.20	.62	83	5.3	7.5	4.5	9.0	13	8.5	4.1	.00
11	.10	.11	.62	106	4.9	7.0	4.9	14	13	3.6	4.9	.00
12	.09	.11	.62	13	4.9	5.9	4.8	11	12	2.6	5.7	2.5
13	.51	.10	.62	10	4.9	5.0	4.7	8.7	12	2.3	2.4	3.6
14	4.1	.14	.62	8.1	5.0	1.4	4.2	8.3	11	5.0	1.9	5.3
15	4.2	3.1	.87	7.3	4.9	16	4.1	8.0	7.5	7.4	1.6	5.3
16	3.9	6.3	4.5	6.8	4.6	8.8	4.1	7.8	7.8	3.4	4.6	1.3
17	3.4	4.4	4.6	6.6	4.6	12	8.7	5.1	8.6	3.8	4.5	2.3
18	3.6	3.1	4.6	7.4	4.6	6.0	6.8	5.7	8.6	44	.79	1.2
19	2.1	.46	4.6	7.1	4.3	10	6.6	5.7	8.3	21	.34	.73
20	.16	.38	4.2	11	4.3	8.4	7.0	5.6	8.0	14	.43	1.6
21	.10	.22	.65	6.4	4.2	44	1210	5.7	8.0	6.8	3.5	1.4
22	.10	.17	.41	5.3	4.2	35	28	10	7.7	6.1	6.0	1.4
23	.10	.14	.41	5.3	4.4	9.6	16	2.4	7.4	5.9	8.1	1.4
24	.10	.11	.41	4.9	3.8	7.2	15	5.3	7.3	5.3	6.2	1.4
25	1.1	.10	.41	4.9	3.8	6.7	14	4.0	7.0	4.0	6.9	1.3
26	5.6	118	.33	4.9	3.5	6.8	13	4.0	6.7	18	1.3	1.3
27	4.6	8.8	1.3	5.7	1.8	7.8	13	4.6	6.0	45	.58	4.7
28	4.6	7.5	4.5	5.3	1.8	8.6	12	6.6	4.6	13	6.0	1.6
29	4.3	6.9	4.5	7.4	---	8.6	114	4.8	.39	6.4	6.4	1.5
30	2.8	6.6	4.6	6.6	---	9.1	21	4.6	.17	2.0	5.1	1.3
31	.12	---	8.3	5.3	---	8.6	---	5.2	---	.72	2.4	---
TOTAL	68.55	191.65	94.19	363.27	162.4	269.08	1565.0	242.6	1112.06	281.75	118.44	63.99
MEAN	2.21	6.39	3.04	11.7	5.80	8.68	52.2	7.83	37.1	9.09	3.82	2.13
MAX	5.6	118	8.3	106	22	44	1210	14	648	45	8.1	5.8
MIN	.09	.07	.33	.85	1.8	.38	4.1	2.4	.17	.13	.34	.00
CFSM	.02	.05	.02	.09	.04	.06	.38	.06	.27	.07	.03	.02
IN.	.02	.05	.03	.10	.04	.07	.42	.07	.30	.08	.03	.02
AC-FT	136	380	187	721	322	534	3100	481	2210	559	235	127
(††)	.35	7.07	.66	4.63	5.45	5.51	5.96	1.24	5.10	4.78	1.60	1.88

CAL YR 1978 TOTAL 6493.96 MEAN 17.8 MAX 4040 MIN .00 CFSM .13 IN 1.76 AC-FT 12880 †† 33.24
WTR YR 1979 TOTAL 4532.98 MEAN 12.4 MAX 1210 MIN .00 CFSM .09 IN 1.23 AC-FT 8990 †† 44.23

†† Weighted-mean rainfall, in inches, based on four rain gages.

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAR										
15...	1335	68	1130	8.1	15.5	7	50	9.8	100	2.2
APR										
21...	1758	168	271	8.8	--	--	140	7.8	90	3.2
29...	0900	190	844	10.2	20.5	25	72	7.8	92	3.8

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)
MAR										
15...	10000	K1300	5700	220	0	75	9.1	47	1.4	160
APR										
21...	100000	17000	74000	110	17	40	1.8	6.3	.3	8.3
29...	110000	4400	27000	280	23	100	7.0	33	.9	61

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR									
15...	290	0	240	36	.7	12	723	97	45
APR									
21...	110	0	25	7.2	.2	11	154	178	17
29...	312	0	140	25	.5	18	538	162	54

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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR									
15...	1.4	.02	1.4	.03	.40	.43	.01	5.5	.10
APR									
21...	.68	.08	.76	.10	.43	.53	.19	12	.10
29...	.70	.25	.95	.39	.51	.90	.11	9.6	.10

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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							
15...	1335	1	0	0	10	0	20
APR							
21...	1758	2	0	0	0	4	90
29...	0900	1	0	0	10	0	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)
MAR						
15...	0	10	.0	2	0	10
APR						
21...	1	10	.0	0	0	10
29...	0	20	.1	1	0	30

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
MAR												
15...	1335	.0	--	.00	.0	.00	.00	.00	.00	.00	.00	.00
APR												
21...	1758	.0	.00	.00	.0	.00	.00	.00	.28	.00	.00	.00
29...	0900	.0	.00	.00	.0	.00	.00	.00	.02	.00	.00	.00

DATE	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	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												
15...	.00	.00	.00	.00	.00	.00	.00	0	.00	.01	.01	.00
APR												
21...	.00	.00	.00	.06	.00	.00	.00	0	.00	.04	.03	.00
29...	.00	.00	.00	.00	.00	.00	.00	0	.00	.01	.05	.00

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 mi² (490 km²).

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 gage located at station with six additional 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.--19 years, 43.1 ft³/s (1.221 m³/s), 3.10 in/yr (79 mm/yr), 31,230 acre-ft/yr (38.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s (371 m³/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.--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)
Nov. 26	2200	909	25.7	12.68	3.865	aApr. 29	1900	1,240	35.1	13.80	4.206
aJan. 11	0500	1,120	31.7	13.43	4.093	June 1	2300	3,200	90.6	18.36	5.596
aApr. 21	1400	*3,290	93.2	18.53	5.648	June 5	1700	838	23.7	12.40	3.780

a Water-quality samples were obtained on this date.

Minimum discharge, 16 ft³/s (0.45 m³/s) Nov. 14, 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	20	30	147	38	30	51	75	1180	23	34	30
2	28	19	29	51	38	32	61	65	1050	22	34	29
3	28	18	28	33	46	123	71	62	96	21	38	28
4	27	19	28	28	54	42	47	58	54	23	36	27
5	27	43	28	32	122	36	42	57	475	219	35	28
6	26	175	27	32	211	35	38	55	262	88	33	42
7	25	33	27	33	84	35	35	54	72	43	30	35
8	23	24	28	30	48	34	35	52	54	39	29	30
9	25	22	25	27	43	33	34	51	49	41	30	27
10	25	20	24	158	40	42	34	52	46	37	32	25
11	23	17	22	644	37	52	34	73	44	49	31	23
12	23	17	22	87	36	38	30	103	43	35	126	22
13	23	17	22	54	37	37	28	56	42	33	60	22
14	23	16	24	46	36	37	27	50	41	34	36	23
15	23	24	23	43	35	45	28	48	38	55	33	24
16	23	50	23	42	33	100	29	48	34	37	31	28
17	23	43	24	42	33	95	62	47	34	27	32	27
18	23	24	26	43	33	62	64	43	33	90	30	35
19	24	23	26	53	32	52	60	43	32	95	28	42
20	23	26	25	60	33	76	85	42	32	102	27	29
21	22	22	25	49	33	136	1800	39	31	103	27	24
22	21	20	23	39	34	195	219	75	32	50	28	23
23	21	19	22	36	35	109	83	50	32	45	76	22
24	21	19	21	34	38	55	67	37	33	42	60	22
25	22	18	22	43	33	49	61	36	32	39	45	21
26	40	294	21	61	31	46	59	36	29	45	43	21
27	27	190	22	45	32	45	56	35	28	186	32	21
28	23	43	22	39	31	46	54	118	27	194	29	23
29	23	35	26	49	---	46	535	51	24	61	32	22
30	23	31	26	57	---	49	244	52	24	46	41	21
31	22	---	89	43	---	56	---	91	---	39	38	---
TOTAL	758	1341	830	2180	1336	1868	4073	1754	4003	1963	1216	796
MEAN	24.5	44.7	26.8	70.3	47.7	60.3	136	56.6	133	63.3	39.2	26.5
MAX	40	294	89	644	211	195	1800	118	1180	219	126	42
MIN	21	16	21	27	31	30	27	35	24	21	27	21
CFSM	.13	.24	.14	.37	.25	.32	.72	.30	.70	.34	.21	.14
IN.	.15	.26	.16	.43	.26	.37	.80	.35	.79	.39	.24	.16
AC-FT	1500	2660	1650	4320	2650	3710	8080	3480	7940	3890	2410	1580
(††)	.40	6.25	.77	4.21	4.32	4.80	5.75	1.32	5.23	5.16	1.66	1.60

CAL YR 1978 TOTAL 20810.6 MEAN 57.0 MAX 3670 MIN 9.6 CFSM .30 IN 4.10 AC-FT 41280 †† 34.10
WTR YR 1979 TOTAL 22118.0 MEAN 60.6 MAX 1800 MIN 16 CFSM .32 IN 4.35 AC-FT 43870 †† 41.47

†† Weighted-mean rainfall, in inches, based on seven rain gages.

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: November 1971 to September 1973. Water temperatures: November 1968 to current year. Bacteria analyses: December 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
JAN										
11...	1400	519	297	7.7	6.5	100	380	11.1	93	4.9
APR										
20...	0224	71	294	8.1	20.5	--	310	7.2	82	3.7
29...	1108	371	549	8.1	21.0	20	220	7.6	88	6.6

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)
JAN										
11...	110000	28000	150000	99	21	34	3.5	14	.6	5.7
APR										
20...	K1200000	98000	260000	100	18	32	5.0	15	.7	6.3
29...	300000	36000	58000	200	43	65	10	31	.9	9.5

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS 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)
JAN									
11...	96	0	34	16	.2	9.0	164	620	150
APR									
20...	100	0	28	22	.2	7.0	165	1140	144
29...	196	0	66	35	.3	10	323	950	106

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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
JAN									
11...	1.1	.04	1.1	.04	.58	.62	.470	16	.00
APR									
20...	.67	.06	--	.29	2.4	--	.470	40	.10
29...	1.1	.10	1.2	.17	1.3	1.5	.280	66	.10

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN							
11...	1400	2	30	<1	0	2	90
APR							
20...	0224	2	0	0	0	5	160
29...	1108	1	0	0	0	0	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						
11...	3	6	.0	0	0	<3
APR						
20...	2	20	.0	0	0	20
29...	0	20	.0	0	0	10

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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									
11...	1400	.0	--	.00	.1	.00	.00	.00	.09
APR									
20...	0224	.1	.00	.00	.0	.01	.00	.04	.30
29...	1108	.1	.00	.00	.0	.00	.00	.01	.30

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)	METHYL PARATHION, TOTAL (UG/L)
JAN									
11...	.00	.00	.00	.00	.00	.01	.00	.04	.00
APR									
20...	.03	.00	.00	.00	.00	.00	.00	.00	.00
29...	.01	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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								
11...	.00	.00	.00	0	.00	.11	.00	.03
APR								
20...	.00	.00	.00	0	.00	.01	.00	.00
29...	.00	.00	.00	0	.00	.03	.00	.00

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. Small diversion above station.

AVERAGE DISCHARGE.--39 years (water years 1923-34, 1953-79), 141 ft³/s (3.993 m³/s), 4.04 in/yr (103 mm/yr), 102,200 acre-ft/yr (126 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	0600	3,720	105	a8.08	2.463	June 1	2400	1,680	47.6	5.74	1.750
Mar. 22	0800	2,380	67.4	a6.62	2.018	June 3	0200	2,810	79.6	7.11	2.167
Apr. 21	0200	3,760	106	8.12	2.475	June 5	0800	*4,000	113	8.35	2.545

a From floodmark.

Minimum discharge, 62 ft³/s (1.76 m³/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND , WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	245	146	183	207	191	242	659	437	493	355	153	95
2	241	144	183	172	206	238	637	435	1140	349	151	93
3	244	141	182	161	205	275	616	435	1260	347	163	91
4	244	137	173	158	213	263	595	412	767	338	192	89
5	246	141	170	157	254	246	575	387	2710	337	170	86
6	241	217	173	155	357	240	554	376	1780	353	161	91
7	232	209	166	152	384	235	532	365	1190	341	143	94
8	240	179	162	146	356	234	519	356	1000	328	132	84
9	242	166	161	145	337	228	505	348	916	300	124	84
10	239	159	158	163	332	229	492	348	843	291	124	78
11	228	158	158	209	329	227	478	339	901	279	132	77
12	220	152	158	203	323	225	457	357	746	262	157	76
13	211	149	158	190	322	221	445	330	683	246	167	75
14	198	148	155	183	314	214	433	315	639	230	154	73
15	186	145	155	179	309	212	424	303	603	216	137	71
16	183	263	155	180	295	237	414	297	563	205	132	69
17	181	270	152	184	285	320	431	291	533	194	127	69
18	178	231	149	194	283	387	466	283	507	210	126	67
19	174	217	149	206	278	387	609	277	491	215	119	68
20	174	208	149	210	275	417	614	273	466	199	114	69
21	168	199	146	209	280	2690	1330	271	438	197	109	71
22	162	194	143	208	282	1790	687	290	421	182	109	68
23	156	190	143	208	277	1140	589	276	403	184	134	67
24	154	184	141	203	275	952	543	262	390	173	154	65
25	155	183	138	207	262	851	518	252	376	164	142	67
26	154	185	137	219	258	814	489	244	366	156	122	67
27	153	188	135	205	254	784	470	239	363	258	106	65
28	150	190	134	200	242	767	455	249	360	281	102	65
29	146	190	134	201	---	735	477	250	351	232	99	64
30	144	187	135	201	---	712	465	239	349	184	96	62
31	142	---	314	198	---	689	---	229	---	168	95	---
TOTAL	6031	5470	4949	5813	7978	17201	16478	9765	22048	7774	4146	2260
MEAN	195	182	160	188	285	555	549	315	735	251	134	75.3
MAX	246	270	314	219	384	2690	1330	437	2710	355	192	95
MIN	142	137	134	145	191	212	414	229	349	156	95	62
CFSM	.41	.38	.34	.40	.60	1.17	1.16	.67	1.55	.53	.28	.16
IN.	.47	.43	.39	.46	.63	1.35	1.29	.77	1.73	.61	.33	.18
AC-FT	11960	10850	9820	11530	15820	34120	32680	19370	43730	15420	8220	4480

CAL YR 1978 TOTAL 113355.5 MEAN 311 MAX 41700 MIN 9.2 CFSM .66 IN 8.90 AC-FT 224800
WTR YR 1979 TOTAL 109913.0 MEAN 301 MAX 2710 MIN 62 CFSM .64 IN 8.63 AC-FT 218000

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 20...	1222	208	527	8.1	15.5	0	10	9.1	94	.6
JAN 02...	1410	170	531	8.1	8.0	0	10	11.3	98	.9
MAR 26...	1525	814	533	8.0	18.5	10	15	9.8	106	1.1
APR 30...	1535	466	551	7.2	21.0	3	5.7	9.7	113	.4
JUN 15...	1023	602	531	8.1	23.0	0	5.5	8.3	99	.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
NOV 20...	7400	K1700	360	270	56	78	18	7.2	.2
JAN 02...	1300	1000	2000	270	71	81	16	7.1	.2
MAR 26...	K220	K58	330	270	36	80	16	7.0	.2
APR 30...	K72	34	144	280	63	81	18	8.6	.2
JUN 15...	120	84	140	230	11	65	17	8.7	.2

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 20...	1.4	260	0	57	16	.2	11	317	19
JAN 02...	1.5	240	0	61	13	.2	10	308	11
MAR 26...	1.2	280	0	45	9.1	.2	11	308	60
APR 30...	.9	260	0	55	15	.3	10	317	19
JUN 15...	1.3	270	0	43	10	.3	13	291	20

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 20...	6	.70	.01	.71	.02	.26	.28	.02	1.9
JAN 02...	0	.79	.01	.80	.01	.19	.20	.02	1.7
MAR 26...	32	.40	.00	.40	.01	.13	.14	.01	1.9
APR 30...	17	.97	--	--	--	.12	--	--	3.9
JUN 15...	15	.88	.02	.90	.01	.08	.09	.00	5.5

08179000 MEDINA RIVER NEAR PIPE CREEK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 02...	1410	1	30	<1	10	1	0

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 02...	0	3	.0	1	0	<3

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)
JAN 02...	1410	.0	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	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)
JAN 02...	.00	.00	.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 current year.

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.--23 years (water years 1957-79), 12.3 ft³/s (0.348 m³/s), 2.97 in/yr (75 mm/yr), 8,910 acre-ft/yr (11.0 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)
Dec. 31	0630	414	11.7	4.58	1.396	June 3	0100	718	20.3	5.26	1.603
Mar. 21	0200	*781	22.1	5.38	1.640	June 5	0730	414	11.7	4.58	1.396

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	78	10	5.9	44	26	.27	.15	.00	.00
2	.00	.00	.00	50	10	6.2	43	27	11	.00	.00	.00
3	.00	.00	.00	41	11	12	39	26	162	.00	.00	.00
4	.00	.00	.00	35	11	5.8	36	23	59	.00	.00	.00
5	.00	.00	.00	30	15	4.9	34	20	224	.00	.00	.00
6	.00	.00	.00	26	31	4.2	32	18	216	.00	.00	.00
7	.00	.00	.00	22	28	3.6	32	17	176	.00	.00	.00
8	.00	.00	.00	18	27	2.9	32	15	134	.00	.00	.00
9	.00	.00	.00	17	26	2.3	30	15	98	.00	.00	.00
10	.00	.00	.00	21	24	3.9	30	14	76	.00	.00	.00
11	.00	.00	.00	26	24	3.0	27	13	61	.00	.00	.00
12	.00	.00	.00	25	23	2.0	24	11	51	.00	.00	.00
13	.00	.00	.00	24	21	1.1	22	9.3	44	.00	.00	.00
14	.00	.00	.00	22	20	.42	20	8.0	39	.00	.00	.00
15	.00	.00	.00	21	20	.93	19	5.9	34	.00	.00	.00
16	.00	.00	.00	20	18	1.5	17	4.7	31	.00	.00	.00
17	.00	.00	.00	19	17	3.0	19	3.8	27	.00	.00	.00
18	.00	.00	.00	22	16	2.8	18	3.1	24	.00	.00	.00
19	.00	.00	.00	23	14	1.7	34	2.5	21	.00	.00	.00
20	.00	.00	.00	22	14	18	28	2.1	18	.00	.00	.00
21	.00	.00	.00	21	13	336	39	2.1	16	.00	.00	.00
22	.00	.00	.00	21	12	300	33	5.4	14	.00	.00	.00
23	.00	.00	.00	20	11	197	33	1.8	12	.00	.00	.00
24	.00	.00	.00	19	9.7	146	32	.31	10	.00	.00	.00
25	.00	.00	.00	20	9.2	107	32	.03	8.3	.00	.00	.00
26	.00	.00	.00	19	8.5	82	30	.00	6.4	.00	.00	.00
27	.00	.00	.00	16	7.4	67	28	.00	5.0	.00	.00	.00
28	.00	.00	.00	15	6.4	57	27	.00	3.5	1.2	.00	.00
29	.00	.00	.00	15	---	53	35	.00	2.1	.00	.00	.00
30	.00	.00	.00	13	---	50	30	.00	.90	.00	.00	.00
31	.00	---	102	11	---	45	---	.00	---	.00	.00	---
TOTAL	.00	.00	102.00	752	457.2	1526.15	899	274.04	1584.47	1.35	.00	.00
MEAN	.000	.000	3.29	24.3	16.3	49.2	30.0	8.84	52.8	.044	.000	.000
MAX	.00	.00	102	78	31	336	44	27	224	1.2	.00	.00
MIN	.00	.00	.00	11	6.4	.42	17	.00	.27	.00	.00	.00
CFSM	.000	.000	.06	.43	.29	.87	.53	.16	.94	.001	.000	.000
IN.	.00	.00	.07	.50	.30	1.01	.59	.18	1.05	.00	.00	.00
AC-FT	.00	.00	202	1490	907	3030	1780	544	3140	2.7	.00	.00

CAL YR 1978 TOTAL 177.41 MEAN .49 MAX 102 MIN .00 CFSM .009 IN .12 AC-FT 352
WTR YR 1979 TOTAL 5596.21 MEAN 15.3 MAX 336 MIN .00 CFSM .27 IN 3.70 AC-FT 11100

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).

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, 261,500 acre-ft (322 hm³) June 6, gage height, 1,073.3 ft (327.14 m); minimum, 248,200 acre-ft (306 hm³) Sept. 29, 30, gage height, 1,071.0 ft (326.44 m).

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

1,070.0	242,400	1,073.0	259,800
1,071.0	248,200	1,075.0	271,400

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	255200	253400	254000	253400	255200	255700	257500	256300	255200	255700	255200	253400
2	255200	253400	254000	255200	255200	255700	257500	256300	257500	255700	255200	253400
3	255200	253400	254000	255200	255200	255700	257500	256300	258600	255200	254600	253400
4	255200	253400	254000	255200	254600	255200	257500	256300	258600	255200	254600	252900
5	255200	253400	254000	255200	254600	255200	257500	256300	259800	255200	254600	252900
6	254600	254000	254000	255200	254600	255200	256900	256300	261500	255200	254600	252900
7	254600	254000	254000	255200	255700	255200	256900	256300	260400	255200	254600	252900
8	254600	254000	254000	255200	255700	255200	256900	256300	259800	255200	254000	252900
9	254600	254000	254000	255200	255700	255200	256900	255700	259200	255200	254000	252900
10	254600	254000	254000	255200	255700	255200	256900	255700	258600	255200	254000	252900
11	254600	254000	253400	255200	255700	255200	256900	255700	258600	255200	254000	252900
12	254600	253400	253400	255200	255700	255200	256300	255700	258100	255200	254600	252900
13	254600	253400	253400	255200	255700	255200	256300	255700	258100	255200	254600	252900
14	254600	253400	253400	255200	255700	255200	256300	255700	257500	255200	254000	252300
15	254600	253400	253400	254600	255700	255200	256300	255700	257500	254600	254000	252300
16	254600	253400	253400	254600	255700	255700	256300	255700	256900	254600	254000	252300
17	254000	253400	253400	254600	255700	255700	256300	255200	256900	254600	254000	251700
18	254000	253400	253400	254600	255700	255700	256300	255200	256300	254600	254000	251700
19	254000	253400	253400	254600	255700	255700	256900	255200	256300	255200	254000	251100
20	254000	254000	253400	254600	255200	255700	256900	255200	256300	255200	254000	250500
21	254000	254000	253400	254600	255200	259800	258100	255200	256300	255200	254000	250500
22	254000	254000	253400	254600	255200	260400	258100	255200	256300	255200	253400	250000
23	254000	254000	253400	255200	255200	259800	257500	255200	256300	255200	253400	250000
24	254000	254000	252900	255200	255200	259200	257500	255200	256300	255200	253400	249400
25	254000	254000	252900	255200	255200	259200	256900	255200	256300	254600	253400	248800
26	254000	254000	252900	255200	255200	258600	256900	255200	255700	254600	253400	248800
27	253400	254000	252900	255200	255700	258100	256900	255200	255700	254600	254000	248800
28	253400	254000	252900	255200	255700	258100	256900	255200	255700	255200	253400	248800
29	253400	254000	252900	255200	---	258100	256900	255200	255700	255200	253400	248200
30	253400	254000	252900	255200	---	257500	256900	255200	255700	255200	253400	248200
31	253400	---	252900	255200	---	257500	---	255200	---	255200	253400	---
MAX	255200	254000	254000	255200	255700	260400	258100	256300	261500	255700	255200	253400
MIN	253400	253400	252900	253400	254600	255200	256300	255200	255200	254600	253400	248200

CAL YR 1978 MAX 280100 MIN 188200
WTR YR 1979 MAX 261500 MIN 248200

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. Several observations of water temperatures were made during the year.

AVERAGE DISCHARGE.--33 years (water years 1923-33, 1958-79), 40.2 ft^3/s (1.138 m^3/s), 29,120 acre-ft/yr (35.9 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 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	34	.00	.12	30	38	.00	7.5	30	128	28	34
2	27	47	.00	.00	9.6	37	.00	7.8	.50	137	28	.29
3	47	57	.00	.00	.00	37	.00	7.6	.00	169	28	.00
4	52	40	6.9	.00	.00	30	.00	12	.00	174	28	30
5	73	15	25	.00	.00	22	.00	36	.16	132	37	53
6	65	.00	25	.00	.00	12	.00	42	.36	91	66	53
7	53	.00	24	.00	.00	.13	19	44	.26	75	77	51
8	43	.00	17	.00	.00	.08	37	36	.16	75	77	37
9	31	.00	.16	.00	.00	.05	25	20	.08	68	77	36
10	22	.00	.12	.00	.00	.10	14	22	.04	59	58	58
11	21	.00	.08	.00	.00	22	14	30	.00	67	42	69
12	21	.00	13	.00	.00	46	14	30	.00	80	44	53
13	34	.00	25	.00	.00	25	23	31	27	81	41	54
14	41	.00	27	.00	.00	22	30	49	50	81	41	60
15	41	.00	25	.00	.00	15	43	76	51	80	41	59
16	51	.00	9.3	.00	.00	6.8	50	95	80	80	43	58
17	66	.00	.27	.00	1.2	6.8	17	111	92	81	42	58
18	65	19	9.9	.00	1.9	6.3	5.5	146	123	51	42	68
19	64	27	29	.00	1.9	6.2	16	183	150	29	42	51
20	63	27	29	.00	7.3	6.1	.25	190	163	.87	62	62
21	62	27	27	.00	6.7	.28	.28	166	160	.55	88	71
22	61	10	16	.00	.02	.38	.16	104	152	.40	86	69
23	52	.00	.05	.00	.02	2.6	.04	131	116	3.9	55	69
24	42	.00	.06	.00	.00	9.2	.00	136	101	62	30	70
25	29	.00	.03	.00	.00	9.0	.00	113	118	48	45	78
26	30	.06	18	.00	.00	14	13	123	140	49	65	77
27	46	.00	37	.00	.00	16	29	115	139	31	64	76
28	51	.00	34	.00	14	6.4	17	74	140	1.8	63	82
29	50	.00	18	.00	---	6.4	7.9	43	141	1.6	62	87
30	35	.00	6.2	32	---	3.2	7.1	72	142	45	54	85
31	25	---	.24	37	---	.01	---	93	---	45	34	---
TOTAL	1376	303.06	422.31	69.12	72.64	406.03	382.23	2345.9	2116.56	2027.12	1590	1708.29
MEAN	44.4	10.1	13.6	2.23	2.59	13.1	12.7	75.7	70.6	65.4	51.3	56.9
MAX	73	57	37	37	30	46	50	190	163	174	88	87
MIN	13	.00	.00	.00	.00	.01	.00	7.5	.00	.40	28	.00
AC-FT	2730	601	838	137	144	805	758	4650	4200	4020	3150	3390

CAL YR 1978 TOTAL 20645.54 MEAN 56.6 MAX 196 MIN .00 AC-FT 40950
WTR YR 1979 TOTAL 12819.26 MEAN 35.1 MAX 190 MIN .00 AC-FT 25430

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.--9 years, 294 ft³/s (8.326 m³/s), 213,000 acre-ft/yr (263 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, 2,610 ft³/s (73.9 m³/s) June 7, gage height, 15.33 ft (4.673 m); minimum, 68 ft³/s (1.9 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	312	86	165	866	240	332	1090	745	682	335	210	97
2	295	87	160	578	222	304	1060	721	684	314	211	94
3	271	87	155	465	225	293	1040	706	717	292	206	93
4	231	86	152	405	251	323	998	698	1050	242	191	92
5	208	99	155	366	279	324	942	701	1610	227	182	91
6	189	271	140	344	334	307	880	620	2110	212	178	90
7	176	132	124	319	369	301	835	576	2500	257	171	98
8	174	104	122	281	403	302	794	550	2340	278	151	90
9	167	98	122	253	422	297	769	537	1900	280	140	88
10	169	95	120	233	446	285	757	539	1600	275	132	88
11	169	94	118	392	444	298	744	540	1450	276	125	86
12	170	93	116	338	451	289	732	537	1300	264	129	86
13	168	103	115	299	456	250	696	499	1210	235	138	84
14	163	108	110	292	460	243	664	468	1100	210	143	83
15	155	109	106	284	457	253	615	447	985	196	140	82
16	142	116	103	251	447	257	584	409	925	185	135	82
17	131	128	99	248	456	282	569	379	850	173	133	82
18	123	129	104	257	409	295	579	347	787	182	129	93
19	113	129	111	281	362	332	1010	307	724	219	125	87
20	108	127	109	334	348	380	889	269	665	323	120	85
21	102	132	99	350	353	420	1510	239	608	326	115	81
22	102	133	95	329	370	1250	1480	240	563	299	110	79
23	100	133	94	307	383	2030	1240	288	531	279	106	76
24	98	138	94	302	390	2200	1070	304	522	263	105	74
25	98	142	103	290	394	1850	961	264	510	233	102	75
26	96	184	105	286	386	1570	885	252	482	188	100	75
27	94	325	104	303	353	1380	838	240	434	250	100	71
28	92	219	103	302	338	1270	766	247	404	211	98	71
29	91	195	96	289	---	1180	734	264	379	262	100	72
30	89	173	93	290	---	1140	739	295	356	279	99	69
31	88	---	101	286	---	1110	---	297	---	261	99	---
TOTAL	4684	4055	3593	10420	10448	21347	26470	13525	29978	7826	4223	2514
MEAN	151	135	116	336	373	689	882	436	999	252	136	83.8
MAX	312	325	165	866	460	2200	1510	745	2500	335	211	98
MIN	88	86	93	233	222	243	569	239	356	173	98	69
AC-FT	9290	8040	7130	20670	20720	42340	52500	26830	59460	15520	8380	4990

CAL YR 1978	TOTAL	78552	MEAN 215	MAX 10700	MIN 41	AC-FT	155800	
WTR YR 1979	TOTAL	139083	MEAN 381	MAX 2500	MIN 69	AC-FT	275900	

08181000 LEON CREEK TRIBUTARY AT FARM ROAD 1604, SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°35'14", long 98°37'40", Bexar County, Hydrologic Unit 12100301, 97 ft (30 m) upstream from culvert on Farm Road 1604 at San Antonio and 1.5 mi (2.4 km) west of bridge on Leon Creek.

DRAINAGE AREA.--5.57 mi² (14.43 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Digital recorders (stage and rainfall) and crest-stage gages. Gage is not referenced to National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,790 ft³/s (50.7 m³/s) July 16, 1973, elevation, 10.91 ft (3.325 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 242 ft³/s (6.85 m³/s) Mar. 21, elevation, 4.07 ft (1.241 m); water-quality samples were made on Mar. 21 and Apr. 29.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: May 1970 to current year. Sediment analyses: May 1972 to June 1973. Water temperatures: May 1970 to current year. Bacteria analyses: April 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAR										
21...	0310	198	174	8.2	16.5	240	180	13.2	138	3.0
APR										
29...	1005	67	59	8.6	19.0	100	230	9.2	102	3.4

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)
MAR										
21...	K62000	37000	78000	81	12	30	1.4	1.3	.1	2.6
APR										
29...	96000	K32000	K36000	45	9	17	.6	.9	.1	1.8

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR									
21...	84	0	12	2.4	.0	9.1	100	260	40
APR									
29...	44	0	7.2	1.2	.1	5.3	56	304	70

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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR									
21...	.39	.02	.41	.03	.84	.87	.07	19	.00
APR									
29...	.36	.02	.38	.05	.94	.99	.07	12	.00

08181000 LEON CREEK TRIBUTARY AT FARM ROAD 1604, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAR 21...	0310	1	10	<1	0	3	40
APR 29...	1005	2	0	0	10	3	50

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR 21...	1	2	.0	0	0	<3
APR 29...	0	10	.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 21...	0310	.0	--	.00	.0	.00	.00	.00	.00
APR 29...	1005	.0	.00	.00	.0	.00	.00	.00	.02

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
MAR 21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR 29...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 21...	.00	.00	.00	0	.00	.00	.00	.00
APR 29...	.00	.00	.00	0	.00	.00	.00	.00

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 mi² (38.8 km²).

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 good. 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.--11 years, 4.84 ft³/s (0.137 m³/s), 4.38 in/yr (111 mm/yr), 3,510 acre-ft/yr (4.33 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,680 ft³/s (217 m³/s) July 16, 1973, gage height, 10.8 ft (3.29 m), from floodmarks, from rating curve extended above 5,000 ft³/s (142 m³/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 discharges above base of 140 ft³/s (3.96 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)
Nov. 5	2045	159	4.50	2.45	0.747	bMar. 22	0830	326	9.23	2.88	0.878
Nov. 26	0745	151	4.28	2.40	.732	June 1	1200	*592	16.8	a3.4	1.04
bMar. 21	0400	440	12.5	a3.10	.945	July 27	1430	440	12.5	3.10	.945

a From floodmark.
b Water-quality samples were obtained on this date.

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	9.8	16	4.6	2.3	18	15	200	.27	3.4	.00
2	.00	.00	8.0	13	4.6	2.2	18	15	219	.00	3.2	.00
3	.00	.00	6.6	11	4.8	3.8	16	14	82	.07	2.5	.00
4	.00	.00	5.4	10	4.6	2.1	14	12	13	.00	2.0	.00
5	.00	24	4.2	9.0	5.9	1.1	14	11	22	.24	1.7	.00
6	.00	21	2.9	7.7	8.6	1.4	13	11	26	.41	1.5	.00
7	.00	10	2.1	7.2	9.4	1.0	12	11	21	.06	1.4	.00
8	.00	5.4	1.0	6.0	9.4	.60	12	10	16	.00	1.3	.00
9	.00	3.4	.34	5.2	9.1	.17	10	9.7	13	.00	1.0	.00
10	.00	1.9	.02	12	9.3	.81	11	9.1	12	.00	.54	.00
11	.00	.65	.00	25	9.1	.61	10	7.5	10	.00	3.2	.00
12	.00	.01	.07	26	8.4	.21	8.4	6.5	9.1	.00	2.2	.00
13	.00	.00	.00	22	7.4	.02	7.7	5.8	8.2	.00	1.0	.00
14	.00	.00	.00	17	6.9	.00	7.0	5.0	7.2	.00	.74	.00
15	.00	.00	.00	15	6.5	.04	6.1	3.9	6.7	.00	.61	.00
16	.00	.01	.00	13	6.0	.67	5.4	3.2	5.9	.00	.43	.00
17	.00	.00	.00	11	5.8	2.1	7.9	2.6	5.5	.00	.36	.00
18	.00	.00	.00	11	5.7	1.8	6.1	2.4	4.9	6.9	.42	.00
19	.00	.00	.00	10	5.8	.87	8.3	1.7	4.4	1.8	.09	.00
20	.00	.00	.00	9.6	5.7	.72	6.3	1.3	3.7	.31	.01	.00
21	.00	.00	.00	8.8	5.0	110	33	.98	3.5	.07	.00	.00
22	.00	.00	.00	8.6	4.6	131	33	2.6	3.1	.00	.00	.00
23	.00	.00	.00	8.0	4.3	93	26	1.2	2.5	.00	.00	.00
24	.00	.00	.00	7.0	3.6	65	22	.32	2.1	.00	.05	.00
25	.00	.00	.00	7.1	3.0	48	20	.06	1.8	.00	.00	.00
26	.00	32	.00	6.7	3.0	37	17	.00	1.7	.00	.00	.00
27	.00	23	.00	6.0	3.5	30	15	.00	1.2	44	.00	.00
28	.00	16	.00	5.2	2.9	25	14	.00	1.0	9.6	.00	.00
29	.00	13	.00	5.3	---	24	28	.00	.76	6.3	.00	.00
30	.00	11	.00	5.3	---	22	18	.00	.46	4.7	.00	.00
31	.00	---	21	4.8	---	18	---	.00	---	4.3	.00	---
TOTAL	.00	161.37	61.43	329.5	167.5	625.52	437.2	162.86	707.72	79.03	27.65	.00
MEAN	.000	5.38	1.98	10.6	5.98	20.2	14.6	5.25	23.6	2.55	.89	.000
MAX	.00	32	21	26	9.4	131	33	15	219	44	3.4	.00
MIN	.00	.00	.00	4.8	2.9	.00	5.4	.00	.46	.00	.00	.00
CFSM	.000	.36	.13	.71	.40	1.35	.97	.35	1.57	.17	.06	.000
IN.	.00	.40	.15	.82	.42	1.55	1.08	.40	1.76	.20	.07	.00
AC-FT	.00	320	122	654	332	1240	867	323	1400	157	55	.00
(††)	.26	7.27	.55	4.16	1.31	4.36	5.24	1.57	3.98	6.50	2.24	1.29

CAL YR 1978 TOTAL 358.60 MEAN .98 MAX 49 MIN .00 CFSM .07 IN .89 AC-FT 711 †† 31.86
WTR YR 1979 TOTAL 2759.78 MEAN 7.56 MAX 219 MIN .00 CFSM .50 IN 6.84 AC-FT 5470 †† 38.75

†† Weighted-mean rainfall, in inches, based on three rain gages.
NOTE.--No gage-height record May 11 to June 3.

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAR										
21...	0350	97	355	8.1	17.0	70	140	13.4	141	2.4
22...	0915	279	465	8.6	17.0	20	55	8.4	88	3.1
JUL										
18...	0841	33	337	7.9	25.5	15	22	7.0	86	--

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)
MAR										
21...	K65000	K15000	77000	170	18	54	9.4	5.6	.2	1.7
22...	K15000	3800	28000	220	10	73	10	5.5	.2	1.1
JUL										
18...	32000	14000	15000	150	3	44	10	8.0	.3	2.2

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR									
21...	190	0	14	9.1	.1	8.3	196	121	50
22...	260	0	14	9.2	.1	9.2	250	98	22
JUL									
18...	180	0	14	12	.1	11	190	43	21

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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR									
21...	.30	.02	.32	.02	.64	.66	.01	11	.00
22...	.58	.02	.60	.02	.42	.44	.05	5.8	.00
JUL									
18...	.25	.02	.27	.04	.49	.53	.03	6.8	.00

08181400 HELOTES CREEK AT HELOTES, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
MAR						
21...	0350	1	20	<1	0	2
22...	0915	0	20	<1	0	2
JUL						
18...	0841	1	100	1	0	18

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							
21...	20	0	1	.0	0	0	3
22...	0	0	2	.0	0	0	3
JUL							
18...	10	3	20	.1	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									
21...	0350	.0	--	.00	.0	.00	.00	.00	.00
22...	0915	.0	--	.00	.0	.00	.00	.00	.00
JUL									
18...	0841	.0	.00	.00	.0	.00	.00	.00	.03

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)	METHYL PARA-THION, TOTAL (UG/L)
MAR									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
22...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL									
18...	.00	.00	.00	.00	.00	.00	.00	.00	.01

DATE	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								
21...	.00	.00	.00	0	.00	.01	.00	.00
22...	.00	.00	.00	0	.00	.00	.00	.00
JUL								
18...	.00	.00	.00	0	.00	.01	.00	.00

08181410 RANCH CREEK NEAR HELOTES, TX

LOCATION.--Lat 29°36'06", long 98°43'26", Bexar County, Hydrologic Unit 12100302, on right bank 1.5 mi (2.4 km) upstream from Los Reyes Creek and 2.6 mi (4.2 km) northwest of Helotes.

DRAINAGE AREA.--0.39 mi² (1.01 km²).

PERIOD OF RECORD.--October 1977 to September 1978 (discontinued).
Water-quality records: Chemical, biochemical, and pesticide analyses: October 1976 to September 1978.

GAGE.--Water-stage recorder, crest-stage gages, and concrete control. Datum of gage is 1,183.66 ft (360.780 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversions above station. Recording rain gage located at station. Automatic water-quality sampler located at gage. Record was not published in 1978 water year because stage-discharge relation was not established.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 190 ft³/s (5.38 m³/s) Nov. 1, 1978, gage height, 4.59 ft (1.399 m); no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 190 ft³/s (5.38 m³/s) Nov. 1, gage height, 4.59 ft (1.399 m); no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	12	.00	.00	.00	.00	.00	.00	.00	.00	.37	.00
2	.00	.03	.00	.00	.00	.00	.00	.00	.00	.00	.32	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.40
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.02	.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	1.7
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.85
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	.12	.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	.00	.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	---	.00	.00	---
TOTAL	.00	12.03	.00	.00	.00	.00	.14	.00	.00	.00	.69	3.00
MEAN	.000	.40	.000	.000	.000	.000	.005	.000	.000	.000	.022	.10
MAX	.00	12	.00	.00	.00	.00	.12	.00	.00	.00	.37	1.7
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	24	.00	.00	.00	.00	.3	.00	.00	.00	1.4	6.0

WTR YR 1978 TOTAL 15.86 MEAN .043 MAX 12 MIN .00 AC-FT 31

08181450 LEON CREEK TRIBUTARY AT KELLY AIR FORCE BASE, TX

LOCATION.--Lat 29°23'12", long 98°36'00", Bexar County, Hydrologic Unit 12100302, on left bank 128 ft (39 m) downstream from centerline of bridge on Billy Mitchell Road at Kelly Air Force Base, 0.15 mi (0.24 km) upstream from mouth, and 2.0 mi (3.2 km) southeast of intersection of U.S. Highway 90 West and Loop 13.

DRAINAGE AREA.--1.19 mi² (3.08 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1969 to September 1979 (discontinued).

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 657.57 ft (220.427 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. Recording rain gage located at station with an additional rain gage located in watershed.

AVERAGE DISCHARGE.--10 years, 0.53 ft³/s (0.0150 m³/s), 6.05 in/yr (154 mm/yr), 384 acre-ft/yr (473,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 555 ft³/s (15.7 m³/s) May 14, 1970, gage height, 4.44 ft (1.353 m), from rating curve extended above 300 ft³/s (8.50 m³/s) on basis of formula, $Q=CLH^{3/2}$; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--No historical flood information is available.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.25 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)
aMar. 22	0830	22	0.62	1.60	0.488	June 1	1245	*228	6.46	2.89	0.881
aApr. 21	0100	116	3.29	2.28	.695	aJuly 5	1345	32	.91	1.73	.527

a Water-quality samples were obtained on this date.

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	1.8	.00	.00	.00	.02	34	.02	.14	.00
2	.00	.00	.00	.00	.00	.00	.08	.02	.74	.02	.01	.00
3	.00	.00	.00	.00	.00	.48	.02	.02	.02	.02	.00	.00
4	.00	.00	.00	.00	.02	.00	.00	.02	.00	.02	.00	.00
5	.00	19	.00	.00	.50	.00	.00	.00	8.2	5.2	.00	.81
6	.00	.92	.00	.00	.42	.00	.00	.00	.02	.03	.00	.00
7	.00	.02	.00	.00	.02	.00	.00	.00	.02	.54	.00	.00
8	.00	.00	.00	.00	.02	.00	.00	.00	.02	1.0	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.02	.61	.00	.00
10	.00	.00	.00	9.3	.00	.00	.00	.00	.02	.73	.00	.00
11	.00	.00	.00	.34	.00	.00	.00	1.8	.02	.11	.00	.00
12	.00	.00	.00	.02	.00	.00	.00	.02	.02	.09	1.5	.00
13	.00	.00	.00	.01	.00	.00	.00	.01	.02	.10	.01	.00
14	.00	.00	.00	.00	.00	.00	.00	.02	.02	.04	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.02	.02	.02	.60	.00
16	.00	.03	.00	.00	.00	.00	.00	.00	.02	.02	.02	.00
17	.00	.00	.00	.00	.00	.38	.61	.00	.02	.02	.01	.00
18	.00	.00	.00	.00	.00	.00	.01	.00	.02	2.8	.00	.00
19	.00	.00	.00	.00	.00	.00	6.3	.00	.02	.02	.00	.00
20	.00	.00	.00	.00	.00	.00	.13	.00	.02	.02	.00	.00
21	.00	.00	.00	.00	.00	.51	16	.00	.02	.02	.00	.00
22	.00	.00	.00	.00	.00	3.1	.02	1.1	.02	.07	.00	.00
23	.00	.00	.00	.00	.00	.22	.02	.00	.02	.01	.73	.00
24	.00	.00	.00	.00	.00	.18	.02	.02	.02	.00	.01	.00
25	.00	.00	.00	.00	.00	.05	.02	.00	.02	.00	.00	.00
26	.00	8.0	.00	.00	.00	.00	.02	.00	.02	4.4	.00	.00
27	.00	.00	.00	.00	.00	.00	.02	.00	.02	.79	.00	.00
28	.00	.00	.00	.00	.00	.00	.02	3.9	.02	1.4	.00	.00
29	.00	.00	.00	.00	---	.00	3.6	.03	.02	1.9	.51	.00
30	.00	.00	.00	.00	---	.00	.02	.26	.02	1.6	.02	.00
31	.00	---	.58	.00	---	.00	---	.02	---	.66	.00	---
TOTAL	.00	27.97	.58	11.47	.98	4.92	26.91	7.28	43.46	22.28	3.56	.81
MEAN	.000	.93	.019	.37	.035	.16	.90	.23	1.45	.72	.11	.027
MAX	.00	19	.58	9.3	.50	3.1	16	3.9	34	5.2	1.5	.81
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.78	.02	.31	.03	.13	.76	.19	1.22	.61	.09	.02
IN.	.00	.87	.02	.36	.03	.15	.84	.23	1.36	.70	.11	.03
AC-FT	.00	55	1.2	23	1.9	9.8	53	14	86	44	7.1	1.6
(††)	.27	5.01	.80	2.70	.97	2.00	4.77	1.73	5.58	3.88	2.49	.72

CAL YR 1978 TOTAL 159.78 MEAN .44 MAX 24 MIN .00 CFSM .37 IN 4.99 AC-FT 317 †† 29.17
WTR YR 1979 TOTAL 150.22 MEAN .41 MAX 34 MIN .00 CFSM .35 IN 4.69 AC-FT 298 †† 30.92

†† Weighted-mean rainfall, in inches, based on two rain gages.

08181450 LEON CREEK TRIBUTARY AT KELLY AIR FORCE BASE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: December 1969 to current year. Sediment analyses: April 1972 to September 1973. Water temperatures: December 1969 to current year. Bacteria analyses: April 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
MAR										
22...	1025	11	84	9.3	19.0	220	130	7.0	76	3.2
APR										
21...	0027	.74	74	8.5	20.0	40	190	8.2	92	5.0
JUL										
05...	1223	8.4	329	7.6	25.5	30	17	6.0	75	10

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)
MAR										
22...	K17000	K10000	44000	35	1	13	.7	1.4	.1	2.0
APR										
21...	K180000	K8000	23000	25	2	9.5	.3	1.0	.1	1.9
JUL										
05...	300000	K28000	K11000	160	160	60	3.0	17	.6	4.4

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR									
22...	42	0	4.2	1.7	.0	3.7	47	--	--
APR									
21...	28	0	2.8	.8	.1	2.5	33	369	51
JUL									
05...	--	--	32	10	.1	7.3	134	49	7

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MC/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MC/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR									
22...	.26	.02	.28	.04	.38	.42	.04	6.8	.10
APR									
21...	.39	.02	.41	.13	.55	.68	.11	9.9	.10
JUL									
05...	3.3	.27	3.6	.02	1.1	1.1	.11	13	.20

08181450 LEON CREEK TRIBUTARY AT KELLY AIR FORCE BASE TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
MAR 22...	1025	3	8	<1	0	4
APR 21...	0027	3	0	1	0	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR 22...	30	1	2	.0	0	0	7
APR 21...	10	0	10	.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 22...	1025	.2	--	.00	.0	.06	.01	.18	.00
APR 21...	0027	.6	.00	.00	.0	.00	.00	.30	.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)	METHYL PARA-THION, TOTAL (UG/L)
MAR 22...	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR 21...	.03	.00	.02	.00	.00	.00	.00	.00	.00

DATE	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 22...	.00	.00	.00	0	.00	.00	.00	.00
APR 21...	.00	.00	.00	0	.00	.01	.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. During the current year, records furnished by the city of San Antonio show they released approximately 249 acre-ft (0.307 hm³) of sewage effluent from Mitchell Lake into river above gage during periods of high water, and 249 acre-ft (0.307 hm³) of sewage effluent into the river just above the Mitchell Lake discharge point from the Leon Creek plant. The city of San Antonio Sanitation Department operates a temperature and gage-height telemeter at this station.

AVERAGE DISCHARGE.--40 years (water years 1930-31, 1939-79), 169 ft³/s (4.786 m³/s), 122,400 acre-ft/yr (151 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, 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, 4,750 ft³/s (134 m³/s) June 1, gage height, 21.61 ft (6.587 m), minimum , 89 ft³/s (2.52 m³/s) Sept 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	353	124	245	815	338	404	1160	880	1480	437	294	169
2	340	125	245	762	319	383	1140	862	2300	421	288	157
3	324	124	233	556	320	385	1150	818	943	399	287	154
4	292	124	229	469	348	385	1140	826	1090	362	271	151
5	271	142	236	430	404	399	1070	828	1970	383	254	156
6	258	687	224	397	489	389	998	766	2580	370	248	154
7	240	277	206	376	485	378	935	713	2110	368	241	172
8	239	198	198	350	496	373	892	685	2160	378	222	153
9	231	170	199	330	516	370	855	670	1850	380	208	142
10	226	152	198	334	534	359	839	671	1590	375	201	140
11	218	147	197	674	514	361	819	685	1440	377	191	137
12	219	143	196	484	518	365	810	690	1330	368	215	134
13	216	149	197	414	522	339	772	639	1260	340	219	134
14	209	161	193	382	525	325	720	601	1180	324	213	142
15	198	184	185	378	522	325	667	582	1090	312	214	134
16	186	210	178	320	513	330	632	549	1030	302	215	132
17	171	224	168	313	517	345	627	516	956	287	212	130
18	161	216	171	333	487	350	625	485	903	328	207	147
19	153	214	190	349	441	380	1110	459	844	330	198	149
20	148	221	190	393	423	415	1160	425	777	400	192	142
21	139	223	173	404	425	450	1960	402	720	413	187	143
22	137	223	160	394	443	1100	1820	423	679	389	183	131
23	135	221	155	373	456	1700	1380	433	643	355	187	121
24	133	224	153	362	459	1960	1220	454	625	339	195	121
25	134	237	166	363	457	1790	1110	420	614	324	185	118
26	141	300	175	363	454	1550	1020	405	592	287	172	114
27	134	329	174	368	426	1390	968	395	545	439	165	99
28	129	250	175	373	399	1290	900	451	514	372	161	97
29	128	246	162	372	---	1230	886	447	487	332	172	99
30	126	237	152	375	---	1200	874	467	462	344	201	95
31	126	---	184	372	---	1180	---	473	---	334	173	---
TOTAL	6115	6482	5907	12978	12750	22200	30259	18120	34764	11169	6571	4067
MEAN	197	216	191	419	455	716	1009	585	1159	360	212	136
MAX	353	687	245	815	534	1960	1960	880	2580	439	294	172
MIN	126	124	152	313	319	325	625	395	462	287	161	95
AC-FT	12130	12860	11720	25740	25290	44030	60020	35940	68950	22150	13030	8070

CAL YR 1978 TOTAL 95463 MEAN 262 MAX 7760 MIN 60 AC-FT 189400
WTR YR 1979 TOTAL 171382 MEAN 470 MAX 2580 MIN 95 AC-FT 339900

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT												
19...	1325	84	783	7.9	20.0	10	6.0	6.8	77	1.7	310	82
NOV												
09...	1300	165	745	7.8	18.0	30	25	6.8	74	65	280	71
DEC												
21...	1145	158	811	7.7	16.0	20	45	6.9	72	17	330	89
JAN												
18...	1215	213	633	7.7	14.0	20	15	8.8	88	5.4	250	49
FEB												
15...	1030	514	551	8.0	16.5	25	25	8.4	88	2.7	240	64
MAR												
23...	1000	1670	425	8.1	15.0	70	150	8.6	86	3.2	190	38
APR												
12...	1400	810	580	8.0	20.0	15	38	8.2	91	2.6	250	60
MAY												
11...	1340	678	578	7.7	22.0	5	22	6.5	74	2.9	260	55
JUN												
07...	1230	2110	497	8.0	25.5	20	120	7.0	86	3.8	190	30
JUL												
13...	1227	333	655	8.0	27.5	5	15	5.4	69	5.1	230	13
AUG												
03...	1022	284	652	8.1	27.0	10	6.2	5.8	72	2.2	250	50
31...	1158	164	802	7.8	26.0	5	6.2	5.0	62	2.2	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)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT												
19...	92	20	42	1.0	3.5	280	0	99	59	.3	13	467
NOV												
09...	81	18	47	1.2	5.0	250	0	78	64	.3	13	430
DEC												
21...	98	20	48	1.2	4.2	290	0	100	65	.2	9.7	488
JAN												
18...	72	16	28	.8	3.3	240	0	61	41	.2	11	351
FEB												
15...	70	17	23	.6	2.4	220	0	56	30	.2	9.4	317
MAR												
23...	58	12	12	.4	2.7	190	0	42	19	.2	9.9	249
APR												
12...	73	16	19	.5	2.4	230	0	54	27	.2	9.0	314
MAY												
11...	76	16	23	.6	2.7	250	0	57	30	.3	9.7	338
JUN												
07...	58	12	13	.4	3.1	200	0	45	14	.2	11	255
JUL												
13...	66	17	32	.9	2.9	270	0	66	39	.3	13	369
AUG												
03...	71	17	35	1.0	2.6	240	0	66	41	.3	12	363
31...	89	20	48	1.2	3.6	290	0	89	59	.4	14	466

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	PHENOLS (UG/L)
OCT											
19...	18	3	3.4	.13	3.5	.18	.46	.64	.51	3.8	0
NOV											
09...	194	41	1.6	.08	1.7	.58	1.1	1.7	.63	7.1	11
DEC											
21...	94	20	2.9	.57	3.5	2.2	1.6	3.8	1.5	5.7	1
JAN											
18...	33	5	1.6	.26	1.9	1.2	.30	1.5	.45	4.8	2
FEB											
15...	11	4	.46	.16	.62	.47	.73	1.2	.23	5.2	2
MAR											
23...	254	58	.20	.02	.22	.12	.67	.79	.26	9.9	5
APR											
12...	79	14	.91	.19	1.1	.43	.38	.81	.19	7.9	0
MAY											
11...	76	23	1.3	.33	--	.46	.32	--	.16	4.1	--
JUN											
07...	250	64	.51	.06	.57	.17	.62	.79	.15	9.4	0
JUL											
13...	25	6	2.0	.58	2.6	.68	.42	1.1	.17	3.8	0
AUG											
03...	43	20	2.1	.42	2.5	.20	.47	.67	.28	4.6	0
31...	58	3	3.0	.65	3.6	.98	.62	1.6	.48	7.1	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)
NOV						
09...	1300	2	50	<1	0	2
FEB						
15...	1030	1	100	0	0	0
MAY						
11...	1340	1	0	0	0	0
AUG						
03...	1022	1	50	<1	0	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV							
09...	0	3	9	.0	2	0	<3
FEB							
15...	10	1	0	.0	0	0	20
MAY							
11...	10	1	0	.1	1	0	10
AUG							
03...	0	0	4	.1	1	0	<3

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT 19...	1325	.0	7	.00	.00	.0	.0	8	.00	.8
JAN 18...	1215	.0	--	--	.00	--	.0	--	.00	--
APR 12...	1400	.0	--	.00	.00	--	.0	--	.00	--
JUL 13...	1227	.0	0	.00	.00	.0	.0	1	.00	4.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 19...	.00	1.6	.00	.0	.03	.00	.5	.00	.00	.0
JAN 18...	.00	--	.00	--	.04	.00	--	.00	.00	--
APR 12...	.00	--	.00	--	.01	.00	--	.00	.00	--
JUL 13...	.00	.0	.00	.0	.03	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
OCT 19...	.00	.00	.0	.00	.0	.00	.1	.00	.00
JAN 18...	.00	.00	--	.00	--	.00	--	.00	.00
APR 12...	.00	.00	--	.00	--	.00	--	.00	.00
JUL 13...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
OCT 19...	.00	.00	.00	0	0	.00	.00	.00	.00
JAN 18...	.00	.00	.00	0	--	.00	.00	.00	.00
APR 12...	.00	.00	.00	0	--	.00	.00	.00	.00
JUL 13...	.00	.00	.00	0	0	.00	.00	.00	.00

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX

LOCATION.--Lat 29°14'15", long 98°21'43", Bexar County, Hydrologic Unit 12100301, on left bank 2,000 ft (610 m) downstream from Braunig Plant Lake, 2.2 mi (3.5 km) southwest of Elmendorf, and 205.5 mi (330.6 km) upstream from mouth. Water-quality sampling site at Farm Road 1604, 2.5 mi (4.0 km) downstream.

DRAINAGE AREA.--1,743 mi² (4,514 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 392.50 ft (119.634 m) National Geodetic Vertical Datum of 1929.

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. Records furnished by the city of San Antonio show that during the current year 24,410 acre-ft (30.1 hm³) of sewage effluent was discharged into the San Antonio River from the Salado Creek Plant and 94,780 acre-ft (117 hm³) was discharged from the Rilling Road Plant, about 7.5 and 15.5 mi (12.1 and 24.9 km), respectively, upstream from this station. Records furnished by the San Antonio City Public Service Board show that at pump plant 1,700 ft (518 m) upstream from this station 7,680 acre-ft (9.47 hm³) was pumped into the Braunig Plant Lake and 4,730 acre-ft (5.83 hm³) was pumped into Calaveras Lake. During the current year, 120 acre-ft (0.148 hm³) was released from Braunig 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.--17 years (water years 1963-79), 527 ft³/s (14.92 m³/s), 381,800 acre-ft/yr (471 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.

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.

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)
Apr. 21	1300	10,000	283	29.62	9.028
June 2	0500	*12,900	365	31.96	9.741
June 6	0100	7,180	203	26.71	8.141

Minimum discharge, 188 ft³/s (5.32 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	637	350	532	1230	637	672	1520	1290	3400	691	575	440
2	629	350	511	1170	620	662	1570	1220	9050	680	575	428
3	621	346	494	816	637	1190	1600	1180	1910	658	622	417
4	591	335	491	723	668	718	1480	1140	1540	608	594	428
5	550	526	492	711	976	691	1380	1110	4280	1370	564	459
6	527	2410	476	674	1370	672	1300	1050	5370	1060	521	517
7	492	679	470	644	996	658	1230	1000	3030	688	488	438
8	499	466	447	621	820	652	1180	953	2930	711	463	380
9	523	435	440	596	811	648	1140	923	2580	699	441	344
10	517	411	436	940	817	669	1130	923	2220	695	456	359
11	463	397	442	3270	801	674	1110	1040	2000	775	477	316
12	399	381	436	1060	799	652	1080	1130	1840	684	969	320
13	441	382	437	766	802	576	1040	889	1730	646	645	316
14	466	388	441	707	803	535	982	831	1610	612	480	310
15	445	405	441	716	798	721	929	808	1500	619	450	304
16	394	547	425	661	780	808	897	769	1410	609	477	300
17	387	508	400	620	772	894	1090	730	1320	565	476	286
18	393	431	405	666	753	686	1090	693	1260	1240	500	318
19	379	440	418	736	719	646	1660	658	1200	975	480	363
20	367	469	427	806	706	739	1790	623	1130	906	477	315
21	345	448	396	737	706	1010	7340	613	1050	1020	473	295
22	351	431	399	704	722	1710	4320	892	1000	779	464	275
23	321	434	391	680	744	2290	2040	685	952	703	599	261
24	281	424	385	660	750	2440	1690	645	912	641	623	267
25	292	446	382	685	720	2330	1520	623	896	574	488	267
26	422	1250	389	775	727	2060	1400	590	876	560	474	260
27	356	1280	397	691	704	1850	1300	572	834	1140	456	246
28	363	648	403	661	701	1710	1210	1130	798	1260	450	244
29	352	580	408	721	---	1640	2240	716	762	725	447	237
30	358	557	396	739	---	1580	2510	657	727	673	511	228
31	359	---	692	677	---	1570	---	988	---	633	511	---
TOTAL	13520	17154	13699	25863	21859	34353	50768	27071	60117	24199	16226	9938
MEAN	436	572	442	834	781	1108	1692	873	2004	781	523	331
MAX	637	2410	692	3270	1370	2440	7340	1290	9050	1370	969	517
MIN	281	335	382	596	620	535	897	572	727	560	441	228
AC-FT	26820	34020	27170	51300	43360	68140	100700	53700	119200	48000	32180	19710

CAL YR 1978 TOTAL 221000 MEAN 605 MAX 10300 MIN 108 AC-FT 438400
WTR YR 1979 TOTAL 314767 MEAN 862 MAX 9050 MIN 228 AC-FT 624300

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; minimum daily, 5.5°C Jan. 10, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 905 micromhos Nov. 4; minimum daily, 310 micromhos June 2.
WATER TEMPERATURES: Maximum daily, 39.0°C on several days during June, July and August; minimum daily, 9.0°C Jan. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT												
19...	1115	316	847	7.8	20.0	20	9.0	6.9	78	13	300	60
NOV												
09...	1105	433	784	7.7	19.0	30	25	7.2	80	10	260	45
DEC												
21...	1010	385	839	7.7	17.5	20	15	6.6	61	18	--	--
JAN												
18...	1055	633	752	7.6	16.0	15	15	8.4	88	16	260	33
FEB												
15...	1225	761	693	7.8	18.5	25	35	6.4	70	20	280	75
MAR												
22...	1555	1710	546	7.9	19.0	30	220	6.8	74	18	210	43
APR												
12...	1115	1060	675	7.8	21.0	10	24	6.1	68	11	260	45
MAY												
11...	0820	931	706	--	24.5	--	--	--	--	--	260	53
11...	1145	891	702	7.7	23.0	8	20	4.2	49	12	280	62
JUN												
07...	0925	2970	497	8.0	25.0	25	150	6.6	81	5.7	190	19
JUL												
13...	0930	638	736	7.9	28.0	5	11	4.5	58	11	250	25
AUG												
02...	1507	506	739	7.6	28.5	5	16	4.6	60	11	280	59
30...	1312	1880	829	7.7	27.0	5	7.2	4.5	57	20	290	61

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT												
19...	88	19	58	1.5	6.0	290	0	83	77	.4	16	490
NOV												
09...	77	16	57	1.5	7.0	260	0	69	72	.3	15	442
DEC												
21...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
18...	77	17	46	1.2	5.1	280	0	63	63	.3	14	423
FEB												
15...	79	20	34	.9	4.2	250	0	64	52	.3	11	388
MAR												
22...	63	12	28	.8	4.6	200	0	50	37	.3	11	305
APR												
12...	77	16	31	.8	3.8	260	0	54	40	.3	10	360
MAY												
11...	82	13	38	1.0	4.4	250	0	61	49	.3	12	383
11...	84	16	38	1.0	4.7	260	0	60	49	.3	11	391
JUN												
07...	55	12	24	.8	4.7	204	0	50	23	.3	14	284
JUL												
13...	74	17	50	1.4	4.9	280	0	67	56	.4	15	422
AUG												
02...	81	19	44	1.1	4.6	270	0	63	55	.3	14	414
30...	85	19	58	1.5	5.2	280	0	77	71	.4	15	469

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	PHENOLS (UG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
OCT												
19...	26	6	3.3	.93	4.2	1.6	1.2	2.8	2.20	11	1	.40
NOV												
09...	78	17	1.5	.25	1.7	2.0	1.5	3.5	.980	8.2	2	.40
DEC												
21...	30	9	3.0	1.6	4.6	1.8	1.3	3.1	1.80	6.0	3	--
JAN												
18...	39	1	1.3	.58	1.9	3.0	.70	3.7	1.20	6.8	1	.20
FEB												
15...	15	5	.84	.96	1.8	1.7	1.3	3.0	.840	6.8	3	.10
MAR												
22...	452	96	.81	.69	1.5	.80	1.3	2.1	.800	24	4	.00
APR												
12...	73	15	.84	.66	1.5	1.7	.90	2.6	1.30	5.5	6	.10
MAY												
11...	--	--	--	--	--	--	--	--	--	--	--	--
11...	60	32	1.3	.72	2.0	1.8	.80	2.6	.980	5.6	0	.20
JUN												
07...	376	104	.60	.21	.81	.63	.33	.96	.410	11	0	.10
JUL												
13...	38	12	2.1	1.0	3.1	1.3	.60	1.9	.730	5.4	0	.10
AUG												
02...	41	17	2.1	.90	3.0	1.8	.70	2.5	1.60	5.8	0	.10
30...	149	3	2.9	1.0	3.9	1.7	.70	2.4	1.50	5.8	0	.10

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV							
09...	1105	2	50	<1	0	2	20
FEB							
15...	1225	1	0	0	10	1	0
MAY							
11...	1145	1	0	0	0	2	20
AUG							
02...	1507	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						
09...	5	20	.0	2	0	8
FEB						
15...	1	10	.0	1	0	20
MAY						
11...	1	10	.1	1	0	20
AUG						
02...	0	20	.2	1	0	7

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT 19...	1115	.0	7	.00	.00	.0	.0	5	.00	1.1
JAN 18...	1055	.0	32	--	.00	.0	.0	3	.00	1.1
APR 12...	1115	.0	--	.00	.00	--	.0	--	.00	--
JUL 13...	0930	.0	400	.00	.00	.0	.0	79	.00	61

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 19...	.00	1.3	.00	.4	.28	.00	.4	.00	.00	.0
JAN 18...	.00	5.7	.00	.0	.17	.00	1.2	.00	.00	.0
APR 12...	.00	--	.00	--	.12	.00	--	.00	.00	--
JUL 13...	.00	.0	.00	6.0	.28	.00	53	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
OCT 19...	.00	.00	.0	.00	.0	.01	.0	.00	.00
JAN 18...	.00	.00	.0	.00	.0	.01	.2	.00	.00
APR 12...	.00	.00	--	.00	--	.00	--	.00	.00
JUL 13...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
OCT 19...	.00	.00	.00	0	0	.00	.00	.00	.00
JAN 18...	.00	.00	.01	0	0	.00	.04	.01	.00
APR 12...	.00	.00	.00	0	--	.00	.00	.00	.00
JUL 13...	.00	.00	.00	0	0	.00	.00	.00	.00

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	13520	798	450	16600	70	2550	73	2650	290
NOV. 1978.....	17154	705	400	18500	59	2750	64	2980	250
DEC. 1978.....	13699	805	460	16900	71	2620	73	2710	290
JAN. 1979.....	25863	654	370	26000	51	3570	60	4180	230
FEB. 1979.....	21859	698	400	23400	54	3210	64	3760	250
MAR. 1979.....	34353	611	350	32200	47	4360	56	5220	220
APR. 1979.....	50768	551	310	42900	41	5670	51	6990	200
MAY 1979.....	27071	685	390	28500	53	3900	63	4590	250
JUNE 1979.....	60117	526	300	48700	40	6450	49	7900	190
JULY 1979.....	24199	666	380	24700	52	3430	61	3980	240
AUG. 1979.....	16226	733	420	18200	60	2620	67	2930	260
SEPT 1979.....	9938	769	440	11700	65	1750	70	1880	280
TOTAL	314767	**	**	308000	**	42900	**	49800	**
WTD.AVG.	862	638	360	**	50	**	59	**	230

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	721	891	741	689	760	706	579	614	450	727	694	750
2	709	880	729	504	753	738	580	646	310	735	701	763
3	703	888	744	528	765	708	559	658	538	745	739	737
4	733	905	757	593	775	673	588	670	610	755	725	749
5	753	850	762	634	736	687	617	684	500	550	710	750
6	776	558	780	654	620	699	621	658	442	573	714	763
7	782	615	788	682	648	740	610	691	474	672	729	734
8	814	737	817	670	711	726	621	697	524	752	741	773
9	791	792	807	696	716	740	614	695	537	739	780	742
10	784	810	813	650	697	743	630	697	554	735	775	771
11	799	832	797	471	689	699	639	635	558	691	770	763
12	803	842	794	576	673	702	636	621	565	744	660	788
13	805	835	822	690	679	718	638	680	579	752	649	803
14	800	827	828	707	678	751	634	670	592	743	692	797
15	815	856	841	705	680	720	638	685	602	748	743	782
16	800	805	835	722	685	636	640	697	614	756	765	791
17	786	773	832	734	680	600	655	720	620	779	747	781
18	809	767	828	752	678	680	647	730	622	525	643	777
19	842	785	823	741	682	713	698	747	650	579	745	736
20	848	758	833	744	697	722	565	754	676	721	741	763
21	864	767	842	727	710	708	345	770	680	555	755	775
22	892	800	844	707	719	628	440	784	691	648	793	781
23	854	794	832	721	723	478	529	742	695	666	776	784
24	828	800	825	735	700	492	587	755	708	703	722	774
25	845	770	801	730	707	500	603	762	690	717	730	764
26	864	500	805	732	687	516	627	760	700	733	750	788
27	828	443	807	730	692	540	630	754	712	602	772	794
28	838	619	828	728	706	559	638	600	724	573	758	797
29	871	702	847	709	---	567	642	646	736	594	808	800
30	841	735	841	695	---	581	440	742	729	691	790	802
31	831	---	800	730	---	591	---	591	---	688	733	---
MEAN	807	765	808	680	702	654	596	695	603	684	737	772

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	22.0	18.0	14.0	13.0	17.0	21.0	23.0	26.0	26.0	---	27.0
2	25.0	23.0	21.0	10.0	13.0	18.5	19.5	23.0	22.0	28.0	28.5	27.0
3	25.5	24.0	23.0	---	16.0	20.0	19.5	23.5	23.0	28.5	---	26.0
4	25.5	22.0	18.5	10.5	16.0	18.0	17.0	22.0	25.0	27.0	27.0	28.0
5	25.5	22.0	16.0	---	14.5	16.5	20.5	20.0	---	27.0	27.0	28.5
6	26.0	20.0	24.5	11.0	13.0	---	20.5	20.0	24.0	27.0	---	28.5
7	22.0	19.0	17.0	12.0	13.0	16.5	20.0	23.0	27.0	27.0	28.5	27.0
8	23.0	18.5	14.5	9.5	13.5	---	23.0	23.5	26.0	27.0	28.5	26.0
9	23.5	19.5	15.0	10.5	13.5	18.5	20.5	24.0	25.0	28.5	28.5	26.0
10	23.5	---	13.0	11.0	13.0	17.0	19.5	24.5	26.0	28.5	---	26.0
11	24.5	22.0	13.0	9.5	15.0	18.0	21.0	24.5	24.5	28.0	28.0	26.0
12	24.5	21.0	13.5	9.0	15.5	---	21.0	20.0	25.0	28.0	25.0	26.5
13	25.0	22.0	15.0	14.0	18.5	17.0	23.0	22.0	24.5	28.5	28.0	26.5
14	21.0	23.5	---	13.0	18.5	18.0	20.0	21.5	25.5	28.0	28.0	26.0
15	20.0	24.0	16.0	10.5	---	18.5	20.0	23.0	26.5	27.0	27.0	23.0
16	20.5	20.5	16.0	13.0	17.0	16.5	22.0	23.0	23.0	28.5	27.0	23.0
17	21.0	18.0	16.0	15.0	15.0	19.0	22.0	23.5	25.0	29.0	26.5	24.0
18	21.5	19.0	16.5	17.0	14.0	19.0	22.0	---	25.5	29.0	26.0	25.0
19	21.0	20.0	17.0	19.0	11.5	20.5	24.0	22.0	---	27.0	27.0	24.0
20	21.0	18.0	18.5	28.0	13.0	21.0	23.0	25.0	26.5	28.0	28.5	24.0
21	19.0	18.0	18.0	15.0	14.0	20.5	21.0	24.5	28.0	26.0	28.5	24.5
22	22.0	18.5	15.5	14.5	---	20.5	22.0	24.5	27.0	27.0	28.5	23.0
23	23.5	20.0	17.0	14.5	18.5	19.5	---	24.0	26.0	28.5	27.0	23.0
24	22.0	---	16.0	14.5	19.0	17.0	21.5	25.5	25.0	28.5	29.0	25.0
25	24.5	21.0	15.0	14.0	16.0	16.0	24.0	25.0	27.0	29.0	25.0	25.5
26	23.0	24.0	16.5	15.5	15.0	18.0	24.0	22.0	29.0	29.0	26.0	24.5
27	21.5	---	15.5	16.0	16.0	19.5	---	23.0	29.0	28.0	29.0	24.5
28	20.0	17.0	16.0	15.0	16.5	20.0	20.0	---	27.0	26.0	28.0	25.0
29	21.0	17.0	17.0	13.5	---	19.5	22.0	24.5	27.0	27.0	29.0	22.0
30	21.0	16.5	19.0	13.0	---	20.5	20.5	25.5	26.0	---	28.0	23.0
31	21.0	---	16.0	---	---	20.0	---	25.5	---	28.5	---	---
MEAN	22.5	20.5	17.0	13.5	15.0	18.5	21.0	23.5	26.0	28.0	27.5	25.5

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. Records furnished by the San Antonio City Public Service Board show that during the current year, 4,790 acre-ft (5.91 hm³) was released into Calaveras Creek from Calaveras Lake.

AVERAGE DISCHARGE.--54 years (water years 1926-79), 394 ft³/s (11.16 m³/s), 285,500 acre-ft (352 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.--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)
Apr. 23	1500	5,190	157	8.69	2.649
June 4	0500	*5,800	164	9.62	2.932
June 8	0200	4,900	139	8.23	2.509

Minimum discharge, 264 ft³/s (7.48 m³/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	663	369	614	716	746	775	1680	2860	1020	781	671	545
2	645	367	592	1220	691	772	1700	1900	1940	736	625	484
3	630	361	572	1400	664	739	1900	1620	4210	709	593	464
4	625	358	541	945	665	1180	1760	2080	5110	695	638	446
5	609	364	523	808	725	917	1620	1660	3470	670	632	453
6	570	1130	517	767	991	777	1510	1310	4080	1020	603	473
7	526	2200	513	728	1430	757	1420	1240	4430	1460	573	483
8	510	1180	504	687	1290	733	1350	1160	4450	772	533	527
9	486	602	484	654	940	723	1300	1120	3400	746	510	436
10	503	523	467	697	903	715	1260	1070	2910	733	486	392
11	511	463	463	1870	903	711	1240	1080	2540	724	474	380
12	499	444	459	2730	900	772	1210	1120	2230	798	516	373
13	431	430	459	1810	886	724	1190	1310	2080	725	792	357
14	412	403	459	908	893	676	1160	1060	1960	685	831	353
15	449	400	459	795	894	563	1110	965	1830	648	547	345
16	448	409	461	762	887	647	1060	935	1700	638	491	347
17	425	442	461	729	875	946	1040	899	1590	638	509	332
18	376	500	451	658	861	936	1130	858	1480	611	486	339
19	402	510	432	683	855	839	1320	816	1370	1010	528	322
20	390	499	440	775	814	726	2290	776	1300	1290	516	412
21	380	484	449	831	791	784	2410	730	1210	894	499	380
22	373	484	430	835	783	986	3260	722	1130	1120	501	345
23	358	484	418	756	800	1540	4910	882	1070	862	507	329
24	359	476	420	725	819	2210	3550	872	1030	754	533	306
25	309	475	413	701	843	2370	2160	732	982	697	690	293
26	324	475	405	707	818	2420	1890	721	959	617	554	300
27	371	1080	406	817	804	2220	1720	678	942	607	509	296
28	398	1660	419	766	800	2010	1490	686	905	994	485	286
29	376	891	423	711	---	1840	1490	1090	861	1350	482	273
30	367	649	427	726	---	1740	2190	937	825	832	476	270
31	359	---	578	815	---	1690	---	759	---	723	513	---
TOTAL	14084	19112	14659	28732	24271	35438	53320	34648	63014	25539	17303	11341
MEAN	454	637	473	927	867	1143	1777	1118	2100	824	558	378
MAX	663	2200	614	2730	1430	2420	4910	2860	5110	1460	831	545
MIN	309	358	405	654	664	563	1040	678	825	607	474	270
AC-FT	27940	37910	29080	56990	48140	70290	105800	68720	125000	50660	34320	22490

CAL YR 1978 TOTAL 218559 MEAN 599 MAX 6520 MIN 90 AC-FT 433500
WTR YR 1979 TOTAL 341461 MEAN 936 MAX 5110 MIN 270 AC-FT 677300

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1968 to current year. Sediment analyses: January 1966 to September 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT										
16...	1120	452	878	7.7	22.0	--	--	3.2	310	79
NOV										
06...	1123	1380	877	7.6	22.5	5.2	61	6.1	290	68
DEC										
18...	1200	448	906	7.6	15.0	5.2	54	4.4	330	92
JAN										
15...	1120	810	709	7.6	9.0	8.2	73	16	250	48
FEB										
20...	1206	823	696	7.6	12.0	6.9	66	3.7	260	51
MAR										
19...	1210	836	694	7.5	19.0	4.2	45	4.7	250	57
APR										
09...	1230	1300	650	7.4	20.0	6.0	67	2.4	250	50
MAY										
07...	1245	1220	663	7.4	22.5	4.4	51	3.4	270	59
JUN										
04...	1210	5310	347	7.8	23.0	4.6	54	3.6	120	17
JUL										
09...	1250	752	732	7.2	28.5	9.6	123	2.0	260	67
AUG										
02...	1025	639	740	8.1	29.0	5.0	65	1.8	280	69
30...	1128	484	857	7.9	27.5	5.3	67	2.4	300	75

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT										
16...	89	21	67	1.7	6.0	280	0	100	81	.4
NOV										
06...	83	20	72	1.8	6.7	270	0	92	85	.3
DEC										
18...	99	20	64	1.5	7.3	290	0	110	88	.3
JAN										
15...	75	14	45	1.3	6.4	240	0	71	58	.3
FEB										
20...	78	15	40	1.1	3.5	250	0	67	51	.3
MAR										
19...	77	15	40	1.1	5.5	240	0	72	53	.3
APR										
09...	74	15	28	.8	3.7	240	0	55	36	.3
MAY										
07...	82	16	34	.9	4.1	258	0	62	43	.4
JUN										
04...	37	5.6	17	.7	6.2	120	0	37	18	.2
JUL										
09...	81	15	43	1.2	5.3	240	0	77	56	.3
AUG										
02...	85	17	43	1.1	4.2	260	0	69	53	.3
30...	89	20	61	1.5	5.2	280	0	90	70	.4

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT									
16...	16	518	4.8	.25	5.0	.16	1.1	1.3	2.3
NOV									
06...	14	506	5.2	.40	5.6	.41	2.2	2.6	2.6
DEC									
18...	14	546	5.3	.38	5.7	.39	1.9	2.3	1.2
JAN									
15...	13	401	2.2	.43	2.6	1.5	1.2	2.7	.97
FEB									
20...	12	390	1.4	.33	1.7	.19	1.1	1.3	.20
MAR									
19...	12	393	2.1	.54	2.6	.23	.72	.95	1.0
APR									
09...	10	340	2.0	.48	2.5	.28	.66	.94	.90
MAY									
07...	11	380	2.3	.55	2.8	.28	.46	.74	.58
JUN									
04...	11	191	.87	.33	1.2	.07	.82	.89	.36
JUL									
09...	13	409	2.5	.31	2.8	.03	.72	.75	.52
AUG									
02...	15	415	2.8	.18	3.0	.01	.59	.60	.63
30...	15	489	1.7	.10	1.8	.01	1.5	1.5	.01

08183900 CIBOLO CREEK 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 a multiple-purpose floodwater-retarding structure with detention-capacity of 4,693 acre-ft (5.79 hm³). This structure controls runoff from 19.8 mi² (51.3 km²). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years, 30.3 ft³/s (0.858 m³/s), 6.02 in/yr (153 mm/yr), 21,950 acre-ft/yr (27.1 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), 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)
Nov. 5	1800	924	26.2	4.38	1.335	June 2	2400	2,520	71.4	5.83	1.777
Dec. 31	0500	3,930	111	7.00	2.134	June 5	0730	916	25.9	4.37	1.332
Mar. 22	0630	1,330	37.7	4.83	1.472	July 18	0630	924	26.2	4.38	1.335
a Mar. 20	2230	*5,620	159	8.48	2.585	July 27	1200	2,860	81.0	6.12	1.865
Apr. 19	0200	1,170	33.1	4.66	1.420						

a From floodmark.

Minimum discharge, 4.5 ft³/s (0.13 m³/s) Nov. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	5.6	11	225	36	42	224	110	212	24	32	9.4
2	10	5.6	12	94	40	44	207	116	187	24	29	11
3	10	5.4	13	77	45	66	156	107	419	23	27	11
4	10	4.9	11	77	68	42	143	93	138	23	25	11
5	10	176	12	71	104	41	133	83	386	24	24	11
6	9.3	41	12	63	231	40	123	77	240	29	23	11
7	8.1	8.8	13	55	121	41	124	72	180	40	22	10
8	8.2	6.6	12	47	105	40	128	69	153	25	20	9.4
9	8.3	6.1	12	47	92	40	100	69	127	21	20	9.8
10	8.3	6.0	11	186	89	43	74	66	112	20	20	10
11	8.3	6.2	11	124	86	41	69	62	97	20	24	10
12	7.7	6.8	11	80	80	39	61	57	86	21	21	10
13	7.3	6.9	11	69	77	34	55	51	79	24	20	11
14	6.2	6.9	11	65	71	35	53	47	71	24	19	11
15	5.7	9.2	11	65	70	39	51	45	66	24	18	11
16	5.6	19	11	63	61	44	49	42	61	24	17	11
17	5.6	11	9.7	59	59	67	61	41	56	26	17	10
18	5.6	9.1	9.4	82	56	51	54	40	50	217	16	11
19	6.1	9.2	9.4	73	55	47	255	39	45	49	15	11
20	6.6	9.4	9.4	65	55	492	103	37	42	30	15	10
21	6.2	10	9.0	53	51	1060	327	36	38	26	15	8.7
22	6.2	11	8.9	51	51	529	149	46	37	23	16	8.3
23	6.1	11	8.9	50	130	304	144	37	35	20	19	7.8
24	6.1	11	8.9	46	62	263	129	34	32	19	11	7.3
25	6.2	12	8.9	50	50	230	122	33	30	17	8.9	7.0
26	6.4	12	8.9	55	47	209	118	30	28	16	8.1	6.5
27	5.4	15	8.9	43	46	218	107	29	28	270	7.8	6.1
28	5.2	12	8.9	40	44	225	100	30	27	56	7.3	5.9
29	5.3	11	8.9	44	---	229	191	31	26	43	7.3	5.5
30	5.5	11	8.9	45	---	273	125	28	24	37	7.3	5.1
31	5.4	---	773	37	---	214	---	25	---	34	8.9	---
TOTAL	220.9	475.7	1085.0	2201	2082	5082	3735	1682	3112	1273	540.6	277.8
MEAN	7.13	15.9	35.0	71.0	74.4	164	125	54.3	104	41.1	17.4	9.26
MAX	10	176	773	225	231	1060	327	116	419	270	32	11
MIN	5.2	4.9	8.9	37	36	34	49	25	24	16	7.3	5.1
CFSM	.10	.23	.51	1.04	1.09	2.40	1.83	.79	1.52	.60	.25	.14
IN.	.12	.26	.59	1.20	1.13	2.76	2.03	.91	1.69	.69	.29	.15
AC-FT	438	944	2150	4370	4130	10080	7410	3340	6170	2520	1070	551

CAL YR 1978 TOTAL 3688.13 MEAN 10.1 MAX 773 MIN .04 CFSM .15 IN 2.01 AC-FT 7320
WTR YR 1979 TOTAL 21767.00 MEAN 59.6 MAX 1060 MIN 4.9 CFSM .87 IN 11.84 AC-FT 43170

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 mi² (710 km²).

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 except those for period of no gage-height record, June 6 to July 25, which are fair. 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.--33 years, 15.3 ft³/s (0.433 m³/s), 11,080 acre-ft/yr (13.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,000 ft³/s (1,840 m³/s) July 16, 1973, gage height, 26.2 ft (7.99 m) from floodmark, from rating curve extended above 16,000 ft³/s (453 m³/s) on basis of field estimate of 54,000 ft³/s (1,530 m³/s) and contracted-opening measurement of 65,000 ft³/s (1,840 m³/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 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	1400	*7,890	223	10.81	3.295
June 2	0100	695	19.7	5.19	1.582

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.08	19	.00	.00	100	5.0	37	.00	.15	.00
2	.00	.00	.07	21	.00	.00	72	7.7	274	.00	.12	.00
3	.00	.00	.04	3.8	.00	.00	77	1.1	28	.00	.09	.00
4	.00	.00	.01	.21	.00	.00	56	.34	36	.00	.07	.00
5	.00	.00	.00	.10	.00	.00	29	.24	83	.00	.04	.00
6	.00	.00	.00	.08	.00	.00	13	.20	167	.00	.02	.00
7	.00	.00	.00	.07	.00	.00	3.3	.20	50	.00	.01	.00
8	.00	.00	.00	.05	.01	.00	.68	.19	15	.00	.00	.00
9	.00	.00	.00	.04	.01	.00	.32	.16	3.5	.00	.00	.00
10	.00	.00	.00	6.5	.01	.00	.28	.16	1.2	.00	.00	.00
11	.00	.00	.00	8.5	.00	.00	.22	.15	.62	.00	.00	.00
12	.00	.00	.00	.29	.00	.00	.18	.12	.42	.00	.00	.00
13	.00	.00	.00	9.1	.00	.00	.16	.10	.30	.00	.00	.00
14	.00	.00	.00	1.7	.00	.00	.16	.10	.26	.00	.00	.00
15	.00	.00	.00	.23	.00	.00	.15	.07	.25	.00	.00	.00
16	.00	.00	.00	.14	.00	.00	.13	.05	.25	.00	.00	.00
17	.00	.00	.00	.11	.00	.00	.14	.03	.23	.00	.00	.00
18	.00	.00	.00	.10	.00	.00	.10	.01	.23	.00	.00	.00
19	.00	.00	.00	.10	.00	.00	.09	.00	.18	.00	.00	.00
20	.00	.00	.00	.10	.00	.00	.10	.00	.14	.00	.00	.00
21	.00	.00	.00	.08	.00	1640	30	.00	.12	.00	.00	.00
22	.00	.00	.00	.08	.00	685	153	.00	.10	.00	.00	.00
23	.00	.00	.00	.07	.00	617	63	.00	.07	.00	.00	.00
24	.00	.00	.00	.05	.00	329	32	.00	.04	.00	.00	.00
25	.00	.00	.00	.06	.00	252	17	.00	.02	.00	.00	.00
26	.00	28	.00	.06	.00	195	6.3	.00	.01	.00	.00	.00
27	.00	.58	.00	.03	.00	145	1.2	.00	.00	40	.00	.00
28	.00	.11	.00	.02	.00	118	.29	.00	.00	4.2	.00	.00
29	.00	.10	.00	.01	---	107	27	.00	.00	.26	.00	.00
30	.00	.09	.00	.01	---	95	2.6	.00	.00	.19	.00	.00
31	.00	---	.00	.00	---	126	---	.00	---	.16	.00	---
TOTAL	.00	28.88	.20	71.69	.03	4309.00	685.40	15.92	697.94	44.81	.50	.00
MEAN	.000	.96	.006	2.31	.001	139	22.8	.51	23.3	1.45	.016	.000
MAX	.00	28	.08	21	.01	1640	153	7.7	274	40	.15	.00
MIN	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.00
AC-FT	.00	57	.4	142	.06	8550	1360	32	1380	89	1.0	.00

CAL YR 1978 TOTAL 823.61 MEAN 2.26 MAX 407 MIN .00 AC-FT 1630
WTR YR 1979 TOTAL 5854.37 MEAN 16.0 MAX 1640 MIN .00 AC-FT 11610

NOTE.--No gage-height record June 6 to July 25.

08186000 CIBOLO CREEK NEAR FALLS CITY, TX

LOCATION.--Lat 29°00'50", long 97°55'48", Karnes County, Hydrologic Unit 12100304, on right bank at downstream side of pier of bridge on State Highway 123, 5.7 mi (9.2 km) northeast of Falls City, and 10.4 mi (16.7 km) upstream from mouth.

DRAINAGE AREA.--827 mi² (2,142 km²).

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.

AVERAGE DISCHARGE.--49 years, 127 ft³/s (3.597 m³/s), 92,010 acre-ft/yr (113 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,600 ft³/s (952 m³/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 RECOKD.--In October 1913, a stage of 35 ft (10.7 m) occurred, discharge about 35,000 ft³/s (991 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,600 ft³/s (102 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)
Nov. 7	0700	9,210	261	23.74	7.236	Apr. 22	1100	7,920	224	22.63	6.898
Jan. 12	0700	4,920	139	19.24	5.864	Apr. 30	1900	3,930	111	17.55	5.349
Apr. 19	2400	*10,300	292	24.63	7.507	June 5	2300	4,560	129	18.74	5.712

Minimum discharge, 26 ft³/s (0.74 m³/s) Oct. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	31	96	669	103	70	174	1290	287	58	94	54
2	45	30	84	734	91	71	337	416	650	57	80	50
3	39	30	74	230	83	74	646	279	713	57	70	48
4	38	29	66	130	84	140	364	1200	415	57	64	47
5	38	32	61	101	143	115	189	558	1860	67	60	47
6	37	1790	59	91	766	91	146	226	3290	124	58	47
7	37	5730	57	97	2030	79	119	175	1170	118	56	61
8	36	290	54	121	495	72	104	154	528	71	55	59
9	35	149	51	96	239	67	96	142	295	65	53	56
10	34	112	50	256	169	71	91	132	225	62	52	50
11	35	93	48	2330	139	71	87	417	183	60	51	45
12	35	80	47	3140	124	74	81	387	157	58	78	44
13	34	72	48	555	114	73	74	211	138	57	67	43
14	32	65	49	289	108	72	68	138	121	54	83	42
15	31	61	50	183	102	68	63	118	110	53	72	41
16	30	58	50	147	97	82	61	109	100	51	63	40
17	29	86	49	131	90	86	101	103	94	51	61	39
18	29	164	48	123	84	84	106	100	88	52	60	42
19	30	110	49	120	79	97	1820	98	84	58	57	47
20	30	85	50	122	78	96	5270	97	81	163	53	53
21	30	76	49	161	79	156	3170	96	77	98	50	50
22	29	78	47	152	81	397	5650	152	74	91	48	47
23	29	81	46	108	82	1390	897	121	71	64	50	44
24	28	75	45	91	82	771	529	105	69	58	60	42
25	27	69	44	85	83	465	460	99	67	55	69	41
26	36	163	45	84	86	297	401	93	66	97	59	40
27	38	488	44	93	78	241	354	89	65	314	57	40
28	36	367	43	117	72	204	310	503	63	353	55	39
29	35	174	44	98	---	177	888	148	61	381	59	39
30	33	119	45	89	---	163	2940	107	60	173	69	37
31	32	---	172	95	---	164	---	98	---	117	76	---
TOTAL	1057	10787	1764	10838	5861	6078	25596	7961	11262	3194	1939	1374
MEAN	34.1	360	56.9	350	209	196	853	257	375	103	62.5	45.8
MAX	50	5730	172	3140	2030	1390	5650	1290	3290	381	94	61
MIN	27	29	43	84	72	67	61	89	60	51	48	37
AC-FT	2100	21400	3500	21500	11630	12060	50770	15790	22340	6340	3850	2730

CAL YR 1978 TOTAL 45395 MEAN 124 MAX 5730 MIN 16 AC-FT 90040
WTR YR 1979 TOTAL 87711 MEAN 240 MAX 5730 MIN 27 AC-FT 174000

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.

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, 2,270 micromhos May 20, 21, 1971; minimum daily, 176 micromhos Sept. 28, 1973.
WATER TEMPERATURES: Maximum daily, 33.0°C on several days during August 1969; minimum daily, 4.5°C Jan. 7, 1970.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1400 micromhos Nov. 24, 25, Sept. 30; minimum daily, 234 micromhos Apr. 20
WATER TEMPERATURES: Maximum daily, 29.0 °C Sept. 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT										
16...	1255	30	1310	8.1	19.5	--	--	1.1	390	160
NOV										
06...	1300	1750	316	7.8	19.0	6.8	76	5.0	84	11
DEC										
18...	1335	48	1420	8.2	13.5	11.8	118	1.0	--	--
JAN										
15...	1300	179	631	7.6	7.0	10.4	88	3.2	200	61
FEB										
20...	1325	79	1300	8.1	10.0	11.9	109	.9	390	140
MAR										
19...	1439	98	1260	8.1	20.5	9.7	107	2.4	390	130
APR										
09...	1445	95	1110	7.9	20.0	8.4	94	2.0	340	110
MAY										
07...	1530	171	761	7.5	23.0	6.8	80	1.9	230	63
JUN										
04...	1520	336	575	8.0	25.0	7.0	86	3.4	170	31
JUL										
09...	1452	65	1230	8.0	29.0	7.8	103	1.5	380	150
AUG										
02...	0908	89	972	8.0	27.0	6.2	78	1.1	300	100
30...	1010	60	1300	8.1	26.0	6.8	84	1.4	390	130

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT										
16...	120	23	120	2.6	7.3	280	0	220	140	.3
NOV										
06...	27	4.0	25	1.2	5.5	89	0	29	28	.2
DEC										
18...	--	--	--	--	--	--	--	--	--	--
JAN										
15...	65	9.3	48	1.5	6.1	170	0	92	53	.2
FEB										
20...	130	16	110	2.4	6.2	300	0	200	130	.3
MAR										
19...	120	21	110	2.4	5.7	310	0	170	130	.4
APR										
09...	110	16	73	1.7	5.4	280	0	140	87	.3
MAY										
07...	84	5.4	59	1.7	7.8	206	0	110	67	.3
JUN										
04...	55	7.7	45	1.5	6.3	168	0	72	46	.4
JUL										
09...	120	20	99	2.4	6.5	280	0	200	120	.4
AUG										
02...	99	14	87	2.2	6.2	250	0	130	98	.4
30...	120	21	120	2.7	6.2	310	0	210	130	.4

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT									
16...	14	783	.94	.01	.95	.02	.30	.32	.020
NOV									
06...	6.5	169	1.2	.03	1.2	.12	2.4	2.5	.660
DEC									
18...	--	--	1.8	.01	1.8	.01	.51	.52	.070
JAN									
15...	13	370	1.4	.04	1.4	.32	.53	.85	.520
FEB									
20...	14	754	.57	.02	.59	.02	.52	.54	.040
MAR									
19...	9.8	720	.48	.02	.50	.03	.63	.66	.250
APR									
09...	15	585	1.8	.04	1.8	.04	.60	.64	.250
MAY									
07...	14	449	.96	.04	1.0	.06	.80	.86	.160
JUN									
04...	15	330	1.8	.10	1.9	.07	1.3	1.4	.380
JUL									
09...	17	721	1.6	.06	1.7	.05	.47	.52	.080
AUG									
02...	17	575	1.8	.12	1.9	.01	.80	.81	.410
30...	17	777	1.2	.02	1.2	.22	.49	.71	.210

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	1057	1270	780	2230	140	403	210	608	400
NOV. 1978.....	10787	824	500	14500	83	2410	120	3510	260
DEC. 1978.....	1764	904	540	2580	92	440	140	667	280
JAN. 1979.....	10838	650	390	11400	60	1770	90	2630	200
FEB. 1979.....	5861	672	400	6410	66	1040	97	1540	210
MAR. 1979.....	6078	959	580	9480	100	1650	150	2470	300
APR. 1979.....	25596	452	270	18700	40	2740	59	4080	140
MAY 1979.....	7961	617	370	7930	57	1230	85	1830	190
JUNE 1979.....	11262	547	330	10000	52	1570	77	2330	170
JULY 1979.....	3194	1000	610	5250	110	919	160	1380	310
AUG. 1979.....	1939	1100	670	3510	120	624	180	933	340
SEPT 1979.....	1374	1270	780	2910	140	527	210	793	400
TOTAL	87711	**	**	94900	**	15300	**	22800	**
WTD.AVG.	240	665	400	**	65	**	96	**	210

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1270	1250	800	898	1190	1180	932	397	700	1270	1060	1210
2	1300	1230	838	860	1070	1190	944	564	798	1260	1070	1200
3	1260	1230	841	876	888	1190	920	575	600	1240	1060	1200
4	1210	1240	900	891	1010	950	961	376	650	1210	1050	1210
5	1290	1190	979	880	643	990	975	450	316	1200	1030	1250
6	1210	827	980	875	572	1050	986	597	269	1160	1040	1280
7	1230	731	983	869	325	1120	1000	798	407	1190	1060	1130
8	1250	821	950	862	435	1170	1040	1010	550	1150	1070	1120
9	1270	827	935	950	664	1200	1110	904	746	1230	1150	1150
10	1250	840	900	850	732	1170	1050	915	837	1160	1120	1160
11	1210	860	841	507	888	1190	1070	798	837	1150	1140	1180
12	1340	1050	880	413	881	1120	1050	830	1030	1120	1060	1190
13	1280	1330	842	500	1000	1140	1070	868	944	1120	1080	1220
14	1270	1340	841	579	1130	1020	1100	845	1150	1140	1020	1260
15	1330	1320	838	674	1180	1190	1090	918	1200	1110	1030	1290
16	1210	1300	875	733	1170	1120	1070	879	1230	1120	1050	1330
17	1250	1320	910	810	1190	1140	1070	859	1220	1120	1060	1340
18	1260	1100	960	873	1200	1140	869	938	1220	1110	1090	1310
19	1270	827	991	803	1210	1120	456	935	1240	1000	1100	1360
20	1280	937	987	738	1200	1190	234	932	1220	850	1110	1310
21	1320	896	991	842	1220	845	471	930	1230	900	1120	1340
22	1320	1090	844	950	1230	1000	300	850	1220	950	1120	1350
23	1310	1330	850	1090	1190	881	542	886	1230	996	1080	1360
24	1280	1400	868	1150	1220	885	740	945	1240	1010	1090	1340
25	1310	1400	876	1220	1240	888	826	938	1250	1190	1160	1380
26	1280	1310	890	1220	1170	900	850	970	1290	1160	1140	1370
27	1260	1000	903	1160	1170	923	898	990	1160	800	1210	1380
28	1270	650	915	1090	1180	905	920	359	1220	786	1200	1390
29	1280	700	928	1150	---	902	426	601	1250	864	1210	1380
30	1280	750	939	1220	---	912	303	650	1280	1020	1220	1400
31	1270	---	950	1160	---	925	---	690	---	1060	1210	---
MEAN	1270	1070	904	893	1010	1050	842	781	984	1090	1100	1280

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	22.0	18.0	11.5	---	23.0	21.5	24.0	25.0	27.0	---
2	27.0	26.0	21.0	17.5	12.0	17.0	22.5	23.0	24.5	25.5	26.5	27.0
3	28.0	25.0	22.5	15.0	13.5	18.0	---	22.5	---	---	27.0	27.5
4	26.0	---	---	16.5	13.0	19.0	23.5	22.0	24.0	---	---	28.0
5	27.5	---	22.5	13.0	12.5	19.5	23.0	---	25.0	25.0	27.0	28.5
6	27.0	24.0	22.0	---	13.5	21.0	23.5	22.0	24.0	25.5	27.5	27.5
7	---	23.5	20.5	14.5	12.0	23.0	---	23.5	24.5	25.0	28.0	28.0
8	26.0	25.0	---	16.0	13.0	22.0	24.0	22.5	25.0	26.0	27.5	---
9	26.5	24.0	20.0	---	12.5	21.5	---	21.0	25.0	25.5	28.0	27.5
10	27.0	22.5	20.0	15.5	---	---	23.5	23.0	---	25.0	27.5	28.0
11	26.0	23.0	19.5	17.0	13.5	16.5	23.5	22.5	27.0	25.5	---	27.5
12	26.5	---	---	18.0	11.5	22.0	24.0	---	26.0	26.0	---	28.0
13	26.0	24.5	19.5	---	13.5	21.5	23.5	21.5	25.5	26.5	---	28.5
14	25.5	23.0	21.0	15.0	15.5	23.0	24.0	22.0	26.5	---	---	29.0
15	27.0	---	22.0	16.5	14.0	20.0	---	21.5	28.0	---	---	28.5
16	26.5	22.5	20.0	17.5	---	22.0	24.5	23.0	27.0	25.0	---	---
17	27.5	22.5	20.0	---	15.0	21.0	24.0	22.5	---	26.0	---	28.0
18	27.0	21.0	---	14.5	---	19.5	23.5	23.5	24.5	26.5	---	27.5
19	26.5	22.5	21.0	12.5	15.5	20.0	22.0	---	25.0	26.0	---	28.0
20	25.5	23.0	21.5	13.5	14.5	20.0	21.5	---	25.5	26.5	28.5	28.5
21	26.0	20.5	22.0	11.0	15.0	22.0	22.0	24.0	25.0	---	27.5	27.0
22	---	24.5	21.5	12.5	16.5	23.0	---	24.5	24.5	---	27.0	---
23	25.0	23.5	---	13.0	17.0	22.5	23.0	23.0	---	27.5	28.5	27.5
24	23.5	22.5	---	---	---	---	23.0	23.5	26.0	27.0	28.0	28.0
25	24.0	23.0	---	13.0	16.5	23.5	22.5	24.0	23.5	26.5	27.5	28.5
26	24.5	21.0	---	12.5	15.0	---	22.0	---	24.0	26.0	27.5	28.5
27	---	21.5	---	13.5	17.5	23.0	23.5	23.5	24.0	27.5	28.0	27.0
28	25.0	22.5	---	---	17.0	23.0	---	23.0	25.0	27.0	27.5	27.5
29	24.0	22.5	---	12.0	---	22.5	23.0	22.5	24.5	25.5	28.0	27.5
30	24.5	23.0	---	13.5	---	23.0	22.5	---	25.0	26.5	27.5	---
31	25.5	---	---	14.0	---	---	---	---	---	26.0	28.0	---
MEAN	26.0	23.0	21.0	14.5	14.0	21.0	23.0	22.5	25.0	26.0	27.5	28.0

08186500 ECLETO CREEK NEAR RUNGE, TX

LOCATION.--Lat 28°55'12", long 97°46'19", Karnes County, Hydrologic Unit 12100303, on left bank 55 ft (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 mi² (619 km²).

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.--17 years, 40.0 ft³/s (1.133 m³/s), 2.27 in/yr (58 mm/yr), 28,980 acre-ft/yr (35.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,400 ft³/s (1,650 m³/s) Sept. 22, 1967, gage height, 33.3 ft (10.15 m), from floodmark, from rating curve extended above 7,300 ft³/s (207 m³/s) on basis of slope-area measurement of peak flow; no flow at times in 1962-67, 1969-72, 1974, 1976, and 1978.

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 ft³/s (2,010 m³/s). A stage of 32 ft (9.8 m), discharge 39,000 ft³/s (1,100 m³/s), occurred in September 1952, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 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)
Jan. 11	1730	1,480	41.9	11.49	3.502	May 5	2400	809	22.9	8.58	2.615
Apr. 20	2000	4,080	116	18.37	5.599	May 11	2330	*5,090	144	20.28	6.181
Apr. 22	2100	1,420	40.2	11.26	3.432	June 4	0700	1,530	43.3	11.69	3.563
Apr. 30	1800	1,760	49.8	12.52	3.816	June 6	2130	2,160	61.2	13.74	4.188

Minimum daily discharge, 0.10 ft³/s (0.003 m³/s) Oct. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	.16	6.1	62	5.3	3.1	2.4	1020	44	4.6	7.0	2.0
2	.34	.16	3.7	73	5.0	2.9	2.5	110	56	3.9	5.1	1.2
3	.29	.16	2.5	47	5.0	2.9	72	70	332	3.7	4.2	1.3
4	.24	.16	2.0	18	5.0	2.7	174	159	1040	3.5	3.9	1.0
5	.24	.16	2.0	9.8	26	2.5	47	321	302	5.1	3.0	1.0
6	.24	11	1.6	6.8	175	2.5	19	333	1580	7.9	2.6	1.3
7	.24	48	1.4	34	225	3.7	10	53	1410	37	2.4	1.3
8	.24	3.4	1.3	25	131	4.0	6.6	37	179	21	2.5	1.8
9	.24	2.1	1.3	13	43	3.3	5.1	29	58	8.3	21	2.7
10	.20	5.1	1.1	37	22	2.7	4.2	24	39	6.8	9.0	1.7
11	.20	2.5	.77	1190	14	2.5	3.5	1670	29	5.6	3.8	1.2
12	.19	1.4	.59	1070	10	2.4	3.3	3170	22	4.3	31	1.2
13	.16	.90	.61	204	7.9	2.4	2.5	456	18	3.6	19	1.0
14	.13	.59	.65	44	6.9	2.4	2.2	81	16	3.2	5.2	.67
15	.13	.50	.91	25	6.2	2.3	2.2	47	14	2.8	3.6	.56
16	.13	.38	.80	16	5.3	2.2	2.2	34	13	2.7	2.7	.49
17	.13	.24	.76	12	4.9	2.2	2.5	27	12	2.5	2.4	.42
18	.10	.24	.74	10	4.6	2.2	2.5	23	11	2.3	2.2	.89
19	.10	.27	.69	9.6	4.3	2.2	40	20	9.8	7.6	3.0	1.3
20	.10	.26	.65	16	4.2	2.2	2970	18	9.4	18	2.3	1.2
21	.10	.24	.66	20	4.0	2.4	2750	16	8.6	24	2.3	.83
22	.10	.20	.50	39	4.0	3.1	1090	42	7.9	5.5	2.3	.67
23	.10	.20	.61	18	4.0	3.2	565	69	7.3	4.0	2.6	.99
24	.10	.32	.59	11	3.9	11	80	42	6.8	5.6	2.2	.76
25	.10	.42	.59	8.1	3.5	9.9	53	25	6.5	4.3	20	.57
26	.35	.63	.56	7.0	3.5	7.2	41	15	6.0	3.0	19	.50
27	.18	.67	.69	5.9	3.3	4.6	33	12	5.8	107	6.3	.42
28	.10	22	.60	5.3	3.3	3.4	28	31	5.5	202	2.9	.40
29	.10	26	.69	5.3	---	2.8	207	132	5.2	58	2.0	.35
30	.13	11	.82	6.5	---	2.6	1400	61	5.0	27	1.8	.34
31	.13	---	66	5.6	---	2.5	---	25	---	12	2.3	---
TOTAL	5.48	139.36	102.48	3053.9	740.1	106.0	9620.7	8172	5258.8	606.8	199.6	30.06
MEAN	.18	4.65	3.31	98.5	26.4	3.42	321	264	175	19.6	6.44	1.00
MAX	.35	48	66	1190	225	11	2970	3170	1580	202	31	2.7
MIN	.10	.16	.50	5.3	3.3	2.2	2.2	12	5.0	2.3	1.8	.34
CFSM	.001	.02	.01	.41	.11	.01	1.34	1.11	.73	.08	.03	.004
IN.	.00	.02	.02	.48	.12	.02	1.50	1.27	.82	.09	.03	.00
AC-FT	11	276	203	6060	1470	210	19080	16210	10430	1200	396	60

CAL YR 1978	TOTAL	4432.70	MEAN 12.1	MAX 798	MIN .00	CFSM .05	IN .69	AC-FT 8790				
WTR YR 1979	TOTAL	28035.28	MEAN 76.8	MAX 3170	MIN .10	CFSM .32	IN 4.36	AC-FT 55610				

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 mi² (10,155 km²).

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 30 floodwater-retarding structures with combined detention capacity of 50,820 acre-ft (62.7 hm³). These structures control runoff from 159 mi² (412 km²).

AVERAGE DISCHARGE.--44 years (water years 1925-28, 1940-79), 668 ft³/s (18.92 m³/s), 484,000 acre-ft/yr (597 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft³/s (3,910 m³/s) Sept. 23, 1967, gage height, 53.7 ft (16.37 m), from floodmark, from rating curve extended above 26,000 ft³/s (736 m³/s) on basis of slope-area measurement of peak flow; minimum observed, 1.2 ft³/s (0.034 m³/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 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 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)
Jan. 13	2200	6,360	180	23.16	7.059	May 12	1900	7,330	208	25.08	7.664
Apr. 23	0400	*9,310	264	28.34	8.638	June 8	2200	8,740	248	27.50	8.382
May 2	1400	6,240	177	22.83	6.959						

Minimum discharge, 357 ft³/s (10.1 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	872	524	861	744	918	900	1880	4540	1070	978	980	597
2	838	515	746	1370	940	885	1880	5950	1390	946	892	638
3	816	523	707	1740	894	878	1890	3540	2280	913	837	631
4	796	520	676	1710	851	860	2410	3240	3950	887	784	561
5	777	520	647	1240	852	964	2320	4330	5680	892	768	547
6	768	924	628	963	1150	1190	1970	3250	5920	893	788	533
7	747	1770	616	860	1600	937	1810	2160	6860	943	767	632
8	712	4560	613	850	2990	881	1720	1660	8360	1670	734	664
9	685	4420	598	830	2400	861	1610	1510	8010	1200	689	606
10	667	1090	588	867	1390	845	1520	1430	5430	920	661	604
11	654	769	565	2580	1150	836	1450	2100	3530	906	666	513
12	669	684	556	5250	1080	833	1410	6370	2850	888	618	468
13	668	631	551	6170	1060	849	1370	6100	2500	895	643	456
14	647	608	551	4810	1030	864	1330	2580	2300	909	723	442
15	591	578	551	1700	1020	839	1290	1710	2140	862	988	427
16	583	559	550	1210	1010	791	1240	1410	2030	825	833	420
17	612	559	552	1080	999	755	1200	1280	1920	797	672	412
18	606	584	548	1030	984	906	1280	1240	1810	793	625	426
19	582	717	543	971	964	983	1270	1240	1720	788	629	548
20	540	736	527	971	956	1010	2220	1230	1640	806	613	539
21	557	636	518	1160	940	1040	6130	1160	1550	1470	644	441
22	551	602	520	1030	915	958	8610	1060	1450	1210	619	490
23	540	621	530	1120	904	1070	9060	1080	1350	1130	603	458
24	530	612	513	1010	902	2190	8610	1160	1260	1080	605	426
25	515	594	500	942	908	2550	7520	1240	1190	923	618	408
26	520	590	498	912	921	2520	3960	1030	1130	877	731	391
27	490	578	491	891	926	2470	2490	961	1090	915	787	378
28	491	915	484	910	908	2370	2230	960	1080	1880	656	383
29	534	1770	486	970	---	2190	2040	1380	1050	1580	615	379
30	556	1330	499	924	---	2040	2210	1580	1010	1760	594	367
31	533	---	524	886	---	1950	---	1410	---	1400	580	---
TOTAL	19647	30039	17737	47701	31562	39215	85930	69891	83550	32936	21962	14785
MEAN	634	1001	572	1539	1127	1265	2864	2255	2785	1062	708	493
MAX	872	4560	861	6170	2990	2550	9060	6370	8360	1880	988	664
MIN	490	515	484	744	851	755	1200	960	1010	788	580	367
AC-FT	38970	59580	35180	94610	62600	77780	170400	138600	165700	65330	43560	29330

CAL YR 1978	TOTAL 294998	MEAN 808	MAX 7200	MIN 150	AC-FT 585100			
WTR YR 1979	TOTAL 494955	MEAN 1356	MAX 9060	MIN 367	AC-FT 981700			

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, 1,190 micromhos Oct. 28, Sept. 30; minimum daily, 232 micromhos Apr. 21.
WATER TEMPERATURES: Maximum daily, 29.5°C on several days during summer months;minimum daily, 0.0°C on several days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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												
18...	1030	610	1060	8.0	19.0	10	30	8.5	94	1.3	--	--
NOV												
08...	0955	4420	266	7.7	16.5	120	1200	7.0	74	5.5	--	--
DEC												
19...	1345	544	1110	8.0	17.0	15	20	8.7	94	--	84	116
JAN												
17...	1010	1080	665	7.7	10.5	30	150	10.6	98	12	1600	11000
FEB												
22...	1330	911	822	8.0	16.0	10	50	8.7	92	2.4	70	110
MAR												
21...	1637	1110	644	8.5	20.5	40	520	7.2	80	4.9	17000	34000
APR												
10...	1015	1520	720	7.5	20.5	10	100	7.2	79	1.7	K150	2000
MAY												
08...	1555	1630	--	--	--	--	--	--	--	--	--	--
09...	1130	1650	740	7.9	23.5	10	120	6.3	75	1.8	270	1200
JUN												
06...	0950	5940	381	8.0	23.0	50	390	5.6	65	2.7	2000	10000
06...	1515	5750	--	--	--	--	--	--	--	--	--	--
JUL												
11...	1130	908	--	--	--	--	--	--	--	--	--	--
12...	1323	886	955	8.0	29.0	20	78	6.4	83	1.8	330	800
30...	1715	1800	--	--	--	--	--	--	--	--	--	--
AUG												
01...	1138	971	632	7.9	29.0	10	160	5.6	73	1.6	1200	1200
28...	1005	660	959	7.9	28.0	5	58	6.7	86	1.6	220	500
28...	1355	644	--	--	--	--	--	--	--	--	--	--

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT											
18...	340	90	100	23	87	2.0	7.0	310	0	110	110
NOV											
08...	94	14	31	4.0	14	.6	5.1	98	0	23	16
DEC											
19...	360	120	110	21	82	1.9	7.2	290	0	110	120
JAN											
17...	210	49	67	11	46	1.4	6.8	200	0	68	63
FEB											
22...	300	97	110	6.6	62	1.6	4.3	250	0	97	87
MAR											
21...	200	44	62	11	47	1.4	5.4	170	10	66	64
APR											
10...	260	66	79	16	39	1.0	4.2	240	0	66	51
MAY											
08...	--	--	--	--	--	--	--	--	--	--	--
09...	270	69	87	13	47	1.2	5.5	246	0	68	65
JUN											
06...	130	23	41	6.6	23	.9	6.2	130	0	39	22
06...	--	--	--	--	--	--	--	--	--	--	--
JUL											
11...	--	--	--	--	--	--	--	--	--	--	--
12...	320	95	97	18	72	1.8	6.3	270	0	120	99
30...	--	--	--	--	--	--	--	--	--	--	--
AUG											
01...	200	48	62	12	48	1.5	5.3	190	0	56	58
28...	310	76	91	19	81	2.0	5.7	280	0	110	100
28...	--	--	--	--	--	--	--	--	--	--	--

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continuied

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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, 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)
OCT											
18...	.4	19	488	609	69	13	4.3	.02	4.3	.02	1.1
NOV											
08...	.3	8.1	155	150	2690	420	.93	.04	.97	.07	3.3
DEC											
19...	.3	16	642	609	52	10	5.2	.06	5.3	.01	1.1
JAN											
17...	.3	14	387	375	296	38	2.0	.21	2.2	.65	.95
FEB											
22...	.3	13	495	504	115	19	1.3	.14	1.4	.06	.87
MAR											
21...	.3	12	374	362	1350	120	2.2	.08	2.3	.07	1.6
APR											
10...	.3	11	382	385	180	51	2.8	.02	2.8	.03	.65
MAY											
08...	--	--	--	--	--	--	--	--	--	--	--
09...	.3	13	443	420	294	38	2.5	--	--	--	.73
JUN											
06...	.2	13	249	215	984	176	1.1	.25	1.3	.08	.92
06...	--	--	--	--	--	--	--	--	--	--	--
JUL											
11...	--	--	--	--	--	--	--	--	--	--	--
12...	.4	18	575	564	180	25	1.3	.21	1.5	.02	.87
30...	--	--	--	--	--	--	--	--	--	--	--
AUG											
01...	.3	14	372	349	416	66	2.5	.02	2.5	.01	.75
28...	.4	17	578	562	134	1	4.0	.10	4.1	.04	1.2
28...	--	--	--	--	--	--	--	--	--	--	--

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)	PHENOLS (UG/L)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
18...	1.1	.95	2.10	1.80	5.5	--	--	2	243	400	36
NOV											
08...	3.4	.82	.950	.300	--	5.6	28	1	2350	28000	94
DEC											
19...	1.1	.80	1.00	1.20	4.1	--	--	1	46	68	93
JAN											
17...	1.6	1.0	.800	.510	14	--	--	1	358	1040	91
FEB											
22...	.93	.70	.730	.480	--	4.1	--	1	125	307	91
MAR											
21...	1.7	.54	.510	.160	43	--	--	4	1380	4140	97
APR											
10...	.68	.49	.660	.580	8.7	--	--	0	260	1070	93
MAY											
08...	--	--	--	--	--	--	--	--	100	440	99
09...	--	--	--	--	--	5.0	--	1	390	1740	87
JUN											
06...	1.0	.55	.500	.230	10	--	--	1	706	11300	73
06...	--	--	--	--	--	--	--	--	77	1200	85
JUL											
11...	--	--	--	--	--	--	--	--	124	304	75
12...	.89	.63	.880	1.20	5.6	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	106	515	96
AUG											
01...	.76	.20	.620	.520	--	6.5	8.1	0	442	1160	93
28...	1.2	.45	.280	.100	7.3	--	--	2	148	264	96
28...	--	--	--	--	--	--	--	--	68	118	82

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC 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 08...	0955	10	2	300	300	0	0	0	0	30
FEB 22...	1330	2	2	100	100	0	1	1	0	10
MAY 09...	1130	4	2	100	0	100	0	0	0	10
AUG 01...	1138	4	3	100	20	80	1	0	<1	20

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, 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)
NOV 08...	30	0	15	13	2	27	25	2	29000	29000
FEB 22...	10	0	0	0	0	7	4	3	1600	1600
MAY 09...	10	0	3	1	2	12	9	3	4300	4300
AUG 01...	20	0	4	1	<3	6	4	2	6800	6800

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
NOV 08...	50	44	43	1	840	830	10	.2	.2	.0
FEB 22...	20	14	14	0	70	70	0	.0	.0	.0
MAY 09...	20	27	26	1	160	160	0	.1	.1	.0
AUG 01...	0	27	27	0	250	250	<1	.3	.3	.0

DATE	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 08...	2	1	1	0	0	0	110	100	10
FEB 22...	1	0	1	0	0	0	40	20	20
MAY 09...	1	0	1	0	0	0	40	30	10
AUG 01...	1	0	1	0	0	0	60	60	<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)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
OCT 18...	1030	.0	5	.00	.00	.0	.0	3	.00	1.3	.00	1.0
NOV 08...	0955	ND	--	--	ND	--	ND	--	ND	--	ND	--
JAN 17...	1010	.0	0	--	.00	.0	.0	1	.00	.0	.00	.1
FEB 22...	1330	ND	--	--	ND	--	ND	--	ND	--	ND	--
APR 10...	1015	.0	--	.00	.00	--	.0	--	.00	--	.00	--
MAY 09...	1130	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND
JUL 12...	1323	.0	0	.00	.00	.0	.0	0	.00	.1	.00	.2
AUG 01...	1138	ND	--	--	ND	--	ND	--	ND	--	ND	--

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR, TOTAL (UG/L)
OCT												
18...	.00	1.1	.04	--	.00	.4	.00	.00	.0	.00	--	.00
NOV												
08...	ND	--	ND	--	ND	--	--	ND	--	ND	--	ND
JAN												
17...	.01	.0	.09	--	.00	.0	.00	.00	.0	.00	--	.00
FEB												
22...	ND	--	ND	--	ND	--	--	ND	--	ND	--	ND
APR												
10...	.00	--	.08	--	.00	--	.00	.00	--	.00	--	.00
MAY												
09...	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
JUL												
12...	.00	.0	.12	--	.00	.0	.00	.00	.0	.00	--	.00
AUG												
01...	ND	--	ND	--	ND	--	--	ND	--	ND	--	ND

DATE	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)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRITHION, TOTAL (UG/L)
OCT												
18...	.0	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
NOV												
08...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
JAN												
17...	.0	.00	.0	.00	.0	.01	--	--	--	.00	--	.00
FEB												
22...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
APR												
10...	--	.00	--	.00	--	.00	--	--	--	.00	--	.00
MAY												
09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUL												
12...	.0	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
AUG												
01...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT											
18...	--	.00	.00	--	0	0	.00	--	.01	.01	.00
NOV											
08...	--	--	ND	--	ND	--	ND	--	--	--	--
JAN											
17...	--	.00	.00	--	0	0	.00	--	.02	.03	.00
FEB											
22...	--	--	ND	--	ND	--	ND	--	--	--	--
APR											
10...	--	.00	.00	--	0	--	.00	--	--	--	--
MAY											
09...	ND	--	ND	ND	ND	ND	ND	ND	--	--	--
JUL											
12...	--	.00	.00	--	0	0	.00	--	.01	.00	.01
AUG											
01...	--	--	ND	--	ND	--	ND	--	--	--	--

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE	NOV 8,78	MAR 21,79	MAY 9,79	JUN 6,79
TIME	0955	1637	1130	0950
TOTAL CELLS/ML	83	1300	0	510
DIVERSITY: DIVISION	0.0	0.6	0.0	0.0
.CLASS	0.0	0.6	0.0	0.0
..ORDER	0.0	1.4	0.0	0.0
...FAMILY	0.9	1.7	0.0	0.0
....GENUS	1.6	1.7	0.0	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	--	-	--	-
....WESTELLA	--	-	--	-	--	-	510#	100
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	--	-	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	180	14	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	730#	57	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	180	14	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	--	-	--	-	--	-
...NAVICULACEAE								
....NAVICULA	28#	33	180	14	--	-	--	-
....PINNULARIA	28#	33	--	-	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	--	-	--	-	--	-
...SURIRELLACEAE								
....SURIRELLA	28#	33	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	--	-
....SPIRULINA	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-

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

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE	JUL 12,79	AUG 1,79	AUG 28,79
TIME	1323	1138	1005
TOTAL CELLS/ML	10000	410	290
DIVERSITY: DIVISION	0.1	0.0	1.2
.CLASS	0.1	0.0	1.2
..ORDER	0.1	0.0	1.3
...FAMILY	0.1	0.0	1.8
....GENUS	0.1	0.0	1.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....CHLOROCOCCUM	--	-	--	-	5	2
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	5	2
....WESTELLA	--	-	--	-	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	*	0	--	-	--	-
....TETRASTRUM	--	-	410#	100	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	10	3
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	*	0	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	--	-	10	3
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	20	7
...NAVICULACEAE						
....NAVICULA	--	-	--	-	20	7
....PINNULARIA	--	-	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	*	0	--	-	10	3
...SURIRELLACEAE						
....SURIRELLA	--	-	--	-	5	2
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	10000#	99	--	-	200#	67
....SPIRULINA	--	-	--	-	5	2
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	5	2

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 WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	19647	996	590	31100	110	5970	110	5730	330
NOV. 1978.....	30039	700	410	33400	75	6090	73	5950	230
DEC. 1978.....	17737	964	570	27200	110	5210	100	4970	320
JAN. 1979.....	47701	604	360	45700	61	7860	60	7760	200
FEB. 1979.....	31562	759	450	38000	78	6670	77	6590	250
MAR. 1979.....	39215	735	430	45800	76	8030	75	7920	250
APR. 1979.....	85930	476	280	64800	45	10500	46	10600	160
MAY 1979.....	69891	557	330	61900	56	10500	55	10400	190
JUNE 1979.....	83550	511	300	67700	50	11200	50	11200	170
JULY 1979.....	32936	831	490	43500	88	7830	87	7690	280
AUG. 1979.....	21962	907	530	31600	100	5910	96	5690	300
SEPT 1979.....	14785	1060	620	24900	120	4890	120	4660	360
TOTAL	494955	**	**	516000	**	90700	**	89200	**
WTD. AVG.	1360	656	390	**	68	**	67	**	220

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	801	1100	617	1010	914	884	592	414	822	910	621	1010
2	826	1140	647	915	886	877	614	349	816	933	650	1020
3	848	1120	710	651	890	857	627	414	681	949	802	1010
4	868	1130	809	675	897	884	530	541	429	996	867	1000
5	892	1140	872	568	919	898	494	424	298	960	877	1040
6	895	1060	922	578	789	844	620	465	280	970	900	1030
7	899	461	934	550	700	870	611	472	278	986	890	1020
8	903	337	962	659	500	786	634	676	303	850	910	917
9	929	330	966	681	505	870	659	743	372	750	950	984
10	953	450	966	758	565	877	690	759	505	706	972	990
11	987	508	974	595	626	895	699	600	548	892	1000	1000
12	996	635	996	358	729	923	707	322	559	942	980	1050
13	1000	774	1000	355	791	909	714	307	597	998	1000	1000
14	1010	859	1000	344	811	895	725	508	607	956	970	1090
15	1020	942	1010	413	805	900	730	694	625	946	850	1100
16	1030	1000	1030	524	805	909	732	760	653	940	875	1110
17	1050	1050	1020	658	799	916	725	816	661	974	780	1130
18	1070	1090	1010	770	816	939	746	832	683	993	820	1120
19	1060	1040	1030	804	824	902	758	858	705	994	950	1060
20	1070	1030	1050	831	835	864	550	896	724	996	991	983
21	1080	970	1070	825	830	818	232	921	736	800	1000	1140
22	1090	1000	1080	834	859	827	276	949	753	821	989	1150
23	1070	970	1080	857	862	895	306	969	796	657	1000	1130
24	1080	996	1060	831	872	804	314	982	816	733	1010	1110
25	1110	1000	1050	874	893	590	362	910	820	814	1020	1130
26	1120	983	1080	867	900	522	489	906	822	809	991	1120
27	1120	983	1090	874	882	496	583	888	860	848	954	1160
28	1190	1000	1120	885	892	507	632	965	877	595	956	1130
29	1180	783	1100	900	---	530	663	750	875	517	1020	1170
30	1160	507	1110	908	---	553	682	560	880	778	907	1190
31	1120	---	1080	915	---	583	---	743	---	603	959	---
MEAN	1010	880	982	718	800	801	590	690	646	859	918	1070

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	18.5	18.5	.0	1.5	10.0	24.0	18.5	26.5	26.5	24.0	21.0
2	18.5	15.5	24.0	.0	13.0	18.5	21.0	21.0	24.0	24.0	24.0	21.0
3	21.0	18.5	24.0	.0	13.0	18.5	18.5	24.0	24.0	24.0	24.0	21.0
4	24.0	24.0	4.5	7.0	13.0	15.5	13.0	15.5	21.0	29.5	24.0	21.5
5	18.5	24.0	4.5	15.5	10.0	10.0	10.0	13.0	21.0	24.0	24.0	24.0
6	24.0	15.5	24.0	4.5	7.0	10.0	10.0	15.5	21.0	24.0	26.5	23.0
7	18.5	13.0	10.0	4.5	3.5	13.0	18.5	15.5	24.0	26.5	26.5	26.0
8	18.5	10.0	4.5	.0	4.5	13.0	24.0	21.0	26.5	29.5	26.5	24.0
9	15.5	7.0	.0	1.5	.0	7.0	24.0	24.0	26.5	29.5	26.5	23.0
10	18.5	18.5	.0	10.0	4.5	10.0	24.0	24.0	24.0	29.5	24.0	22.0
11	24.0	21.0	10.0	4.5	10.0	13.0	24.0	24.0	24.0	29.5	---	26.5
12	18.5	21.0	4.5	4.5	18.5	15.5	21.0	13.0	15.5	26.5	18.5	24.0
13	21.0	21.0	10.0	7.0	18.5	13.0	18.5	15.5	24.0	26.5	---	18.5
14	15.5	21.0	10.0	.0	15.5	18.5	24.0	13.0	18.5	29.5	---	26.5
15	21.0	24.0	13.0	.0	15.5	13.0	24.0	15.5	24.0	29.5	---	23.0
16	15.5	13.0	15.5	10.0	4.5	15.5	21.0	18.5	29.5	29.5	---	21.0
17	13.0	7.0	13.0	18.5	.0	18.0	21.0	18.5	26.5	26.5	18.5	21.0
18	13.0	15.5	13.0	18.5	.0	21.0	24.0	24.0	29.5	29.5	21.0	18.5
19	10.0	13.0	18.5	18.5	4.5	18.5	24.0	24.0	26.5	29.5	---	15.5
20	11.5	10.0	21.0	10.0	10.0	18.5	18.5	24.0	29.5	26.5	21.0	19.5
21	21.0	10.0	10.0	3.5	15.5	15.5	18.5	24.0	24.0	26.5	21.0	24.0
22	21.0	15.5	1.5	7.0	18.5	18.5	18.5	15.5	29.5	26.5	---	22.0
23	18.5	21.0	13.0	13.0	18.5	15.5	18.5	18.5	29.5	24.0	18.5	24.0
24	18.5	21.0	15.5	.0	18.5	15.5	15.5	18.5	26.5	24.0	21.0	21.0
25	21.0	24.0	21.0	7.0	18.5	15.5	15.5	24.0	24.0	26.5	21.0	23.0
26	21.0	21.0	15.5	15.5	4.5	13.0	21.0	24.0	26.5	24.0	21.0	21.0
27	10.0	21.0	13.0	4.5	10.0	21.0	18.5	24.0	24.0	21.0	21.0	23.5
28	18.5	7.0	10.0	15.5	15.5	21.0	18.5	21.0	24.0	29.5	19.5	18.5
29	18.5	10.0	18.5	4.5	---	18.5	24.0	24.0	24.0	29.5	21.0	21.0
30	10.0	10.0	18.5	4.5	---	21.0	18.5	29.5	24.0	24.0	21.0	19.5
31	13.0	---	7.0	.0	---	21.0	---	21.0	---	24.0	21.5	---
MEAN	18.0	16.5	12.5	7.0	10.0	15.5	20.0	20.0	24.5	27.0	22.5	22.0

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.--Deflection-vane recorder, duplex water-stage recorder and Parshall flume. Datum of gage is 23.53 ft (7.172 m) National Geodetic Vertical Datum of 1929.

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.--11 years (water years 1969-79), 102 ft^3/s (2.889 m^3/s), 73,900 acre-ft/yr (91.1 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 1977-79.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	76	43	28	41	59	44	25	202	271	133	185
2	129	37	61	16	44	60	51	35	211	280	114	147
3	123	11	34	23	29	52	31	48	219	269	113	145
4	124	5.7	24	26	49	23	26	35	204	265	128	141
5	117	7.2	28	20	44	25	30	30	187	258	150	125
6	109	46	52	26	25	25	24	28	179	243	148	110
7	109	40	43	22	16	35	25	43	163	231	149	109
8	110	48	49	25	10	64	21	71	201	233	160	140
9	101	43	29	20	13	77	26	78	218	239	159	150
10	85	40	19	9.2	12	63	48	77	207	247	151	155
11	77	17	24	32	10	42	70	66	222	230	153	140
12	75	.00	23	30	9.1	24	100	40	262	219	154	105
13	67	.00	20	32	8.0	23	86	34	272	235	155	99
14	57	.00	23	38	34	20	80	46	268	239	181	102
15	47	.00	23	30	18	25	79	76	256	239	195	121
16	61	.00	23	33	35	25	107	124	254	240	204	155
17	62	10	28	39	46	23	86	207	231	240	244	165
18	61	19	29	23	31	22	56	214	250	241	250	175
19	48	15	21	37	19	20	55	191	262	239	251	120
20	48	5.4	23	29	16	42	54	179	263	231	241	90
21	56	14	26	36	15	40	48	192	267	220	230	70
22	56	18	26	51	13	21	47	183	265	210	237	50
23	56	16	29	52	12	18	73	125	272	192	246	50
24	36	18	29	37	32	14	83	133	276	177	249	50
25	21	21	28	29	39	10	136	196	273	168	250	50
26	27	18	29	26	58	6.6	157	207	270	82	246	80
27	23	20	24	39	59	18	116	231	268	4.5	221	80
28	21	18	29	38	68	40	146	253	264	.00	218	91
29	40	24	15	21	---	61	87	242	252	1.7	215	107
30	49	28	19	20	---	79	22	238	263	77	212	105
31	79	---	21	18	---	66	---	209	---	144	211	---
TOTAL	2215	615.30	894	905.2	805.1	1122.6	2014	3856	7201	6165.20	5968	3412
MEAN	71.5	20.5	28.8	29.2	28.8	36.2	67.1	124	240	199	193	114
MAX	141	76	61	52	68	79	157	253	276	280	251	185
MIN	21	.00	15	9.2	8.0	6.6	21	25	163	.00	113	50
AC-FT	4390	1220	1770	1800	1600	2230	3990	7650	14280	12230	11840	6770

CAL YR 1978	TOTAL	38286.60	MEAN	105	MAX 266	MIN .00	AC-FT	75940
WTR YR 1979	TOTAL	35173.40	MEAN	96.4	MAX 280	MIN .00	AC-FT	69770

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.--Deflection-vane recorder, water-stage recorder, and Parshall flume. Datum of gage is 22.37 ft (6.818 m) National Geodetic Vertical Datum of 1929.

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 17,120 acre-ft (21.1 hm^3). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--8 years, 80.8 ft^3/s (2.288 m^3/s), 58,540 acre-ft/yr (72.2 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 1972-79.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	53	16	.50	.80	1.5	42	5.2	144	250	106	175
2	114	17	37	.50	1.1	2.0	50	35	143	254	103	147
3	107	2.8	14	1.0	.40	3.4	23	48	152	245	99	130
4	107	1.1	1.4	1.5	.10	4.2	12	35	136	232	112	121
5	102	.60	6.6	.30	.80	4.4	17	30	136	218	126	124
6	93	4.0	32	1.0	.30	2.8	12	28	142	194	126	110
7	93	.70	32	.10	.60	22	4.5	35	133	182	127	109
8	93	.60	27	.20	.40	34	1.3	55	158	183	132	109
9	85	.10	6.7	.30	.00	23	11	62	173	197	130	107
10	63	.60	.60	4.4	.00	3.3	5.9	61	163	213	126	107
11	55	.00	.90	3.4	.20	4.4	13	50	176	204	124	111
12	54	.00	1.2	7.7	.00	2.4	46	25	223	191	124	105
13	48	.10	1.0	7.5	.00	.30	69	20	243	203	124	99
14	32	.00	1.4	9.2	.50	.70	81	25	252	202	146	102
15	26	.00	1.4	6.4	.30	.40	80	65	244	202	158	121
16	29	.00	.30	8.6	1.1	2.1	102	100	241	205	165	132
17	9.1	1.2	.50	7.7	2.2	3.9	88	190	219	203	210	144
18	15	.30	1.2	3.4	.30	2.5	54	200	235	202	213	124
19	25	.10	.60	1.9	.00	7.2	51	175	243	201	211	107
20	23	.20	.40	1.5	.50	5.8	55	165	248	195	199	80
21	32	.50	.70	2.2	.00	2.0	46	175	251	188	191	60
22	31	.50	.80	9.7	.00	.00	46	165	252	185	197	50
23	31	.00	1.4	19	.00	.00	38	110	258	164	204	50
24	18	.00	.50	31	.00	.00	28	115	263	154	204	50
25	7.5	.10	.20	10	.10	.00	80	170	259	148	205	50
26	3.3	.00	1.6	.70	2.6	.00	101	175	260	72	202	80
27	1.5	.00	.00	.80	2.0	3.3	97	190	255	.50	180	80
28	1.4	.00	2.9	.90	3.9	2.6	135	220	250	.00	177	91
29	14	.50	.80	1.1	---	6.6	80	210	237	.00	184	107
30	23	1.5	1.0	.10	---	18	2.5	189	249	42	182	105
31	62	---	1.5	.20	---	37	---	164	---	94	183	---
TOTAL	1520.8	85.50	193.60	142.80	18.20	199.80	1471.2	3292.2	6338	5223.50	4970	3087
MEAN	49.1	2.85	6.25	4.61	.65	6.45	49.0	106	211	169	160	103
MAX	123	53	37	31	3.9	37	135	220	263	254	213	175
MIN	1.4	.00	.00	.10	.00	.00	1.3	5.2	133	.00	99	50
AC-FT	3020	170	384	283	36	396	2920	6530	12570	10360	9860	6120

CAL YR 1978 TOTAL 30545.40 MEAN 83.7 MAX 259 MIN .00 AC-FT 60590
WTR YR 1979 TOTAL 26542.60 MEAN 72.7 MAX 263 MIN .00 AC-FT 52650

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), 8.4 ft (2.56 m) May 13, 14, June 11, 12, Sept. 20; minimum, 4.0 ft (1.22 m) Dec. 26, 27. Maximum gage height (downstream from barrier), 8.2 ft (2.50 m) Jan. 13-17, June 10-12, Sept. 19-21; minimum, 3.9 ft (1.19 m) Dec. 26, 27.

MAXIMUM DAILY GAGE HEIGHT, IN FEET, UPSTREAM AND DOWNSTREAM FROM SALTWATER BARRIER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP	
	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	7.5	7.4	4.9	4.8	7.7	7.6	4.7	4.5	7.5	7.4	7.4	7.3	8.0	8.0	8.1	7.9	7.8	7.5	7.3	7.2	7.8	7.7	6.1	5.9
2	7.4	7.3	4.9	4.8	7.7	7.6	6.3	6.2	7.5	7.4	7.5	7.4	8.0	8.0	8.1	7.9	7.7	7.5	7.3	7.2	7.8	7.7	6.1	6.0
3	7.3	7.2	4.8	4.7	7.5	7.4	7.2	7.2	7.5	7.4	7.5	7.4	7.9	7.9	8.1	8.0	7.7	7.5	7.2	7.1	7.6	7.5	6.0	5.8
4	7.3	7.2	4.7	4.6	7.0	6.9	7.7	7.6	7.5	7.4	7.5	7.4	7.9	7.9	8.2	8.0	8.0	7.7	7.2	7.0	7.5	7.4	6.0	5.8
5	7.3	7.2	4.9	4.8	6.6	6.6	8.0	7.8	7.7	7.6	7.5	7.4	7.9	7.9	8.3	8.1	8.1	7.9	7.2	7.0	7.3	7.2	6.1	6.0
6	7.3	7.2	5.9	5.7	6.4	6.4	8.0	7.8	7.9	7.8	7.5	7.4	7.9	7.9	8.3	8.1	8.1	8.0	7.3	7.0	7.1	7.0	6.1	6.0
7	7.2	7.0	6.5	6.4	6.2	6.1	7.9	7.8	7.9	7.8	7.7	7.5	8.0	7.9	8.3	8.1	8.2	8.0	7.3	7.0	7.0	6.9	6.0	5.9
8	7.0	7.0	7.4	7.3	5.9	5.9	7.8	7.7	8.0	7.9	7.7	7.5	7.9	7.9	8.2	8.0	8.2	8.0	7.2	7.1	6.9	6.8	5.9	5.8
9	7.0	6.9	8.0	7.8	5.5	5.5	7.7	7.6	8.1	7.9	7.6	7.5	7.9	7.9	8.2	8.0	8.3	8.1	7.6	7.4	6.9	6.8	5.9	5.8
10	6.9	6.8	8.1	8.0	5.3	5.2	8.1	7.9	8.1	8.0	7.5	7.4	7.9	7.8	8.0	7.8	8.3	8.2	7.6	7.5	6.8	6.7	5.9	5.8
11	6.8	6.7	8.1	8.0	5.1	5.1	8.3	8.1	8.1	8.0	7.4	7.3	7.9	7.8	8.1	7.8	8.4	8.2	7.6	7.5	6.7	6.6	5.8	5.7
12	6.7	6.6	8.1	8.0	5.0	4.9	8.3	8.1	8.0	8.0	7.3	7.2	7.9	7.8	8.1	7.8	8.4	8.2	7.5	7.4	6.6	6.5	5.7	5.6
13	6.6	6.5	7.7	7.7	4.8	4.8	8.3	8.2	8.0	7.9	7.2	7.1	7.8	7.7	8.4	8.0	8.2	8.1	7.4	7.3	6.5	6.4	5.6	5.6
14	6.5	6.4	7.4	7.3	4.7	4.7	8.3	8.2	7.9	7.8	7.2	7.1	7.7	7.6	8.4	8.0	8.1	8.0	7.3	7.2	6.5	6.4	5.5	5.4
15	6.4	6.2	7.1	7.0	4.7	4.6	8.3	8.2	7.9	7.7	7.1	7.0	7.7	7.6	8.3	8.0	8.1	8.0	7.2	7.1	6.4	6.3	5.4	5.3
16	6.2	6.1	6.7	6.7	4.6	4.6	8.3	8.2	7.8	7.7	7.2	7.0	7.7	7.6	8.3	8.0	8.0	7.9	7.2	7.0	6.6	6.5	5.3	5.2
17	6.0	5.8	6.4	6.3	4.5	4.5	8.3	8.2	7.7	7.6	7.2	7.1	7.7	7.5	8.2	7.9	8.0	7.9	7.0	6.9	6.7	6.6	5.2	5.1
18	5.8	5.6	6.1	6.0	4.4	4.4	8.1	8.0	7.7	7.6	7.2	7.1	7.7	7.5	8.0	7.8	8.0	7.9	6.9	6.7	6.6	6.5	5.6	5.5
19	5.7	5.6	5.8	5.7	4.5	4.4	8.0	7.9	7.7	7.6	7.2	7.2	7.7	7.5	7.9	7.8	7.9	7.8	6.7	6.5	6.4	6.3	8.3	8.2
20	5.5	5.4	5.7	5.6	4.4	4.4	7.9	7.8	7.7	7.6	7.3	7.3	7.7	7.5	7.8	7.7	7.9	7.8	6.7	6.5	6.3	6.1	8.4	8.2
21	5.4	5.3	5.9	5.8	4.3	4.2	7.8	7.7	7.7	7.6	7.6	7.5	7.9	7.6	7.8	7.6	7.9	7.7	6.6	6.5	6.2	6.0	8.3	8.2
22	5.2	5.2	5.8	5.8	4.3	4.2	7.8	7.7	7.6	7.6	7.6	7.6	8.0	7.7	7.7	7.6	7.8	7.7	7.1	7.0	6.1	6.0	8.2	8.1
23	5.1	5.1	5.7	5.7	4.2	4.2	7.8	7.7	7.6	7.6	7.6	7.6	8.1	7.8	7.6	7.5	7.8	7.7	7.2	7.1	6.1	6.0	8.0	7.9
24	5.1	5.0	5.6	5.6	4.2	4.1	7.8	7.7	7.6	7.5	7.6	7.6	8.1	7.8	7.5	7.4	7.7	7.6	7.3	7.2	6.0	5.9	7.8	7.7
25	5.0	5.0	5.5	5.4	4.1	4.0	7.8	7.7	7.5	7.4	7.9	7.9	8.2	7.9	7.6	7.4	7.7	7.6	7.3	7.3	6.0	5.9	7.7	7.6
26	5.2	5.1	5.4	5.4	4.0	3.9	7.8	7.7	7.4	7.4	8.0	7.9	8.3	8.0	7.6	7.4	7.6	7.5	8.0	7.9	6.0	5.9	7.4	7.3
27	5.1	5.0	5.4	5.3	4.0	3.9	7.7	7.6	7.4	7.3	8.0	8.0	8.3	8.0	7.6	7.5	7.5	7.4	8.0	8.0	6.0	5.9	7.2	7.1
28	4.9	4.8	5.5	5.3	4.1	4.0	7.6	7.5	7.4	7.3	8.0	8.0	8.2	8.0	7.6	7.5	7.5	7.3	8.0	8.0	6.2	6.1	7.0	6.9
29	4.9	4.8	6.5	6.4	4.4	4.3	7.5	7.4			8.0	7.9	8.2	8.0	7.5	7.4	7.4	7.3	7.9	7.9	6.2	6.1	6.0	6.7
30	4.9	4.8	7.4	7.3	4.4	4.3	7.6	7.4	-------		8.0	8.0	8.1	7.9	7.6	7.4	7.4	7.3	7.8	7.7	6.1	6.0	6.4	6.4
31	4.9	4.8	-------		4.2	4.2	7.5	7.4	-------		8.0	8.0	-------		7.8	7.5	-------		7.8	7.8	6.0	5.9	-------	

08188800 GUADALAUPE RIVER NEAR TIVOLI, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1965 to current year. Chemical and biochemical analyses: October 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1965 to current year.
WATER TEMPERATURES: October 1965 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCANCE: Maximum daily, 1,000 micromhos June 1, 1971, Aug. 3, 1978; minimum daily, 170 micromhos Oct. 30, 1972.
WATER TEMPERATURES (1966-69): Maximum daily, 32.0°C on several days during June, July, and August 1967-69; minimum daily, 8.0°C Jan. 15, 1968.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 855 micromhos Dec. 28, 29; minimum daily, 325 micromhos Sept. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	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)
NOV 08...	1612	709	7.9	19.0	30	130	6.6	73	3.0	230	58
JAN 17...	1700	362	7.5	11.0	60	240	8.8	82	4.4	120	20
MAR 22...	1008	740	8.2	20.0	10	50	7.6	84	1.7	260	42
MAY 08...	1100	449	7.8	22.5	30	220	5.7	64	1.9	160	30
JUL 11...	1545	663	8.0	29.0	200	120	6.2	81	3.0	260	43
AUG 28...	1620	722	8.1	29.5	5	31	6.7	88	1.3	260	43

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)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV 08...	69	14	54	1.6	4.7	210	0	58	78	.2	14
JAN 17...	38	5.6	21	.8	6.3	120	0	31	30	.2	10
MAR 22...	76	16	45	1.2	3.7	260	0	57	68	.3	10
MAY 08...	58	3.4	28	1.0	6.4	157	0	39	38	.3	11
JUL 11...	78	15	41	1.2	3.8	260	0	51	56	.3	14
AUG 28...	78	17	47	1.3	3.1	270	0	56	66	.3	15

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, KJELDAHL, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 08...	396	380	70	.80	.01	.81	.02	.87	.89	.800	9.0
JAN 17...	201	424	36	1.0	.06	1.1	.18	.75	.93	.430	14
MAR 22...	404	116	56	1.4	.02	1.4	.04	.58	.62	.460	5.3
MAY 08...	262	328	48	1.2	.02	--	.05	.70	--	.260	12
JUL 11...	387	272	28	1.2	.02	1.2	.03	.61	.64	.290	7.7
AUG 28...	416	111	0	1.8	.04	1.8	.07	.76	.83	.300	3.7

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 08...	1612	3	100	<1	0	1	20
MAY 08...	1100	2	100	0	0	5	50
JUL 11...	1545	2	100	<1	10	1	<0

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 08...	1	<1	.0	1	0	<3
MAY 08...	1	0	.0	0	0	10
JUL 11...	2	<1	.0	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)
NOV 08...	1612	.0	6	.00	.00	.0	.0	3	.00	1.1
MAY 08...	1100	.0	0	.00	.00	.0	.0	1	.00	.0
JUL 11...	1545	.0	3	.00	.00	.0	.0	1	.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)
NOV 08...	.00	1.4	.00	.2	.02	.00	.3	.00	.00	.0
MAY 08...	.00	.6	.00	.0	.06	.00	.0	.00	.00	.0
JUL 11...	.00	.0	.00	.0	.04	.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)	METHYL PARA-THION, TOTAL (UG/L)
NOV 08...	.00	.00	.0	.00	.1	.00	.0	.00	.00
MAY 08...	.00	.00	.0	.00	.0	.00	.0	.00	.00
JUL 11...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 08...	.00	.00	.00	0	0	.00	.04	.02	.00
MAY 08...	.00	.00	.00	0	0	.00	.14	.03	.00
JUL 11...	.00	.00	.00	0	0	.00	.02	.00	.00

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	536	521	529	725	712	718	786	530	639	836	816	826
2	537	525	533	736	719	728	632	492	561	816	724	768
3	550	528	539	720	716	718	536	490	519	732	700	718
4	559	519	542	727	727	727	536	521	531	700	585	637
5	566	548	559	732	719	726	536	525	547	585	484	523
6	576	555	566	719	635	677	632	579	606	511	478	497
7	587	576	581	657	635	645	630	612	622	478	449	463
8	589	585	588	724	657	677	630	623	626	468	464	466
9	591	589	588	719	456	590	668	643	659	484	470	477
10	591	589	589	492	394	420	712	668	690	475	460	468
11	593	582	588	449	423	434	734	712	723	468	387	427
12	608	593	602	484	428	466	756	738	747	435	350	391
13	610	606	608	490	473	482	762	738	750	416	350	377
14	624	614	619	490	467	478	772	760	766	362	344	354
15	632	624	629	497	468	483	782	760	771	344	338	340
16	629	627	628	527	497	514	793	777	785	364	360	362
17	651	647	649	566	528	545	796	788	792	373	343	354
18	661	655	658	608	568	587	815	798	806	432	374	402
19	669	659	664	641	608	621	803	776	790	486	434	458
20	694	677	686	693	639	662	801	774	788	536	482	513
21	677	674	675	730	709	720	801	783	792	555	536	547
22	674	674	674	712	672	688	791	789	790	563	552	556
23	677	674	675	672	647	659	813	791	806	576	546	567
24	684	677	680	684	667	676	813	811	812	560	521	540
25	686	684	685	691	662	679	813	811	812	583	559	568
26	686	667	676	705	681	695	840	834	837	587	574	581
27	674	656	665	730	716	723	840	834	837	622	587	603
28	679	668	673	735	719	727	855	839	847	628	622	624
29	684	679	683	719	674	696	855	842	848	647	638	642
30	686	682	685	756	705	733	842	826	834	665	647	656
31	711	686	697	---	---	---	836	808	828	681	670	676
MONTH	711	519	626	756	394	630	855	490	734	836	338	528

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	682	680	681	693	570	632	550	541	545	570	548	559
2	686	668	673	610	507	558	563	550	559	612	512	585
3	696	686	690	643	625	634	570	564	567	512	431	464
4	700	686	699	625	610	618	574	568	572	431	399	415
5	705	686	694	610	598	604	578	570	577	431	399	415
6	705	632	668	641	639	640	578	518	564	457	421	438
7	651	626	643	639	532	586	545	506	517	481	421	458
8	639	554	589	591	542	566	555	536	546	475	467	473
9	674	639	656	562	543	552	547	487	517	514	463	477
10	657	505	573	560	528	544	576	566	573	578	514	546
11	537	506	526	566	533	550	580	523	552	605	490	567
12	534	500	520	571	566	568	605	580	592	543	490	519
13	519	498	506	572	468	520	618	605	612	511	383	421
14	561	519	539	686	665	676	622	618	620	428	353	390
15	605	561	587	705	673	689	628	620	625	366	335	351
16	614	608	612	705	705	705	639	628	632	456	354	401
17	620	610	617	705	696	699	641	639	640	517	429	473
18	624	620	621	698	696	697	645	639	643	601	546	570
19	645	634	640	712	696	703	660	641	650	619	601	610
20	649	633	641	735	712	730	664	660	662	649	600	625
21	647	639	643	735	722	726	670	641	654	679	623	651
22	655	641	648	722	714	717	647	413	581	722	707	714
23	678	665	672	717	647	681	413	399	407	707	701	704
24	666	651	657	653	632	645	409	368	381	751	719	733
25	668	662	667	672	618	644	368	354	360	720	540	630
26	668	668	668	691	540	616	354	350	352	566	563	564
27	690	679	684	568	557	562	375	349	357	680	600	640
28	697	683	690	564	546	555	449	374	413	703	675	689
29	---	---	---	559	530	544	498	452	476	698	675	686
30	---	---	---	546	546	546	546	500	523	753	698	725
31	---	---	---	546	541	545	---	---	---	786	756	771
MONTH	705	498	632	735	468	621	670	349	542	786	335	557

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	794	610	680	738	730	734	643	537	611	670	641	657
2	664	610	633	738	738	738	645	574	606	672	655	666
3	686	657	671	740	732	736	574	548	569	679	668	674
4	657	585	607	740	717	728	580	566	574	707	664	685
5	653	465	537	722	722	722	608	576	586	720	653	686
6	557	423	485	722	717	720	651	610	633	703	653	675
7	424	395	407	722	717	720	670	650	660	707	670	688
8	417	395	406	738	719	725	670	642	665	709	644	676
9	399	350	374	783	738	761	660	632	649	713	702	708
10	350	338	342	783	761	776	645	617	641	715	706	710
11	468	349	409	761	688	724	686	629	658	710	707	708
12	490	442	466	688	610	649	690	650	670	741	702	720
13	528	495	512	681	624	652	686	672	672	756	710	732
14	536	530	533	710	684	697	693	672	683	730	695	712
15	561	536	551	730	705	718	704	672	688	732	720	726
16	576	559	570	723	721	722	712	672	692	744	732	738
17	599	576	588	721	642	682	720	674	697	757	709	733
18	612	599	606	692	639	666	732	672	691	777	732	754
19	622	609	616	690	688	689	677	664	670	732	337	534
20	637	620	630	702	691	696	679	591	650	369	325	331
21	655	634	644	691	682	686	656	589	623	343	342	343
22	668	645	656	749	688	718	698	612	655	369	342	356
23	677	668	672	782	727	754	691	620	656	419	368	387
24	684	672	679	727	677	704	691	647	669	508	420	468
25	700	681	690	677	588	632	696	664	680	550	508	528
26	710	690	700	620	448	534	706	674	690	595	550	572
27	712	707	710	557	381	469	705	680	693	639	595	618
28	724	712	718	490	395	447	722	693	707	660	641	653
29	735	719	728	637	471	541	698	660	680	677	660	672
30	735	735	735	645	528	584	687	639	663	717	681	702
31	---	---	---	536	499	518	714	643	679	---	---	---
MONTH	794	338	585	783	381	672	732	537	657	777	325	627

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	22.0	19.0	---		15.0						
2	25.0	22.0	---	10.0		16.0						
3	25.0	23.0	---	9.0		---						
4	25.0	---	18.0	9.0		---						
5	26.0	---	16.0	9.0		15.0						
6	25.0	22.0	18.0	---		---						
7	---	20.0	16.0	---		16.0						
8	---	18.0	9.0	8.0		---						
9	23.0	18.0	---	6.0		---						
10	24.0	19.0	---	8.0		---						
11	24.0	---	11.0	8.0		---						
12	25.0	---	10.0	10.0		16.0						
13	25.0	21.0	11.0	---		17.0						
14	---	23.0	11.0	---		16.0						
15	---	23.0	12.0	6.0		16.0						
16	23.0	20.0	---	8.0		---						
17	22.0	19.0	---	10.0		---						
18	22.0	---	16.0	12.0		---						
19	22.0	---	15.0	14.0		---						
20	22.0	17.0	16.0	---		---						
21	---	17.0	16.0	---		---						
22	---	17.0	---	13.0		---						
23	23.0	---	---	14.0		---						
24	22.0	19.0	---	12.0		---						
25	23.0	---	---	13.0		---						
26	22.0	---	15.0	18.0		19.0						
27	23.0	20.0	15.0	---		25.0						
28	---	17.0	14.0	---		23.0						
29	---	16.0	16.0	11.0		20.0						
30	22.0	15.0	---	13.0		---						
31	22.0	---	---	10.0		---						
MEAN	23.5	19.5	14.5	10.5		18.0						

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. No known diversion above station. Recording rain gage is located at station.

AVERAGE DISCHARGE.--9 years, 52.1 ft³/s (1.475 m³/s), 8.06 in/yr (205 mm/yr) 37,750 acre-ft/yr (46.5 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)
Jan. 12	2000	1,030	29.2	12.21	3.722
Sept. 21	1200	*1,090	30.9	12.77	3.892

Minimum discharge, no flow June 22 to July 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	.50	1.0	.31	10	1.6	2.9	2.2	.49	.00	74	.23
2	31	.43	.93	.43	8.6	1.4	2.1	1.6	.43	.00	76	1.6
3	19	.43	.72	1.1	9.9	1.1	1.6	6.6	.67	.00	67	4.2
4	19	.36	.61	.98	10	.90	1.6	31	4.1	.00	48	2.2
5	25	.57	.54	3.3	21	.70	1.5	67	4.7	.98	24	4.6
6	21	210	.52	25	274	.52	1.1	54	2.4	2.5	10	9.9
7	18	294	.52	39	442	.43	.81	56	4.9	6.5	7.2	16
8	18	118	.38	32	338	.30	.64	67	5.7	16	4.8	14
9	18	48	.26	20	232	.22	.55	72	3.9	13	3.6	8.0
10	16	26	.23	47	160	.18	.51	64	2.6	7.6	2.8	3.9
11	13	17	.17	664	102	.14	.42	76	1.6	31	1.8	2.0
12	11	12	.13	979	57	.13	.35	299	1.0	11	1.1	.94
13	9.1	9.1	.13	956	36	.13	.22	301	.63	4.7	.70	.54
14	7.2	7.0	.22	769	25	.08	.14	272	.47	2.7	.41	.28
15	5.3	5.2	.28	664	18	.11	.11	214	.25	1.6	.43	.13
16	4.7	4.5	.19	508	14	.13	.09	159	.15	1.1	.19	.05
17	3.8	3.6	.14	311	12	.11	1.1	120	.10	.81	.10	.03
18	3.2	3.2	.13	193	11	.10	1.7	78	.06	.73	.07	7.7
19	2.6	2.8	.13	125	9.5	.12	1.5	45	.03	8.6	.07	671
20	1.9	2.3	.13	78	8.3	.13	1.1	23	.02	30	.11	978
21	1.6	2.3	.13	60	7.2	86	1.0	15	.01	63	.08	1070
22	1.4	2.1	.10	47	6.3	257	1.3	12	.00	34	.05	961
23	1.0	2.1	.10	37	5.5	192	1.2	9.0	.00	18	.03	872
24	1.0	2.1	.08	33	5.1	113	.72	6.9	.00	8.9	.08	797
25	.93	2.2	.07	52	4.4	51	.43	5.1	.00	4.3	.17	661
26	1.0	1.9	.05	61	3.5	25	1.0	3.7	.00	20	.10	522
27	1.5	1.6	.05	57	2.8	15	2.7	2.6	.00	57	.03	382
28	1.7	1.3	.05	46	2.1	9.7	2.5	1.9	.00	104	.03	261
29	1.2	1.2	.05	30	---	6.6	2.6	1.5	.00	110	.20	174
30	.79	1.0	.05	16	---	4.7	2.3	1.0	.00	79	.15	101
31	.60	---	.09	13	---	3.6	---	.73	---	72	.06	---
TOTAL	308.52	782.79	8.18	5868.12	1835.2	772.13	35.79	2067.83	34.21	709.02	323.36	7526.30
MEAN	9.95	26.1	.26	189	65.5	24.9	1.19	66.7	1.14	22.9	10.4	251
MAX	49	294	1.0	979	442	257	2.9	301	5.7	110	76	1070
MIN	.60	.36	.05	.31	2.1	.08	.09	.73	.00	.00	.03	.03
CFSM	.11	.30	.003	2.15	.75	.28	.01	.76	.01	.26	.12	2.86
IN.	.13	.33	.00	2.49	.78	.33	.02	.88	.01	.30	.14	3.19
AC-FT	612	1550	16	11640	3640	1530	71	4100	68	1410	641	14930

CAL YR 1978 TOTAL 23626.15 MEAN 64.7 MAX 2570 MIN .00 CFSM .74 IN 10.01 AC-FT 46860
WTR YR 1979 TOTAL 20271.45 MEAN 55.5 MAX 1070 MIN .00 CFSM .63 IN 8.59 AC-FT 40210

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 30...	1615	.80	539	7.4	23.5	70	4.8	58	2.1	72	5
DEC 11...	1747	.13	726	7.4	9.5	60	7.8	70	2.1	120	3
JAN 25...	1145	52	131	7.4	10.0	85	9.5	8	3.5	27	0
MAR 05...	1710	.90	3000	7.4	18.0	20	9.2	97	3.4	270	190
APR 17...	1000	5.7	6500	7.3	22.0	11	4.0	46	4.4	1000	900
MAY 22...	1422	12	254	7.2	26.0	190	4.9	59	3.4	46	0
AUG 14...	1740	.61	450	7.5	32.0	100	6.8	92	3.8	66	0
SEP 25...	1553	639	105	6.9	27.0	8.7	3.7	46	5.8	26	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 30...	22	4.1	77	4.0	7.4	82	0	58	90	.1	18
DEC 11...	38	5.5	91	3.7	7.7	140	0	49	120	.1	19
JAN 25...	7.7	1.9	11	.9	5.9	40	0	11	14	.0	6.9
MAR 05...	83	16	500	13	18	100	0	27	900	.1	3.3
APR 17...	310	60	950	13	21	144	0	280	1900	.4	14
MAY 22...	14	2.6	27	1.7	4.5	72	0	10	26	.1	17
AUG 14...	20	3.8	60	3.2	5.6	90	0	24	67	.2	28
SEP 25...	7.8	1.6	6.6	.6	4.5	40	0	7.1	5.4	.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 30...	317	122	.01	.01	.02	.03	1.4	1.4	.090	20
DEC 11...	400	96	.01	.01	.02	.02	1.1	1.1	.040	15
JAN 25...	78	124	.04	.02	.06	.05	1.3	1.3	.090	17
MAR 05...	1600	33	.00	.02	.01	.03	.92	.95	.010	13
APR 17...	3610	50	7.6	.50	8.1	.34	1.9	2.2	3.40	12
MAY 22...	137	174	.04	.06	.10	.12	2.0	2.1	.120	27
AUG 14...	253	40	.00	.02	.02	.02	1.8	1.8	.440	28
SEP 25...	69	11	--	--	--	--	--	--	--	--

08189200 COPANO CREEK NEAR REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
DEC 11...	1747	2	200	<1	0	1	80
MAR 05...	1710	1	900	0	0	0	50
MAY 22...	1422	2	100	<1	0	2	130
AUG 14...	1740	4	100	1	0	5	280

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
DEC 11...	1	30	.0	0	0	5
MAR 05...	0	50	.0	0	0	20
MAY 22...	0	7	.0	0	0	4
AUG 14...	2	40	.0	0	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)
DEC 11...	1747	.0	1	.00	.00	.0	.0	0	.00	.3
MAR 05...	1710	.0	0	--	.00	.0	.0	0	.00	.0
MAY 22...	1422	--	0	.00	--	.0	--	0	--	.2
AUG 14...	1740	.0	--	.00	.00	--	.0	--	.00	--

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
DEC 11...	.00	.2	.00	.2	.00	.00	.0	.00	.00	.0
MAR 05...	.00	.1	.00	.0	.00	.00	.0	.00	.00	.0
MAY 22...	--	.0	--	.1	--	--	.0	--	--	.0
AUG 14...	.00	--	.00	--	.00	.00	--	.00	.00	--

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)	METHYL PARA-THION, TOTAL (UG/L)
DEC 11...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAR 05...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAY 22...	--	--	.0	--	.0	--	.0	--	--
AUG 14...	.00	.00	--	.00	--	.00	--	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
DEC 11...	.00	.00	.00	0	0	.00	.00	.00	.00
MAR 05...	.00	.00	.00	0	0	.00	.01	.00	.00
MAY 22...	--	--	--	--	0	--	.00	.00	.00
AUG 14...	.00	.00	.00	0	--	.00	.00	.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.--40 years (water years 1940-79), 115 ft³/s (3.257 m³/s), 2.26 in/yr (57 mm/yr), 83,320 acre-ft/yr (103 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)
May 12	2300	3,820	108	20.59	6.276
Sept. 21	0500	*6,320	179	25.62	7.809

Minimum discharge, 4.2 ft³/s (0.12 m³/s) Apr. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	8.7	8.7	12	23	19	15	30	36	15	59	16
2	18	8.7	8.7	13	23	18	13	35	41	15	41	28
3	18	8.7	8.6	13	23	17	13	34	450	14	31	16
4	28	8.7	8.5	12	23	17	15	377	1430	14	26	21
5	23	10	8.7	14	36	17	13	475	852	23	23	40
6	19	15	8.7	14	284	17	9.6	244	297	77	20	17
7	17	18	8.3	14	657	16	8.3	132	254	206	19	95
8	16	42	8.0	14	308	16	7.9	75	171	465	17	114
9	15	30	7.9	13	142	16	7.6	54	91	333	16	48
10	15	23	7.9	58	82	15	7.0	46	61	140	16	24
11	14	17	7.9	1050	57	15	7.2	272	45	71	16	17
12	14	14	7.6	2410	45	15	6.6	2920	36	48	15	14
13	13	13	7.6	1050	37	15	5.9	2980	31	33	33	13
14	12	12	8.1	302	32	15	4.8	822	28	27	21	11
15	12	11	8.7	143	29	16	4.5	260	25	23	16	10
16	11	9.5	9.9	93	25	16	4.4	146	23	22	14	9.5
17	11	9.4	9.9	71	24	17	6.7	102	22	24	13	9.2
18	11	9.4	9.7	62	22	17	9.4	80	21	21	13	38
19	11	11	9.4	58	22	17	13	66	20	19	14	1690
20	11	9.5	9.4	52	22	17	9.9	59	19	64	14	4900
21	10	9.8	9.0	138	22	200	21	54	19	169	13	5740
22	10	9.9	9.0	99	22	1930	98	52	18	113	12	2290
23	9.8	10	9.0	56	22	957	64	51	17	51	12	577
24	9.8	10	8.7	40	22	279	43	47	17	32	11	260
25	9.5	9.9	8.7	33	21	126	35	43	17	25	11	157
26	10	9.1	8.7	32	19	78	30	40	16	180	11	116
27	9.8	8.7	8.7	31	19	54	26	38	16	881	11	97
28	10	8.7	8.7	29	19	35	24	36	18	662	11	85
29	10	8.7	8.8	26	---	25	27	36	21	308	12	75
30	9.5	8.7	9.9	26	---	19	26	38	17	189	12	67
31	8.8	---	10	25	---	16	---	43	---	93	13	---
TOTAL	416.2	382.1	271.4	6003	2082	4047	575.8	9687	4129	4357	566	16594.7
MEAN	13.4	12.7	8.75	194	74.4	131	19.2	312	138	141	18.3	553
MAX	28	42	10	2410	657	1930	98	2980	1430	881	59	5740
MIN	8.8	8.7	7.6	12	19	15	4.4	30	16	14	11	9.2
CFSM	.02	.02	.01	.28	.11	.19	.03	.45	.20	.20	.03	.80
IN.	.02	.02	.01	.32	.11	.22	.03	.52	.22	.23	.03	.89
AC-FT	826	758	538	11910	4130	8030	1140	19210	8190	8640	1120	32920

CAL YR 1978 TOTAL 25220.1 MEAN 69.1 MAX 3850 MIN 5.8 CFSM .10 IN 1.36 AC-FT 50020
WTR YR 1979 TOTAL 49111.2 MEAN 135 MAX 5740 MIN 4.4 CFSM .20 IN 2.65 AC-FT 97410

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, 37.0°C May 12, 1967; minimum daily, 0.0°C Jan. 18, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,960 micromhos Oct. 26; minimum daily, 110 micromhos Sept. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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											
18...	1340	11	2130	7.9	21.0	10	7.8	91	1.7	--	--
NOV											
08...	1312	48	1490	8.1	17.0	20	8.0	86	1.6	--	--
DEC											
19...	1000	9.4	2710	8.1	16.0	10	8.2	86	1.4	38	70
JAN											
17...	1400	70	616	7.6	11.5	55	9.1	86	2.5	600	2400
FEB											
22...	0920	22	1860	7.7	16.0	10	8.3	87	2.0	96	140
MAR											
21...	0921	225	280	8.6	17.5	640	8.4	86	12	K220000	420000
APR											
11...	1000	7.6	2100	7.9	23.0	13	7.3	86	.7	96	3700
MAY											
08...	1555	69	818	7.8	26.5	66	7.4	91	2.3	700	4800
JUN											
06...	1500	273	224	7.7	27.0	30	6.0	76	3.0	K730	K84000
JUL											
11...	1122	69	748	7.7	28.0	33	6.2	78	2.8	970	2000
30...	1715	147	337	7.6	31.0	66	5.6	74	1.8	280	1100
AUG											
28...	1355	11	2450	8.0	28.0	10	7.6	96	1.5	170	290

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT										
18...	490	200	150	28	350	6.9	4.7	350	0	48
NOV										
08...	340	120	100	22	160	3.8	3.9	270	0	58
DEC										
19...	500	230	150	30	360	7.0	5.1	330	0	62
JAN										
17...	140	31	44	6.8	62	2.3	5.5	130	0	18
FEB										
22...	370	140	120	18	220	5.0	4.3	290	0	47
MAR										
21...	24	0	7.8	1.1	46	4.1	3.1	42	0	6.6
APR										
11...	420	160	130	24	250	5.3	4.1	320	0	48
MAY										
08...	220	85	57	18	89	2.6	1.4	160	0	29
JUN										
06...	63	0	20	3.1	18	1.0	4.3	78	0	12
JUL										
11...	170	67	51	9.2	81	2.7	5.5	120	0	26
30...	100	23	33	4.6	26	1.1	4.6	95	0	12
AUG										
28...	470	200	140	29	340	6.8	4.2	330	0	52

08189500 MISSION RIVER AT REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	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)
OCT										
18...	680	.3	38	1550	1470	.03	.01	.04	.03	.48
NOV										
08...	310	.3	43	853	831	.00	.01	.01	.01	.65
DEC										
19...	670	.3	37	1530	1480	.02	.01	.03	.01	.18
JAN										
17...	110	.1	15	351	325	.31	.02	.33	.06	.62
FEB										
22...	390	.2	27	1030	970	.04	.02	.06	.03	.37
MAR										
21...	60	.1	5.3	159	151	.34	.06	.40	.23	3.7
APR										
11...	470	.3	32	1190	1120	.07	.02	.09	.06	.44
MAY										
08...	170	.3	15	491	459	.06	.20	--	.06	1.1
JUN										
06...	22	.1	14	156	132	.02	.02	.04	.03	1.4
JUL										
11...	160	.2	24	475	416	.00	.04	.03	.05	1.2
30...	45	.2	16	202	188	.07	.06	.13	.07	1.0
AUG										
28...	590	.4	42	1330	1360	.02	.00	.02	.01	.74

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										
18...	.51	.30	.000	.000	4.8	--	--	101	3.0	57
NOV										
08...	.66	.51	.030	.000	--	3.7	1.0	85	11	93
DEC										
19...	.19	.16	.000	.000	3.0	--	--	33	.84	43
JAN										
17...	.68	.56	.060	.040	16	--	--	77	15	97
FEB										
22...	.40	.41	.010	.000	--	5.7	--	31	1.8	69
MAR										
21...	3.9	.56	.710	.250	46	--	--	2770	1680	82
APR										
11...	.50	.32	.020	.010	8.5	--	--	54	1.1	75
MAY										
08...	--	--	.050	--	19	19	--	100	19	99
JUN										
06...	1.4	.99	.060	.030	19	--	--	77	57	85
JUL										
11...	1.2	.81	.040	.020	7.2	--	--	124	23	75
30...	1.1	.55	.100	.050	--	11	.3	106	42	96
AUG										
28...	.75	.26	.020	.010	6.2	--	--	68	2.0	82

DATE	TIME	ARSENIC 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										
08...	1312	9	7	400	0	400	0	0	<1	0
FEB										
22...	0920	7	8	500	0	500	0	0	1	0
MAY										
08...	1555	5	5	300	100	200	0	0	0	10
JUL										
30...	1715	5	5	100	100	0	0	0	0	10

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)
NOV										
08...	0	0	0	0	<3	2	2	0	600	600
FEB										
22...	0	0	0	0	0	4	4	0	260	240
MAY										
08...	10	0	1	0	2	8	3	5	1500	1400
JUL										
30...	10	0	2	2	0	5	4	1	2400	2300

08189500 MISSION RIVER AT REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
NOV										
08...	0	0	0	0	130	110	20	.0	.0	.0
FEB										
22...	20	5	4	1	140	60	80	.0	.0	.0
MAY										
08...	110	12	11	1	140	130	10	.1	.1	.0
JUL										
30...	70	7	7	0	120	120	0	.2	.2	.0

DATE	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									
08...	0	0	1	0	0	0	10	7	<3
FEB									
22...	1	0	1	0	0	0	10	0	20
MAY									
08...	1	1	0	0	0	0	60	50	10
JUL									
30...	0	0	0	0	0	0	10	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)
OCT										
18...	1340	.0	3	.00	.00	.0	.0	8	.00	1.0
APR										
11...	1000	.0	0	.00	.00	.0	.0	9	.00	4.4

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)
OCT										
18...	.00	1.0	.00	.8	.00	.00	.8	.00	.00	.0
APR										
11...	.00	3.1	.00	1.2	.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)	METHYL PARA-THION, TOTAL (UG/L)
OCT									
18...	.00	.00	.2	.00	.0	.00	.0	.00	.00
APR									
11...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT									
18...	.00	.00	.00	0	0	.00	.00	.00	.00
APR									
11...	.00	.00	.00	0	0	.00	.00	.00	.00

08189500 MISSION RIVER AT REFUGIO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE	NOV 8,78		MAR 21,79		MAY 8,79		JUN 6,79	
TIME	1312		0921		1555		1500	
TOTAL CELLS/ML	9100		24000		1400		270	
DIVERSITY: DIVISION	0.9		0.2		1.1		1.4	
.CLASS	0.9		0.2		1.1		1.4	
..ORDER	1.6		0.2		1.4		1.8	
...FAMILY	1.8		0.2		2.5		1.8	
....GENUS	2.3		0.2		2.7		2.5	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	150	11	--	-
...MICRACTINIACEAE								
....GOLENKINIA	*	0	--	-	--	-	--	-
....MICRACTINIUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	120	1	--	-	120	9	39	14
....CHLORELLA	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	*	0	--	-	77	6	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	39	3	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	55	1	--	-	--	-	--	-
....SCENEDESMUS	330	4	--	-	620#	46	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	*	0	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	*	0	--	-	39	3	77#	29
....PLATYMONAS	--	-	--	-	--	-	--	-
...PHACOTACEAE								
....PHACOTUS	*	0	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	*	0	--	-	39	3	--	-
....MELOSIRA	--	-	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	--	-	--	-
...CYMBELLACEAE								
....AMPHORA	*	0	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	*	0	--	-	--	-	--	-
....OPEPHORA	*	0	--	-	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	*	0	--	-	--	-	--	-
...NAVICULACEAE								
....DIPLONEIS	*	0	--	-	--	-	--	-
....ENTOMONEIS	*	0	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-	39	14
....NAVICULA	120	1	--	-	39	3	39	14
....PINNULARIA	--	-	--	-	--	-	39	14
...NITZSCHIACEAE								
....NITZSCHIA	480	5	160	1	120	9	--	-
...SURIRELLACEAE								
....SURIRELLA	--	-	160	1	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	*	0	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE	--	-	--	-	--	-	--	-
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	39	3	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	4900#	54	--	-	--	-	--	-
....ANACYSTIS	1100	12	--	-	--	-	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	1600#	18	23000#	98	--	-	--	-
....SCHIZOTHRIX	--	-	--	-	--	-	--	-

MISSION RIVER BASIN

08189500 MISSION RIVER AT REFUGIO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979--Continued

DATE	NOV 8,78		MAR 21,79		MAY 8,79		JUN 6,79	
TIME	1312		0921		1555		1500	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-
....EUTREPTIA	--	-	--	-	--	-	--	-
....TRACHELOMONAS	55	1	160	1	39	3	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	--	-	--	-	39	14
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	39	3	--	-
...PERIDINIACEAE								
....PERIDINIUM	*	0	--	-	--	-	--	-

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

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE	JUL 11,79		JUL 30,79		AUG 28,79	
TIME	1122		1715		1355	
TOTAL CELLS/ML	21000		5300		47000	
DIVERSITY: DIVISION	0.8		0.2		0.9	
.CLASS	0.8		0.2		0.9	
..ORDER	1.0		0.6		0.0	
...FAMILY	1.3		1.5		0.0	
....GENUS	1.4		1.5		0.0	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	*	0	--	-	*	0
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	410	1
...MICRACTINIACEAE						
....GOLENKINIA	--	-	--	-	--	-
....MICRACTINIUM	*	0	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	430	2	--	-	510	1
....CHLORELLA	--	-	--	-	4300	9
....DICTYOSPHAERIUM	*	0	--	-	--	-
....KIRCHNERIELLA	*	0	--	-	*	0
....OOCYSTIS	380	2	--	-	--	-
....SELENASTRUM	*	0	--	-	--	-
....TETRAEDRON	*	0	--	-	--	-
....TREUBARIA	*	0	--	-	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	--	-
....SCENEDESMUS	1300	6	--	-	1800	4
....TETRASTRUM	--	-	--	-	410	1
..TETRASPORALES						
...PALMELLACEAE						
....SPHAEROCYSTIS	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	580	3	90	2	360	1
....PLATYMONAS	--	-	--	-	*	0
...PHACOTACEAE						
....PHACOTUS	--	-	--	-	--	-

08189500 MISSION RIVER AT REFUGIO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979--Continued

DATE	JUL 11,79		JUL 30,79		AUG 28,79	
TIME	1122		1715		1355	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	350	2	--	-	610	1
....MELOSIRA	*	0	--	-	--	-
....STEPHANODISCUS	--	-	90	2	--	-
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	--	-	*	0
...CYMBELLACEAE						
....AMPHORA	--	-	--	-	--	-
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
....OPEPHORA	--	-	--	-	--	-
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	--	-
...NAVICULACEAE						
....DIPLONEIS	--	-	--	-	--	-
....ENTOMONEIS	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-
....NAVICULA	*	0	--	-	*	0
....PINNULARIA	--	-	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	130	1	--	-	*	0
...SURIRELLACEAE						
....SURIRELLA	--	-	--	-	--	-
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE	--	-	--	-	300	1
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	*	0	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	360	7	19000#	41
....ANACYSTIS	200	1	--	-	15000#	32
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	550	3	2600#	49	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	17000#	79	2200#	41	--	-
....SCHIZOTHRIX	--	-	--	-	3000	6
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	*	0	--	-	--	-
....EUTREPTIA	--	-	--	-	*	0
....TRACHELOMONAS	--	-	--	-	*	0
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..GYMNODINIALES						
...GYMNODINIACEAE						
....GYMNODINIUM	--	-	--	-	--	-
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	--	-	--	-	*	0
...PERIDINIACEAE						
....PERIDINIUM	--	-	--	-	--	-

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

8189500 MISSION RIVER AT REFUGIO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	416.2	2180	1210	1360	560	625	33	37	340
NOV. 1978.....	382.1	2120	1180	1220	540	555	32	33	330
DEC. 1978.....	271.4	2660	1470	1080	690	509	40	29	420
JAN. 1979.....	6003	401	220	3630	83	1340	6	96	63
FEB. 1979.....	2082	703	390	2210	160	885	11	61	110
MAR. 1979.....	4047	535	300	3270	120	1270	8	89	84
APR. 1979.....	575.8	1500	830	1300	360	558	23	35	230
MAY 1979.....	9687	366	200	5310	76	1980	5	140	57
JUNE 1979.....	4129	486	270	3020	110	1210	7	82	76
JULY 1979.....	4357	463	260	3040	96	1130	7	83	72
AUG. 1979.....	566	1600	890	1360	390	594	24	37	250
SEPT 1979.....	16594.69	258	140	6390	53	2390	4	181	40
TOTAL	49111.19	**	**	33200	**	13000	**	903	**
WTD.AVG.	135	450	250	**	99	**	6.7	**	70

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1680	2690	2570	2240	1750	1950	1640	1960	1540	2220	673	2000
2	1840	2680	2640	1910	1770	2090	1700	1850	1500	2320	800	1250
3	1930	2680	2580	2020	1790	2070	1740	1760	987	2260	1070	2630
4	1140	2760	2640	2300	1810	2080	1640	349	137	2280	1220	1510
5	1350	2860	2600	2140	1880	2090	1690	320	132	2000	1430	1070
6	1560	2500	2640	2120	382	2240	1960	400	238	621	1530	1630
7	1890	2220	2680	2100	303	2270	1940	503	267	500	1650	477
8	1920	1430	2550	2060	390	2300	1960	835	390	275	1770	380
9	2140	1550	2590	2220	404	2330	1970	961	509	307	1800	470
10	2260	1640	2650	2000	460	2350	2000	1080	900	676	1850	1050
11	2310	1700	2700	360	626	2370	2030	800	1200	748	1890	1410
12	2360	1770	2720	208	1360	2380	1990	219	1380	857	2010	1640
13	2340	1900	2810	275	1060	2390	2100	144	1560	1150	1100	1810
14	2430	2050	2790	300	1220	2430	2200	267	1690	1440	1260	1940
15	2500	2170	2710	328	1360	2370	2310	420	2070	1590	1700	2060
16	2570	2270	2630	444	1470	2320	2320	555	1920	1690	1940	2220
17	2610	2300	2590	594	1550	2300	2210	793	1950	1640	2030	2330
18	2640	2270	2530	723	1600	2270	1890	914	1770	1830	2070	1880
19	2650	2330	2600	839	1640	2300	1800	1120	1950	1970	2040	151
20	2640	2390	2630	982	1770	2320	1920	1230	2070	1110	2030	110
21	2690	2360	2570	703	1780	1000	1650	1310	2130	358	2100	122
22	2720	2350	2610	439	1790	325	637	1420	2190	422	2070	313
23	2700	2340	2670	684	1780	208	825	1460	2050	768	2200	600
24	2710	2360	2690	930	1790	370	1130	1510	2140	1000	2250	824
25	2740	2380	2710	1100	1840	530	1460	1580	2220	1320	2290	1190
26	2960	2410	2730	1320	1970	690	1740	1670	2310	1100	2360	1450
27	2600	2460	2840	1350	2020	927	2070	1710	2330	166	2370	1600
28	2520	2440	2770	1450	2080	1130	2130	1740	2030	162	2350	1760
29	2440	2530	2800	1600	---	1320	2110	1760	1940	449	2820	1870
30	2660	2560	2630	1620	---	1450	2170	1780	2190	460	2560	1950
31	2730	---	2590	1640	---	1540	---	1590	---	475	2050	---
MEAN	2330	2280	2660	1260	1420	1760	1830	1100	1520	1100	1850	1320

08189500 MISSION RIVER AT REFUGIO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	23.0	18.5				23.0	23.0			30.0	28.0
2	27.0	22.0	20.5				23.0	23.5			---	---
3	26.5	22.0	23.0				18.5	24.5			30.5	29.0
4	26.5	22.0	15.0				22.0	23.0			27.0	29.0
5	---	22.0	15.5				22.0	19.0			30.5	29.0
6	24.5	20.0	19.5				22.0	---			30.5	28.5
7	21.5	17.0	16.5				---	23.5			---	28.0
8	---	17.0	11.5				---	26.5			29.5	---
9	24.0	16.0	14.5				22.0	26.5			29.5	26.0
10	26.0	18.0	---				23.0	27.0			---	28.5
11	25.5	---	12.0				26.5	---			28.0	27.0
12	25.5	23.0	12.0				27.0	16.0			26.5	28.0
13	26.0	21.5	10.0				24.5	20.5			30.0	---
14	22.0	24.0	11.0				---	23.5			27.0	---
15	---	24.5	11.0				23.0	25.5			28.0	21.0
16	22.0	19.0	---				26.0	25.0			30.0	21.5
17	21.5	16.0	---				25.5	26.0			28.0	23.5
18	21.5	18.5	14.0				25.0	25.0			---	23.5
19	21.0	---	16.5				25.5	26.5			---	22.0
20	19.0	16.0	21.0				24.0	---			27.0	23.5
21	20.5	15.5	16.5				23.5	---			30.5	24.5
22	24.0	16.0	14.5				24.0	26.5			30.0	24.0
23	22.0	---	15.5				24.5	---			28.0	---
24	22.0	22.0	---				22.0	28.0			---	25.5
25	24.0	23.5	---				26.5	28.0			25.5	25.0
26	21.5	22.0	13.5				26.0	26.5			26.5	25.5
27	22.0	18.5	14.0				21.5	26.0			29.0	---
28	---	14.5	13.5				---	30.0			29.0	26.0
29	20.5	15.5	18.0				---	31.0			26.5	25.5
30	21.0	18.0	19.5				20.0	29.5			26.0	26.0
31	22.0	---	15.5				---	25.5			26.0	---
MEAN	23.0	19.5	15.5				23.5	25.0			28.5	26.0

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.--15 years, 46.1 ft³/s (1.306 m³/s), 2.54 in/yr (65 mm/yr), 33,400 acre-ft/yr (41.2 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)
Mar. 21	1600	*1,930	54.7	15.17	4.624	July 5	2200	584	16.5	9.50	2.896
May 11	2400	1,780	50.4	14.74	4.493	Sept. 20	0400	1,390	39.4	13.44	4.097

Minimum discharge, 1.9 ft³/s (0.054 m³/s) Nov. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	2.6	2.9	6.2	4.6	4.0	5.6	30	5.2	3.1	4.6	5.0
2	3.2	2.8	3.2	7.2	4.8	4.1	6.0	12	6.2	2.7	4.4	4.3
3	3.3	2.5	3.2	5.2	4.8	4.5	6.3	7.4	75	2.5	4.3	3.6
4	3.3	2.6	3.5	4.4	5.1	4.0	5.9	35	29	2.5	4.0	3.8
5	3.6	2.7	3.0	4.4	5.5	3.7	5.8	34	19	138	3.8	6.5
6	3.8	5.7	2.7	4.6	21	3.7	5.6	13	13	240	3.8	54
7	3.7	36	3.2	5.4	45	3.7	5.5	7.5	14	40	3.7	65
8	3.7	12	3.5	5.7	17	4.1	5.6	5.3	7.8	90	3.5	18
9	3.8	5.8	3.5	4.9	8.2	4.0	5.6	4.6	6.3	165	3.5	8.3
10	3.5	3.4	3.5	9.8	5.8	3.9	5.7	4.3	5.6	27	3.6	5.7
11	3.3	2.8	4.0	166	4.9	3.8	5.6	437	4.8	16	4.1	4.5
12	3.3	3.5	3.5	73	4.5	3.3	5.5	722	4.2	12	4.2	4.6
13	3.2	3.2	3.5	26	3.9	3.1	5.1	82	4.0	7.6	5.8	6.0
14	3.2	3.1	3.5	14	3.7	3.6	5.5	28	4.0	6.4	4.9	5.2
15	3.2	2.8	3.7	9.1	4.3	4.0	5.2	16	3.9	6.1	3.6	3.8
16	3.2	3.2	3.7	7.3	4.3	4.0	5.1	11	4.0	5.4	3.2	3.3
17	3.2	3.3	3.8	6.8	3.7	4.6	6.8	9.2	3.8	5.0	3.2	3.0
18	3.2	5.9	3.7	6.4	3.7	4.8	16	7.9	3.8	5.0	3.2	4.9
19	3.2	4.7	3.4	6.7	3.7	4.2	7.4	6.9	3.6	5.6	2.9	310
20	3.2	3.5	3.4	6.4	3.9	4.0	10	6.3	3.5	41	2.7	827
21	3.0	3.2	3.7	12	4.1	749	28	6.2	3.3	55	2.7	92
22	3.0	3.2	3.4	7.8	4.2	195	44	7.0	3.5	21	5.7	30
23	3.2	3.5	3.3	6.3	4.2	35	21	7.3	3.4	9.9	4.6	17
24	3.2	3.5	3.3	5.3	4.5	17	9.3	6.9	3.3	6.9	3.6	11
25	3.2	3.5	3.1	5.1	3.9	11	5.5	5.7	3.3	5.4	3.5	8.8
26	3.2	3.5	2.9	5.7	3.5	8.6	4.4	5.3	3.3	21	2.9	7.1
27	3.2	3.5	3.1	6.4	3.3	7.3	3.8	5.2	3.3	19	2.7	6.3
28	3.3	3.5	3.3	5.4	4.1	6.7	3.4	5.8	3.9	13	3.1	5.9
29	3.3	2.9	3.5	4.9	---	6.5	3.7	5.6	3.5	8.0	4.1	5.7
30	3.1	2.9	4.2	5.1	---	6.2	57	5.4	4.0	5.8	4.3	5.5
31	2.7	---	4.6	4.7	---	6.3	---	5.3	---	4.9	6.4	---
TOTAL	101.8	145.3	106.8	448.2	194.2	1127.7	309.9	1545.1	255.5	990.8	120.6	1535.8
MEAN	3.28	4.84	3.45	14.5	6.94	36.4	10.3	49.8	8.52	32.0	3.89	51.2
MAX	3.8	36	4.6	166	45	749	57	722	75	240	6.4	827
MIN	2.7	2.5	2.7	4.4	3.3	3.1	3.4	4.3	3.3	2.5	2.7	3.0
CFSM	.01	.02	.01	.06	.03	.15	.04	.20	.03	.13	.02	.21
IN.	.02	.02	.02	.07	.03	.17	.05	.23	.04	.15	.02	.23
AC-FT	202	288	212	889	385	2240	615	3060	507	1970	239	3050

CAL YR 1978	TOTAL	2721.1	MEAN 7.46	MAX 199	MIN 1.5	CFSM .03	IN .41	AC-FT	5400	
WTR YR 1979	TOTAL	6881.7	MEAN 18.9	MAX 827	MIN 2.5	CFSM .08	IN 1.04	AC-FT	13650	

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).

WATER-DISCHARGE RECORDS

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.--Water-discharge 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. A recording rain gage is located at station.

AVERAGE DISCHARGE.--9 years, 52.2 ft³/s (1.478 m³/s), 5.54 in/yr (141 mm/yr), 37,820 acre-ft/yr (46.6 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 for part of several days in 1973, 1975-76, and 1978-79.

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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 11	1600	1,010	28.6	7.37	2.246	July 9	1600	639	18.1	6.35	1.935
Apr. 21	2000	823	23.3	6.86	2.091	July 28	0700	2,560	72.5	11.30	3.444
May 4	2400	1,200	34.0	7.89	2.405	Sept. 12	1200	1,650	46.7	9.03	2.752
May 12	0800	747	21.2	6.68	2.036	Sept. 20	0400	*3,820	108	a14.63	4.459
July 5	2400	1,720	48.7	9.21	2.807						

a From floodmark.

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	.05	.44	5.2	.00	.18	.00	12	.00	.07	56	.35
2	.24	.04	.44	1.7	.00	.17	.00	13	.27	.07	15	11
3	.18	.03	.41	1.0	.00	.19	.01	5.7	4.6	.09	4.1	124
4	.15	.03	.35	.84	.00	.14	.00	535	1.3	.15	1.5	117
5	.11	10	.35	2.1	4.0	.13	.00	789	5.2	512	.87	18
6	.09	43	.35	2.1	178	.11	.00	263	8.5	996	.45	69
7	.09	100	.35	1.3	127	.11	.00	107	23	335	.22	19
8	.09	40	.35	.61	49	.11	.00	40	2.2	294	.11	228
9	.09	13	.33	.44	13	.11	.00	15	1.0	487	.04	231
10	.09	5.1	.30	91	5.3	.11	.00	6.7	.63	207	.03	93
11	.09	2.5	.30	850	3.2	.11	.00	72	.40	42	.02	56
12	.08	1.4	.30	540	1.9	.11	.00	559	.30	6.2	.02	1280
13	.04	.94	.43	192	1.1	.12	.00	215	.26	2.4	.02	604
14	.04	.66	.74	91	.68	.14	.00	75	.16	1.4	.03	182
15	.03	.60	.40	33	.46	.38	.00	17	.14	.99	.04	54
16	.03	.54	.39	12	.28	.25	.00	7.4	.14	.65	.03	38
17	.03	.79	.39	5.5	.30	.18	8.9	3.5	.09	.49	.05	25
18	.03	.56	.41	2.5	.24	.14	.31	1.5	.07	.33	.06	21
19	.03	.56	.55	1.0	.19	.14	.16	.65	.09	.98	.04	220
20	.03	.52	.52	.64	.21	.14	66	.39	.09	.59	.04	2990
21	.03	.50	.40	.05	.23	180	402	.35	.11	.48	.04	919
22	.03	.58	.35	.01	.23	145	418	.30	.09	.32	.04	305
23	.03	.61	.35	.00	.23	49	174	.26	.09	.30	.19	162
24	.03	.55	.34	.00	.24	10	72	.19	.11	.26	.06	84
25	.04	.50	.30	.01	.15	2.8	26	.11	.11	.34	.08	29
26	2.4	.50	3.7	.00	.11	.82	12	.09	.09	399	.04	11
27	.30	.49	2.1	.00	.11	.24	6.9	.04	.11	1290	5.9	4.7
28	.09	.54	15	.00	.16	.08	4.4	.03	.09	2190	1.5	2.4
29	.07	.50	27	.03	---	.02	8.1	.01	.11	755	4.4	1.3
30	.06	.50	14	.67	---	.01	7.9	.00	.09	273	2.1	.79
31	.05	---	6.5	.02	---	.01	---	.00	---	134	.49	---
TOTAL	5.06	225.59	78.14	1834.72	386.32	391.05	1206.68	2739.22	49.44	7930.11	93.51	7899.54
MEAN	.16	7.52	2.52	59.2	13.8	12.6	40.2	88.4	1.65	256	3.02	263
MAX	2.4	100	27	850	178	180	418	789	23	2190	56	2990
MIN	.03	.03	.30	.00	.00	.01	.00	.00	.00	.07	.02	.35
CFSM	.001	.06	.02	.46	.11	.10	.31	.69	.01	2.00	.02	2.06
IN.	.00	.07	.02	.53	.11	.11	.35	.80	.01	2.30	.03	2.30
AC-FT	10	447	155	3640	766	776	2390	5430	98	15730	185	15670

CAL YR 1978 TOTAL 6510.48 MEAN 17.8 MAX 1160 MIN .00 CFSM .14 IN 1.89 AC-FT 12910
WTR YR 1979 TOTAL 22839.38 MEAN 62.6 MAX 2990 MIN .00 CFSM .49 IN 6.64 AC-FT 45300

NOTE.--No gage-height record May 23 to July 2, Sept. 19. 20.

08189800 CHILTIPIN CREEK AT SINTON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1968 to September 1979 (discontinued). Biochemical analyses: October 1969 to September 1979 (discontinued). Pesticide analyses: October 1969 to September 1979 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 30...	1245	.06	15700	7.8	25.0	8.0	9.2	121	2.3	1900	1700
DEC 11...	1602	.30	9730	8.1	11.5	5.0	11.2	106	2.6	850	490
JAN 25...	1245	.03	5720	7.8	12.5	25	9.2	91	6.1	740	640
MAR 15...	1454	.26	15000	8.2	22.5	7.0	12.2	140	5.0	1400	1200
APR 16...	1645	2.6	--	--	--	--	--	--	--	--	--
MAY 22...	0920	.30	8109	7.8	22.5	13	7.0	81	2.6	920	800
JUL 03...	0938	.09	10900	8.1	32.0	20	--	--	--	670	420
AUG 14...	1300	.04	--	8.2	35.5	5.4	13.6	203	4.9	870	660
SEP 25...	1553	24	--	--	--	--	--	--	--	--	--

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 30...	480	180	2500	25	17	240	0	62	5000	.6	6.5
DEC 11...	240	60	1800	27	11	430	0	56	3100	1.2	10
JAN 25...	240	33	900	14	12	120	0	110	1700	.2	13
MAR 15...	390	110	2800	32	17	310	0	140	4800	.8	6.0
APR 16...	--	--	--	--	--	--	--	--	--	--	--
MAY 22...	270	60	1300	19	13	156	0	120	2600	.3	11
JUL 03...	170	60	2100	35	13	310	0	160	3500	1.3	13
AUG 14...	240	65	2000	30	15	250	0	45	3600	.9	10
SEP 25...	--	--	--	--	--	--	--	--	--	--	--

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 30...	8360	18	.01	.00	.01	.01	.74	.75	.06	9.2
DEC 11...	5490	14	.02	.00	.02	.01	.39	.40	.04	5.1
JAN 25...	3070	42	1.0	.16	1.2	.21	.89	1.1	.30	13
MAR 15...	8420	18	.00	.02	.01	.04	.62	.66	.02	8.7
APR 16...	--	--	--	--	--	--	--	--	--	--
MAY 22...	4450	29	.11	.04	.15	.10	.78	.88	.12	16
JUL 03...	6170	51	.00	.02	.02	.04	.61	.65	.21	12
AUG 14...	6100	13	.03	.02	.05	.07	.63	.70	.16	9.2
SEP 25...	--	--	.96	.02	.98	.03	.23	.26	.03	12

08189800 CHILTIPIN CREEK AT SINTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
DEC 11...	1602	3	1300	0	0	1	10
MAR 15...	1454	5	2400	0	10	0	40
MAY 22...	0920	10	2400	0	0	2	40
AUG 14...	1300	7	2400	0	0	0	30

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
DEC 11...	0	540	.0	0	0	40
MAR 15...	0	990	.0	0	0	20
MAY 22...	0	1000	.0	0	0	20
AUG 14...	0	600	.0	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)
DEC 11...	1602	.0	0	.00	.00	.0	.0	0	.00	.0
MAR 15...	1454	.0	0	--	.00	.0	.0	0	.00	.3
MAY 22...	0920	.0	0	.00	.00	.0	.0	0	.00	.0
AUG 14...	1300	.0	0	.00	.00	.0	.0	0	.00	.1

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
DEC 11...	.00	.1	.00	.0	.00	.00	.0	.00	.00	.0
MAR 15...	.00	.1	.00	.0	.00	.00	.0	.00	.00	.0
MAY 22...	.00	.0	.00	.0	.01	.00	.0	.00	.00	.0
AUG 14...	.00	.1	.00	.0	.00	.00	.0	.00	.00	.0

08189800 CHILTIPIN CREEK AT SINTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
DEC 11...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAR 15...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAY 22...	.00	.00	.0	.00	.0	.00	.0	.00	.00
AUG 14...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
DEC 11...	.00	.00	.00	0	0	.00	.00	.00	.00
MAR 15...	.00	.00	.00	0	0	.00	.02	.00	.00
MAY 22...	.00	.00	.00	0	0	.00	.00	.00	.00
AUG 14...	.00	.00	.00	0	0	.00	.00	.00	.00

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.--56 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 discharges 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)
Mar. 20	2000	*5,610	159	8.36	2.548
Apr. 19	2330	2,700	76.5	7.28	2.219
June 5	0330	1,240	35.1	6.43	1.960

Minimum discharge, 29 ft³/s (0.82 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	47	74	65	61	65	154	153	124	107	59	42
2	56	47	73	64	61	66	151	152	136	103	63	41
3	55	46	72	65	63	67	160	150	164	101	74	41
4	54	46	71	66	66	67	156	144	184	99	67	42
5	53	80	70	66	72	67	148	139	506	98	63	43
6	54	126	69	67	80	63	145	134	377	97	61	42
7	58	101	68	67	82	63	144	131	317	95	59	43
8	57	84	68	66	79	62	143	129	282	95	57	43
9	58	76	68	65	77	62	140	127	255	95	55	42
10	57	72	67	64	76	63	138	125	246	92	53	41
11	56	71	65	64	76	62	135	122	227	91	54	40
12	55	72	64	64	76	63	131	120	212	88	54	40
13	54	74	63	63	74	62	128	117	202	85	57	39
14	53	71	63	62	74	62	122	114	188	82	58	39
15	52	79	64	62	72	65	120	109	177	80	56	38
16	51	84	63	62	71	69	119	107	162	78	54	39
17	51	84	62	62	71	74	220	105	154	75	53	39
18	50	81	62	64	70	77	166	102	149	76	51	39
19	49	81	62	64	69	77	467	101	145	78	50	39
20	49	80	62	65	70	485	421	105	145	79	48	38
21	49	80	61	65	70	684	300	120	143	86	47	37
22	48	79	61	63	70	387	258	127	139	84	46	36
23	48	77	60	62	69	299	231	116	135	82	46	36
24	48	76	60	62	70	235	214	108	132	78	45	35
25	50	76	60	62	69	201	198	102	128	74	45	35
26	49	84	60	62	68	180	180	101	124	72	45	34
27	49	86	59	62	67	168	169	102	122	70	44	34
28	50	81	60	62	66	163	162	103	119	69	44	33
29	49	78	60	62	---	160	158	101	114	66	44	33
30	48	75	61	62	---	159	155	98	111	62	43	32
31	48	---	63	62	---	156	---	95	---	60	43	---
TOTAL	1615	2294	1995	1973	1989	4533	5533	3659	5619	2597	1638	1155
MEAN	52.1	76.5	64.4	63.6	71.0	146	184	118	187	83.8	52.8	38.5
MAX	58	126	74	67	82	684	467	153	506	107	74	43
MIN	48	46	59	62	61	62	119	95	111	60	43	32
CFSM	.07	.10	.08	.08	.09	.19	.24	.15	.25	.11	.07	.05
IN.	.08	.11	.10	.10	.10	.22	.27	.18	.27	.13	.08	.06
AC-FT	3200	4550	3960	3910	3950	8990	10970	7260	11150	5150	3250	2290

CAL YR 1978 TOTAL 27440 MEAN 75.2 MAX 775 MIN 24 CFSM .10 IN 1.34 AC-FT 54430
WTR YR 1979 TOTAL 34600 MEAN 94.8 MAX 684 MIN 32 CFSM .12 IN 1.68 AC-FT 68630

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 21...	0932	80	420	8.0	18.5	0	.00	8.2	90	.4
JAN 03...	0930	62	410	8.0	10.0	0	1.0	11.0	101	.4
MAR 27...	1205	167	404	8.1	18.5	0	1.0	9.0	99	1.2
MAY 01...	1140	154	424	7.6	20.0	5	.40	8.6	98	.1
JUN 12...	1458	212	419	8.0	25.0	4	2.3	9.0	111	.7

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
NOV 21...	73	31	94	200	15	55	14	8.2	.3
JAN 03...	56	K17	K13	180	11	52	13	7.5	.2
MAR 27...	K150	26	180	190	21	56	13	7.2	.2
MAY 01...	78	14	74	200	3	62	11	7.2	.2
JUN 12...	K60	K7	K14	180	3	52	13	9.1	.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 21...	.9	220	0	13	13	.1	12	225	0
JAN 03...	.8	210	0	14	14	.1	10	215	0
MAR 27...	.8	210	0	14	13	.1	10	218	0
MAY 01...	.8	240	0	13	15	.2	9.4	237	3
JUN 12...	.8	220	0	15	10	.2	13	222	6

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 21...	0	1.1	.01	1.1	.01	.14	.15	.00	2.2
JAN 03...	0	1.1	.01	1.1	.01	.19	.20	.01	.8
MAR 27...	0	1.5	.02	1.5	.01	.11	.12	.00	1.0
MAY 01...	0	1.6	.00	--	.00	.14	--	.10	2.7
JUN 12...	0	1.1	.06	1.2	.01	.08	.09	.00	3.6

08190000 NUECES RIVER AT LAGUNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
JAN 03...	0930	1	30	<1	10	2

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 03...	<0	2	<1	.0	1	0	<3

DATE	TIME	PCB, 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 03...	0930	.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)	METHYL PARA-THION, TOTAL (UG/L)
JAN 03...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 (UC/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 03...	.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 mi² (1,800 km²).

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 above 10 ft³/s (0.28 m³/s) and fair below. 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 temperatures were made during the year.

AVERAGE DISCHARGE.--34 years (water years 1940-50, 1957-79), 35.4 ft³/s (1.003 m³/s), 25,650 acre-ft/yr (31.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246,000 ft³/s (6,970 m³/s) Sept. 20, 1964, gage height, 31.3 ft (9.54 m), from floodmark, from rating curve extended above 4,500 ft³/s (127 m³/s) on basis of slope-area measurements of 10,000, 51,000, 150,000, and 246,000 ft³/s (283, 1,440, 4,250, and 6,970 m³/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 ft³/s (15,600 m³/s), based on slope-area measurements of 580,000 ft³/s (16,400 m³/s) at site 33 mi (53 km) upstream from gage and 536,000 ft³/s (15,200 m³/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 ft³/s (4,250 m³/s), by slope-area measurement.

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)
Nov. 6	0100	2,030	57.5	6.64	2.024
Mar. 21	0500	*3,420	96.9	7.86	2.396

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.04	.00	.00	.00	11	1.2	.04	.02	.00	.00
2	.00	.00	.04	.00	.00	.00	8.6	1.2	.04	.02	.00	.00
3	.00	.00	.03	.00	.00	.00	7.6	1.1	.15	.01	.00	.00
4	.00	.00	.03	.00	.00	.00	7.5	.78	.26	.01	.00	.00
5	.00	18	.03	.00	.00	.00	7.0	.68	.99	.01	.00	.00
6	.00	714	.02	.00	.00	.00	6.2	.61	3.1	.01	.00	.00
7	.00	45	.02	.00	.00	.00	5.5	.53	4.7	.01	.00	.00
8	.00	10	.02	.00	.00	.00	4.7	.48	5.0	.00	.00	.00
9	.00	6.9	.01	.00	.00	.00	4.3	.42	4.1	.00	.00	.00
10	.00	5.0	.01	.00	.00	.00	3.9	.35	3.4	.00	.00	.00
11	.00	3.9	.01	.00	.00	.00	3.3	.31	2.8	.00	.00	.00
12	.00	3.2	.01	.00	.00	.00	3.0	.23	2.8	.00	.00	.00
13	.00	2.5	.01	.00	.00	.00	2.7	.17	2.4	.00	.00	.00
14	.00	2.1	.01	.00	.00	.00	2.3	.13	2.0	.00	.00	.00
15	.00	1.8	.00	.00	.00	.00	2.1	.09	1.6	.00	.00	.00
16	.00	1.5	.00	.00	.00	.00	2.0	.07	1.3	.00	.00	.00
17	.00	1.2	.00	.00	.00	.00	2.2	.06	1.0	.00	.00	.00
18	.00	1.1	.00	.00	.00	.00	1.8	.05	.84	.00	.00	.00
19	.00	.91	.00	.00	.00	.00	1.9	.05	.65	.00	.00	.00
20	.00	.74	.00	.00	.00	.38	3.1	.05	.52	.00	.00	.00
21	.00	.60	.00	.00	.00	1080	4.8	.10	.38	.01	.00	.00
22	.00	.50	.00	.00	.00	207	5.3	.06	.29	.01	.00	.00
23	.00	.39	.00	.00	.00	135	4.8	.04	.20	.01	.00	.00
24	.00	.31	.00	.00	.00	111	4.0	.03	.16	.01	.00	.00
25	.00	.28	.00	.00	.00	92	3.0	.03	.11	.00	.00	.00
26	.00	.19	.00	.00	.00	76	2.3	.03	.09	.00	.00	.00
27	.00	.11	.00	.00	.00	58	1.9	.03	.06	.00	.00	.00
28	.00	.07	.00	.00	.00	41	1.7	.03	.05	.00	.00	.00
29	.00	.05	.00	.00	---	30	1.6	.03	.03	.00	.00	.00
30	.00	.05	.00	.00	---	21	1.4	.03	.03	.00	.00	.00
31	.00	---	.00	.00	---	15	---	.02	---	.00	.00	---
TOTAL	.00	820.40	.29	.00	.00	1866.38	121.5	8.99	39.09	.13	.00	.00
MEAN	.000	27.3	.009	.000	.000	60.2	4.05	.29	1.30	.004	.000	.000
MAX	.00	714	.04	.00	.00	1080	11	1.2	5.0	.02	.00	.00
MIN	.00	.00	.00	.00	.00	.00	1.4	.02	.03	.00	.00	.00
AC-FT	.00	1630	.6	.00	.00	3700	241	18	78	.3	.00	.00

CAL YR 1978 TOTAL 1763.26 MEAN 4.83 MAX 714 MIN .00 AC-FT 3500
WTR YR 1979 TOTAL 2856.78 MEAN 7.83 MAX 1080 MIN .00 AC-FT 5670

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.--40 years, 117 ft³/s (3.313 m³/s), 84,770 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	1630	437	12.4	4.55	1.387	June 3	0600	1,460	41.3	5.43	1.655
Apr. 20	1300	995	28.2	5.06	1.542	June 5	1130	*6,040	171	8.42	2.566

Minimum discharge, 20 ft³/s (0.57 m³/s) Feb. 24, Mar. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	31	28	26	24	22	92	133	109	90	52	37
2	31	31	28	25	24	23	93	132	119	88	52	37
3	30	31	28	26	25	22	92	130	512	85	52	37
4	30	31	28	26	26	21	95	124	160	83	51	37
5	30	43	28	26	27	22	98	118	2030	79	49	36
6	30	32	28	26	25	22	96	114	768	77	49	36
7	29	31	28	25	24	21	95	111	518	76	48	36
8	30	31	27	24	24	21	97	109	395	75	48	35
9	29	31	27	25	24	21	96	108	325	72	48	35
10	29	30	27	26	24	21	97	105	282	70	47	35
11	30	31	27	25	24	21	95	102	258	67	47	35
12	30	30	27	25	24	21	92	98	238	68	46	35
13	29	31	27	24	24	21	89	95	215	67	46	35
14	29	31	27	25	24	21	87	93	202	65	45	34
15	29	31	27	25	23	21	86	90	187	64	45	33
16	29	30	27	25	23	24	88	87	172	62	44	33
17	29	29	27	26	23	24	125	84	161	60	44	34
18	29	29	27	26	23	22	234	82	152	60	44	34
19	28	30	27	26	23	22	220	81	145	57	43	33
20	29	29	26	24	23	28	578	82	140	58	42	33
21	29	29	26	25	23	184	402	81	131	56	42	33
22	29	29	26	25	23	194	286	80	128	56	42	33
23	29	29	26	24	23	163	237	79	124	54	42	32
24	28	29	26	25	22	140	205	82	119	53	41	32
25	29	29	26	26	22	117	184	80	115	53	41	32
26	31	29	26	26	22	104	171	77	107	54	39	30
27	30	29	26	25	22	96	159	76	104	54	38	30
28	31	28	26	25	22	92	148	75	101	54	37	30
29	30	28	26	26	---	91	142	73	99	53	38	30
30	30	28	27	25	---	90	136	73	94	53	38	30
31	30	---	28	24	---	90	---	72	---	53	37	---
TOTAL	916	910	835	782	660	1802	4715	2926	8210	2016	1377	1012
MEAN	29.5	30.3	26.9	25.2	23.6	58.1	157	94.4	274	65.0	44.4	33.7
MAX	31	43	28	26	27	194	578	133	2030	90	52	37
MIN	28	28	26	24	22	21	86	72	94	53	37	30
AC-FT	1820	1800	1660	1550	1310	3570	9350	5800	16280	4000	2730	2010

CAL YR 1978 TOTAL 18105 MEAN 49.6 MAX 2670 MIN 22 AC-FT 35910
WTR YR 1979 TOTAL 26161 MEAN 71.7 MAX 2030 MIN 21 AC-FT 51890

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 Edward 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.--40 years, 184 ft³/s (5.211 m³/s), 133,300 acre-ft/yr (164 hm³/yr).

EXTREMES FOR PERIOD OF RECOKD.--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.--Maximum discharge, 7,710 ft³/s (218 m³/s) June 6, gage height, 27.91 ft (8.507 m), no other peak above base of 2,000 ft³/s (56.6 m³/s); no flow Sept. 12-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	.37	6.6	2.3	.12	.27	.03	189	1210	63	.35	.24
2	6.3	.24	10	.84	.16	.22	.03	174	2510	52	.45	.03
3	5.0	.16	10	.35	.16	.41	21	166	3960	46	.61	.02
4	4.1	.10	7.4	.20	.17	1.4	191	155	4260	38	.69	.02
5	3.5	.63	5.5	.17	.27	2.0	149	141	5610	36	.84	.01
6	2.9	.07	4.3	.21	.32	2.1	116	130	7290	34	1.9	.02
7	3.1	.07	3.3	.16	.26	2.8	103	122	7280	29	1.6	.13
8	2.4	.07	2.4	.18	.24	3.2	97	118	6770	24	1.5	.18
9	1.9	.04	1.7	.12	.23	2.9	90	107	6580	22	1.4	.02
10	1.9	.02	1.5	.14	.18	2.2	81	98	6080	20	1.4	.01
11	1.8	.10	1.2	.15	.11	2.9	75	128	4720	17	1.2	.01
12	1.9	4.1	.67	.15	.07	1.9	72	294	2840	11	1.3	.00
13	1.7	13	.43	.19	.06	1.6	63	253	1390	6.6	.76	.00
14	1.3	22	.75	.19	.06	1.8	51	206	751	4.3	.17	.00
15	.76	18	1.1	.24	.07	1.8	48	172	573	2.9	.13	.00
16	.79	13	1.5	.23	.10	2.5	47	139	429	1.2	.20	.00
17	.86	10	1.1	.22	.06	1.2	321	115	352	.54	.27	.00
18	.57	7.2	1.2	.19	.05	.55	322	93	300	.58	.32	.15
19	.43	6.0	1.6	.17	.06	.41	228	72	267	.90	.31	.16
20	.35	4.8	1.2	.18	.06	.36	202	57	239	.95	.42	.03
21	.35	4.2	.98	.15	.06	.37	754	47	214	.87	.41	.05
22	.29	4.0	.89	.18	.11	.37	787	39	196	.82	.46	.18
23	.20	3.8	.69	.14	.12	.34	649	30	183	.56	.54	.04
24	.15	3.7	.56	.09	.31	.29	445	27	170	.15	1.5	.01
25	.16	4.0	.60	.17	1.8	.20	332	28	162	.20	2.6	.04
26	.43	5.6	.67	.18	2.6	.15	280	26	144	.56	1.3	.24
27	.43	7.6	2.5	.18	1.5	.10	246	22	122	.74	.40	.25
28	.61	7.8	2.4	.13	.56	.05	221	66	109	.76	.05	.12
29	.68	5.9	2.0	.13	---	.05	211	58	98	.70	.02	.02
30	.61	5.2	1.8	.15	---	.03	216	90	82	.50	.11	.02
31	.52	---	2.6	.14	---	.03	---	606	---	.35	.39	---
TOTAL	53.89	151.77	79.14	8.22	9.87	34.50	6418.06	3968	64891	416.18	23.60	2.00
MEAN	1.74	5.06	2.55	.27	.35	1.11	214	128	2163	13.4	.76	.067
MAX	7.9	22	10	2.3	2.6	3.2	787	606	7290	63	2.6	.25
MIN	.15	.02	.43	.09	.05	.03	.03	22	82	.15	.02	.00
AC-FT	107	301	157	16	20	68	12730	7870	128700	825	47	4.0

CAL YR 1978 TOTAL 13712.76 MEAN 37.6 MAX 1970 MIN .00 AC-FT 27200
WTR YR 1979 TOTAL 76056.23 MEAN 208 MAX 7290 MIN .00 AC-FT 150900

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 observations of water temperature were made during the year.

AVERAGE DISCHARGE.--55 years (water years 1925-79), 276 ft³/s (7.816 m³/s), 200,000 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.--Maximum discharge, 11,200 ft³/s (317 m³/s) June 8, gage height, 18.93 ft (5.770 m), no other peak above base of 2,500 ft³/s (70.8 m³/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	.47	1.9	1.3	.18	.04	.00	207	117	67	.01	.00
2	11	.38	2.1	.84	.18	.04	.00	197	414	56	.00	.00
3	9.5	.30	2.3	.77	.21	.04	.00	172	782	46	.00	.00
4	8.3	.16	2.3	.77	.27	.03	.00	155	1040	37	.00	.00
5	7.7	.13	1.9	.77	.60	.02	.00	143	1400	33	.00	.00
6	7.0	.14	1.8	.77	.54	.02	.00	132	3120	29	.00	.00
7	6.4	.12	1.8	.63	.40	.02	45	120	6150	25	.00	.00
8	6.0	.10	1.8	.63	.33	.02	96	111	10500	22	.00	.00
9	5.6	.06	1.8	.77	.32	.02	82	105	9980	21	.00	.00
10	4.8	.05	1.7	1.1	.32	.01	76	101	8420	18	.00	.00
11	4.1	.06	2.0	1.3	.26	.00	70	93	7550	15	.00	.00
12	4.1	.06	2.2	1.1	.24	.00	62	88	6980	13	.00	.00
13	4.1	.06	2.5	.97	.24	.00	57	145	6140	12	.00	.00
14	4.1	.06	2.7	.77	.24	.00	53	221	4680	11	.00	.00
15	4.1	.09	3.0	.65	.18	.01	52	195	3150	9.5	.00	.00
16	4.0	.13	1.9	.63	.13	.06	45	164	2170	8.2	.00	.00
17	3.6	.13	1.8	.63	.09	.13	48	140	1480	6.8	.00	.00
18	3.5	.09	1.8	.87	.09	.13	60	118	768	4.4	.00	.00
19	3.7	.12	1.5	.93	.09	.13	273	102	396	2.3	.00	.00
20	3.3	.14	1.5	.85	.08	.07	307	87	287	2.1	.00	.00
21	2.9	.18	1.7	.44	.11	.06	306	72	230	2.1	.00	.00
22	2.4	.21	1.8	.40	.18	.06	282	60	192	1.5	.00	.00
23	2.0	.48	1.8	.37	.25	.04	610	49	163	1.3	.00	.00
24	1.8	.86	1.9	.27	.18	.02	845	44	144	.94	.00	.00
25	3.0	1.1	1.9	.35	.11	.01	752	39	131	.61	.00	.00
26	4.3	1.2	2.0	.40	.08	.00	474	36	121	.48	.00	.00
27	1.6	1.3	2.0	.32	.06	.00	344	31	113	.30	.00	.00
28	1.3	1.3	1.8	.26	.06	.00	287	32	102	.20	.00	.00
29	1.2	1.5	1.7	.25	---	.00	245	32	86	.10	.00	.00
30	.90	1.6	1.5	.31	---	.00	215	44	76	.06	.00	.00
31	.61	---	3.2	.21	---	.00	---	59	---	.03	.00	---
TOTAL	139.91	12.58	61.6	20.63	6.02	.98	5686.00	3294	76882	445.92	.01	.00
MEAN	4.51	.42	1.99	.67	.22	.032	190	106	2563	14.4	.000	.000
MAX	13	1.6	3.2	1.3	.60	.13	845	221	10500	67	.01	.00
MIN	.61	.05	1.5	.21	.06	.00	.00	31	76	.03	.00	.00
AC-FT	278	25	122	41	12	1.9	11280	6530	152500	884	.02	.00

CAL YR 1978 TOTAL 16751.83 MEAN 45.9 MAX 1580 MIN .00 AC-FT 33230
WTR YR 1979 TOTAL 86549.65 MEAN 237 MAX 10500 MIN .00 AC-FT 171700

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 (revised), 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.--17 years, 66.8 ft³/s (1.892 m³/s), 1.93 in/yr (49 mm/yr), 48,400 acre-ft/yr (59.7 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)
Apr. 22	2000	642	18.2	14.10	4.298
June 8	0600	*2,000	56.6	18.38	5.602

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND , WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.91	.22	.03	.03	.02	.02	.03	32	.04	.00	.61	.00
2	.42	.24	.03	.02	.03	.02	.04	7.0	2.6	.00	.21	.00
3	.26	.18	.03	.02	.03	.02	.04	2.1	271	.00	.09	.00
4	.11	.15	.02	.02	.03	.00	.04	14	611	.00	.04	.00
5	2.0	.10	.02	.02	.07	.00	.03	84	596	.00	.02	.00
6	27	.10	.01	.03	.10	.00	.02	100	675	.00	.00	81
7	163	.06	.02	.03	.16	.00	.03	44	1240	.00	.00	23
8	36	.04	.02	.02	.25	.00	.03	17	1640	.00	.00	62
9	14	.04	.02	.02	.11	.00	.05	4.5	283	.00	.00	5.5
10	3.4	.03	.01	.03	.07	.00	.05	1.7	36	.00	.00	.62
11	1.4	.03	.02	.03	.06	.00	.05	.80	21	.00	.00	.17
12	.76	.03	.02	.03	.06	.00	.04	.43	9.5	.00	.00	.16
13	.48	.03	.02	.03	.04	.01	.02	.27	4.8	.00	.00	.13
14	.33	.03	.02	.02	.04	.01	.00	.19	2.6	.00	.00	.44
15	.21	.03	.02	.02	.03	.40	.00	.15	1.6	.00	.00	.13
16	.18	.03	.02	.02	.03	2.2	.00	.12	1.0	.00	.00	.02
17	.15	.02	.02	.03	.03	2.0	255	.12	.69	.00	.00	.00
18	.10	.02	.02	.03	.03	.34	336	.10	.50	.00	.00	.00
19	.10	.03	.02	.03	.01	.16	74	.06	.34	.00	.00	.00
20	.08	.04	.02	.03	.01	.10	38	.06	.24	.00	.00	.00
21	.06	.04	.01	.03	.02	.08	123	.04	.17	.00	.00	.00
22	.06	.03	.01	.03	.02	.07	557	.04	.12	.00	.00	.00
23	.06	.03	.01	.03	.02	.03	581	.03	.10	.00	.00	.00
24	.06	.04	.01	.03	.02	.02	273	.03	.06	.00	.00	.00
25	.06	.04	.01	.02	.02	.01	35	.02	.04	.00	.00	.00
26	.06	.04	.02	.02	.01	.02	15	.02	.03	.00	.00	.00
27	.06	.04	.04	.02	.02	.02	5.2	.02	.02	.01	.00	.00
28	.11	.03	.03	.02	.02	.02	2.2	.09	.01	56	.00	.00
29	.09	.03	.03	.03	---	.02	1.4	.06	.00	6.4	.00	.00
30	.08	.03	.02	.03	---	.03	3.3	.05	.00	1.1	.00	.00
31	.08	---	.03	.02	---	.03	---	.03	---	.37	.00	---
TOTAL	251.67	1.80	.63	.79	1.36	5.63	2299.57	309.03	5397.46	63.88	.97	173.17
MEAN	8.12	.060	.020	.025	.049	.18	76.7	9.97	180	2.06	.031	5.77
MAX	163	.24	.04	.03	.25	2.2	581	100	1640	56	.61	81
MIN	.06	.02	.01	.02	.01	.00	.00	.02	.00	.00	.00	.00
CFSM	.02	.000	.000	.000	.000	.000	.16	.02	.38	.004	.000	.01
IN.	.02	.00	.00	.00	.00	.00	.18	.02	.43	.01	.00	.01
AC-FT	499	3.6	1.2	1.6	2.7	11	4560	613	10710	127	1.9	343

CAL YR 1978	TOTAL	5256.32	MEAN 14.4	MAX 699	MIN .00	CFSM .03	IN .42	AC-FT 10430				
WTR YR 1979	TOTAL	8505.96	MEAN 23.3	MAX 1640	MIN .00	CFSM .05	IN .67	AC-FT 16870				

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.--36 years (water years 1944-79), 447 ft³/s (12.66 m³/s), 323,900 acre-ft/yr (399 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.--Maximum discharge, 7,860 ft³/s (223 m³/s) June 15, gage height, 19.22 ft (5.858 m), no other peak above base of 1,800 ft³/s (51.0 m³/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	.60	.46	.90	.17	.11	.02	321	9.3	111	7.2	.39
2	28	.57	.46	.44	.17	.10	.01	285	8.7	92	4.6	.30
3	19	.52	.46	.29	.17	.10	.01	266	14	80	3.4	.24
4	15	.49	.35	.27	.20	.09	.00	247	149	70	2.8	.16
5	11	.56	.33	.35	.50	.07	.00	248	619	147	2.3	.15
6	14	.54	.33	.48	1.2	.06	.00	286	855	170	2.0	.12
7	12	.41	.29	.46	.83	.06	.00	295	980	84	1.8	.33
8	35	.40	.27	.43	.74	.07	.00	292	1100	135	1.7	.56
9	132	.40	.17	.40	.66	.06	.00	195	1220	45	1.5	15
10	40	.37	.16	.55	.66	.05	.00	138	1320	27	1.2	35
11	18	.42	.17	.74	.66	.05	.00	112	1440	21	1.1	12
12	10	.45	.17	.61	.69	.05	.00	95	1670	18	1.0	3.4
13	11	.44	.22	.43	.66	.06	.00	88	2150	15	.98	1.4
14	9.0	.42	.35	.30	.63	.07	20	80	4180	13	.91	.71
15	5.6	.43	.34	.32	.54	.19	62	71	7430	11	.82	.37
16	4.1	.34	.33	.37	.42	.22	59	131	7550	9.6	.94	.15
17	3.2	.33	.33	.40	.30	.13	62	223	6930	8.7	.69	.05
18	2.5	.33	.30	.45	.26	.07	78	208	6310	7.8	.58	.34
19	2.0	.39	.35	.40	.22	.03	422	165	5540	7.0	.51	.38
20	1.6	.49	.40	.42	.25	.00	533	128	4700	6.8	.45	.28
21	1.2	.52	.30	.29	.22	.01	372	98	4010	7.0	.34	.12
22	1.0	.46	.27	.18	.25	.05	655	80	3460	6.9	.22	.06
23	.92	.51	.30	.17	.31	.03	892	65	2980	7.2	.38	.05
24	.84	.54	.31	.12	.31	.00	1020	50	2200	7.5	.31	.09
25	.79	.58	.27	.13	.21	.00	1080	40	524	6.4	.22	.12
26	.75	.60	.28	.22	.17	.00	1200	30	247	5.4	.17	.13
27	.74	.58	.28	.22	.17	.00	1300	22	199	4.8	.17	.16
28	.85	.43	.31	.20	.14	.00	1180	19	168	4.3	.20	.17
29	.79	.40	.37	.21	---	.00	642	20	147	3.6	.32	.21
30	.73	.43	.40	.27	---	.00	388	16	131	8.2	.34	.17
31	.66	---	1.1	.18	---	.00	---	12	---	16	.40	---
TOTAL	421.27	13.95	10.43	11.20	11.71	1.73	9965.04	4326	68241.0	1156.2	39.55	72.61
MEAN	13.6	.47	.34	.36	.42	.056	332	140	2275	37.3	1.28	2.42
MAX	132	.60	1.1	.90	1.2	.22	1300	321	7550	170	7.2	35
MIN	.66	.33	.16	.12	.14	.00	.00	12	8.7	3.6	.17	.05
AC-FT	836	28	21	22	23	3.4	19770	8580	135400	2290	78	144

CAL YR 1978	TOTAL	27943.09	MEAN	76.6	MAX	1120	MIN	.00	AC-FT	55430
WTR YR 1979	TOTAL	84270.69	MEAN	231	MAX	7550	MIN	.00	AC-FT	167200

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.--54 years (water years 1925-29, 1931-79), 110 ft³/s (3.115 m³/s), 3.69 in/yr (94 mm/yr), 79,700 acre-ft/yr (98.3 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. 21	0730	3,580	101	7.03	2.143	June 2	2400	887	25.1	5.14	1.567
Apr. 19	0500	1,010	28.6	5.26	1.603	June 5	0230	*7,390	209	8.92	2.719

Minimum discharge, 54 ft³/s (1.53 m³/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	58	86	79	72	80	214	203	150	161	95	85
2	64	58	86	77	72	80	206	198	207	154	100	85
3	65	58	86	77	75	82	204	195	288	148	102	82
4	65	58	83	77	80	83	199	184	244	144	96	79
5	65	108	83	78	84	83	190	177	2770	144	92	78
6	64	98	83	78	87	81	182	170	1010	143	88	78
7	65	80	83	78	89	80	178	166	634	138	85	77
8	66	72	83	77	89	79	176	162	534	133	87	74
9	66	72	83	78	87	79	172	161	471	128	87	75
10	67	72	80	80	84	83	171	157	433	128	86	72
11	68	70	83	78	83	81	163	157	393	124	94	72
12	65	70	83	80	83	80	157	148	359	118	102	70
13	65	70	83	76	84	80	153	141	333	117	96	69
14	63	70	83	75	85	80	149	136	313	112	91	68
15	63	75	83	75	86	87	145	132	298	114	87	68
16	63	92	80	75	84	100	142	130	290	114	86	67
17	63	98	80	75	83	104	156	126	274	111	91	65
18	63	95	80	79	83	99	151	124	262	108	89	65
19	63	89	80	79	83	98	448	121	251	116	88	66
20	60	86	80	75	84	121	324	124	238	119	88	65
21	60	83	78	75	83	1320	328	127	234	117	86	64
22	60	80	78	75	84	682	282	127	225	113	82	63
23	60	80	78	73	83	430	267	123	212	108	83	63
24	60	80	78	74	82	324	250	121	201	108	92	62
25	65	83	78	74	81	280	238	115	197	104	100	60
26	63	83	78	73	81	256	228	113	188	101	95	60
27	63	98	78	72	80	242	220	111	182	102	91	56
28	60	92	78	73	80	229	213	116	171	116	88	56
29	60	86	78	75	---	230	215	112	167	103	86	55
30	58	86	78	73	---	227	212	111	165	98	86	55
31	58	---	79	72	---	216	---	108	---	97	86	---
TOTAL	1955	2400	2510	2355	2311	6176	6333	4396	11694	3741	2805	2054
MEAN	63.1	80.0	81.0	76.0	82.5	199	211	142	390	121	90.5	68.5
MAX	68	108	86	80	89	1320	448	203	2770	161	102	85
MIN	58	58	78	72	72	79	142	108	150	97	82	55
CFSM	.16	.20	.20	.19	.20	.49	.52	.35	.96	.30	.22	.17
IN.	.18	.22	.23	.22	.21	.57	.58	.40	1.07	.34	.26	.19
AC-FT	3880	4760	4980	4670	4580	12250	12560	8720	23200	7420	5560	4070

CAL YR 1978 TOTAL 27592 MEAN 75.6 MAX 834 MIN 21 CFSM .19 IN 2.53 AC-FT 54730
WTR YR 1979 TOTAL 48730 MEAN 134 MAX 2770 MIN 55 CFSM .33 IN 4.48 AC-FT 96660

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 21...	1333	83	412	8.1	16.0	0	.00	9.5	99	.6
JAN 03...	1340	78	424	8.1	7.0	0	1.0	11.8	100	1.1
MAR 27...	1640	238	419	8.2	19.0	0	1.0	8.8	97	1.2
MAY 02...	1140	194	441	7.8	20.5	1	.60	8.6	99	.4
JUN 13...	1305	331	453	8.1	22.9	5	.60	8.4	100	.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
NOV 21...	160	68	110	200	6	55	14	6.9	.2
JAN 03...	K5	<1	K4	200	9	56	14	6.7	.2
MAR 27...	140	33	270	200	11	60	12	5.8	.2
MAY 02...	140	29	140	220	20	67	12	7.2	.2
JUN 13...	K60	K16	25	200	0	58	13	8.0	.2

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 21...	.8	230	0	14	14	.1	11	229	0
JAN 03...	.8	230	0	14	12	.1	9.9	227	0
MAR 27...	.8	230	0	14	8.2	.1	9.8	224	7
MAY 02...	.9	240	0	16	15	.2	9.0	246	0
JUN 13...	.8	250	0	17	10	.2	12	242	0

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 21...	0	.73	.01	.74	.01	.20	.21	.01	1.6
JAN 03...	0	.88	.01	.89	.01	.09	.10	.01	.9
MAR 27...	6	.54	.02	.56	.01	.16	.17	.01	1.6
MAY 02...	0	1.4	.02	--	.01	.17	--	.01	1.6
JUN 13...	0	1.3	.00	1.3	.01	.12	.13	.00	2.3

08195000 FRIO RIVER AT CONCAN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
JAN 03...	1340	1	30	<1	0	0

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 03...	<0	2	<1	.0	1	0	<3

DATE	TIME	PCB, 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 03...	1340	.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)	METHYL PARA-THION, TOTAL (UG/L)
JAN 03...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 03...	.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.--27 years, 35.0 ft³/s (0.991 m³/s), 4.06 in/yr (103 mm/yr), 25,360 acre-ft/yr (31.3 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 occured 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)
Mar. 21	unknown	2,720	77.0	7.09	2.161
Apr. 20	0130	1,790	50.7	5.73	1.747
June 5	0230	*8,070	229	12.15	3.703

Minimum discharge, 4.5 ft³/s (0.13 m³/s) Oct. 20-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	5.8	17	13	12	14	69	63	43	71	30	9.1
2	5.7	5.7	17	12	13	14	65	62	49	69	32	10
3	5.6	5.7	17	11	14	14	61	60	75	66	34	8.5
4	5.6	5.8	16	11	15	14	57	56	191	61	26	7.9
5	5.5	17	16	12	18	14	53	51	1480	61	26	7.9
6	5.5	20	15	12	20	14	49	49	410	61	24	8.0
7	5.8	14	15	12	20	14	48	46	273	58	22	8.1
8	6.6	13	14	11	19	14	47	44	217	53	20	8.2
9	6.9	13	14	11	19	14	44	43	187	53	17	8.3
10	6.7	13	14	11	18	14	43	42	181	49	16	7.7
11	6.6	13	14	12	18	14	41	40	184	49	17	7.4
12	6.5	13	13	12	17	14	38	37	159	47	23	7.0
13	6.2	13	13	11	17	14	35	35	137	44	26	6.9
14	5.7	13	13	11	17	14	33	33	130	42	18	6.7
15	5.0	14	13	11	17	19	32	31	125	39	16	6.5
16	4.8	20	13	11	16	22	31	30	123	35	14	6.5
17	4.8	21	12	11	16	23	44	28	112	34	15	6.4
18	4.8	21	12	13	16	21	42	27	104	32	17	6.4
19	4.8	20	12	14	16	20	223	27	98	37	12	6.8
20	4.7	19	13	14	16	40	428	29	92	40	11	7.0
21	4.6	18	12	13	16	500	192	29	86	34	11	6.7
22	4.7	18	12	13	16	300	144	25	82	32	10	6.2
23	5.0	18	12	13	16	190	118	25	82	28	11	5.9
24	5.4	17	12	13	15	140	103	25	74	24	9.9	5.7
25	6.2	17	12	13	14	120	92	26	66	22	8.8	5.6
26	7.1	17	12	14	14	105	84	27	68	21	9.3	5.4
27	6.8	21	11	13	14	90	76	27	66	21	8.8	5.4
28	6.2	21	11	13	14	82	70	28	66	24	8.8	5.3
29	6.2	20	12	13	---	78	68	28	70	37	8.9	5.1
30	6.0	18	12	13	---	75	70	27	72	32	8.8	5.1
31	5.9	---	13	13	---	69	---	25	---	27	9.5	---
TOTAL	178.1	465.0	414	380	453	2090	2500	1125	5102	1303	520.8	207.7
MEAN	5.75	15.5	13.4	12.3	16.2	67.4	83.3	36.3	170	42.0	16.8	6.92
MAX	7.1	21	17	14	20	500	428	63	1480	71	34	10
MIN	4.6	5.7	11	11	12	14	31	25	43	21	8.8	5.1
CFSM	.05	.13	.12	.11	.14	.58	.71	.31	1.45	.36	.14	.06
IN.	.06	.15	.13	.12	.14	.66	.79	.36	1.62	.41	.17	.07
AC-FT	353	922	821	754	899	4150	4960	2230	10120	2580	1030	412

CAL YR 1978 TOTAL 4695.25 MEAN 12.9 MAX 334 MIN .72 CFSM .11 IN 1.49 AC-FT 9310
WTR YR 1979 TOTAL 14738.60 MEAN 40.4 MAX 1480 MIN 4.6 CFSM .35 IN 4.69 AC-FT 29230

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 21...	1125	19	384	8.0	16.5	0	.00	9.1	96	.3
JAN 03...	1205	12	396	8.1	9.0	0	.00	11.3	101	.5
MAR 27...	1445	90	428	8.1	18.5	5	1.0	8.0	88	.9
MAY 01...	1455	64	448	7.4	20.0	5	.40	8.2	94	.2
JUN 13...	1650	128	451	8.0	25.7	5	.40	7.8	100	.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
NOV 21...	120	K7	30	190	20	57	12	6.5	.2
JAN 03...	36	K10	K18	180	10	53	12	6.1	.2
MAR 27...	K130	40	230	210	18	63	12	5.7	.2
MAY 01...	160	33	79	220	18	68	11	6.3	.2
JUN 13...	K40	27	28	230	23	70	13	6.8	.2

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 21...	.5	210	0	15	16	.1	9.1	220	0
JAN 03...	.4	210	0	16	11	.1	7.7	210	0
MAR 27...	.6	230	0	16	12	.1	9.0	232	0
MAY 01...	.6	240	0	14	14	.1	7.8	240	0
JUN 13...	.7	250	0	16	10	.1	11	251	0

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 21...	0	.71	.01	.72	.01	.18	.19	.00	7.1
JAN 03...	0	.97	.01	.98	.01	.19	.20	.01	.9
MAR 27...	0	1.5	.02	1.5	.01	.06	.07	.00	2.3
MAY 01...	0	.79	.00	--	.01	.19	--	.00	1.8
JUN 13...	0	1.3	.00	1.3	.01	.14	.15	.00	3.1

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
JAN 03...	1205	0	30	<1	20	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 03...	<0	0	<1	.0	1	0	<3

DATE	TIME	PCB, 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 03...	1205	.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)	METHYL PARA-THION, TOTAL (UG/L)
JAN 03...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 03...	.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.

AVERAGE DISCHARGE.--27 years, 25.5 ft³/s (0.722 m³/s), 18,470 acre-ft/yr (22.8 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)
Mar. 21	1830	1,020	28.9	5.47	1.667
June 5	0900	*18,700	530	13.18	4.017

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	17	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	39	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	145	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	10	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	4720	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	841	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	348	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	225	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	173	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	134	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	117	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	91	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	74	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	59	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	43	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	28	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	16	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	6.3	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	2.5	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	37	.00	1.5	.00	.00	.00
21	.00	.00	.00	.00	.00	216	211	.00	.88	.00	.00	.00
22	.00	.00	.00	.00	.00	356	28	.00	.58	.00	.00	.00
23	.00	.00	.00	.00	.00	180	3.4	.00	.38	.00	.00	.00
24	.00	.00	.00	.00	.00	80	.48	.00	.23	.00	.00	.00
25	.00	.00	.00	.00	.00	34	.12	.00	.05	.00	.00	.00
26	.00	.00	.00	.00	.00	8.6	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.94	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.25	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.03	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	875.82	280.00	.00	7092.42	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	28.3	9.33	.000	236	.000	.000	.000
MAX	.00	.00	.00	.00	.00	356	211	.00	4720	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	1740	555	.00	14070	.00	.00	.00

CAL YR 1978	TOTAL	934.59	MEAN	2.56	MAX	480	MIN	.00	AC-FT 1850
WTR YR 1979	TOTAL	8248.24	MEAN	22.6	MAX	4720	MIN	.00	AC-FT 16360

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 good. Several small diversions above station for irrigation.

AVERAGE DISCHARGE.--37 years, 54.0 ft³/s (1.529 m³/s), 3.56 in/yr (90 mm/yr), 39,120 acre-ft/yr (48.2 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), 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. 21	0430	1,540	43.6	7.05	2.149	June 2	2400	2,780	78.7	7.90	2.408
Mar. 22	1100	1,150	32.6	6.74	2.054	June 5	0500	4,140	117	8.63	2.630
Apr. 20	2330	*4,160	118	8.64	2.633						

Minimum daily discharge, 29 ft³/s (0.82 m³/s) Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	32	50	39	36	41	215	221	171	159	71	47
2	44	30	50	38	35	42	224	217	266	160	74	43
3	42	30	50	39	37	46	201	216	461	156	68	42
4	40	30	48	39	41	46	192	206	246	150	65	41
5	38	85	47	39	45	44	182	196	1860	148	65	42
6	38	68	48	38	52	44	178	190	634	148	69	40
7	38	51	46	37	60	43	175	186	519	146	61	39
8	40	43	46	36	58	43	175	183	466	137	60	39
9	40	42	45	37	54	42	167	182	444	129	60	38
10	40	42	45	37	52	42	164	179	436	126	57	39
11	38	42	45	40	52	42	162	175	408	120	54	39
12	40	42	44	41	54	42	152	171	368	117	61	39
13	40	40	44	37	54	42	146	171	343	112	59	38
14	37	40	44	34	53	41	138	161	329	111	55	37
15	35	40	45	34	53	41	134	157	304	116	51	35
16	35	68	45	34	48	59	132	154	278	112	50	36
17	35	67	40	34	48	73	151	154	266	108	49	35
18	35	58	40	35	50	80	146	151	258	105	47	35
19	34	54	40	37	52	80	259	142	250	110	46	35
20	34	52	40	38	52	100	435	135	244	122	47	36
21	32	50	38	36	54	673	716	135	233	117	46	34
22	32	48	37	35	54	564	328	130	227	105	46	34
23	32	48	37	35	54	339	291	127	215	94	57	34
24	30	48	36	34	48	287	290	127	204	89	56	32
25	32	48	38	35	41	257	264	121	196	84	50	32
26	35	48	39	37	42	241	259	118	186	79	48	31
27	35	50	39	38	42	226	246	118	182	80	48	30
28	35	50	39	36	42	219	237	118	175	114	47	29
29	34	51	39	35	---	218	233	118	171	91	48	29
30	34	51	37	37	---	218	225	118	164	80	48	29
31	32	---	40	37	---	205	---	124	---	73	50	---
TOTAL	1134	1448	1321	1138	1363	4480	6817	4901	10504	3598	1713	1089
MEAN	36.6	48.3	42.6	36.7	48.7	145	227	158	350	116	55.3	36.3
MAX	48	85	50	41	60	673	716	221	1860	160	74	47
MIN	30	30	36	34	35	41	132	118	164	73	46	29
CFSM	.18	.23	.21	.18	.24	.70	1.10	.77	1.70	.56	.27	.18
IN.	.20	.26	.24	.21	.25	.81	1.23	.89	1.90	.65	.31	.20
AC-FT	2250	2870	2620	2260	2700	8890	13520	9720	20830	7140	3400	2160

CAL YR 1978 TOTAL 21924.1 MEAN 60.1 MAX 5710 MIN 6.8 CFSM .29 IN 3.96 AC-FT 43490
WTR YR 1979 TOTAL 39506.0 MEAN 108 MAX 1860 MIN 29 CFSM .52 IN 7.13 AC-FT 78360

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 21...	1527	50	468	8.1	16.0	0	.00	9.5	99	3.0
JAN 04...	0910	38	480	6.9	8.0	0	.00	11.2	97	.8
MAR 28...	1020	217	470	8.1	18.5	0	2.0	9.0	98	1.7
MAY 02...	0905	217	454	7.5	20.0	1	--	8.6	98	.7
JUN 14...	1049	330	490	8.0	22.0	4	.50	8.4	97	.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
NOV 21...	K18	K7	26	220	17	66	14	7.5	.2
JAN 04...	76	19	58	230	28	72	13	7.4	.2
MAR 28...	580	K88	350	230	16	72	12	6.5	.2
MAY 02...	160	K65	180	--	--	--	--	--	--
JUN 14...	K100	34	40	240	21	79	11	8.5	.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 21...	1.0	250	0	26	10	.1	12	260	0
JAN 04...	1.0	250	0	28	13	.1	11	269	0
MAR 28...	.9	260	0	21	6.9	.2	11	259	0
MAY 02...	--	--	--	--	--	--	--	--	--
JUN 14...	1.0	270	0	20	10	.2	13	276	0

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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 21...	0	.60	.01	.61	.01	.09	.10	.000	1.8
JAN 04...	0	.76	.01	.77	.01	.15	.16	.020	1.1
MAR 28...	0	.63	.00	.63	.01	.05	.06	.000	1.2
MAY 02...	--	1.1	.02	--	.01	.14	--	.010	3.3
JUN 14...	0	1.1	.00	1.1	.01	.00	.00	.000	2.2

08198000 SABINAL RIVER NEAR SABINAL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 04...	0910	0	30	<1	10	1	<0

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 04...	2	<1	.0	1	0	<3

DATE	TIME	PCB, 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 04...	0910	.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)	METHYL PARA-THION, TOTAL (UG/L)
JAN 04...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 04...	.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.--27 years, 31.2 ft³/s (0.884 m³/s), 22,600 acre-ft/yr (27.9 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. 21	1000	1,060	30.0	8.19	2.496	Apr. 21	0400	3,880	110	a11.98	3.652
Mar. 22	1600	1,050	29.7	8.17	2.490	June 3	0300	*4,710	133	a12.83	3.911
Apr. 2	0900	237	6.71	5.71	1.740	June 5	0900	4,430	125	a12.54	3.822
Apr. 19	1600	346	9.80	6.23	1.899						

a From floodmark.

Minimum discharge, 0.28 ft³/s (0.008 m³/s) Mar. 5-7, 12-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	1.2	1.4	1.1	.85	.60	141	116	129	70	6.5	3.8
2	1.8	1.2	1.4	1.1	.85	.54	185	112	125	65	6.2	3.8
3	1.7	1.2	1.4	1.1	.85	.41	157	109	1090	62	5.9	3.7
4	1.7	1.2	1.3	1.1	.87	.33	142	99	179	58	5.9	3.5
5	1.7	2.1	1.3	1.1	.92	.28	125	89	2190	54	5.7	3.4
6	1.6	1.4	1.2	1.1	.95	.28	113	85	874	52	5.4	3.3
7	1.6	1.2	1.2	1.1	.99	.30	105	81	592	50	5.3	3.4
8	1.6	1.2	1.2	1.1	.99	.32	105	77	483	46	5.3	3.4
9	1.7	1.2	1.2	1.1	.92	.32	98	74	433	42	5.1	3.5
10	1.5	1.2	1.2	1.0	.85	.32	92	72	385	38	4.9	3.3
11	1.2	1.2	1.2	.99	.85	.32	88	70	383	33	4.8	3.1
12	1.4	1.2	1.2	.99	.85	.28	78	70	318	30	4.8	3.0
13	1.5	1.2	1.2	.99	.87	.29	69	64	287	26	4.8	2.9
14	1.5	1.2	1.2	.99	.77	.29	64	60	262	23	4.5	3.0
15	1.4	1.2	1.2	1.0	.65	.30	60	54	240	20	4.4	2.9
16	1.4	1.3	1.2	1.0	.51	.32	54	50	220	19	4.4	2.9
17	1.4	1.4	1.2	.99	.49	.45	71	46	202	17	4.2	2.6
18	1.4	1.4	1.2	1.1	.54	.49	89	43	185	14	4.4	2.8
19	1.4	1.4	1.2	1.0	.60	.49	197	41	172	13	4.2	2.7
20	1.3	1.4	1.2	.99	.65	.86	206	42	158	12	3.9	2.8
21	1.3	1.4	1.2	1.1	.72	479	1230	41	144	21	3.8	2.6
22	1.3	1.4	1.2	1.0	.72	543	321	40	134	22	3.9	2.7
23	1.3	1.4	1.2	.99	.72	384	230	37	122	16	4.1	2.7
24	1.3	1.4	1.2	.99	.72	320	193	32	109	13	4.1	2.5
25	1.3	1.4	1.2	.92	.72	299	172	28	101	11	4.1	2.5
26	1.3	1.4	1.1	.91	.75	237	156	24	92	9.8	4.1	2.4
27	1.3	1.4	1.1	.85	.81	208	140	24	86	9.1	4.1	2.4
28	1.3	1.4	1.1	.85	.80	179	130	43	83	8.9	3.9	2.4
29	1.2	1.4	1.1	.85	---	168	127	28	79	7.7	3.7	2.4
30	1.2	1.4	1.1	.85	---	170	127	24	74	7.3	3.6	2.5
31	1.2	---	1.1	.85	---	154	---	19	---	6.8	3.9	---
TOTAL	44.7	40.0	37.4	31.10	21.78	3148.79	5065	1794	9931	876.6	143.9	88.9
MEAN	1.44	1.33	1.21	1.00	.78	102	169	57.9	331	28.3	4.64	2.96
MAX	1.9	2.1	1.4	1.1	.99	543	1230	116	2190	70	6.5	3.8
MIN	1.2	1.2	1.1	.85	.49	.28	54	19	74	6.8	3.6	2.4
AC-FT	89	79	74	62	43	6250	10050	3560	19700	1740	285	176

CAL YR 1978 TOTAL 8024.53 MEAN 22.0 MAX 4590 MIN .32 AC-FT 15920
WTR YR 1979 TOTAL 21223.17 MEAN 58.1 MAX 2190 MIN .28 AC-FT 42100

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.--27 years, 39.4 ft³/s (1.116 m³/s), 6.21 in/yr (158 mm/yr), 28,550 acre-ft/yr (35.2 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)
Mar. 20	2400	4,380	124	6.96	2.121	June 3	0100	4,910	139	7.38	2.249
Mar. 22	0700	1,790	50.7	4.90	1.494	June 5	0600	4,040	114	6.68	2.036
Apr. 19	0100	*6,640	188	8.76	2.670						

Minimum discharge, 7.2 ft³/s (0.20 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	14	18	23	43	52	178	128	136	73	42	16
2	31	14	18	17	44	53	162	124	194	70	40	15
3	31	14	18	16	47	59	155	119	938	66	57	14
4	30	14	18	17	52	50	140	106	314	64	45	14
5	28	24	17	18	59	48	132	100	1200	69	41	14
6	28	20	18	18	82	47	124	97	578	65	38	14
7	27	17	18	17	90	46	120	94	495	70	36	13
8	28	17	16	18	91	46	118	91	433	69	34	13
9	26	17	16	18	90	45	110	90	384	57	33	13
10	24	17	16	28	90	46	110	86	350	55	31	12
11	24	17	16	36	90	45	104	82	322	53	36	12
12	23	17	16	34	88	43	97	78	272	52	31	11
13	22	17	16	34	85	42	92	72	244	49	28	11
14	20	17	16	33	84	42	88	70	214	49	27	10
15	19	17	16	34	82	44	85	66	195	48	25	9.6
16	19	17	16	36	72	59	85	64	182	46	24	9.6
17	18	17	16	36	72	84	114	63	172	44	23	9.3
18	18	17	16	46	69	102	99	62	165	49	22	9.3
19	18	17	16	47	68	98	880	60	155	46	21	9.3
20	17	17	16	47	68	538	202	60	148	52	21	9.3
21	16	16	16	46	66	694	270	59	138	52	20	9.3
22	16	16	16	46	66	623	205	58	126	46	20	9.3
23	16	16	18	48	64	442	193	53	116	44	25	9.3
24	16	16	18	47	60	374	180	51	110	42	21	9.0
25	17	18	18	50	56	322	170	49	104	40	18	8.6
26	16	18	18	51	55	276	160	48	97	39	18	8.6
27	16	21	18	48	54	248	148	48	92	99	18	8.2
28	15	20	18	46	53	220	142	51	86	71	17	8.2
29	15	18	18	48	---	220	145	48	82	50	19	7.6
30	14	18	20	47	---	196	132	46	78	46	18	7.6
31	14	---	34	43	---	178	---	46	---	42	16	---
TOTAL	655	515	545	1093	1940	5382	4940	2269	8120	1717	865	324.1
MEAN	21.1	17.2	17.6	35.3	69.3	174	165	73.2	271	55.4	27.9	10.8
MAX	33	24	34	51	91	694	880	128	1200	99	57	16
MIN	14	14	16	16	43	42	85	46	78	39	16	7.6
CFSM	.25	.20	.20	.41	.80	2.02	1.91	.85	3.14	.64	.32	.13
IN.	.28	.22	.24	.47	.84	2.32	2.13	.98	3.50	.74	.37	.14
AC-FT	1300	1020	1080	2170	3850	10680	9800	4500	16110	3410	1720	643

CAL YR 1978 TOTAL 9442.89 MEAN 25.9 MAX 3270 MIN .24 CFSM .30 IN 4.08 AC-FT 18730
WTR YR 1979 TOTAL 28365.10 MEAN 77.7 MAX 1200 MIN 7.6 CFSM .90 IN 12.24 AC-FT 56260

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 20...	1457	17	397	8.1	13.5	0	.00	9.8	97	.5
JAN 04...	1300	19	433	8.0	6.0	0	1.0	11.6	96	.5
MAR 28...	1615	234	461	8.0	19.0	5	1.0	9.0	100	1.4
MAY 03...	1340	126	470	7.7	21.5	1	.30	8.0	95	1.1
JUN 15...	0842	200	484	8.0	20.5	4	.40	8.5	98	.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
NOV 20...	110	25	120	200	42	63	9.9	6.2	.2
JAN 04...	140	38	130	200	25	63	9.8	5.9	.2
MAR 28...	K220	50	160	220	18	75	9.1	5.9	.2
MAY 03...	700	110	204	240	33	79	10	7.6	.2
JUN 15...	K280	59	100	240	31	82	9.6	7.5	.2

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 20...	1.0	190	0	36	12	.2	10	232	0
JAN 04...	1.0	210	0	36	9.6	.1	9.4	238	0
MAR 28...	1.0	252	0	24	11	.2	11	261	0
MAY 03...	.9	250	0	27	13	.3	9.5	271	6
JUN 15...	1.1	260	0	23	10	.2	13	275	0

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)
NOV 20...	0	.27	.00	.27	.01	.08	.09	.01	1.1
JAN 04...	0	.47	.01	.48	.01	.09	.10	.02	.9
MAR 28...	0	.65	.02	.67	.01	.12	.13	.01	1.0
MAY 03...	4	.84	.02	.86	.02	.08	.10	.00	1.5
JUN 15...	0	.88	.06	.94	.01	.08	.09	.00	50

08200000 HONDO CREEK NEAR TARPLEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
JAN 04...	1300	0	20	<1	20	2

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 04...	0	1	<1	.0	1	0	<3

DATE	TIME	PCB, 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 04...	1300	.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)	METHYL PARA-THION, TOTAL (UG/L)
JAN 04...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 04...	.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 except those below 4 ft³/s (0.11 m³/s), which are fair. 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. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 14.7 ft³/s (0.416 m³/s), 10,650 acre-ft/yr (13.1 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)
Mar. 21	0230	10,400	295	a8.50	2.591	June 1	1500	2,560	72.5	5.08	1.548
Mar. 22	1200	1,220	34.6	3.93	1.198	June 3	0130	*16,100	456	a10.14	3.091
Apr. 19	0500	8,330	236	7.80	2.377	June 5	0800	5,790	164	6.81	2.076

a From floodmark.

Minimum daily discharge, 0.02 ft³/s (0.001 m³/s) for several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.02	.05	1.4	.09	.07	8.5	.30	550	.20	.14	.37
2	.07	.02	.04	.62	.09	.07	8.0	.24	85	.19	.13	.33
3	.06	.02	.04	.30	.09	.06	3.3	.21	2470	.17	.12	.31
4	.06	.02	.04	.23	.08	.06	.31	.18	122	.16	.12	.28
5	.06	2.5	.03	.20	.08	.06	.29	.17	1360	.15	.11	.26
6	.05	.90	.03	.19	.20	.06	.26	.15	345	.14	.10	.24
7	.30	.35	.03	.17	.18	.06	.24	.14	249	.14	.10	.23
8	.10	.27	.03	.16	.17	.06	.22	.13	195	.13	.09	.21
9	.07	.21	.03	.15	.15	.06	.20	.12	165	.12	.09	.20
10	.06	.18	.03	.20	.14	.06	.18	.12	124	.12	.09	.19
11	.05	.15	.03	.27	.13	.05	.17	.11	119	.11	.08	.17
12	.05	.14	.02	.19	.12	.05	.16	.10	85	.10	.08	.16
13	.04	.12	.02	.17	.11	.05	.15	.10	67	.10	.08	.16
14	.04	.11	.02	.15	.11	.05	.14	.09	48	.09	.07	.15
15	.04	.10	.02	.14	.10	.50	.13	.09	30	.09	.07	.14
16	.03	.09	.02	.13	.10	.37	.12	.09	16	.09	.07	.13
17	.03	.09	.02	.13	.09	.29	.24	.08	5.2	.08	.07	.12
18	.03	.08	.02	.16	.09	.23	.20	.08	2.0	1.0	.07	.11
19	.03	.07	.02	.15	.09	.18	1030	.08	1.1	.60	.06	.11
20	.03	.07	.02	.15	.09	.16	83	.07	.76	.56	.06	.10
21	.03	.06	.02	.14	.08	1930	112	.07	.63	.45	.06	.10
22	.02	.06	.02	.13	.08	448	50	.20	.52	.32	.06	.09
23	.02	.06	.02	.12	.08	272	28	.18	.44	.28	1.3	.09
24	.02	.06	.02	.12	.08	196	12	.16	.38	.26	1.0	.08
25	.02	.05	.02	.11	.07	139	3.9	.14	.34	.23	.84	.08
26	.02	.13	.02	.11	.07	96	1.2	.12	.31	.22	.72	.08
27	.02	.09	.02	.10	.07	69	.84	.11	.28	.20	.62	.08
28	.02	.07	.02	.10	.07	54	.54	1.0	.26	.18	.54	.07
29	.02	.06	.02	.10	---	41	.43	.45	.23	.17	.48	.07
30	.02	.05	4.0	.10	---	35	.35	.26	.22	.16	.44	.07
31	.02	---	3.0	.09	---	18	---	.22	---	.15	.40	---
TOTAL	1.51	6.20	7.74	6.48	2.90	3300.55	1345.07	5.56	6042.67	6.96	8.26	4.78
MEAN	.049	.21	.25	.21	.10	106	44.8	.18	201	.22	.27	.16
MAX	.30	2.5	4.0	1.4	.20	1930	1030	1.0	2470	1.0	1.3	.37
MIN	.02	.02	.02	.09	.07	.05	.12	.07	.22	.08	.06	.07
AC-FT	3.0	12	15	13	5.8	6550	2670	11	11990	14	16	9.5

CAL YR 1978 TOTAL 3292.75 MEAN 9.02 MAX 2660 MIN .01 AC-FT 6530
WTR YR 1979 TOTAL 10738.68 MEAN 29.4 MAX 2470 MIN .02 AC-FT 21300

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 except those for period of no gage-height record Jan. 6 to Feb. 15, which are fair. No known diversion above station.

AVERAGE DISCHARGE.--18 years, 18.9 ft³/s (0.535 m³/s), 5.96 in/yr (151 mm/yr), 13,690 acre-ft/yr (16.9 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)
Mar. 22	0645	626	17.7	3.28	1.000
June 5	0400	*1,900	53.8	4.44	1.353

Minimum daily discharge, 1.3 ft³/s (0.037 m³/s) Nov. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	3.6	16	9.0	16	17	69	48	79	38	12	5.6
2	9.5	3.1	16	7.9	16	17	64	48	67	36	12	5.3
3	9.0	2.1	15	7.4	18	21	59	47	124	34	13	4.9
4	8.4	1.3	14	7.4	23	16	55	43	95	32	13	4.6
5	8.4	34	14	7.4	27	16	51	40	462	30	12	4.6
6	7.9	13	14	7.9	30	14	49	40	235	32	11	4.6
7	7.9	9.0	14	8.0	32	14	48	38	190	29	10	4.6
8	9.0	8.4	13	8.0	33	14	48	36	171	28	9.5	4.3
9	8.0	6.9	12	9.0	33	14	45	36	144	27	10	4.3
10	7.4	6.5	12	12	33	17	44	36	169	26	8.9	3.9
11	7.0	6.5	12	14	33	14	43	47	144	25	11	3.9
12	6.5	6.1	11	13	32	13	40	41	124	22	12	3.9
13	6.1	5.7	11	12	30	13	38	36	110	21	12	3.6
14	5.6	5.7	10	12	29	12	36	33	105	19	8.9	3.6
15	5.3	22	10	12	27	14	36	33	95	19	8.6	3.6
16	5.1	23	10	13	24	22	35	31	89	18	8.4	3.6
17	4.9	17	9.0	14	24	26	43	30	82	17	7.9	3.4
18	4.6	16	9.0	16	23	38	43	30	76	18	7.4	3.1
19	4.6	15	9.0	16	22	40	105	28	71	17	6.9	3.1
20	4.6	15	9.0	16	21	84	62	28	66	17	6.5	3.1
21	4.3	15	8.4	16	21	117	72	28	63	17	6.4	3.1
22	4.3	14	8.4	16	21	195	66	27	60	16	8.2	3.1
23	4.2	14	8.4	16	21	142	63	25	56	15	17	3.1
24	3.9	13	7.9	16	20	121	61	24	54	14	7.9	2.9
25	4.8	15	7.4	16	18	104	58	22	51	13	6.4	2.8
26	4.5	15	7.4	17	18	92	56	21	49	12	6.1	2.8
27	4.0	19	7.0	17	18	82	54	20	47	24	5.7	2.8
28	3.9	16	7.0	17	18	76	52	21	44	23	5.3	2.8
29	3.6	16	7.0	17	---	78	52	21	42	16	5.3	2.8
30	3.6	16	7.9	16	---	76	50	19	40	14	5.3	2.6
31	3.6	---	11	16	---	69	---	18	---	13	5.7	---
TOTAL	184.5	372.9	327.8	402.0	681	1588	1597	995	3204	682	280.3	110.4
MEAN	5.95	12.4	10.6	13.0	24.3	51.2	53.2	32.1	107	22.0	9.04	3.68
MAX	10	34	16	17	33	195	105	48	462	38	17	5.6
MIN	3.6	1.3	7.0	7.4	16	12	35	18	40	12	5.3	2.6
CFSM	.14	.29	.25	.30	.56	1.19	1.23	.75	2.48	.51	.21	.09
IN.	.16	.32	.28	.35	.59	1.37	1.38	.86	2.77	.59	.24	.10
AC-FT	366	740	650	797	1350	3150	3170	1970	6360	1350	556	219

CAL YR 1978	TOTAL	3767.59	MEAN 10.3	MAX 1070	MIN .09	CFSM .24	IN 3.25	AC-FT 7470				
WTR YR 1979	TOTAL	10424.90	MEAN 28.6	MAX 462	MIN 1.3	CFSM .66	IN 9.00	AC-FT 20680				

NOTE.--No gage-height record Jan. 6 to Feb. 15.

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
NOV 22...	0943	14	443	8.1	14.0	0	.00	9.6	96	.9
JAN 04...	1105	7.4	463	8.0	7.0	0	1.0	11.6	98	.4
MAR 28...	1245	77	474	8.0	18.5	5	1.0	8.7	95	1.5
MAY 03...	1155	46	461	8.0	21.0	5	.20	8.2	96	.7
JUN 14...	1420	107	482	8.0	25.4	0	.40	7.9	98	.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
NOV 22...	K17	K3	24	210	47	63	13	6.2	.2
JAN 04...	120	20	33	240	50	74	13	6.4	.2
MAR 28...	360	47	90	230	25	74	11	6.1	.2
MAY 03...	120	41	120	250	51	76	14	7.4	.2
JUN 14...	K12	K7	28	220	13	69	11	7.2	.2

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 22...	1.0	200	0	52	8.3	.2	11	253	0
JAN 04...	.8	230	0	46	11	.1	9.8	275	0
MAR 28...	.9	250	0	29	10	.2	11	265	0
MAY 03...	.9	240	0	29	14	.2	10	270	0
JUN 14...	.9	250	0	25	10	.2	13	259	0

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 (MC/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 22...	0	.78	.01	.79	.01	.14	.15	.00	1.3
JAN 04...	0	.83	.01	.84	.01	.19	.20	.01	.8
MAR 28...	0	.66	.00	.66	.01	.08	.09	.01	1.7
MAY 03...	0	.82	.00	--	.01	.09	--	.02	3.0
JUN 14...	0	.91	.00	.91	.01	.05	.06	.00	2.1

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
JAN 04...	1105	1	20	<1	10	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 04...	<0	3	<1	.0	1	0	<3

DATE	TIME	PCB, 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 04...	1105	.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)	METHYL PARA-THION, TOTAL (UG/L)
JAN 04...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	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 04...	.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 mi² (435 km²).

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 "as Crook Ranch, near D'Hanis".

REMARKS.--Records fair. 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 observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years (water years 1962-79), 9.10 ft³/s (0.258 m³/s), 6,590 acre-ft/yr (8.13 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,500 ft³/s (864 m³/s) July 15, 1973, gage height, 26.0 ft (7.92 m), from floodmark, from rating curve extended above 16,000 ft³/s (453 m³/s) on the basis of slope-area measurement of 35,800 ft³/s (1,010 m³/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 ft³/s (1,010 m³/s), by slope-area measurement; June 17, 1958, 32.4 ft (9.88 m).

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)
Mar. 21	0400	4,370	124	13.32	4.060	June 1	1430	1,210	34.3	10.46	3.188
Apr. 19	0530	6,100	173	a14.4	4.39	June 3	0230	*24,200	685	a23.30	7.102
Apr. 21	0500	1,430	40.5	a10.7	3.26	June 5	0800	6,850	144	a14.84	4,523

a From floodmark

Minimum discharge, no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	275	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	90	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	3190	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	21	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	1130	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	87	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	31	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	9.6	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	3.1	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	2.0	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.73	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.46	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	736	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	165	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	431	250	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	43	6.7	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	14	1.4	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	1.1	.53	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.36	.22	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.14	.08	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.06	.02	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.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	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	489.68	1159.95	.00	4841.72	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	15.8	38.7	.000	161	.000	.000	.000
MAX	.00	.00	.00	.00	.00	431	736	.00	3190	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	971	2300	.00	9600	.00	.00	.00

CAL YR 1978 TOTAL 713.97 MEAN 1.96 MAX 652 MIN .00 AC-FT 1420
WTR YR 1979 TOTAL 6491.35 MEAN 17.8 MAX 3190 MIN .00 AC-FT 12880

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.--64 years, 138 ft³/s (3.908 m³/s), 99,980 acre-ft/yr (123 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)
Mar. 23	1100	2,020	57.2	5.73	1.747
Apr. 23	0700	2,210	62.6	6.08	1.853
June 7	1200	*8,540	242	10.80	3.292

Minimum discharge, 17 ft³/s (0.48 m³/s) Oct. 25, Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	28	48	48	52	48	274	294	130	225	62	39
2	30	28	50	51	54	46	250	288	302	208	60	35
3	29	25	48	301	54	45	244	275	1720	187	60	44
4	28	24	45	122	53	44	281	265	3230	175	59	40
5	28	23	46	74	52	42	281	257	5870	169	55	37
6	26	23	46	70	55	47	258	248	4850	165	53	35
7	24	27	45	66	55	46	224	233	7680	161	51	33
8	24	68	45	64	59	43	204	221	5440	157	45	32
9	23	61	46	60	60	42	194	212	3700	145	49	34
10	23	44	44	56	57	39	183	200	2050	133	50	37
11	26	37	43	56	53	37	185	192	1190	127	48	36
12	28	36	42	58	51	38	179	181	910	121	60	35
13	26	37	45	60	50	40	169	171	790	111	55	34
14	23	36	47	60	50	40	160	162	714	101	49	33
15	20	33	48	60	51	41	152	156	667	88	47	32
16	18	34	48	60	48	43	146	146	612	81	46	33
17	18	34	46	58	45	45	148	132	566	76	42	32
18	19	35	42	58	44	46	182	121	521	73	42	32
19	19	37	43	59	43	49	200	109	488	71	42	34
20	19	41	41	58	43	50	506	99	454	74	41	33
21	18	41	42	58	43	50	1190	94	428	97	40	32
22	18	40	42	58	46	584	1540	100	398	93	36	33
23	18	43	40	56	45	1670	1940	99	377	82	38	33
24	18	46	40	56	48	1230	860	99	357	75	39	31
25	19	46	38	55	49	797	733	92	336	77	35	33
26	26	45	38	53	47	593	536	84	309	71	34	33
27	23	49	40	55	46	476	405	74	293	73	38	31
28	23	92	40	53	49	407	352	70	277	66	40	29
29	22	68	41	54	---	353	327	74	259	66	40	30
30	22	55	42	54	---	312	313	103	241	65	39	30
31	22	---	45	54	---	280	---	149	---	64	41	---
TOTAL	708	1236	1356	2105	1402	7623	12616	5000	45159	3477	1436	1015
MEAN	22.8	41.2	43.7	67.9	50.1	246	421	161	1505	112	46.3	33.8
MAX	30	92	50	301	60	1670	1940	294	7680	225	62	44
MIN	18	23	38	48	43	37	146	70	130	64	34	29
AC-FT	1400	2450	2690	4180	2780	15120	25020	9920	89570	6900	2850	2010

CAL YR 1978 TOTAL 27030.42 MEAN 74.1 MAX 4130 MIN .00 AC-FT 53610
WTR YR 1979 TOTAL 83133.00 MEAN 228 MAX 7680 MIN 18 AC-FT 164900

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, 6,850 ft³/s (194 m³/s) June 11, 1979, gage height, 24.17 ft (7.367 m); minimum daily, 1.0 ft³/s (0.028 m³/s) July 25-28, 1978.

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 PERIOD JULY TO SEPTEMBER 1978.--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)
Aug. 2	2400	*6,790	192	24.13	7.355
Aug. 9	0600	2,650	75.0	19.40	5.913

Minimum discharge, 1.0 ft³/s (0.028 m³/s) July 25-28.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,850 ft³/s (194 m³/s) June 11, gage height, 24.17 ft (7.367 m), no other peak above base of 1,500 ft³/s (42.5 m³/s); minimum, 18 ft³/s (0.51 m³/s) Oct. 20-23.

DISCHARGE, IN CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										---	139	712
2										---	3450	334
3										---	4460	85
4										---	1810	39
5										---	743	29
6										---	401	26
7										---	590	34
8										---	1630	651
9										---	2220	592
10										---	1190	204
11										---	800	116
12										---	370	106
13										---	160	86
14										2.5	110	439
15										2.0	88	466
16										1.7	75	139
17										1.5	63	79
18										1.4	55	67
19										1.3	50	54
20										1.3	46	53
21										1.2	40	86
22										1.2	36	300
23										1.1	34	78
24										1.1	30	55
25										1.0	31	49
26										1.0	29	50
27										1.0	27	42
28										1.0	24	41
29										8.6	24	38
30										75	26	38
31										36	119	---
TOTAL										---	18870	5088
MEAN										---	609	170
MAX										---	4460	712
MIN										---	24	26
AC-FT										---	37430	10090

WTR YR 1978 TOTAL - MEAN - MAX - MIN - AC-FT -

08206600 FRIO RIVER AT TILDEN, TX--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	26	68	40	55	43	263	311	57	193	62	36
2	32	24	72	42	54	42	230	249	93	180	59	35
3	29	23	56	45	54	42	210	220	108	169	56	35
4	27	23	48	223	53	43	196	209	128	157	55	35
5	30	26	34	297	54	41	180	196	307	308	53	34
6	29	26	47	147	54	39	185	185	514	337	52	32
7	27	27	44	90	53	37	205	177	754	149	50	38
8	26	27	44	72	51	37	198	172	1440	137	48	34
9	27	25	44	66	50	51	174	163	3690	130	46	31
10	27	24	42	66	49	43	155	155	5130	126	45	30
11	25	45	41	66	50	40	144	148	6400	121	40	29
12	24	60	43	65	52	37	139	140	5440	115	42	29
13	24	46	44	63	45	35	139	135	3510	108	44	32
14	22	36	43	60	45	33	136	128	2460	104	44	33
15	26	34	43	59	47	32	129	120	1850	98	55	32
16	29	34	43	61	45	34	123	112	1330	93	51	30
17	27	34	45	64	44	37	128	107	976	87	44	28
18	24	34	45	65	44	37	121	103	753	83	42	28
19	20	33	46	63	43	38	117	97	601	78	41	28
20	18	34	45	63	42	40	123	90	498	75	39	28
21	18	34	43	61	41	40	321	82	428	72	37	28
22	18	35	41	59	41	41	592	76	379	72	35	29
23	18	38	41	60	40	43	594	71	346	77	36	29
24	20	39	39	60	39	87	679	71	316	86	37	28
25	20	39	38	60	39	368	819	72	288	81	33	28
26	19	39	38	60	40	563	1030	73	266	76	31	28
27	21	42	38	60	40	781	1290	70	248	72	31	26
28	24	42	37	58	43	984	1260	67	232	72	30	26
29	25	42	36	56	---	913	898	65	218	66	29	28
30	26	42	36	56	---	581	483	59	205	67	31	28
31	26	---	40	56	---	340	---	56	---	62	36	---
TOTAL	761	1033	1364	2363	1307	5522	11261	3979	38965	3651	1334	915
MEAN	24.5	34.4	44.0	76.2	46.7	178	375	128	1299	118	43.0	30.5
MAX	33	60	72	297	55	984	1290	311	6400	337	62	38
MIN	18	23	34	40	39	32	117	56	57	62	29	26
AC-FT	1510	2050	2710	4690	2590	10950	22340	7890	77290	7240	2650	1810

WTR YR 1978	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-
WTR YR 1979	TOTAL	72455	MEAN	199	MAX	6400	MIN	18	AC-FT	143700

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT												
05...	1435	30	1760	8.2	26.0	25	25	7.2	90	.8	410	210
NOV												
16...	1335	34	2260	8.1	19.5	15	15	7.4	83	1.1	650	460
DEC												
07...	1210	44	1810	8.1	14.5	10	30	8.7	88	.9	550	340
JAN												
11...	1300	66	1320	8.2	7.0	20	40	10.9	92	1.1	350	180
FEB												
08...	1335	51	1810	8.3	11.0	10	5.0	11.1	105	.9	470	260
MAR												
15...	1310	32	1960	8.1	17.0	0	10	8.6	88	2.0	520	350
APR												
27...	1115	1290	479	8.3	21.0	40	63	6.7	77	1.8	170	47
JUN												
01...	1226	54	1350	8.1	27.5	8	50	7.1	88	1.3	420	240
JUL												
03...	0945	170	1040	8.2	28.5	5	75	7.0	90	1.3	360	200
19...	1430	78	1250	8.2	29.5	5	42	6.7	88	1.1	360	210
AUG												
17...	1114	44	1540	8.2	27.5	10	23	7.1	89	2.3	420	240
SEP												
13...	1310	32	1730	8.2	26.0	20	23	6.9	92	1.6	460	280

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
05...	120	27	190	4.1	5.7	240	0	210	310	.3	12
NOV											
16...	190	42	230	3.9	4.2	230	0	360	420	.2	9.0
DEC											
07...	170	30	160	3.0	4.4	250	0	220	330	.2	12
JAN											
11...	110	18	130	3.0	6.1	210	0	160	200	.2	11
FEB											
08...	140	29	190	3.8	8.5	250	0	250	310	.2	8.5
MAR											
15...	150	36	200	3.8	4.1	210	0	280	340	.3	3.6
APR											
27...	58	7.0	24	.8	.0	150	0	31	40	.2	18
JUN											
01...	130	23	120	2.6	3.4	220	0	170	220	.2	13
JUL											
03...	110	20	78	1.8	3.2	190	0	150	160	.2	13
19...	110	20	110	2.5	3.6	180	0	170	200	.2	14
AUG											
17...	120	28	140	3.0	4.0	210	0	200	260	.3	13
SEP											
13...	130	34	170	3.4	4.1	230	0	260	300	.3	11

08206600 FRIO RIVER AT TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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											
05...	993	50	2	2.9	.01	2.9	.01	.78	.79	.07	5.2
NOV											
16...	1370	34	6	2.4	.01	2.4	.01	.91	.92	.05	4.9
DEC											
07...	1050	60	13	4.1	.01	4.1	.01	.89	.90	.06	3.4
JAN											
11...	739	72	13	5.2	.02	5.2	.04	1.4	1.4	.08	4.0
FEB											
08...	1060	43	4	1.3	.02	1.3	.00	.90	.90	--	2.9
MAR											
15...	1120	66	35	2.8	.02	2.8	.02	.43	.45	.01	3.8
APR											
27...	252	162	28	.79	.04	.83	.02	.81	.83	.18	8.9
JUN											
01...	788	91	48	2.9	.02	2.9	.02	.51	.53	.05	5.8
JUL											
03...	628	133	25	2.8	.02	2.8	.03	.38	.41	.44	5.6
19...	717	80	12	2.8	.02	2.8	.03	.66	.69	.05	6.8
AUG											
17...	869	37	8	1.4	.02	1.4	.00	.83	.83	.02	3.3
SEP											
13...	1020	72	24	1.3	.02	1.3	.01	.53	.54	.03	8.3

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)
NOV							
16...	1335	1	100	0	0	0	10
FEB							
08...	1335	1	80	<1	0	0	0
JUL							
03...	0945	2	100	0	0	1	0
AUG							
17...	1114	1	100	<1	0	0	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						
16...	0	10	.2	2	0	10
FEB						
08...	1	3	.0	1	0	<3
JUL						
03...	0	10	.2	1	0	10
AUG						
17...	1	6	.0	1	0	5

08206600 FRIO RIVER AT TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
NOV										
16...	1335	.0	1	.00	.00	.0	.0	0	.00	.0
FEB										
08...	1335	.0	0	.00	.00	.0	.0	0	.00	.0
JUL										
03...	0945	.0	0	.00	.00	.0	.0	0	.00	.0
AUG										
17...	1114	.0	0	.00	.00	.0	.0	0	.00	.8

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV										
16...	.00	.1	.00	.0	.00	.00	.0	.00	.00	.0
FEB										
08...	.00	.5	.00	.0	.00	.00	.1	.00	.00	.0
JUL										
03...	.00	.3	.00	.0	.00	.00	.0	.00	.00	.0
AUG										
17...	.00	.2	.00	2.6	.00	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
NOV									
16...	.00	.00	.0	.00	.0	.00	.0	.00	.00
FEB									
08...	.00	.00	.0	.00	.0	.00	.0	.00	.00
JUL									
03...	.00	.00	.0	.00	.0	.00	.0	.00	.00
AUG									
17...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
NOV									
16...	.00	.00	.00	0	0	.00	.00	.00	.00
FEB									
08...	.00	.00	.00	0	0	.00	.00	.00	.00
JUL									
03...	.00	.00	.00	0	0	.00	.02	.00	.00
AUG									
17...	.00	.00	.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 (2,034 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECOKD.--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.--15 years, 66.4 ft³/s (1.880 m³/s), 48,110 acre-ft/yr (59.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,400 ft³/s (436 m³/s) Apr. 15, 1977, gage height, 27.00 ft (8.230 m); no flow at times in 1964-67, 1969-74, and 1979.

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)
Apr. 22	1200	1,970	55.8	14.09	4.295
June 6	1900	*2,050	58.1	14.28	4.353

Minimum discharge, no flow Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	9.5	12	2.2	3.5	2.4	5.0	44	27	6.4	8.2	.21
2	4.9	8.8	8.8	2.5	3.5	2.2	4.6	28	139	6.2	5.5	.17
3	4.9	7.8	6.1	32	3.4	2.2	4.1	23	106	5.4	3.8	.12
4	4.9	6.5	4.6	50	3.3	2.3	30	20	100	4.9	2.5	2.6
5	4.9	6.7	4.1	26	4.5	2.3	23	18	220	38	1.9	6.0
6	4.7	57	3.8	16	7.9	2.3	15	17	1580	9.8	1.9	5.3
7	4.6	59	3.3	11	4.9	2.3	8.9	16	1280	8.5	1.3	14
8	4.6	148	3.3	7.1	3.9	2.3	6.2	14	749	18	1.1	3.9
9	4.6	52	3.0	5.2	3.8	2.3	4.7	13	166	29	1.1	4.2
10	4.4	26	2.9	4.7	3.8	2.3	4.2	13	78	18	1.4	3.7
11	4.2	16	2.8	4.8	4.0	2.3	3.5	14	51	13	1.0	2.6
12	3.6	10	2.7	3.9	7.9	2.3	2.9	13	38	9.4	.72	1.8
13	3.5	6.4	2.3	3.7	7.4	2.2	2.5	12	30	8.2	.63	1.1
14	3.0	5.1	2.3	3.5	6.6	1.9	2.3	11	25	8.5	.55	.73
15	6.0	4.5	2.3	3.0	5.9	2.0	2.3	9.9	22	7.8	.72	.47
16	5.4	4.1	2.3	2.7	4.8	2.3	2.3	9.4	18	6.8	2.5	.29
17	4.6	3.8	2.1	3.5	4.0	3.9	5.2	9.0	16	6.2	1.4	.16
18	3.8	3.5	2.1	3.5	3.6	4.0	2.8	8.2	13	4.9	.85	.11
19	3.3	3.3	2.2	3.5	3.3	3.9	21	7.5	12	3.8	1.3	.12
20	3.0	3.0	1.9	11	3.3	3.6	32	7.3	11	4.6	1.1	.13
21	3.0	2.9	1.9	4.0	3.3	3.4	1230	7.0	9.1	3.5	.72	.21
22	3.0	2.8	1.9	3.3	3.3	3.1	1540	8.1	9.3	2.3	.55	.19
23	3.0	2.7	1.9	3.2	3.3	2.8	1300	10	9.1	13	.72	.15
24	2.8	2.5	1.9	2.5	3.3	3.8	874	11	8.5	13	.41	.10
25	2.8	2.5	1.9	2.7	2.8	4.1	116	41	8.1	8.2	.41	.07
26	69	2.3	1.9	2.9	2.6	4.3	66	25	8.0	12	.31	.04
27	22	2.3	1.9	4.5	2.7	4.1	47	16	8.1	85	.27	.03
28	16	2.1	1.9	4.3	2.7	4.0	38	15	7.3	23	.23	.01
29	11	2.1	1.9	3.9	---	4.0	138	16	6.3	156	.21	.00
30	8.9	6.1	1.9	3.8	---	4.0	122	16	6.1	46	.30	.00
31	8.5	---	2.0	3.6	---	4.0	---	25	---	17	.31	---
TOTAL	237.8	469.3	95.9	238.5	117.3	92.9	5653.5	497.4	4760.9	596.4	43.91	48.51
MEAN	7.67	15.6	3.09	7.69	4.19	3.00	188	16.0	159	19.2	1.42	1.62
MAX	69	148	12	50	7.9	4.3	1540	44	1580	156	8.2	14
MIN	2.8	2.1	1.9	2.2	2.6	1.9	2.3	7.0	6.1	2.3	.21	.00
AC-FT	472	931	190	473	233	184	11210	987	9440	1180	87	96

CAL YR 1978 TOTAL 24684.45 MEAN 67.6 MAX 6060 MIN .05 AC-FT 48960
WTR YR 1979 TOTAL 12852.32 MEAN 35.2 MAX 1580 MIN .00 AC-FT 25490

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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										
05...	1607	4.9	2000	7.8	25.5	35	5.0	7.0	88	1.6
NOV										
16...	1455	4.0	1130	7.5	18.5	45	25	5.0	55	1.8
DEC										
07...	1350	3.3	2550	7.8	14.0	35	7.0	6.9	60	1.8
JAN										
11...	1405	4.9	1230	7.8	7.0	65	20	10.3	87	1.3
FEB										
08...	1455	3.8	1960	8.1	13.0	40	15	10.9	108	2.0
MAR										
15...	1410	1.9	2900	7.8	17.0	15	10	7.5	77	2.2
APR										
27...	1345	46	479	7.9	23.5	20	54	5.2	61	1.6
JUN										
01...	1424	26	1387	8.0	25.5	25	12	7.4	90	2.6
06...	1545	1750	--	--	25.0	--	--	--	--	--
JUL										
03...	1211	5.5	2400	8.0	28.0	20	6.4	5.9	76	1.6
19...	1558	3.0	1610	8.0	28.0	15	6.4	4.6	59	2.4
AUG										
17...	1322	1.6	901	7.7	27.0	50	13	5.5	69	3.0
SEP										
13...	1400	1.1	1370	8.2	28.0	30	13	7.9	105	1.8

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
OCT									
05...	520	190	160	30	220	4.2	10	410	0
NOV									
16...	290	110	87	18	98	2.5	10	220	0
DEC									
07...	680	410	190	51	280	4.7	12	330	0
JAN									
11...	320	150	96	19	120	2.9	11	210	0
FEB									
08...	570	320	160	42	250	4.5	9.4	310	0
MAR									
15...	770	460	220	54	340	5.3	12	380	0
APR									
27...	370	170	110	22	120	2.7	11	250	0
JUN									
01...	400	180	120	25	130	2.8	7.7	270	0
06...	--	--	--	--	--	--	--	--	--
JUL									
03...	690	370	190	52	290	4.8	11	390	0
19...	500	250	150	30	180	3.5	9.5	300	0
AUG									
17...	240	64	70	15	89	2.5	11	210	0
SEP									
13...	330	190	89	25	150	3.6	12	160	0

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF 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									
05...	350	260	.4	20	1250	12	0	.04	.00
NOV									
16...	160	130	.2	15	627	42	2	.16	.01
DEC									
07...	470	420	.3	16	1600	15	4	.00	.01
JAN									
11...	200	160	.2	12	722	32	7	.41	.02
FEB									
08...	430	330	.2	9.8	1380	29	4	.00	.02
MAR									
15...	550	470	.4	10	1840	71	28	.00	.02
APR									
27...	200	170	.2	21	777	98	77	.40	.08
JUN									
01...	200	190	.4	16	822	33	16	.22	.02
06...	--	--	--	--	--	--	--	--	--
JUL									
03...	430	400	.3	17	1580	19	10	.01	.00
19...	260	270	.5	15	1060	11	7	.06	.02
AUG									
17...	150	94	.3	16	445	20	6	.02	.00
SEP									
13...	240	220	.3	6.6	822	26	12	.03	.04

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									
05...	.04	.01	.53	.54	.06	9.4	--	--	--
NOV									
16...	.17	.02	.66	.68	.16	6.4	--	--	--
DEC									
07...	.01	.01	.69	.70	.08	7.1	--	--	--
JAN									
11...	.43	.23	.36	.59	.18	7.0	--	--	--
FEB									
08...	.00	.00	.60	.60	.07	6.2	--	--	--
MAR									
15...	.01	.05	.44	.49	.02	6.7	--	--	--
APR									
27...	.48	.10	.77	.87	.12	12	--	--	--
JUN									
01...	.24	.06	.59	.65	.14	12	--	--	--
06...	--	--	--	--	--	--	776	3670	64
JUL									
03...	.01	.07	.29	.36	.01	3.7	--	--	--
19...	.08	.04	.96	1.0	.09	9.6	--	--	--
AUG									
17...	.02	.00	.79	.79	.17	15	--	--	--
SEP									
13...	.07	.03	.62	.65	.03	6.4	--	--	--

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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 16...	1455	3	90	<1	10	0	20
FEB 08...	1455	1	100	<1	0	1	0
JUL 03...	1211	3	200	0	0	1	10
AUG 17...	1322	5	80	<1	0	0	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 16...	0	150	.0	1	0	4
FEB 08...	1	140	.0	0	0	<3
JUL 03...	0	50	.2	0	0	10
AUG 17...	0	40	.0	0	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)
NOV 16...	1455	.0	0	.00	.00	.0	.0	0	.00	.0
FEB 08...	1455	--	0	--	--	.0	--	0	--	.0
JUL 03...	1211	.0	--	.00	.00	--	.0	--	.00	--
AUG 17...	1322	.0	--	.00	.00	--	.0	--	.00	--

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV 16...	.00	.3	.00	.0	.00	.00	.0	.00	.00	.0
FEB 08...	--	.6	--	.0	.00	--	.0	--	--	.0
JUL 03...	.00	--	.00	--	.00	.00	--	.00	.00	--
AUG 17...	.00	--	.00	--	.00	.00	--	.00	.00	--

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
NOV 16...	.00	.00	.0	.00	.0	.00	.0	.00	.00
FEB 08...	.00	--	.0	--	.0	--	.0	.00	.00
JUL 03...	.00	.00	--	.00	--	.00	--	.00	.00
AUG 17...	.00	.00	--	.00	--	.00	--	.00	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
NOV 16...	.00	.00	.00	0	0	.00	.03	.01	.00
FEB 08...	.00	--	.00	--	0	.00	.00	.00	.00
JUL 03...	.00	.00	.00	0	--	.00	.00	.00	.00
AUG 17...	.00	.00	.00	0	--	.00	.00	.00	.00

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM
JUN 06...	1545	1750	25.0	776	3670	64	65	66	69	100

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 current year.

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.--48 years (water years 1925, 1933-79), 248 ft³/s (7.023 m³/s), 179,700 acre-ft/yr (222 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, 5,540 ft³/s (157 m³/s) June 13, gage height, 25.88 ft (7.888 m), no other peak above base of 2,700 ft³/s (76.5 m³/s); minimum, 22 ft³/s (0.62 m³/s) Oct 22-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	29	48	51	59	47	326	585	92	238	80	34
2	42	30	88	43	58	46	257	364	109	225	74	33
3	41	28	78	45	57	45	230	292	331	211	68	32
4	38	26	61	114	56	45	214	332	242	197	63	32
5	36	27	50	358	61	46	220	271	456	196	60	32
6	39	51	39	249	81	43	204	244	1130	573	58	34
7	37	80	50	135	76	40	217	228	1950	245	56	38
8	34	106	47	97	68	39	221	217	1830	178	52	53
9	34	141	47	81	62	40	204	208	1800	176	48	37
10	35	64	46	79	62	51	180	198	2580	174	46	31
11	33	45	43	83	61	44	164	195	3900	163	44	30
12	31	72	44	77	62	42	155	182	5110	152	42	29
13	30	71	47	73	63	39	148	174	5370	142	46	29
14	28	54	46	69	58	38	144	167	4090	136	45	31
15	27	43	45	66	58	37	140	159	2350	130	46	31
16	31	40	44	66	56	39	134	150	1630	118	55	29
17	35	39	45	69	54	41	138	142	1200	110	46	28
18	32	38	47	74	53	44	137	138	919	102	42	29
19	29	37	48	73	53	46	142	133	746	95	41	32
20	25	36	48	74	52	48	150	124	624	92	39	28
21	23	37	46	79	51	50	577	116	544	91	37	27
22	23	37	44	68	50	50	1760	109	484	83	34	27
23	22	38	43	63	49	50	1790	100	433	80	35	28
24	23	41	43	63	47	52	1860	98	389	94	35	28
25	23	41	40	64	45	191	1180	102	348	103	34	27
26	23	40	39	65	45	503	973	124	318	92	31	26
27	84	41	40	65	45	673	1110	111	297	126	28	26
28	40	45	39	64	45	896	1250	101	279	126	28	25
29	36	44	38	63	---	1080	1170	94	264	139	28	24
30	31	44	37	61	---	911	1070	91	251	187	30	25
31	31	---	52	59	---	554	---	97	---	106	31	---
TOTAL	1044	1465	1472	2690	1587	5870	16465	5646	40066	4880	1402	915
MEAN	33.7	48.8	47.5	86.8	56.7	189	549	182	1336	157	45.2	30.5
MAX	84	141	88	358	81	1080	1860	585	5370	573	80	53
MIN	22	26	37	43	45	37	134	91	92	80	28	24
AC-FT	2070	2910	2920	5340	3150	11640	32660	11200	79470	9680	2780	1810

CAL YR 1978 TOTAL 84332.5 MEAN 231 MAX 7040 MIN 1.4 AC-FT 167300
WTR YR 1979 TOTAL 83502.0 MEAN 229 MAX 5370 MIN 22 AC-FT 165600

08207000 FRIO RIVER AT CALLIHAM, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1967 to current year. Pesticide analyses: October 1974 to current year. Sediment records: October 1976 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 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, 3,680 micromhos Dec. 31; minimum daily, 304 micromhos June 12.
WATER TEMPERATURES: Maximum daily, 31.0°C July 24, 25; minimum daily, 6.0°C Jan. 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
05...	1307	36	1450	25.5	--	--	--	--	--
31...	0800	32	2220	19.0	560	310	160	39	260
NOV									
30...	0810	43	1830	15.5	480	270	140	32	180
DEC									
22...	1400	45	1790	13.0	470	280	140	30	190
JAN									
11...	1207	83	--	7.0	--	--	--	--	--
FEB									
28...	0945	45	1810	18.0	480	330	140	31	190
MAR									
31...	0700	609	722	21.0	260	94	82	13	40
APR									
25...	1830	953	430	24.0	120	54	36	8.1	33
26...	1705	994	--	23.5	--	--	--	--	--
JUN									
30...	1830	247	1010	30.0	330	170	99	20	80
JUL									
18...	1900	102	--	29.5	--	--	--	--	--
AUG									
31...	0755	32	1430	26.5	380	210	110	25	160
SEP									
30...	1620	26	1880	25.5	490	320	140	34	210

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
05...	--	--	--	--	--	--	--	--	--
31...	4.8	10	310	0	380	380	.3	13	1400
NOV									
30...	3.6	4.7	260	0	240	330	.2	11	1070
DEC									
22...	3.8	4.1	240	0	270	300	.2	11	1060
JAN									
11...	--	--	--	--	--	--	--	--	--
FEB									
28...	3.8	4.3	180	0	260	340	.3	1.6	1060
MAR									
31...	1.1	4.2	200	0	63	87	.2	12	400
APR									
25...	1.3	5.1	84	0	46	57	.2	3.3	230
26...	--	--	--	--	--	--	--	--	--
JUN									
30...	1.9	3.2	200	0	140	140	.2	14	595
JUL									
18...	--	--	--	--	--	--	--	--	--
AUG									
31...	3.6	5.1	200	0	180	270	.3	12	861
SEP									
30...	4.1	5.1	210	0	270	350	.3	7.1	1120

08207000 FRIO RIVER AT CALLIHAM, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT 05...	1307	.0	0	.00	.00	.0	.0	0	.00	.1
JAN 11...	1207	.0	0	--	.00	.0	.0	0	.00	.0
APR 26...	1705	.0	0	.00	.00	.0	.0	0	.00	.0
JUL 18...	1900	.0	0	.00	.00	.1	.0	0	.00	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 05...	.00	.2	.00	.0	.00	.00	.0	.00	.00	.0
JAN 11...	.00	.1	.00	.0	.00	.00	.0	.00	.00	.0
APR 26...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
JUL 18...	.00	.1	.00	.0	.00	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
OCT 05...	.00	.00	.0	.00	.0	.00	.0	.00	.00
JAN 11...	.00	.00	.0	.00	.0	.00	.3	.00	.00
APR 26...	.00	.00	.0	.00	.0	.00	.0	.00	.00
JUL 18...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
OCT 05...	.00	.00	.00	0	0	.00	.00	.00	.00
JAN 11...	.00	.00	.00	0	0	.00	.00	.00	.00
APR 26...	.00	.00	.00	0	0	.00	.02	.00	.00
JUL 18...	.00	.00	.00	0	0	.00	.00	.00	.00

08207000 FRIO RIVER AT CALLIHAM, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	1044	1810	1060	2980	330	936	240	690	510
NOV. 1978.....	1465	1760	1030	4070	320	1280	240	943	500
DEC. 1978.....	1472	1850	1080	4310	340	1360	250	1000	520
JAN. 1979.....	2690	1610	940	6860	290	2100	220	1570	450
FEB. 1979.....	1587	1800	1050	4500	330	1410	240	1040	510
MAR. 1979.....	5870	1030	600	9550	170	2620	130	2040	290
APR. 1979.....	16465	620	360	16100	80	3560	66	2960	170
MAY 1979.....	5646	1050	610	9320	170	2560	130	1980	290
JUNE 1979.....	40066	472	280	29800	59	6330	47	5110	130
JULY 1979.....	4880	1150	670	8890	190	2540	150	1940	330
AUG. 1979.....	1402	1440	840	3180	250	954	190	715	400
SEPT 1979.....	915	1750	1020	2530	320	792	240	582	490
TOTAL	83502	**	**	102000	**	26400	**	20600	**
WTD. AVG.	229	775	450	**	120	**	91	**	220

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1370	2270	1900	2080	1660	1810	725	641	1650	1030	1190	1470
2	1350	2250	1840	1950	1690	1790	722	680	1630	1060	1250	1460
3	1320	2110	1780	1830	1730	1780	743	749	1250	1090	1380	1510
4	1400	2050	1790	1730	1750	1790	777	863	945	1110	1420	1550
5	1440	2080	1820	1910	1730	1820	796	932	1250	1120	1390	1610
6	1450	1870	1790	1680	2000	1850	1030	870	776	1080	1400	2000
7	1550	1750	1720	1430	1900	1860	1020	925	326	1090	1390	2400
8	1600	1350	1780	1340	1840	1870	1000	995	331	1080	1390	1800
9	1660	1780	1840	1350	1750	1880	1030	1050	378	1170	1410	1690
10	1730	1450	1780	1360	1800	1870	1060	1060	312	1140	1360	1580
11	1800	1180	1760	1360	1840	1870	1050	1080	314	1070	1420	1520
12	1850	1280	1810	1310	1880	1880	1090	1100	304	1110	1430	1620
13	1890	1320	1760	1330	1850	1910	970	1120	326	1140	1450	1730
14	1920	1550	1770	1370	1830	1960	1000	1160	363	1160	1440	1750
15	1930	1690	1760	1380	1800	1940	1010	1140	446	1190	1420	1700
16	1940	1800	1720	1470	1780	1960	1070	1160	543	1240	1470	1730
17	1940	1960	1740	1510	1810	1990	1120	1180	628	1280	1510	1790
18	1960	1970	1760	1570	1830	1970	1170	1210	699	1290	1530	1760
19	1980	1950	1770	1580	1780	2010	1220	1230	750	1300	1540	1740
20	1990	2000	1730	1590	1770	2020	1140	1260	807	1320	1530	1710
21	2030	2050	1790	1600	1770	2030	950	1280	850	1370	1540	1780
22	2040	2030	1810	1610	1750	2030	660	1290	876	1370	1550	1790
23	2050	2000	1780	1620	1740	1990	390	1290	897	1380	1560	1780
24	2060	1890	1760	1640	1730	1990	411	1330	926	1410	1560	1800
25	2080	1910	1800	1630	1730	2010	507	1370	949	1390	1570	1840
26	2070	1930	1810	1650	1750	1580	497	1400	970	1370	1560	1870
27	2030	1940	1800	1670	1810	465	485	1620	983	1450	1550	1880
28	2070	1960	1790	1680	1820	788	480	1560	991	1390	1530	1860
29	2040	1890	1780	1690	---	719	467	1540	1000	1150	1500	1880
30	2100	1830	1770	1710	---	722	660	1560	1010	751	1520	1890
31	2260	---	3680	1720	---	719	---	1670	---	1000	1480	---
MEAN	1840	1840	1840	1590	1790	1710	842	1170	783	1200	1460	1750

08207000 FRIO RIVER AT CALLIHAM, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	18.0	11.0	10.0	17.0	---	22.0	27.0	29.5	30.0	---
2	16.0	20.0	20.0	---	10.0	18.5	21.0	23.0	25.5	27.5	29.0	28.0
3	26.0	20.5	19.0	11.0	11.0	19.0	19.0	24.0	27.0	28.5	30.0	28.0
4	25.5	22.0	15.0	9.5	---	18.5	19.0	21.0	25.0	---	28.0	28.0
5	26.0	---	17.0	10.0	10.0	16.0	17.0	21.0	26.0	28.0	29.5	27.0
6	25.0	20.5	17.0	8.0	12.0	18.0	17.0	22.0	26.0	28.0	28.5	---
7	23.5	19.5	14.5	9.0	9.0	16.0	20.0	23.5	25.5	---	29.5	27.0
8	---	18.0	13.0	7.0	10.0	18.0	20.0	24.0	29.0	29.5	29.5	27.0
9	---	17.0	11.0	---	9.5	20.5	20.0	24.0	27.0	28.0	29.0	27.0
10	27.0	---	15.0	7.0	---	17.0	21.0	26.0	29.0	28.0	29.0	25.5
11	27.0	22.0	9.0	8.0	---	15.0	22.0	24.0	27.5	29.5	30.0	26.0
12	26.0	20.5	9.0	11.0	16.5	16.0	21.5	21.5	28.0	30.0	---	25.0
13	26.0	21.5	9.5	9.0	17.0	18.0	21.0	22.0	26.0	29.0	29.5	---
14	24.0	21.5	10.0	---	17.0	18.0	---	21.5	25.0	---	---	25.0
15	---	22.5	10.0	6.0	18.0	17.5	21.5	22.0	27.0	---	28.5	25.0
16	22.0	20.0	14.0	8.0	14.5	17.0	23.0	21.0	28.0	25.0	28.5	23.0
17	22.0	18.0	11.0	11.0	11.0	18.0	22.0	22.5	28.5	28.0	28.0	23.0
18	22.0	19.0	12.0	14.0	10.5	19.0	23.0	23.0	29.5	29.0	28.0	24.0
19	22.0	18.0	14.0	14.5	10.0	20.5	23.5	24.0	---	28.5	28.5	---
20	18.5	17.0	16.0	13.0	10.0	21.0	23.0	25.5	30.0	29.5	---	23.0
21	---	16.0	16.0	14.5	12.0	21.0	22.0	25.0	---	29.0	---	23.0
22	21.0	16.5	12.0	14.0	15.0	22.0	21.0	23.5	27.5	---	30.5	---
23	23.0	---	13.0	15.0	17.0	21.0	20.0	24.0	27.5	28.0	28.0	23.0
24	22.0	19.0	13.5	12.0	16.0	19.0	22.5	25.0	29.0	31.0	30.5	23.5
25	21.0	20.0	---	10.5	15.0	18.0	23.0	24.0	29.0	31.0	29.5	23.5
26	21.0	22.0	13.0	13.0	15.0	21.0	24.0	26.0	29.0	29.5	27.5	22.5
27	19.0	19.5	13.0	14.0	16.0	18.5	---	25.0	30.0	29.5	---	---
28	20.0	16.5	14.0	12.0	18.0	20.0	26.0	25.0	30.0	28.0	27.0	23.0
29	18.0	16.5	15.0	10.0	---	20.0	23.0	26.0	29.0	---	26.5	23.0
30	19.5	15.5	16.0	12.0	---	21.0	22.0	28.0	30.0	28.0	28.0	25.5
31	19.0	---	11.0	10.0	---	21.0	---	27.5	---	28.0	26.5	---
MEAN	22.5	19.0	13.5	11.0	13.0	18.5	21.5	24.0	28.0	28.5	28.5	25.0

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 mi² (3,033 km²).

PERIOD OF RECORD.--September 1924 to May 1926, May 1932 to current year.
Water-quality records: Sediment records: September 1976 to September 1978.

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.--Water-discharge records good. 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 30.7 acre-ft (37,900 m³) into the Atascosa River 12 mi (19 km) upstream from this station. There are several small diversions above station.

AVERAGE DISCHARGE.--48 years (water years 1925, 1933-79), 136 ft³/s (3.852 m³/s), 98,530 acre-ft/yr (121 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft³/s (3,430 m³/s) Sept. 23, 1967, gage height, 41.3 ft (12.59 m), from floodmark, from rating curve extended above 24,000 ft³/s (680 m³/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 ft³/s (3,000 m³/s), occurred in September 1919.

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)
Apr. 23	1000	2,210	62.6	20.12	6.133
June 8	0300	*3,640	103	23.40	7.132

Minimum discharge, 3.4 ft³/s (0.096 m³/s) Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	14	18	551	19	15	13	52	24	20	25	7.1
2	18	12	16	260	20	14	13	50	50	18	15	5.5
3	18	11	14	74	19	14	34	43	503	17	14	6.3
4	17	9.7	12	41	18	13	278	58	294	15	9.1	5.8
5	15	10	12	30	27	13	130	416	427	18	6.8	10
6	15	77	12	24	88	12	50	218	1190	83	7.4	27
7	14	536	11	21	102	12	33	50	2390	69	6.6	24
8	13	204	11	18	66	12	27	39	3130	63	6.2	50
9	15	56	11	17	44	12	23	32	1350	41	5.5	56
10	14	37	10	47	34	14	21	29	229	26	5.0	34
11	13	27	9.7	512	27	13	19	134	125	20	4.7	20
12	13	21	9.6	1080	23	13	18	221	88	17	4.8	14
13	13	17	9.9	342	21	13	17	206	73	16	34	9.6
14	13	15	10	82	20	13	18	52	65	14	17	7.2
15	11	14	13	49	19	14	19	34	58	13	19	6.3
16	10	22	13	37	18	14	16	27	55	12	14	5.8
17	9.3	90	13	31	17	15	17	23	51	11	12	4.5
18	8.8	66	12	28	16	16	17	21	47	9.8	7.9	3.7
19	8.4	30	13	27	16	17	17	19	44	16	5.6	4.6
20	8.1	22	15	74	17	17	73	18	41	29	5.6	4.8
21	8.0	19	14	76	17	16	632	17	39	13	5.4	6.4
22	8.2	17	12	47	16	17	1340	36	37	27	5.0	5.3
23	8.6	16	11	31	17	19	2080	42	35	19	5.0	4.6
24	8.1	15	11	24	17	17	1590	31	33	12	4.9	4.4
25	7.9	15	11	21	16	15	509	24	31	11	5.4	4.1
26	10	14	11	20	16	14	125	21	28	9.2	13	4.2
27	42	26	11	19	15	14	80	20	27	9.4	10	3.8
28	63	89	11	18	15	13	61	18	24	9.5	7.1	8.7
29	43	33	11	18	---	12	64	17	23	10	7.8	7.5
30	26	24	12	18	---	12	62	18	21	36	6.7	5.1
31	18	---	160	18	---	13	---	20	---	52	8.0	---
TOTAL	509.4	1558.7	520.2	3655	760	438	7396	2006	10532	735.9	303.5	360.3
MEAN	16.4	52.0	16.8	118	27.1	14.1	247	64.7	351	23.7	9.79	12.0
MAX	63	536	160	1080	102	19	2080	416	3130	83	34	56
MIN	7.9	9.7	9.6	17	15	12	13	17	21	9.2	4.7	3.7
AC-FT	1010	3090	1030	7250	1510	869	14670	3980	20890	1460	602	715

CAL YR 1978 TOTAL 35995.51 MEAN 98.6 MAX 6820 MIN .00 AC-FT 71400
WTR YR 1979 TOTAL 28775.00 MEAN 78.8 MAX 3130 MIN 3.7 AC-FT 57080

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). National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--64 years, 857 ft³/s (24.27 m³/s), 620,900 acre-ft/yr (766 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.--Maximum discharge, 7,240 ft³/s (205 m³/s) June 18, gage height, 26.83 ft (8.178 m), no other peak above base of 6,000 ft³/s (170 m³/s); minimum, 27 ft³/s (0.76 m³/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	145	57	69	404	73	65	368	1180	141	420	138	39
2	125	52	80	623	75	68	372	756	142	381	111	40
3	109	51	103	209	77	63	349	645	360	337	91	39
4	97	47	87	125	76	59	440	798	829	302	79	37
5	85	46	73	200	82	58	485	788	660	325	70	40
6	79	62	61	323	161	57	314	994	2620	524	65	43
7	82	282	57	240	226	55	226	631	3540	778	60	57
8	79	588	63	140	179	50	226	586	5070	348	60	93
9	83	216	60	110	129	47	216	537	5480	353	56	121
10	173	150	61	106	104	52	195	447	4310	245	52	92
11	113	94	59	409	80	61	179	437	4420	203	50	86
12	85	76	57	957	87	59	163	791	5320	181	48	73
13	71	97	58	982	84	56	153	657	6100	165	46	54
14	65	84	62	240	84	53	146	428	6470	152	73	45
15	64	69	61	140	79	53	145	316	5820	143	55	41
16	60	62	58	115	77	54	147	267	5040	133	62	37
17	60	83	58	103	72	54	185	302	6330	121	64	36
18	59	135	59	102	73	58	185	361	7190	113	57	42
19	54	93	59	104	72	62	196	340	7000	109	50	62
20	50	70	62	114	72	63	559	298	6470	175	47	71
21	45	63	67	186	71	71	1100	256	5760	129	44	42
22	42	60	63	149	68	69	2170	227	4990	101	42	35
23	41	58	59	112	69	68	4180	244	4270	101	42	33
24	41	59	58	94	68	69	4410	208	3660	95	42	34
25	41	61	56	90	67	71	3980	183	3030	104	41	33
26	42	60	54	87	65	209	2330	177	1360	107	41	31
27	61	58	54	86	62	314	2230	173	605	158	41	30
28	116	100	54	83	66	372	2390	158	527	460	41	31
29	107	107	53	82	---	809	2380	144	493	151	37	30
30	78	77	53	81	---	922	1810	143	458	170	40	31
31	64	---	75	76	---	554	---	146	---	192	46	---
TOTAL	2416	3117	1953	6872	2498	4675	32229	13618	108465	7276	1791	1478
MEAN	77.9	104	63.0	222	89.2	151	1074	439	3616	235	57.8	49.3
MAX	173	588	103	982	226	922	4410	1180	7190	778	138	121
MIN	41	46	53	76	62	47	145	143	141	95	37	30
AC-FT	4790	6180	3870	13630	4950	9270	63930	27010	215100	14430	3550	2930

CAL YR 1978 TOTAL 153099.3 MEAN 419 MAX 10400 MIN 1.6 AC-FT 303700
WTR YR 1979 TOTAL 186388.0 MEAN 511 MAX 7190 MIN 30 AC-FT 369700

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 (1974-79): Maximum daily, 4,310 micromhos Jan. 17, 1977; minimum daily, 157 micromhos May 26, 1975.
WATER TEMPERATURES (1975-79): Maximum daily, 32.0°C July 31, Aug. 8, 22, 1977, July 16, 1978; minimum daily, 7.0°C Jan. 2, 3, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,140 micromhos Mar. 24; minimum daily, 290 micromhos June 18.
WATER TEMPERATURES: Minimum daily, 7.0°C Jan. 2, 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 05...	1000	86	1350	8.0	25.0	50	15	6.8	84	1.1	120
NOV 16...	1000	62	1530	7.9	19.0	35	10	7.6	84	1.2	2200
DEC 07...	0950	56	1830	8.1	14.5	25	15	8.9	90	2.1	--
JAN 11...	1040	368	1450	8.1	7.0	35	80	11.2	95	1.4	K1800
FEB 08...	1005	186	1810	8.1	10.0	70	80	11.0	101	3.0	2700
MAR 15...	0925	54	2040	8.1	17.0	15	10	8.9	93	2.1	210
APR 26...	1350	2210	534	7.9	24.0	50	54	7.0	84	2.9	950
JUN 01...	0841	145	1490	8.2	25.5	25	16	6.9	84	1.2	450
JUL 02...	1552	376	920	8.2	30.0	20	34	7.6	100	1.6	95
19...	0930	105	1270	8.2	30.0	5	12	7.4	97	1.4	110
AUG 14...	1441	75	1420	8.1	30.0	20	110	8.1	107	2.7	100
SEP 10...	1620	92	1230	8.3	28.0	40	24	8.0	101	1.9	200

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)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 05...	140	300	110	95	16	150	3.8	8.4	240	0	120
NOV 16...	540	370	190	110	24	160	3.6	8.1	220	0	200
DEC 07...	--	500	280	150	30	180	3.5	8.4	270	0	240
JAN 11...	7300	310	120	92	19	150	3.7	8.8	230	0	170
FEB 08...	4400	380	210	120	20	220	4.9	8.4	210	0	220
MAR 15...	110	480	270	140	32	240	4.8	7.4	260	0	290
APR 26...	7800	160	50	53	5.9	44	1.5	7.2	130	0	42
JUN 01...	K22000	400	210	120	25	150	3.3	6.6	240	0	200
JUL 02...	170	290	110	91	15	71	1.8	5.8	220	0	99
19...	410	370	190	110	23	120	2.7	5.9	220	0	160
AUG 14...	<40	380	210	110	25	150	3.4	5.6	210	0	150
SEP 10...	540	230	68	68	15	170	4.9	7.8	200	0	120

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	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)
OCT											
05...	220	.3	20	799	748	28	0	.45	.01	.46	.03
NOV											
16...	240	.2	13	888	864	26	5	.53	.01	.54	.11
DEC											
07...	310	.2	14	1110	1070	22	6	1.8	.02	1.8	.07
JAN											
11...	210	.2	13	819	776	200	20	2.3	.02	2.3	.01
FEB											
08...	350	.2	13	1070	1060	184	24	1.2	.04	1.2	.07
MAR											
15...	360	.3	5.8	1240	1200	13	13	1.5	.06	1.6	.07
APR											
26...	69	.2	18	317	303	936	96	.31	.02	.33	.02
JUN											
01...	240	.3	16	942	876	32	26	1.5	.02	1.5	.05
JUL											
02...	120	.2	15	588	526	--	--	1.6	.02	1.6	.02
19...	200	.3	18	801	746	19	7	1.9	.04	1.9	.02
AUG											
14...	250	.2	16	827	810	48	6	.35	.02	.37	.01
SEP											
10...	230	.4	14	717	724	40	22	.45	.04	.49	.06

DATE	NITROGEN, ORGANIC TOTAL (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											
05...	.65	.68	.50	.170	.120	7.9	--	--	30	7.0	95
NOV											
16...	.62	.73	.46	.160	.120	--	5.8	.9	23	3.9	96
DEC											
07...	.63	.70	.63	.130	.040	5.0	--	--	75	11	22
JAN											
11...	.89	.90	.54	.250	.100	8.9	--	--	218	217	97
FEB											
08...	1.5	1.6	1.2	.210	.120	--	8.6	5.2	175	88	99
MAR											
15...	.43	.50	.46	.020	.000	5.2	--	--	133	19	99
APR											
26...	.95	.97	.73	.210	.090	14	--	--	586	3500	92
JUN											
01...	.38	.43	.46	.080	.040	6.1	--	--	55	22	90
JUL											
02...	.54	.56	.34	.060	.070	--	5.8	.9	77	78	98
19...	.58	.60	.64	.060	.080	8.9	--	--	42	12	83
AUG											
14...	.76	.77	.32	.110	.070	--	3.7	1.0	21	4.3	98
SEP											
10...	.65	.71	.66	.210	.140	9.9	--	--	54	13	95

DATE	TIME	ARSENIC 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										
16...	1000	3	3	100	0	100	0	0	<1	0
FEB										
08...	1005	4	3	200	100	90	0	0	2	0
JUL										
02...	1552	4	3	100	0	100	0	0	0	0
AUG										
14...	1441	3	3	0	0	0	0	0	0	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)
NOV										
16...	0	0	0	0	<3	3	3	0	550	540
FEB										
08...	0	0	0	0	<3	7	6	1	3800	3800
JUL										
02...	0	0	2	2	0	4	2	2	1200	1200
AUG										
14...	20	0	0	0	0	2	2	0	550	550

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
NOV 16...	10	0	0	0	50	20	30	.1	.1	.0
FEB 08...	20	5	4	1	130	120	10	.0	.0	.0
JUL 02...	0	9	9	0	50	40	10	1.1	.0	1.5
AUG 14...	0	6	6	0	50	30	20	.0	.0	.1

DATE	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 16...	0	0	1	0	0	0	20	20	4
FEB 08...	1	0	1	4	4	0	30	30	<3
JUL 02...	1	1	0	0	0	0	50	40	10
AUG 14...	1	0	1	0	0	0	20	20	5

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)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
OCT 05...	1000	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
NOV 16...	1000	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND
JAN 11...	1040	.0	0	--	.00	.0	.0	0	.00	.0	.00	.7
FEB 08...	1005	ND	--	--	ND	--	ND	--	ND	--	ND	--
APR 26...	1350	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
JUL 02...	1552	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND
19...	0930	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
AUG 14...	1441	ND	--	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR, TOTAL (UG/L)
OCT 05...	.00	.0	.00	--	.00	.0	.00	.00	.0	.00	--	.00
NOV 16...	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
JAN 11...	.00	.0	.00	--	.00	.1	.00	.00	.0	.00	--	.00
FEB 08...	ND	--	ND	--	ND	--	--	ND	--	ND	--	ND
APR 26...	.00	.0	.00	--	.00	.0	.00	.00	.0	.00	--	.00
JUL 02...	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
19...	.00	.0	.00	--	.00	.0	.00	.00	.0	.00	--	.00
AUG 14...	ND	--	ND	--	ND	--	--	ND	--	ND	--	ND

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRITHION, TOTAL (UG/L)
OCT 05...	.0	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
NOV 16...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN 11...	.0	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
FEB 08...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
APR 26...	.0	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
JUL 02...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19...	.0	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
AUG 14...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT 05...	--	.00	.00	--	0	0	.00	--	.00	.00	.00
NOV 16...	ND	--	ND	ND	ND	ND	ND	ND	--	--	--
JAN 11...	--	.00	.00	--	0	0	.00	--	.03	.00	.00
FEB 08...	--	--	ND	--	ND	--	ND	--	--	--	--
APR 26...	--	.00	.00	--	0	0	.00	--	.04	.01	.00
JUL 02...	ND	--	ND	ND	ND	ND	ND	ND	--	--	--
19...	--	.00	.00	--	0	0	.00	--	.01	.00	.00
AUG 14...	--	--	ND	--	ND	--	ND	--	--	--	--

DATE	LENGTH OF EXPOSURE (DAYS)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS)
SEP 10...	27	12.5	13.6	2.48	.000	444

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	NOV 16,78	MAR 15,79	JUN 1,79	JUL 2,79
TIME	1000	0925	0841	1552
TOTAL CELLS/ML	680	6800	410	220
DIVERSITY: DIVISION	1.2	0.7	1.8	1.3
.CLASS	1.4	0.7	1.8	1.3
..ORDER	1.8	1.2	2.5	1.8
...FAMILY	2.2	1.3	2.7	1.8
....GENUS	2.5	1.3	2.8	1.8

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	330	5	13	3	--	-
....TETRAEDRON	--	-	--	-	13	3	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	220	3	26	6	52#	24
....TETRASTRUM	110#	16	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	28	4	--	-	--	-	--	-
....CHLAMYDOMONAS	97	14	5400#	79	90#	22	13	6
....PLATYMONAS	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	14	2	390	6	78#	19	13	6
..PENNALES								
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	--	-
...NAVICULACEAE								
....NAVICULA	83	12	110	2	13	3	--	-
....PLEUROSIGMA	--	-	--	-	--	-	--	-
...NITZSCHIACEAE								
....HANTZSCHIA	14	2	--	-	--	-	--	-
....NITZSCHIA	280#	41	110	2	78#	19	120#	53
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	14	2	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	220	3	78#	19	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	41	6	--	-	--	-	--	-
....SCHIZOTHRIX	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	55	1	26	6	26	12
....PHACUS	--	-	--	-	--	-	--	-

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 1978 TO SEPTEMBER 1979

DATE	JUL 19,79		AUG 14,79		SEP 10,79	
TIME	0930		1441		1620	
TOTAL CELLS/ML	1000		1300		1600	
DIVERSITY: DIVISION	0.8		0.9		0.9	
.CLASS	0.8		0.9		0.9	
..ORDER	1.7		1.0		0.0	
...FAMILY	1.8		1.0		0.0	
....GENUS	2.0		1.2		0.0	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....CHLOROCOCCUM	--	-	--	-	10	1
...OOCYSTACEAE						
....ANKISTRODESMUS	13	1	--	-	15	1
....TETRAEDRON	--	-	--	-	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	51	4	--	-
....SCENEDESMUS	52	5	100	8	40	2
....TETRASTRUM	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	13	1	--	-
....CHLAMYDOMONAS	13	1	51	4	--	-
....PLATYMONAS	--	-	--	-	*	0
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	10	1
..PENNALES						
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	10	1
...NAVICULACEAE						
....NAVICULA	13	1	--	-	120	7
....PLEUROSIGMA	--	-	--	-	*	0
...NITZSCHIACEAE						
....HANTZSCHIA	--	-	--	-	--	-
....NITZSCHIA	91	9	26	2	91	6
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	410#	40	1000#	80	--	-
....ANACYSTIS	52	5	--	-	--	-
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	150	9
....ANABAENOPSIS	--	-	--	-	150	9
...OSCILLATORIACEAE						
....OSCILLATORIA	390#	38	--	-	150	9
....SCHIZOTHRIX	--	-	--	-	860#	53
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	13	1	*	0
....PHACUS	--	-	--	-	*	0

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 WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	2416	1480	860	5600	260	1700	170	1120	400
NOV. 1978.....	3117	1280	740	6250	220	1880	150	1250	360
DEC. 1978.....	1953	1760	1030	5420	330	1730	200	1070	470
JAN. 1979.....	6872	954	550	10200	160	2940	110	2060	290
FEB. 1979.....	2498	1770	1040	6990	330	2230	200	1380	470
MAR. 1979.....	4675	1180	690	8690	210	2670	140	1730	340
APR. 1979.....	32229	586	340	29300	88	7670	68	5920	180
MAY 1979.....	13618	957	550	20200	150	5420	110	4090	290
JUNE 1979.....	108465	437	250	74200	65	19000	51	14800	130
JULY 1979.....	7276	983	570	11100	150	2990	110	2230	300
AUG. 1979.....	1791	1550	900	4340	280	1340	180	863	420
SEPT 1979.....	1478	1680	980	3900	310	1230	190	771	450
TOTAL	186388	**	**	186000	**	50800	**	37300	**
WTD.AVG.	511	640	370	**	100	**	74	**	190

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	2000	1550	650	1760	1910	1000	680	1490	870	1020	1890
2	1250	1930	1540	418	1770	1910	990	800	1500	920	1180	1870
3	1260	1900	1450	800	1780	1920	1030	860	1310	950	1250	1900
4	1280	1850	1850	1280	1800	1950	920	800	1000	990	1320	1940
5	1350	1900	1800	1350	1750	1970	860	810	1150	960	1370	1910
6	1360	2040	1760	1520	1500	1960	950	740	840	770	1440	1850
7	1330	1710	1830	1550	1440	1950	1020	850	600	720	1490	1600
8	1280	426	1760	1570	1810	1960	1040	910	430	890	1560	1300
9	1350	1120	1770	1460	1760	1970	1100	1000	400	873	1600	1150
10	940	1200	1790	1500	1710	1960	1150	1090	480	920	1640	1230
11	1190	1280	1800	1200	1700	2040	1210	1150	460	980	1680	1400
12	1380	1230	1830	426	1660	2030	1240	880	400	1040	1710	1620
13	1420	1050	1860	388	1800	2040	1280	910	344	1110	1750	1680
14	1470	1250	1800	923	1840	1840	1310	1020	320	1140	1420	1770
15	1560	1350	1820	1010	1880	1900	1330	1100	360	1190	1600	1830
16	1650	1470	1850	1100	1900	1960	1320	1190	410	1240	1550	1870
17	1740	1820	1860	1200	1920	2000	1270	1140	330	1280	1530	1900
18	1810	1000	1840	1270	1900	2040	1260	1080	290	1330	1600	1820
19	1860	1160	1850	1350	1900	2040	1240	1100	300	1360	1640	1730
20	1870	1300	1810	1400	1900	2050	1100	1140	360	1220	1680	1660
21	1880	1500	1800	1300	1910	2060	800	1170	420	1250	1730	1720
22	1910	1600	1820	1370	1920	2080	630	1220	460	1310	1800	1810
23	1950	1700	1830	1410	1910	2100	420	1180	500	1330	1820	1900
24	1980	1800	1840	1490	1900	2140	360	1210	550	1400	1880	1880
25	2000	1850	1850	1550	1910	2070	440	1250	600	1380	1860	1950
26	1980	1880	1860	1580	1920	1980	534	1270	640	1370	1870	2030
27	1910	1830	1840	1610	1930	1950	552	1310	675	1290	1900	2050
28	1550	1500	1830	1670	1920	716	500	1350	720	850	1910	2080
29	1620	1430	1860	1700	---	500	510	1390	780	1030	1930	2100
30	1760	1310	1870	1710	---	450	550	1420	810	1000	1880	2070
31	1820	---	1210	1740	---	739	---	1410	---	960	1810	---
MEAN	1580	1510	1780	1270	1810	1810	931	1080	631	1090	1630	1780

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	22.0	17.5	---	10.0	18.0						
2	---	22.0	17.0	7.0	11.0	19.0						
3	25.5	23.0	18.0	7.0	10.5	18.5						
4	26.5	22.0	17.0	8.0	---	19.0						
5	26.5	21.0	16.5	10.5	---	18.0						
6	25.5	22.0	17.5	12.0	11.5	17.5						
7	25.0	20.0	15.0	9.0	11.5	18.0						
8	23.0	18.0	12.0	8.0	13.0	18.5						
9	23.0	18.0	11.0	7.5	11.0	20.5						
10	24.0	19.5	9.0	---	10.5	21.5						
11	24.5	19.0	9.0	---	11.0	17.0						
12	25.0	21.0	10.0	8.5	12.0	17.5						
13	25.5	23.5	10.5	8.0	17.0	19.5						
14	25.0	23.0	11.0	8.0	18.5	19.5						
15	20.5	24.0	12.5	8.0	19.0	19.0						
16	22.5	20.0	---	9.0	15.0	18.5						
17	21.5	19.5	---	11.5	13.0	19.0						
18	21.5	19.0	---	13.0	10.0	20.0						
19	21.0	18.0	---	16.0	10.0	21.0						
20	20.5	17.0	---	16.5	11.0	21.5						
21	20.0	16.5	---	13.5	12.0	---						
22	20.5	16.5	---	14.0	15.0	23.0						
23	22.0	---	---	13.5	16.5	21.0						
24	21.0	---	---	12.0	16.0	19.0						
25	22.5	20.5	---	11.5	15.0	19.5						
26	21.5	21.0	14.5	14.0	15.5	21.0						
27	21.0	20.0	13.5	13.0	16.0	20.0						
28	20.0	17.5	14.5	13.0	18.0	20.5						
29	19.0	17.0	16.0	12.5	---	---						
30	20.5	17.5	15.0	12.5	---	21.0						
31	21.0	---	10.0	11.0	---	19.5						
MEAN	22.5	20.0	13.5	11.0	13.5	19.5						

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 mi² (401 km²).

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.--7 years, 0.27 ft³/s (0.008 m³/s), 203 acre-ft/yr (250,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,900 ft³/s (53.8 m³/s) May 13, 1972, gage height, 12.20 ft (3.719 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 ft³/s (949 m³/s) Oct. 17, 1971. Second highest stage, 24.3 ft (7.41 m), discharge 29,500 ft³/s (835 m³/s) occurred Sept. 12, 1971. The third and fourth highest floods occurred in 1914 and September 1967 (stages unknown).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26 ft³/s (0.74 m³/s) May 11, gage height, 5.59 ft (1.704 m), no peak above base of 50 ft³/s (1.42 m³/s); no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	4.9	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.85	.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	.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	.00	.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	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	5.75	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.19	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	4.9	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	11	.00	.00	.00	.00

CAL YR 1978 TOTAL 2.05 MEAN .006 MAX 1.6 MIN .00 AC-FT 4.1
WTR YR 1979 TOTAL 5.75 MEAN .016 MAX 4.9 MIN .00 AC-FT 11

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.--Water-stage recorder. 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 ft (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 4,820 acre-ft (5.94 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 FOR CURRENT YEAR.--Maximum contents, 282,100 acre-ft (348 hm³) May 4, elevation, 94.5 ft (28.80 m); minimum, 240,600 acre-ft (297 hm³) Sept. 16-18, elevation, 92.3 ft (28.13 m).

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

92.0	235,300	94.0	272,400
93.0	253,400	95.0	292,100

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	270400	260900	255300	257100	257100	257100	257100	272400	262800	266600	259000	247900
2	270400	260900	255300	251600	257100	257100	257100	272400	264700	266600	259000	246100
3	270400	259000	259000	251600	257100	255300	257100	270400	264700	266600	259000	246100
4	270400	259000	255300	251600	257100	255300	257100	270400	266600	266600	259000	246100
5	270400	260900	255300	251600	259000	255300	257100	268500	268500	272400	257100	246100
6	270400	262800	255300	253400	260900	255300	257100	268500	270400	272400	257100	244200
7	270400	259000	257100	255300	259000	253400	257100	266600	272400	272400	257100	244200
8	268500	259000	255300	251600	260900	251600	257100	266600	272400	272400	255300	244200
9	268500	259000	253400	251600	259000	251600	257100	266600	272400	268500	255300	244200
10	266600	259000	253400	257100	259000	253400	255300	266600	272400	266600	253400	244200
11	266600	259000	253400	255300	259000	251600	259000	270400	272400	266600	255300	244200
12	266600	259000	253400	257100	259000	251600	259000	270400	272400	264700	255300	244200
13	268500	259000	253400	259000	257100	251600	259000	268500	272400	264700	253400	244200
14	266600	259000	253400	259000	257100	251600	257100	268500	272400	264700	253400	242400
15	266600	259000	253400	259000	259000	251600	257100	264700	272400	264700	253400	242400
16	264700	259000	253400	259000	259000	251600	257100	264700	272400	264700	253400	240600
17	264700	259000	251600	259000	259000	249700	259000	262800	272400	264700	253400	240600
18	264700	259000	251600	259000	257100	249700	259000	264700	272400	264700	251600	246100
19	264700	259000	251600	259000	257100	251600	259000	262800	272400	264700	251600	249700
20	262800	259000	253400	259000	257100	251600	260900	262800	272400	262800	249700	247900
21	262800	259000	251600	257100	257100	253400	262800	262800	272400	262800	249700	247900
22	262800	257100	251600	259000	257100	253400	264700	264700	272400	262800	249700	246100
23	262800	257100	251600	259000	257100	253400	270400	264700	272400	262800	249700	246100
24	262800	257100	251600	257100	259000	251600	272400	264700	272400	260900	249700	246100
25	262800	257100	251600	257100	257100	249700	272400	264700	272400	260900	249700	246100
26	262800	257100	251600	259000	255300	251600	272400	262800	272400	260900	247900	246100
27	262800	259000	251600	257100	255300	251600	272400	262800	270400	260900	247900	244200
28	262800	257100	251600	259000	257100	251600	272400	262800	268500	260900	247900	244200
29	260900	257100	251600	259000	---	249700	274300	260900	266600	260900	247900	244200
30	260900	257100	251600	259000	---	255300	272400	262800	266600	260900	247900	244200
31	260900	---	255300	257100	---	255300	---	262800	---	259000	246100	---
MAX	270400	262800	259000	259000	260900	257100	274300	272400	272400	272400	259000	249700
MIN	260900	257100	251600	251600	255300	249700	255300	260900	262800	259000	246100	240600
(†)	93.4	93.2	93.1	93.2	93.2	93.1	94.0	93.5	93.7	93.3	92.6	92.5
(‡)	-9500	-3800	-1800	+1800	0	-1800	+17100	-9600	+3800	-7600	-12900	-1900

CAL YR 1978 MAX 274300 MIN 211200 ‡ +20000
WTR YR 1979 MAX 274300 MIN 240600 ‡ -26200

† 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 mi² (43,150 km²).

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.--40 years, 851 ft³/s (24.10 m³/s), 616,500 acre-ft/yr (760 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft³/s (3,910 m³/s) Sept. 24, 1967, gage height, 47.7 ft (14.54 m), from floodmark; minimum daily, 6.8 ft³/s (0.19 m³/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, 6,960 ft³/s (196 m³/s) June 20, gage height, 23.79 ft (7.251 m); minimum daily, 56 ft³/s (1.59 m³/s) Feb. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	127	89	235	70	111	152	1000	129	142	116	105
2	149	177	99	241	70	104	177	1320	135	134	111	103
3	150	154	116	111	70	203	164	1280	144	129	110	104
4	142	103	137	133	71	114	154	1520	150	125	109	100
5	126	103	99	104	75	99	145	1000	169	221	108	98
6	136	134	68	92	129	91	144	869	189	517	109	91
7	136	151	69	122	88	89	145	845	1840	1010	126	82
8	113	72	212	112	83	89	150	806	4080	1050	214	80
9	104	69	160	69	109	92	158	791	5620	1000	207	80
10	93	76	81	75	82	138	150	863	5170	921	151	119
11	93	126	77	119	77	99	153	923	3890	884	151	122
12	98	154	87	61	88	90	159	742	4530	324	132	118
13	131	97	97	120	62	91	157	673	5200	117	133	118
14	160	97	88	102	65	92	144	993	5850	150	134	118
15	108	119	80	58	78	92	134	1100	5960	151	135	118
16	98	202	81	58	123	90	130	833	5340	149	137	117
17	93	126	85	66	105	83	141	311	5060	147	139	117
18	105	88	106	86	99	78	142	143	6300	145	140	104
19	119	88	113	95	57	88	147	144	6740	141	142	192
20	129	96	106	800	56	93	161	142	6860	141	154	133
21	134	88	102	62	62	107	253	143	6460	139	170	101
22	135	85	97	81	110	128	240	153	5660	136	195	99
23	128	85	86	289	138	145	443	164	4750	135	188	99
24	124	89	83	60	243	111	3310	158	3960	132	164	100
25	111	100	95	115	180	95	4030	156	3600	123	155	99
26	106	100	111	124	128	79	3500	140	2250	119	155	99
27	90	129	70	117	109	98	1680	132	1310	118	142	98
28	98	113	60	83	115	104	1630	131	1550	118	126	96
29	88	84	93	77	---	104	2660	134	764	124	126	92
30	92	84	102	124	---	129	3110	129	166	121	116	91
31	99	---	103	88	---	150	---	131	---	117	105	---
TOTAL	3659	3316	3052	4079	2742	3276	23863	17869	103826	8980	4400	3193
MEAN	118	111	98.5	132	97.9	106	795	576	3461	290	142	106
MAX	171	202	212	800	243	203	4030	1520	6860	1050	214	192
MIN	88	69	60	58	56	78	130	129	129	117	105	80
AC-FT	7260	6580	6050	8090	5440	6500	47330	35440	205900	17810	8730	6330

CAL YR 1978 TOTAL 112263 MEAN 308 MAX 7690 MIN 60 AC-FT 222700
WTR YR 1979 TOTAL 182255 MEAN 499 MAX 6860 MIN 56 AC-FT 361500

08211000 NUECES RIVER NEAR MATHIS, TX--Continued

WATER-DISCHARGE 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): Maximum daily, 36.0°C Aug. 8, 1964; minimum daily, 3.0°C Jan. 19, 1968.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 824 micromhos May 17; minimum daily, 483 micromhos Aug. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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
DEC 20...	1600	67	691	190	62	62	9.4	67	2.1
JAN 18...	1600	86	696	190	63	63	9.0	63	2.0
APR 29...	1630	1680	760	200	63	65	9.8	67	2.0
MAY 29...	1630	134	808	220	92	68	13	75	2.2
JUL 31...	1600	84	608	180	37	57	8.4	51	1.7
AUG 12...	1600	63	584	170	33	56	7.9	48	1.6
SEP 30...	1600	58	571	180	31	58	8.3	46	1.5

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
DEC 20...	7.1	160	0	58	110	.3	14	407
JAN 18...	7.0	160	0	58	100	.3	14	393
APR 29...	7.2	170	0	69	110	.2	15	427
MAY 29...	7.8	160	0	72	130	.2	13	458
JUL 31...	7.5	170	0	49	75	.2	19	351
AUG 12...	8.1	170	0	46	73	.2	18	341
SEP 30...	8.2	180	0	43	67	.4	21	341

8211000 NUECES RIVER NEAR MATHIS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	3659	742	420	4110	110	1120	58	571	210
NOV. 1978.....	3316	706	400	3540	100	905	55	493	200
DEC. 1978.....	3052	705	390	3240	100	836	55	453	200
JAN. 1979.....	4079	703	390	4340	100	1110	55	604	200
FEB. 1979.....	2742	703	390	2920	99	736	55	406	200
MAR. 1979.....	3276	724	410	3590	110	951	56	499	210
APR. 1979.....	23863	757	420	27400	120	7550	59	3790	210
MAY 1979.....	17869	780	440	21100	120	5920	60	2920	220
JUNE 1979.....	103826	779	440	123000	120	34300	60	16900	220
JULY 1979.....	8980	638	360	8700	83	2010	50	1200	190
AUG. 1979.....	4400	581	320	3860	70	826	41	489	180
SEPT 1979.....	3193	571	320	2760	68	587	40	345	180
TOTAL	182255	**	**	209000	**	56900	**	28700	**
WTD.AVG.	499	754	420	**	110	**	58	**	210

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	756	727	703	719	693	711	729	766	776	659	483	552
2	767	715	696	708	689	711	728	762	760	636	487	559
3	767	737	700	700	689	711	730	762	776	643	564	570
4	770	704	718	700	689	710	735	770	771	656	528	574
5	762	706	699	698	689	715	742	775	793	601	592	571
6	762	718	702	692	689	712	739	775	793	674	585	574
7	762	714	703	698	702	715	735	767	799	664	585	574
8	754	718	696	708	701	722	740	784	799	652	557	568
9	757	706	696	708	700	718	737	789	799	645	596	572
10	752	713	700	692	702	736	742	774	799	635	595	574
11	744	706	702	708	700	722	740	778	799	618	593	570
12	733	703	702	704	710	728	761	801	804	686	595	573
13	728	698	706	694	704	728	752	778	798	651	595	572
14	726	695	706	726	704	722	747	786	804	638	592	568
15	728	704	704	715	704	728	749	780	804	631	589	572
16	733	704	702	702	704	731	754	803	804	633	586	573
17	733	706	704	700	710	726	747	824	804	628	586	573
18	733	706	702	698	712	726	749	815	799	639	586	528
19	738	710	703	697	713	726	742	798	784	616	585	562
20	733	707	703	696	712	732	747	796	771	616	589	581
21	738	704	702	706	700	720	742	796	766	597	590	587
22	735	704	726	710	703	739	747	795	745	594	586	582
23	731	700	710	713	708	725	751	789	745	602	596	579
24	733	700	726	707	699	729	748	801	730	585	590	584
25	733	695	719	701	706	727	756	801	716	590	594	579
26	733	689	710	701	711	727	761	801	705	613	592	579
27	733	695	719	712	713	727	763	801	700	618	602	568
28	726	687	705	706	712	729	763	801	698	617	594	570
29	723	691	705	701	---	732	763	801	728	613	591	572
30	723	698	700	698	---	727	769	799	698	608	579	571
31	723	---	704	701	---	728	---	799	---	608	585	---
MEAN	741	705	706	704	702	724	747	789	769	628	580	571

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.--7 years, 36.6 ft³/s (1.037 m³/s), 26,500 acre-ft/yr (32.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,110 ft³/s (173 m³/s) Oct. 12, 1973, gage height, 26.09 ft (7.952 m); minimum, 0.25 ft³/s (0.07 m³/s) Aug. 26, 27, 1973.
Maximum stage since 1919, that of Oct. 12, 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), 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)
Oct. 6	1800	1,410	39.9	17.16	5.230	May 11	2000	1,510	42.8	17.68	5.389
Apr. 21	2200	1,430	40.5	17.28	5.267	June 5	1900	1,060	30.0	15.24	4.645
May 4	1800	1,520	43.0	17.74	5.407	Sept. 19	1400	*3,590	102	23.81	7.257

Minimum discharge, 0.94 ft³/s (0.027 m³/s) Nov. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	5.2	2.1	3.7	7.4	2.1	3.7	337	1.8	2.8	4.1	9.4
2	6.1	3.9	2.2	3.1	5.6	2.2	3.6	85	6.9	2.6	3.2	11
3	5.8	3.2	2.2	3.3	4.6	2.0	3.8	26	11	2.6	2.9	102
4	5.5	2.8	2.3	3.3	4.0	1.9	3.6	1070	53	2.8	2.9	156
5	5.1	2.8	2.1	3.2	4.6	1.9	3.2	766	413	3.5	2.7	41
6	547	2.6	2.1	3.2	35	1.8	3.0	214	711	3.5	2.6	151
7	663	2.7	2.1	3.1	34	1.9	3.1	55	197	7.3	2.5	395
8	162	4.5	2.2	2.6	16	2.0	3.1	21	51	6.5	2.6	308
9	48	3.5	2.0	2.4	7.7	2.0	3.1	11	19	4.2	2.4	215
10	19	2.6	1.9	97	4.6	1.9	3.2	7.7	11	3.1	2.4	165
11	11	2.4	1.9	238	3.6	2.0	3.2	576	7.2	2.8	2.4	87
12	8.7	2.4	1.9	258	3.3	2.0	3.1	581	5.3	2.9	2.5	56
13	7.2	2.3	2.1	101	3.0	2.0	2.9	164	4.6	2.8	2.5	113
14	7.0	2.2	2.5	30	2.8	2.1	2.8	45	4.3	2.7	2.3	46
15	6.4	2.2	2.6	13	2.6	2.7	2.8	15	4.1	2.7	2.4	15
16	5.7	2.5	2.7	7.5	2.4	3.0	3.0	8.7	3.9	2.5	2.3	6.7
17	5.4	2.2	2.4	6.2	2.4	2.9	4.9	5.2	3.6	2.3	2.3	4.4
18	5.1	2.1	2.0	5.7	2.3	2.6	4.2	3.6	3.6	2.2	2.3	38
19	5.0	2.1	2.0	4.8	2.2	2.3	3.6	2.9	3.5	2.3	2.3	2540
20	4.8	2.0	2.1	7.2	2.4	2.3	3.4	2.6	3.8	2.3	2.3	1650
21	4.7	2.0	2.0	5.6	2.4	5.4	519	2.5	3.7	2.4	2.3	454
22	4.8	1.9	1.9	3.9	2.6	4.9	877	2.4	3.6	2.4	2.5	151
23	5.3	2.0	1.9	3.2	2.5	4.3	360	2.2	3.3	2.3	3.1	51
24	5.1	2.2	2.0	2.9	2.4	3.6	116	1.7	3.3	2.0	3.4	26
25	5.2	2.1	2.2	3.6	2.1	3.3	30	1.7	3.3	1.9	3.7	16
26	67	2.3	3.8	3.6	2.0	3.2	10	1.8	3.1	7.3	3.8	12
27	172	2.2	8.3	3.6	2.1	3.2	5.0	1.7	3.1	5.8	3.7	10
28	124	2.8	28	3.2	2.0	3.6	3.2	1.8	3.0	7.3	8.0	8.9
29	38	2.3	21	4.0	---	3.7	18	1.6	2.9	36	13	7.9
30	13	2.2	7.8	11	---	3.8	609	1.8	2.9	16	20	7.4
31	7.6	---	4.2	9.6	---	3.9	---	2.4	---	6.6	11	---
TOTAL	1981.9	78.2	126.5	850.5	168.6	86.5	2614.5	4018.3	1550.8	154.4	126.4	6853.7
MEAN	63.9	2.61	4.08	27.4	6.02	2.79	87.2	130	51.7	4.98	4.08	228
MAX	663	5.2	28	258	35	5.4	877	1070	711	36	20	2540
MIN	4.7	1.9	1.9	2.4	2.0	1.8	2.8	1.6	1.8	1.9	2.3	4.4
AC-FT	3930	155	251	1690	334	172	5190	7970	3080	306	251	13590

CAL YR 1978 TOTAL 13478.94 MEAN 36.9 MAX 1460 MIN .90 AC-FT 26740
WTR YR 1979 TOTAL 18610.30 MEAN 51.0 MAX 2540 MIN 1.6 AC-FT 36910

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 30...	1415	14	1450	7.6	23.0	100	6.8	82	4.3	270	150
DEC 11...	1312	1.9	6270	7.8	9.0	10	10.7	96	2.6	1100	920
JAN 25...	1410	5.5	7190	7.9	13.5	10	11.3	114	3.6	1300	1100
MAR 05...	1135	2.0	6700	8.2	15.5	15	12.5	125	4.2	1100	970
APR 16...	1215	3.0	695	8.1	24.0	190	9.6	112	5.0	97	0
MAY 21...	1550	2.4	6538	8.2	27.0	15	7.9	90	4.9	1200	1100
JUL 02...	1510	2.7	6970	8.5	32.0	22	10.0	137	4.8	1000	870
AUG 14...	0950	1.1	4840	7.6	28.0	25	4.3	55	7.3	680	510
SEP 25...	1017	10	2110	7.6	24.0	54	7.4	87	6.8	440	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)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 30...	86	13	180	4.8	9.3	140	0	78	330	.2	17
DEC 11...	330	58	910	12	22	170	0	290	1800	.4	16
JAN 25...	420	67	960	11	17	230	0	350	2100	.3	14
MAR 05...	350	64	1000	13	16	210	0	330	1800	.4	5.9
APR 16...	31	4.8	100	4.4	6.3	190	0	24	120	.2	12
MAY 21...	380	70	1000	12	17	224	0	340	2100	.3	16
JUL 02...	310	60	1000	14	22	170	10	300	1900	.4	12
AUG 14...	210	37	700	12	20	200	0	230	1400	.4	19
SEP 25...	140	21	270	5.6	12	170	0	94	540	.3	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)
OCT 30...	783	212	1.2	.09	1.3	.33	1.2	1.5	.86	11
DEC 11...	3510	20	15	.36	15	.29	1.7	2.0	2.2	9.2
JAN 25...	4040	15	5.3	.77	6.1	.95	.95	1.9	3.9	11
MAR 05...	3670	27	8.4	.66	9.1	.51	1.1	1.6	1.7	9.6
APR 16...	392	190	.12	.02	.14	.09	1.9	2.0	.17	28
MAY 21...	4030	30	6.0	.44	6.4	.15	1.3	1.4	1.5	11
JUL 02...	3700	47	5.9	.47	6.4	.18	1.2	1.4	.15	14
AUG 14...	2620	78	.60	.21	.81	.95	1.2	2.1	.08	12
SEP 25...	1180	107	.91	.09	1.0	.18	.26	.44	.63	12

08211520 OSO CREEK AT CORPUS CHRISTI, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
DEC 11...	1312	11	300	0	0	1	10
MAR 05...	1135	14	300	0	10	0	20
MAY 21...	1550	17	600	0	10	1	20
AUG 14...	0950	19	200	1	0	0	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)
DEC 11...	0	660	.1	0	0	40
MAR 05...	0	830	.1	0	0	30
MAY 21...	0	0	.0	0	0	10
AUG 14...	0	270	.2	0	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)
DEC 11...	1312	.0	0	.00	.00	.0	.0	1	.00	1.5
MAR 05...	1135	.0	0	--	.00	.0	.0	0	.00	1.3
MAY 21...	1550	.2	0	.00	.00	.0	.0	0	.00	.8
AUG 14...	0950	.0	--	.00	.00	--	.0	--	.00	--

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
DEC 11...	.00	2.1	.00	.8	.23	.00	.1	.00	.00	.0
MAR 05...	.00	.9	.00	.6	.03	.00	.1	.00	.00	.0
MAY 21...	.00	1.4	.00	.3	.06	.00	.0	.00	.00	.0
AUG 14...	.00	--	.00	--	.57	.00	--	.00	.00	--

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)	METHYL PARA-THION, TOTAL (UG/L)
DEC 11...	.00	.00	.0	.00	.0	.08	.1	.00	.00
MAR 05...	.00	.00	.0	.00	.0	.01	.0	.00	.00
MAY 21...	.00	.00	.0	.00	.0	.00	.0	.00	.00
AUG 14...	.00	.00	--	.00	--	.00	--	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
DEC 11...	.00	.00	.00	0	0	.00	.00	.00	.00
MAR 05...	.00	.00	.00	0	0	.00	.01	.01	.00
MAY 21...	.00	.00	.00	0	0	.00	.00	.00	.00
AUG 14...	.00	.00	.00	0	--	.00	.00	.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 mi² (826 km²).

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 10 floodwater-retarding structures with a combined detention capacity of 35,980 acre-ft (44.4 hm³). These structures control runoff from 170 mi² (440 km²) in the San Diego-Rosita drainage basins. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years, 10.7 ft³/s (0.303 m³/s), 7,750 acre-ft/yr (9.56 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft³/s (544 m³/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, 501 ft³/s (14.2 m³/s) Sept. 19, gage height, 6.30 ft (1.920 m), no other peak above base of 250 ft³/s (7.08 m³/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.24	.24	.23	1.4	.65	.27	.57	1.6	.30	.00	.38	.11
2	.25	.14	.49	1.4	.65	.31	.61	1.7	.40	.00	.28	.41
3	2.2	.09	.62	1.1	.65	.38	.54	1.8	.53	.00	.21	.29
4	3.0	.08	.29	.84	.65	.26	.41	4.8	.71	.04	.17	.44
5	.79	1.1	.14	.86	.70	.26	.39	6.5	1.5	3.8	.14	.39
6	.47	47	.14	.96	2.6	.33	.35	2.0	3.8	.30	.11	.31
7	7.4	15	.14	.81	2.3	.27	.40	1.4	1.7	.14	.10	15
8	7.4	3.5	.13	.72	1.4	.35	.39	1.2	.60	.63	.10	28
9	1.4	1.2	.13	.63	1.0	.38	.37	1.3	.33	1.2	.08	10
10	.53	.73	.09	.92	.75	.36	.42	1.3	.21	.71	.07	2.8
11	.70	.50	.12	1.2	.55	.34	.37	5.7	.13	.78	.06	2.9
12	.47	.44	.16	.42	.50	.24	.32	7.0	.10	.59	.06	5.3
13	.23	.37	.29	.27	.46	.29	.19	2.6	.09	.45	.06	2.3
14	.16	.32	.94	.33	.39	.52	.28	1.5	.06	.63	.04	1.5
15	.15	.29	.71	.34	.35	1.2	.28	1.3	.05	.89	.03	1.3
16	.17	.36	.60	.37	.23	1.4	.38	.90	.06	.74	.03	1.8
17	.18	.33	.51	.44	.24	1.6	1.8	.74	.07	.87	.02	1.2
18	.17	.27	.48	.44	.18	1.1	3.3	.75	.06	.77	.02	30
19	.16	.47	.30	.44	.21	.89	1.7	.73	.04	.75	.02	283
20	.18	.39	.25	.45	.26	.77	.90	.60	.05	.79	.01	85
21	.18	.39	.22	.45	.31	.69	3.0	.57	.05	1.2	.01	29
22	.16	.39	.26	.46	.34	.66	4.7	.63	.04	1.0	.13	11
23	.14	.37	.33	.46	.34	.63	7.6	.47	.05	.74	.23	2.9
24	.13	.41	.28	.47	.26	.56	2.2	.50	.06	.64	.27	1.1
25	.11	.44	.29	.48	.23	.57	1.3	.49	.05	.53	.19	.62
26	.58	.34	4.6	.49	.20	.43	1.1	.47	.04	.50	.11	.52
27	.49	.30	3.7	.50	.20	.50	1.0	.43	.02	.47	.26	.51
28	.48	.32	3.8	.52	.23	.46	1.0	.42	.01	.48	.41	.45
29	.56	.28	2.2	.56	---	.54	1.2	.45	.00	.47	.40	.34
30	.34	.18	1.5	.51	---	.57	1.6	.37	.00	.47	.23	.32
31	.36	---	1.7	.65	---	.49	---	.32	---	.45	.14	---
TOTAL	29.78	76.24	25.64	19.89	16.83	17.62	38.67	50.54	11.11	21.03	4.37	518.81
MEAN	.96	2.54	.83	.64	.60	.57	1.29	1.63	.37	.68	.14	17.3
MAX	7.4	47	4.6	1.4	2.6	1.6	7.6	7.0	3.8	3.8	.41	283
MIN	.11	.08	.09	.27	.18	.24	.19	.32	.00	.00	.01	.11
AC-FT	59	151	51	39	33	35	77	100	22	42	8.7	1030

CAL YR 1978 TOTAL 417.49 MEAN 1.14 MAX 52 MIN .00 AC-FT 828
WTR YR 1979 TOTAL 830.53 MEAN 2.28 MAX 283 MIN .00 AC-FT 1650

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 has a total length of 11,525 ft (3,513 m). 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 emergency spillway, 1,000 ft (300 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 emergency 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 service spillway is a concrete siphon-type spillway, 22.5 ft (6.9 m) wide with a 3.5 ft (1.1 m) opening, and is located 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 six floodwater-retarding structures with combined detention capacity of 14,770 acre-ft (18.2 hm³). These structures control runoff from 73.4 mi² (190.1 km²). Records furnished by the city of Alice show that 6,460 acre-ft (7.97 hm³) was diverted during the current year for municipal use. Records furnished by the city of Corpus Christi show that 4,820 acre-ft (5.94 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, 1,790 acre-ft (2.21 hm³) Sept. 20, elevation, 194.30 ft (59.223 m); minimum, 168 acre-ft (0.207 hm³) Oct. 4, elevation, 189.81 ft (57.854 m).

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

189.5	127	192.0	754
190.0	195	193.0	1,160
190.5	288	194.0	1,640
191.0	423	195.0	2,180

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	175	225	444	426	429	545	676	762	899	784	638	228
2	177	225	447	409	450	561	690	765	927	769	608	220
3	182	225	447	391	453	558	694	769	935	758	601	197
4	170	225	450	383	475	558	697	810	951	762	594	186
5	172	336	450	375	507	558	697	810	976	849	588	182
6	180	394	453	347	523	561	694	810	984	841	575	211
7	183	391	456	333	529	568	701	810	988	845	571	232
8	188	397	456	323	535	561	708	803	980	845	555	239
9	191	397	459	317	529	565	704	810	968	845	519	243
10	189	397	459	344	516	565	704	810	964	849	491	243
11	194	397	459	349	500	568	718	980	955	849	484	250
12	192	394	459	336	497	568	715	1010	951	841	456	254
13	198	394	469	344	503	571	711	1010	947	833	438	248
14	191	394	462	347	507	571	701	1010	943	818	429	244
15	192	394	438	355	519	601	701	1010	943	799	412	244
16	194	400	417	363	513	611	697	1000	931	780	377	246
17	191	400	400	375	507	624	711	1000	927	762	352	244
18	188	400	391	389	491	635	708	992	919	740	330	880
19	191	403	391	400	478	645	704	984	907	736	305	1760
20	191	409	400	397	487	652	704	984	899	736	282	1780
21	191	414	400	380	500	655	762	984	888	736	282	1760
22	191	420	403	372	510	673	769	984	884	736	284	1730
23	194	423	412	375	523	666	769	984	872	733	288	1710
24	192	429	423	375	532	666	769	980	864	725	279	1690
25	195	429	403	391	532	666	769	972	856	711	273	1660
26	211	435	429	403	532	659	769	964	845	697	248	1640
27	213	438	438	414	535	662	769	947	837	694	241	1610
28	225	438	441	420	542	655	762	951	822	683	226	1590
29	228	438	453	423	---	662	784	935	810	676	220	1560
30	230	444	456	417	---	669	773	923	795	669	225	1530
31	225	---	441	423	---	676	---	911	---	655	225	---
MAX	230	444	469	426	542	676	784	1010	988	849	638	1780
MIN	170	225	391	317	429	545	676	762	795	655	220	182
(†)	190.18	191.07	191.06	191.00	191.38	191.78	192.05	192.41	192.11	191.72	190.18	193.79
(‡)	+49	+219	-3	-18	+119	+134	+97	+138	-116	-140	-430	+1305

CAL YR 1978 MAX 751 MIN 67 ‡ -218
WTR YR 1979 MAX 1780 MIN 170 ‡ +1305

† 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 mi² (1,313 km²).

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 3,870 acre-ft (4.77 hm³) 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.--14 years (water years 1966-79), 28.1 ft³/s (0.796 m³/s), 20,360 acre-ft/yr (25.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,800 ft³/s (759 m³/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, and Sept. 17, 18, 1978.
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 ft³/s (479 m³/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 ft³/s (413 m³/s) from field estimate; 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, 2,790 ft³/s (79.0 m³/s) Sept. 19, gage height, 9.22 ft (2.810 m), from floodmark; minimum, 0.59 ft³/s (0.017 m³/s) Apr. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	2.4	2.4	2.0	2.7	2.7	1.9	1.9	2.5	2.7	2.2	3.5
2	1.7	2.5	2.5	1.8	2.8	3.7	1.9	1.9	2.8	2.7	2.0	3.3
3	1.8	2.2	2.5	2.2	2.7	2.8	1.8	1.9	4.8	2.7	2.2	3.2
4	3.4	2.0	2.8	1.9	2.4	2.7	2.1	2.9	6.0	2.7	2.2	3.6
5	3.0	2.1	2.6	2.0	3.7	2.4	1.9	15	7.4	16	1.9	4.0
6	2.7	173	2.2	2.0	5.3	2.4	1.8	3.6	17	26	2.4	5.4
7	2.3	50	2.2	1.8	4.3	2.5	1.9	2.6	13	2.8	2.4	12
8	6.8	8.3	2.4	1.8	3.3	2.7	1.7	2.2	4.8	2.7	2.4	21
9	4.2	4.5	2.4	1.7	2.5	2.7	1.8	1.9	2.6	2.8	2.0	7.9
10	4.2	3.6	2.0	2.4	2.3	2.5	1.6	1.8	2.6	2.7	3.0	3.7
11	2.8	3.0	2.0	3.2	2.3	2.4	1.6	45	2.6	2.4	2.8	3.5
12	3.3	2.8	2.5	3.5	2.6	2.5	1.7	119	2.7	2.2	2.5	3.1
13	2.9	2.8	2.6	3.0	3.1	2.7	1.6	26	2.7	2.1	2.4	3.6
14	2.4	2.5	3.3	2.4	2.8	2.9	1.5	2.6	2.7	2.0	2.4	3.3
15	2.2	2.7	3.3	2.3	2.6	4.3	1.5	2.6	2.8	2.8	2.3	2.7
16	2.4	2.4	3.0	2.2	2.4	4.9	1.5	2.6	2.7	2.8	2.4	2.6
17	3.0	2.2	2.8	2.2	2.3	4.8	3.3	2.5	2.8	2.8	2.6	2.6
18	2.8	2.2	2.8	2.4	2.5	4.2	3.9	2.9	2.8	2.2	2.6	83
19	2.8	2.1	2.4	2.4	2.6	3.8	3.9	2.9	2.6	2.1	2.3	1940
20	2.6	2.2	2.3	2.4	3.0	3.3	3.0	2.9	2.6	2.3	2.5	661
21	2.5	2.1	2.1	2.1	3.1	2.9	15	2.8	2.6	2.2	2.3	102
22	2.1	2.8	2.2	2.0	3.1	2.7	3.2	2.7	2.7	2.1	2.6	42
23	2.1	2.5	2.1	2.0	3.6	2.8	4.9	2.7	2.7	2.5	3.1	18
24	2.0	2.6	2.0	1.9	3.1	2.8	3.0	2.6	2.7	2.2	2.6	7.8
25	2.2	2.8	2.0	2.2	2.2	2.4	2.1	2.6	2.7	2.1	2.8	5.0
26	2.5	2.6	2.6	2.7	2.7	2.9	1.8	2.6	2.6	2.3	2.6	3.1
27	2.8	2.5	13	2.2	2.9	2.4	1.7	2.6	2.7	2.5	3.2	3.1
28	2.9	2.7	3.5	2.0	3.5	2.2	1.7	2.5	2.6	2.3	3.3	2.9
29	2.6	2.3	2.9	2.4	---	2.2	1.7	2.5	2.6	1.7	3.1	2.5
30	2.7	2.3	2.2	3.0	---	2.2	2.5	2.5	2.7	1.9	3.5	2.4
31	2.5	---	2.1	2.5	---	1.9	---	2.5	---	2.1	3.6	---
TOTAL	86.1	300.7	87.7	70.6	82.4	90.3	79.5	273.3	117.1	111.4	80.2	2961.8
MEAN	2.78	10.0	2.83	2.28	2.94	2.91	2.65	8.82	3.90	3.59	2.59	98.7
MAX	6.8	173	13	3.5	5.3	4.9	15	119	17	26	3.6	1940
MIN	1.7	2.0	2.0	1.7	2.2	1.9	1.5	1.8	2.5	1.7	1.9	2.4
AC-FT	171	596	174	140	163	179	158	542	232	221	159	5870

CAL YR 1978 TOTAL 1183.90 MEAN 3.24 MAX 173 MIN .34 AC-FT 2350
WTR YR 1979 TOTAL 4341.10 MEAN 11.9 MAX 1940 MIN 1.5 AC-FT 8610

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.--12 years, 5.27 ft³/s (0.149 m³/s), 0.15 in/yr (4 mm/yr), 3,820 acre-ft/yr (4.71 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 1970-77.

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.--Maximum discharge, 118 ft³/s (3.34 m³/s) Apr. 21, gage height, 4.41 ft (1.344 m), no other peak above base of 100 ft³/s (2.83 m³/s); no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.52	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00
2	.13	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00
3	.05	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00
4	.03	.00	.00	.00	.00	.00	.00	23	.00	.00	.00	.00
5	.01	.00	.00	.00	.00	.00	.00	23	9.4	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	3.2	12	.00	.00	.00
7	6.0	.00	.00	.00	.00	.00	.00	.79	9.6	.00	.00	.00
8	2.4	.00	.00	.00	.00	.00	.00	.30	9.3	.00	.00	.00
9	.46	.00	.00	.00	.00	.00	.00	.10	2.0	.00	.00	.00
10	.16	.00	.00	.00	.00	.00	.00	.07	.62	.00	.00	.00
11	.07	.00	.00	.00	.00	.00	.00	.05	.20	.00	.00	.00
12	.03	.00	.00	.00	.00	.00	.00	.02	.08	.00	.00	.00
13	.02	.00	.00	.00	.00	.00	.00	.01	.04	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.1
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.87
21	.00	.00	.00	.00	.00	.00	35	.00	.00	.00	.00	.60
22	.00	.00	.00	.00	.00	.00	14	.00	.00	.00	.00	.98
23	.00	.00	.00	.00	.00	.00	36	.00	.00	.00	.00	.46
24	.00	.00	.00	.00	.00	.00	11	.00	.00	.00	.00	.22
25	.00	.00	.00	.00	.00	.00	2.0	.00	.00	.00	.00	.11
26	.00	.00	.00	.00	.00	.00	.69	.00	.00	.00	.00	.07
27	.00	.00	.00	.00	.00	.00	.29	.00	.00	.00	.00	.03
28	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.05	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.14	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	9.88	.00	.00	.00	.00	.00	99.26	50.66	43.26	.00	.00	6.47
MEAN	.32	.000	.000	.000	.000	.000	3.31	1.63	1.44	.000	.000	.22
MAX	6.0	.00	.00	.00	.00	.00	36	23	12	.00	.00	3.1
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.001	.000	.000	.000	.000	.000	.007	.003	.003	.000	.000	.000
IN.	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
AC-FT	20	.00	.00	.00	.00	.00	197	100	86	.00	.00	13

CAL YR 1978 TOTAL 218.61 MEAN .60 MAX 100 MIN .00 CFSM .001 IN .02 AC-FT 434
WTR YR 1979 TOTAL 209.53 MEAN .57 MAX 36 MIN .00 CFSM .001 IN .02 AC-FT 416

08212400 LOS OLMOS CREEK NEAR FALFURRIAS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1974 to curent 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, 240 micromhos Sept. 18; minimum daily, 58 micromhos Apr. 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)
OCT 04...	1636	.40	161	7.2	26.0	20	3.2	40	3.9	1000
NOV 15...	1500	.00	--	--	--	--	--	--	--	--
DEC 06...	1825	.00	--	--	--	--	--	--	--	--
JAN 10...	1620	.00	--	--	--	--	--	--	--	--
FEB 07...	1435	.00	--	--	--	--	--	--	--	--
MAR 14...	1740	.00	--	--	--	--	--	--	--	--
APR 26...	0850	.70	185	7.0	24.0	81	3.8	45	2.8	2600
MAY 31...	1748	.00	--	--	--	--	--	--	--	--
JUN 29...	--	.00	--	--	--	--	--	--	--	--
JUL 18...	--	.00	--	--	--	--	--	--	--	--
AUG 17...	--	.00	--	--	--	--	--	--	--	--

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)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
OCT 04...	1600	52	0	16	2.9	6.8	.4	11	76	0
NOV 15...	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--
MAR 14...	--	--	--	--	--	--	--	--	--	--
APR 26...	11000	66	0	21	3.2	5.8	.3	15	86	0
MAY 31...	--	--	--	--	--	--	--	--	--	--
JUN 29...	--	--	--	--	--	--	--	--	--	--
JUL 18...	--	--	--	--	--	--	--	--	--	--
AUG 17...	--	--	--	--	--	--	--	--	--	--

08212400 LOS OLMOS CREEK NEAR FALFURRIAS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT 04...	11	5.1	.1	21	145	112	.01	.01	.02	.11
NOV 15...	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--
MAR 14...	--	--	--	--	--	--	--	--	--	--
APR 26...	13	5.6	.1	24	142	130	.01	.02	.03	.04
MAY 31...	--	--	--	--	--	--	--	--	--	--
JUN 29...	--	--	--	--	--	--	--	--	--	--
JUL 18...	--	--	--	--	--	--	--	--	--	--
AUG 17...	--	--	--	--	--	--	--	--	--	--

DATE	NITRO-GEN, ORGANIC TOTAL (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)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 04...	1.2	1.3	1.0	.860	.760	12	5	.01	81
NOV 15...	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--
MAR 14...	--	--	--	--	--	--	--	--	--
APR 26...	1.4	1.4	.94	.960	.900	18	66	.12	100
MAY 31...	--	--	--	--	--	--	--	--	--
JUN 29...	--	--	--	--	--	--	--	--	--
JUL 18...	--	--	--	--	--	--	--	--	--
AUG 17...	--	--	--	--	--	--	--	--	--

08212400 LOS OLMOS CREEK NEAR FALFURRIAS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC 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 04...	1636	3	3	0	0	100	0	0	0	0

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)
OCT 04...	0	0	0	0	0	6	2	4	460	300

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
OCT 04...	160	2	2	0	50	40	10	.0	.0	.0

DATE	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 04...	0	0	0	0	0	0	10	10	0

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	9.88	95	60	1.6	11	0.3	20	0.5	16
NOV. 1978.....	0	*******	*******	0	*******	0	*******	0	****
DEC. 1978.....	0	*******	*******	0	*******	0	*******	0	****
JAN. 1979.....	0	*******	*******	0	*******	0	*******	0	****
FEB. 1979.....	0	*******	*******	0	*******	0	*******	0	****
MAR. 1979.....	0	*******	*******	0	*******	0	*******	0	****
APR. 1979.....	99.26	90	57	15	11	2.9	20	5.2	15
MAY 1979.....	50.66	113	72	9.8	13	1.8	25	3.4	19
JUNE 1979.....	43.26	98	62	7.2	12	1.4	21	2.5	17
JULY 1979.....	0	*******	*******	0	*******	0	*******	0	****
AUG. 1979.....	0	*******	*******	0	*******	0	*******	0	****
SEPT 1979.....	6.47	136	86	1.4	16	0.2	29	0.5	23
TOTAL	209.53	**	**	35	**	6.6	**	12.1	**
WTD.AVG.	0.57	99	63	**	12	**	22	**	17

08212400 LOS OLMOS CREEK NEAR FALFURRIAS, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140						---	195	---			---
2	158						---	198	---			---
3	164						---	201	---			---
4	171						---	110	---			---
5	183						---	111	100			---
6	---						---	139	95			---
7	85						---	140	92			---
8	100						---	148	98			---
9	110						---	145	120			---
10	117						---	147	135			---
11	115						---	150	145			---
12	122						---	183	160			---
13	130						---	190	175			---
14	---						---	---	190			---
15	---						---	---	---			---
16	---						---	---	---			---
17	---						---	---	---			---
18	---						---	---	---			240
19	---						---	---	---			127
20	---						---	---	---			135
21	---						58	---	---			145
22	---						160	---	---			133
23	---						65	---	---			150
24	---						153	---	---			165
25	---						179	---	---			178
26	---						195	---	---			192
27	---						198	---	---			199
28	---						197	---	---			---
29	---						196	---	---			---
30	---						190	---	---			---
31	---						---	---	---			---
MEAN	133						159	158	131			166

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---						---	---	---			---
2	26.0						---	---	---			---
3	28.0						---	---	---			---
4	---						---	25.0	---			---
5	---						---	---	27.0			---
6	---						---	29.0	28.0			---
7	---						---	29.0	28.0			---
8	---						---	29.0	---			---
9	---						---	30.0	---			---
10	29.0						---	30.0	---			---
11	23.0						---	25.0	---			---
12	35.0						---	28.0	---			---
13	---						---	---	---			---
14	---						---	---	---			---
15	---						---	---	---			---
16	---						---	---	---			---
17	---						---	---	---			---
18	---						---	---	---			25.0
19	---						---	---	---			24.0
20	---						---	---	---			---
21	---						20.0	---	---			---
22	---						28.0	---	---			---
23	---						29.0	---	---			---
24	---						---	---	---			---
25	---						29.0	---	---			---
26	---						29.0	---	---			---
27	---						30.0	---	---			---
28	---						29.0	---	---			---
29	---						27.0	---	---			---
30	---						25.0	---	---			---
31	---						---	---	---			---
MEAN	28.0						27.5	28.0	27.5			24.5

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 1979 are given in International Boundary and Water Commission Water Bulletins Nos. 48 and 49.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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										
11...	1211	27	2820	8.4	21.5	8.6	9.1	1100	1100	460
16...	0915	26	2890	8.0	16.5	--	--	--	--	460
NOV										
02...	1011	37	3000	8.1	18.0	3.4	9.4	930	2100	430
16...	0900	73	1840	8.0	--	--	--	--	--	340
DEC										
05...	1001	27	3000	8.3	11.0	11	11.4	270	1300	480
18...	0910	26	3030	8.2	9.0	--	--	--	--	490
JAN										
10...	1001	24	3000	8.2	10.0	7.8	12.7	240	1800	480
15...	0915	16	2990	8.2	9.0	--	--	--	--	460
FEB										
14...	0941	14	4100	8.8	12.5	6.8	12.5	620	1100	550
20...	0900	14	3500	8.3	7.0	--	--	--	--	530
MAR										
19...	0900	790	873	7.7	10.0	--	--	--	--	220
21...	1111	763	895	9.4	12.0	370	8.8	230	1300	230
APR										
17...	0900	460	1110	8.3	18.0	--	--	--	--	270
25...	1125	394	1240	8.4	19.0	63	9.4	170	240	250
MAY										
14...	0900	474	1100	8.0	24.1	--	--	--	--	270
23...	1023	499	1120	8.3	18.5	64	8.8	240	380	280
JUN										
12...	1050	761	990	8.3	19.5	410	8.5	360	1600	250
22...	0900	805	904	7.9	25.5	--	--	--	--	240
JUL										
16...	0900	1180	826	7.5	26.5	--	--	--	--	210
19...	1530	1060	750	8.0	24.0	370	7.2	3200	3700	180
19...	1800	1060	--	--	24.0	--	--	--	--	--
AUG										
13...	1530	960	825	7.8	27.0	96	7.2	1600	1300	240
16...	0900	2120	747	7.6	21.0	--	--	--	--	180
SEP										
17...	1500	1320	800	8.0	16.0	700	7.9	1730	3230	230
18...	0900	817	927	8.0	19.0	--	--	--	--	230

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT										
11...	200	130	32	450	9.2	13	--	--	640	380
16...	190	130	33	480	9.7	14	330	0	700	400
NOV										
02...	170	120	32	430	9.0	12	--	--	570	390
16...	130	100	22	280	6.6	12	260	0	410	230
DEC										
05...	210	140	32	450	8.9	12	--	--	670	400
18...	210	140	34	500	9.8	4.8	340	0	680	420
JAN										
10...	210	140	32	530	11	10	--	--	690	430
15...	190	130	32	490	10	13	330	0	660	440
FEB										
14...	260	150	42	690	13	11	--	--	840	620
20...	250	150	38	580	11	10	340	0	770	510
MAR										
19...	76	65	13	91	2.7	5.7	170	0	120	110
21...	91	71	13	85	2.4	6.3	--	--	100	110
APR										
17...	71	81	16	130	3.5	8.0	240	0	220	94
25...	57	71	17	160	4.4	7.8	--	--	240	120
MAY										
14...	80	83	15	120	3.2	8.1	230	0	240	90
23...	96	84	16	130	3.4	8.1	--	--	230	97
JUN										
12...	77	76	14	110	3.0	7.3	--	--	210	72
22...	64	73	13	99	2.8	6.9	210	0	210	64
JUL										
16...	58	66	12	88	2.6	6.3	190	0	140	60
19...	31	51	13	95	3.1	7.1	--	--	57	130
19...	--	--	--	--	--	--	--	--	--	--
AUG										
13...	76	73	13	110	3.1	6.8	--	--	210	79
16...	48	52	12	68	2.2	6.4	160	0	140	54
SEP										
17...	81	71	13	97	2.8	6.6	--	--	170	75
18...	62	69	13	99	2.9	6.9	200	0	180	78

08364000 Rio GRANDE AT EL PASO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)
OCT									
11...	1.1	3.4	1860	1810	.15	--	.06	.63	.69
16...	--	34	--	1950	--	--	--	--	--
NOV									
02...	.8	33	1760	1740	.15	--	.08	.62	.70
16...	--	20	--	1200	--	--	--	--	--
DEC									
05...	.8	34	1890	1900	.18	--	.05	.30	.35
18...	--	30	--	1980	--	--	--	--	--
JAN									
10...	.8	34	2050	2030	.15	--	.00	.35	.35
15...	--	31	--	1960	--	--	--	--	--
FEB									
14...	.9	35	2580	2560	2.0	--	.10	.63	.73
20...	--	31	--	2260	--	--	--	--	--
MAR									
19...	--	20	--	509	--	--	--	--	--
21...	.6	18	510	488	.42	--	.09	1.6	1.7
APR									
17...	--	17	--	684	--	--	--	--	--
25...	.7	17	779	748	.01	--	.01	.85	.86
MAY									
14...	--	16	--	685	--	--	--	--	--
23...	.7	11	697	685	.12	--	.07	.82	.89
JUN									
12...	.7	12	605	604	.27	--	.02	1.6	1.6
22...	--	13	--	582	--	--	--	--	--
JUL									
16...	--	17	--	483	--	--	--	--	--
19...	.5	17	561	461	.21	--	.02	1.1	1.1
19...	--	--	--	--	--	--	--	--	--
AUG									
13...	.6	18	612	607	.26	--	.05	.68	.73
16...	--	14	--	425	--	--	--	--	--
SEP									
17...	.5	19	550	545	.57	.54	.15	.77	.92
18...	--	20	--	565	--	--	--	--	--

DATE	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									
11...	1.3	.250	.210	4.8	--	--	20	1.5	96
16...	--	--	--	--	--	--	--	--	--
NOV									
02...	.32	.160	.110	--	4.1	.7	34	3.4	67
16...	--	--	--	--	--	--	--	--	--
DEC									
05...	.32	.240	.190	3.9	--	--	40	2.9	61
18...	--	--	--	--	--	--	--	--	--
JAN									
10...	.34	.140	.110	4.8	--	--	19	1.2	69
15...	--	--	--	--	--	--	--	--	--
FEB									
14...	.66	.210	.180	--	5.7	.5	15	.57	87
20...	--	--	--	--	--	--	--	--	--
MAR									
19...	--	--	--	--	--	--	--	--	--
21...	.38	.150	.130	17	--	--	1350	2780	64
APR									
17...	--	--	--	--	--	--	--	--	--
25...	.33	.290	.110	7.1	--	--	175	186	75
MAY									
14...	--	--	--	--	--	--	--	--	--
23...	.52	.360	.120	--	4.1	--	202	272	84
JUN									
12...	.77	.900	.140	12	--	--	1190	2450	87
22...	--	--	--	--	--	--	--	--	--
JUL									
16...	--	--	--	--	--	--	--	--	--
19...	.41	.590	.100	15	--	--	--	--	--
19...	--	--	--	--	--	--	1000	2860	49
AUG									
13...	.13	.330	.130	--	5.7	2.4	572	1480	56
16...	--	--	--	--	--	--	--	--	--
SEP									
17...	.60	2.40	.100	17	--	--	3690	13200	64
18...	--	--	--	--	--	--	--	--	--

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), revised, 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 1979 are given in International Boundary and Water Commission Water Bulletins Nos. 48 and 49.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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...	1000	187	1550	7.9	16.5	370	190	120	17
NOV 20...	1145	167	1970	8.0	--	360	200	110	20
DEC 18...	1215	49	4400	7.5	9.5	870	670	250	60
JAN 15...	1055	28	6050	7.8	4.5	1200	970	350	86
FEB 20...	--	22	6300	8.1	--	1300	1100	350	95
MAR 20...	1010	12	7080	7.7	16.0	1400	1200	350	130
APR 16...	0950	16	1530	8.1	20.0	360	190	110	20
MAY 14...	0855	5.2	1370	8.2	24.1	300	150	94	15
JUN 21...	1845	11	1590	7.8	28.0	340	180	110	17
JUL 16...	0920	20	964	7.6	25.0	360	280	130	8.9
AUG 22...	1245	97	888	7.7	28.0	190	47	64	6.5
SEP 24...	1235	12	3330	7.6	24.5	680	550	200	45

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 16...	200	4.5	9.4	220	0	300	220	13	988
NOV 20...	280	6.4	10	190	0	340	340	5.7	1200
DEC 18...	640	9.4	16	250	0	810	830	1.6	2730
JAN 15...	930	12	19	310	0	150	2000	4.4	3690
FEB 20...	940	12	18	250	0	990	1400	4.5	3920
MAR 20...	1100	13	17	250	0	1300	1700	7.2	4730
APR 16...	200	4.6	7.0	200	0	400	140	22	998
MAY 14...	170	4.3	7.5	180	0	390	100	22	887
JUN 21...	190	4.5	11	200	0	360	180	12	979
JUL 16...	69	1.6	6.5	100	0	340	29	10	643
AUG 22...	110	3.5	8.2	170	0	190	68	12	543
SEP 24...	450	7.5	15	170	0	620	590	12	2020

08376300 SANDERSON CANYON AT SANDERSON, TX

LOCATION.--Lat 30°07'46", long 102°23'06", Terrell County, Hydrologic Unit 13040208, on right bank at downstream side of bridge on U.S. Highway 90, 1.0 mi (1.6 km) south of Sanderson, 2.9 mi (4.7 km) downstream from Three Mile Draw, and 30 mi (48 km) upstream from mouth. Prior to Oct. 19, 1977, at site 95 ft (29 m) upstream.

DRAINAGE AREA.--195 mi² (505 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 2,706.35 ft (824.895 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 19, 1977, at site 95 ft (29 m) upstream at same datum.

REMARKS.--Records fair. No known regulation or diversion above the station. Flow is affected at times by discharge from the flood-detention pools of two floodwater-retarding structures with a combined detention capacity of 1,470 acre-ft (1.81 hm³). These structures control runoff from 7.55 mi² (19.55 km²). National Weather Service gage-height telemeter located at station.

AVERAGE DISCHARGE.--11 years, 9.28 ft³/s (0.263 m³/s), 0.65 in/yr (17 mm/yr), 6,720 acre-ft/yr (8.29 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,600 ft³/s (923 m³/s) Sept. 18, 1969, gage height, 9.18 ft (2.798 m), from rating curve based on a step-backwater analysis below 10,000 ft³/s (283 m³/s) and two combined slope-area measurements of about 100,000 ft³/s (2,830 m³/s); maximum gage height, 9.44 ft (2.877 m) Apr. 30, 1974; no flow most of time each year.
The second highest flood was that of Sept. 18, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1935, 14.2 ft (4.33 m) June 11, 1965, discharge about 100,000 ft³/s (2,830 m³/s), by combining two slope-area measurements within 4 mi (6 km) upstream from gage. A flood in 1935 reached a discharge of about 20,000 ft³/s (566 m³/s), estimated channel capacity by Corps of Engineers.

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)
Nov. 5	about 0300	*15,800	447	a9.03	2.752
June 4	1800	1,860	52.7	3.60	1.097

a From floodmark.

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
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	26	.00	.00	.00
5	.00	2700	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	4.2	.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	.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	99	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06	.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	.00	.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	---	.00	.00	---
TOTAL	.00	2704.20	.00	.00	.00	.00	.00	.00	26.00	.00	99.06	.00
MEAN	.000	90.1	.000	.000	.000	.000	.000	.000	.87	.000	3.20	.000
MAX	.00	2700	.00	.00	.00	.00	.00	.00	26	.00	99	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.46	.000	.000	.000	.000	.000	.000	.004	.000	.02	.000
IN.	.00	.52	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00
AC-FT	.00	5360	.00	.00	.00	.00	.00	.00	52	.00	196	.00

CAL YR 1978	TOTAL	3316.56	MEAN 9.09	MAX 2700	MIN .00	CFSM .05	IN .63	AC-FT 6580		
WTR YR 1979	TOTAL	2829.26	MEAN 7.75	MAX 2700	MIN .00	CFSM .04	IN .54	AC-FT 5610		

NOTE.--No gage-height record Oct. 11 to Nov. 6.

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 specific conductance and discharge for water year 1978 are given in International Boundary and Water Commission Water Bulletins Nos. 48 and 49. 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, 353 micromhos Nov. 5, 1978.
WATER TEMPERATURES: Maximum daily, 32.0°C June 13, 1977, July 25,26 1979; minimum daily, 9.0°C Jan. 12, 1975, Jan. 8, 1976, Jan. 8, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,850 micromhos Dec. 30; minimum daily, 353 micromhos Nov. 5.
WATER TEMPERATURES: Maximum daily, 32.0°C July 25, 26; minimum daily, 9.0°C Jan. 8.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 25...	1215	5750	1280	8.0	20.0	170	8.2	93	.6	300	1300
NOV 29...	1335	3100	1060	7.9	14.5	80	8.3	84	.7	1500	900
DEC 27...	1310	1100	1780	7.8	12.0	25	9.7	96	1.1	300	240
JAN 24...	1210	1050	1330	8.2	10.5	30	10.4	99	.8	18	52
FEB 28...	1320	910	1320	7.9	17.0	20	9.2	98	.7	24	14
MAR 28...	1240	2040	1000	8.1	19.0	50	8.3	97	1.0	12	64
APR 18...	1150	2350	1020	7.7	24.0	70	7.6	96	1.2	200	48
MAY 16...	1110	2040	1000	7.7	23.5	23	8.7	107	1.9	88	90
JUN 20...	1315	3100	1010	8.0	29.0	400	8.4	114	.9	460	400
JUL 18...	1300	2485	1010	7.5	27.5	120	7.8	103	.3	410	300
AUG 15...	1340	1420	1090	7.6	27.5	370	8.5	110	.0	700	280
SEP 12...	1145	26	1150	7.9	25.5	130	10.6	132	1.7	120	56

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 25...	370	200	120	16	130	3.0	7.0	202	0	340
NOV 29...	300	130	95	15	110	2.8	6.3	210	0	280
DEC 27...	490	300	150	27	210	4.1	8.6	230	0	490
JAN 24...	380	200	120	20	140	3.1	5.9	224	0	320
FEB 28...	370	210	110	23	150	3.4	7.3	198	0	340
MAR 28...	280	120	89	15	100	2.6	5.4	200	0	250
APR 18...	260	110	81	15	110	2.9	5.6	190	0	260
MAY 16...	280	130	85	16	110	2.9	6.3	180	0	270
JUN 20...	300	140	95	14	110	2.8	7.2	196	0	300
JUL 18...	270	120	83	14	110	2.9	6.5	180	0	290
AUG 15...	280	170	90	14	100	2.6	6.0	130	0	300
SEP 12...	300	110	92	17	130	3.3	6.8	230	0	300

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	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)
OCT										
25...	97	1.1	22	840	833	1.2	.01	1.2	.01	.49
NOV										
29...	90	1.0	24	730	725	1.1	.01	1.1	.01	.89
DEC										
27...	200	1.1	22	1210	1220	1.4	.02	1.4	.01	.39
JAN										
24...	130	1.1	23	--	870	1.3	.02	1.3	.02	.38
FEB										
28...	140	1.2	21	891	890	1.2	.02	1.2	.02	.38
MAR										
28...	69	1.3	24	689	652	.25	.00	.25	.01	.31
APR										
18...	61	1.3	24	658	651	.98	.00	.98	.01	.48
MAY										
16...	60	1.4	25	669	662	.61	.02	.63	.01	.37
JUN										
20...	56	1.4	24	726	704	.50	.02	.52	.01	.99
JUL										
18...	58	1.5	28	700	680	.89	.02	.91	.02	.63
AUG										
15...	66	1.1	23	721	664	.87	.02	.89	.01	.68
SEP										
12...	70	1.3	28	--	758	.65	.04	.69	.01	.65

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										
25...	.50	1.3	.210	.100	--	3.3	5.3	433	6720	90
NOV										
29...	.90	.81	.130	.020	4.2	--	--	214	1790	89
DEC										
27...	.40	.32	.060	.010	2.6	--	--	107	318	88
JAN										
24...	.40	.27	.020	.010	--	--	--	80	227	9
FEB										
28...	.40	.32	.000	.030	--	8.2	.6	52	128	99
MAR										
28...	.32	.26	.000	.000	3.5	--	--	107	589	97
APR										
18...	.49	.28	.030	.000	4.9	--	--	162	1030	89
MAY										
16...	.38	.27	.030	.010	4.9	--	--	86	474	97
JUN										
20...	1.0	.39	.340	.020	--	11	--	702	5880	90
JUL										
18...	.65	.52	.180	.050	7.5	--	--	304	2040	93
AUG										
15...	.69	.10	.000	.010	--	4.7	3.3	676	2590	96
SEP										
12...	.66	.42	.190	.000	4.9	--	--	263	18	98

DATE	TIME	ARSENIC 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)
OCT										
25...	1215	10	8	200	200	0	1	0	1	0
FEB										
28...	1320	7	7	0	0	100	0	0	0	0
JUN										
20...	1315	7	7	200	100	100	2	1	1	10
AUG										
15...	1340	1	4	200	100	100	0	0	2	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)
OCT										
25...	0	0	3	3	0	9	8	1	6300	6300
FEB										
28...	0	0	2	2	0	5	4	1	360	350
JUN										
20...	0	10	3	1	2	7	7	0	7700	7700
AUG										
15...	20	0	5	2	<3	5	4	1	6900	6900

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
OCT 25...	30	10	10	0	240	240	0	.1	.1	.0
FEB 28...	10	13	13	0	30	20	10	.2	.1	.1
JUN 20...	10	18	17	1	280	280	0	.1	.1	.0
AUG 15...	10	9	9	0	190	190	2	.3	.2	.1

DATE	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 25...	2	0	2	0	0	0	40	30	10
FEB 28...	2	1	1	0	0	0	20	10	10
JUN 20...	2	1	1	0	0	0	40	30	10
AUG 15...	0	0	1	0	0	0	40	40	<3

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV 29...	1335	ND	--	ND	--	ND	--	ND	--	ND	--
FEB 28...	1320	ND	--	ND	--	ND	--	ND	--	ND	--
JUN 20...	1315	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 16...	1340	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV 29...	ND	--	ND	--	ND	--	ND	--	ND	--
FEB 28...	ND	--	ND	--	ND	--	ND	--	ND	--
JUN 20...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 16...	ND	--	ND	--	ND	--	ND	--	ND	--

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)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
NOV 29...	ND	--	ND	--	ND	--	ND	--	ND	--
FEB 28...	ND	--	ND	--	ND	--	ND	--	ND	--
JUN 20...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 16...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI-THION, TOTAL (UG/L)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA-THION, TOTAL (UG/L)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV 29...	ND	--	ND	--	ND	--	ND	--	ND	--
FEB 28...	ND	--	ND	--	ND	--	ND	--	ND	--
JUN 20...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 16...	ND	--	ND	--	ND	--	ND	--	ND	--

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	NOV 29,78	MAR 28,79	MAY 16,79	JUN 20,79
TIME	1335	1240	1110	1315
TOTAL CELLS/ML	7300	3300	900	3500
DIVERSITY: DIVISION	0.7	0.7	1.0	0.5
.CLASS	0.7	0.7	1.0	0.5
..ORDER	0.7	1.6	1.8	0.6
...FAMILY	0.9	2.1	2.2	0.6
....GENUS	1.3	2.2	2.3	0.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...COELASTRACEAE								
....COELASTRUM	510	7	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	130	2	25	1	26	3	--	-
....CLOSTERIOPSIS	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	63	1	50	2	--	-	--	-
....OOCYSTIS	--	-	--	-	26	3	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	--	-
....SCENEDESMUS	130	2	200	6	410#	46	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	100	3	--	-	--	-
...PHACOTACEAE								
....PHACOTUS	--	-	--	-	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	63	1	--	-	--	-	--	-
....STAURASTRUM	--	-	--	-	220#	24	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	5600#	77	1800#	55	--	-	78	2
....MELOSIRA	630	9	--	-	--	-	160	4
....STEPHANODISCUS	--	-	--	-	26	3	--	-
..PENNALES								
...CYMBELLACEAE								
....CYMBELLA	--	-	50	2	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	50	2	--	-	--	-
....SYNEDRA	--	-	50	2	13	1	--	-
...NAVICULACEAE								
....NAVICULA	--	-	630#	19	13	1	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	250	8	130	14	160	4
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	100	3	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	3100#	89
....SCHIZOTHRIX	--	-	--	-	--	-	--	-
...RIVULARIACEAE								
....RAPHIDIOPSIS	130	2	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	13	1	--	-
....TRACHELOMONAS	--	-	--	-	26	3	--	-

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

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	JUL 18,79		AUG 15,79		SEP 12,79	
TIME	1300		1340		1145	
TOTAL CELLS/ML	1700		2300		4400	
DIVERSITY: DIVISION	1.6		0.6		1.5	
.CLASS	1.6		0.6		1.5	
..ORDER	2.1		1.0		2.1	
...FAMILY	2.4		1.0		2.7	
....GENUS	2.5		1.6		3.1	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	39	2	--	-	710#	16
...OOCYSTACEAE						
....ANKISTRODESMUS	14	1	120	5	*	0
....CLOSTERIOPSIS	--	-	120	5	*	0
....KIRCHNERIELLA	--	-	--	-	82	2
....OOCYSTIS	--	-	--	-	27	1
...SCENEDESMACEAE						
....ACTINASTRUM	39	2	--	-	--	-
....SCENEDESMUS	87	5	--	-	450	10
....TETRASTRUM	--	-	--	-	110	2
..TETRASPORALES						
...PALMELLACEAE						
....SPHAEROCYSTIS	310#	18	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	120	5	96	2
...PHACOTACEAE						
....PHACOTUS	--	-	--	-	27	1
..ZYGNEMATALES						
...DESMIDIACEAE						
....CLOSTERIUM	--	-	--	-	--	-
....STAURASTRUM	--	-	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	110	6	1600#	70	990#	22
....MELOSIRA	--	-	230	10	410	9
....STEPHANODISCUS	--	-	--	-	--	-
..PENNALES						
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	420#	24	--	-	210	5
....SYNEDRA	*	0	--	-	--	-
...NAVICULACEAE						
....NAVICULA	*	0	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	87	5	120	5	480	11
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	--	-	810#	18
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	--	-
....SCHIZOTHRIX	610#	36	--	-	--	-
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-

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 WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	454670	864	560	687000	48	59100	220	267000	220
NOV. 1978.....	180430	743	480	234000	30	19600	190	91000	190
DEC. 1978.....	37326	1400	900	91100	130	12800	350	35600	360
JAN. 1979.....	33412	1410	910	82400	130	11700	360	32300	370
FEB. 1979.....	27216	1330	860	63200	120	8730	340	24800	340
MAR. 1979.....	49584	1100	710	95400	84	11200	280	37200	290
APR. 1979.....	54770	990	640	94600	67	9920	250	36700	260
MAY 1979.....	62630	962	620	105000	63	10600	240	41000	250
JUNE 1979.....	127020	879	570	195000	50	17300	220	76000	230
JULY 1979.....	73670	992	640	127000	67	13400	250	49700	260
AUG. 1979.....	100430	860	550	150000	48	13000	220	59000	220
SEPT 1979.....	30281	1110	710	58300	84	6880	280	22700	290
TOTAL	1231439	**	**	1980000	**	194000	**	773000	**
WTD.AVG.	3370	923	600	**	57	**	230	**	240

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	726	1160	1110	1750	1330	1350	1000	1000	1030	1030	1120	1010
2	991	1170	1120	1700	1330	1360	991	1010	1020	1060	1020	1000
3	973	1200	1140	1560	1320	1340	1010	1000	1000	1050	933	1020
4	923	1180	1140	1450	1320	1330	1000	1000	800	1030	926	1050
5	771	353	1120	1420	1310	1340	1010	991	782	1060	873	1100
6	760	575	1130	1410	1320	1430	1020	985	835	962	960	1150
7	753	706	1150	1410	1330	1460	1030	983	814	709	891	1110
8	706	800	1180	1410	1320	1420	1000	980	903	718	822	1090
9	696	915	1190	1410	1330	1240	991	978	812	777	1010	1060
10	785	953	1240	1410	1330	1070	1000	990	614	958	963	977
11	833	904	1300	1400	1320	1050	1000	1000	812	1020	793	1070
12	815	966	1370	1390	1340	1030	1010	978	830	1040	900	1060
13	785	1040	1390	1390	1320	1010	1020	985	930	1030	860	1090
14	800	1100	1430	1380	1300	1000	1010	991	1020	1050	919	1100
15	831	1180	1470	1380	1300	1020	1010	1030	949	1040	1060	1090
16	857	1150	1500	1370	1310	1010	1000	1020	961	1040	800	1090
17	947	1180	1530	1380	1320	1020	1010	1010	1180	1050	787	1100
18	1030	1270	1550	1390	1320	1020	1020	1000	1240	1070	700	1100
19	1130	1240	1550	1380	1320	1010	990	1020	1090	828	751	1110
20	1190	1180	1580	1360	1330	1000	1000	965	1010	950	764	1130
21	1210	1160	1610	1350	1340	1000	927	572	1070	1030	860	1190
22	1240	1140	1600	1350	1360	1010	966	945	1060	1050	804	1200
23	1260	1130	1610	1340	1370	1040	1000	960	750	1060	895	1200
24	1250	1120	1610	1350	1410	1020	1010	978	850	1070	740	1250
25	1240	1110	1640	1340	1380	1010	805	935	900	1080	837	1200
26	1190	1100	1710	1360	1370	1050	954	888	945	974	992	1180
27	995	1110	1750	1350	1370	1030	1020	1020	1000	1180	1000	1200
28	911	1100	1770	1350	1350	1020	954	1030	1040	1210	983	1230
29	889	1100	1820	1470	---	1040	978	1050	1020	1100	1020	1220
30	1020	1100	1850	1410	---	1030	991	842	1000	1080	975	1200
31	1040	---	1750	1360	---	1030	---	937	---	1220	1030	---
MEAN	953	1050	1450	1410	1330	1120	991	970	942	1020	903	1120

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	22.0	17.5	10.5	11.0	18.5	25.0	25.0	26.0	30.0	28.0	30.5
2	24.0	22.0	17.5	10.0	13.0	18.0	23.5	24.5	25.5	30.0	29.0	31.0
3	25.0	22.0	16.5	10.0	13.0	17.5	21.0	26.5	27.0	30.0	28.0	31.0
4	25.0	21.5	16.0	10.5	13.5	18.0	23.0	---	25.0	29.5	29.0	31.0
5	25.0	17.5	15.0	11.0	12.5	17.0	23.0	25.5	25.0	31.0	29.0	31.0
6	---	18.5	14.0	10.0	13.0	18.0	20.0	26.0	25.0	29.0	27.5	30.0
7	22.5	17.0	13.0	10.0	15.0	18.0	20.5	26.0	26.0	29.5	30.0	30.0
8	22.5	19.5	12.0	9.0	15.5	20.0	25.0	26.0	27.0	30.0	30.0	30.0
9	23.5	19.0	10.5	10.0	14.0	18.0	23.0	28.5	27.0	30.5	29.0	29.5
10	24.0	18.5	11.0	9.5	15.0	17.0	25.0	28.0	27.0	31.0	29.5	29.0
11	25.0	20.0	11.5	11.0	15.5	17.0	23.0	24.5	27.0	31.0	27.5	27.0
12	24.5	19.5	12.0	10.5	16.5	18.0	23.0	26.0	27.0	30.0	28.5	28.0
13	24.0	21.0	11.5	11.0	---	20.0	23.0	25.0	27.0	29.5	29.0	27.5
14	23.5	21.0	12.0	9.5	19.0	18.5	23.5	24.5	26.0	29.0	28.5	26.0
15	22.5	19.5	14.0	10.0	19.5	17.0	24.0	24.5	27.0	30.0	29.0	22.5
16	21.5	20.0	14.0	11.0	15.5	16.0	23.0	24.0	27.0	30.0	27.0	24.0
17	22.0	18.5	14.0	11.5	13.0	19.5	26.0	25.0	27.0	30.0	27.0	23.0
18	22.0	18.5	14.0	14.0	14.5	19.0	26.5	26.5	29.0	30.0	27.0	---
19	22.5	18.0	15.0	15.0	13.5	24.0	26.0	27.0	29.5	28.0	27.0	26.5
20	21.5	18.0	16.5	13.5	15.0	22.0	---	26.5	30.0	29.5	27.5	27.0
21	22.0	17.5	15.0	15.0	14.0	22.0	25.5	25.0	30.5	29.0	28.0	27.0
22	22.0	17.5	15.5	14.0	17.0	22.0	26.0	26.5	30.0	30.5	28.0	---
23	21.0	18.0	15.0	13.5	18.0	21.0	26.0	26.0	30.0	31.0	29.0	27.5
24	20.0	19.0	14.5	12.0	18.0	21.0	24.0	24.0	30.0	---	28.0	27.5
25	20.5	20.5	15.0	12.5	17.0	21.0	27.0	23.0	29.0	32.0	28.5	---
26	21.0	21.0	13.0	15.5	16.5	22.0	24.0	23.0	29.0	32.0	28.5	26.0
27	20.0	18.5	14.0	14.5	16.5	21.0	26.0	27.0	29.5	31.0	29.0	24.0
28	19.0	18.0	15.0	12.0	18.0	21.5	23.0	28.0	29.0	30.0	29.0	26.5
29	19.5	18.0	15.0	10.0	---	24.0	23.5	29.0	30.0	30.0	29.0	27.0
30	21.0	17.5	15.0	13.0	---	24.0	22.5	29.0	30.0	28.0	28.5	27.5
31	21.0	---	13.0	12.0	---	22.0	---	27.0	---	31.0	29.5	---
MEAN	22.5	19.0	14.0	11.5	15.5	20.0	24.0	26.0	28.0	30.0	28.5	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 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.--42 years (1938-79), 174 ft³/s (4.928 m³/s), 126,100 acre-ft/yr (155 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, 1,040 ft³/s (29.5 m³/s) Aug. 20, gage height, 7.08 ft (2.158 m), no peak above base of 1,800 ft³/s (51.0 m³/s); minimum, 1.2 ft³/s (0.034 m³/s) June 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	154	30	65	65	58	57	51	30	99	24	26	58
2	112	30	65	66	58	52	44	30	195	28	30	56
3	86	37	63	66	59	51	40	32	125	28	38	58
4	66	381	58	63	60	51	36	28	70	28	36	60
5	55	774	57	59	70	53	37	24	52	34	38	56
6	49	456	57	54	73	50	37	20	40	34	38	56
7	43	237	57	53	78	50	37	17	37	32	32	64
8	39	147	57	52	80	51	38	14	35	32	31	59
9	36	105	56	53	73	52	39	12	80	32	35	51
10	34	76	58	53	70	53	38	14	50	31	35	49
11	31	58	59	53	66	53	36	20	53	28	31	32
12	31	52	58	53	65	53	40	22	38	23	32	53
13	30	46	59	53	64	53	38	21	28	22	36	63
14	28	43	58	52	64	52	32	19	20	21	38	27
15	29	41	60	56	58	53	26	20	11	21	40	39
16	29	42	60	60	56	57	20	21	6.2	24	54	59
17	26	41	56	63	66	58	19	26	3.2	30	57	67
18	26	41	52	65	66	55	16	28	24	50	52	69
19	25	42	51	65	69	50	23	40	273	136	97	78
20	24	42	50	66	70	52	52	46	189	182	242	73
21	24	47	50	71	69	54	43	33	108	193	108	70
22	25	51	52	64	69	52	36	26	69	167	80	71
23	33	55	56	56	67	32	31	21	49	111	75	71
24	39	58	57	57	69	47	29	22	37	81	85	70
25	42	59	58	56	69	51	31	25	29	65	73	69
26	64	59	58	54	66	46	30	25	25	59	59	63
27	56	58	57	58	64	47	29	29	26	54	75	59
28	43	57	58	58	55	50	28	110	19	50	131	53
29	36	59	59	56	---	82	28	120	17	51	122	54
30	34	64	60	57	---	91	28	63	23	49	76	54
31	30	---	65	57	---	63	---	91	---	29	59	---
TOTAL	1379	3288	1786	1814	1851	1671	1012	1049	1830.4	1749	1961	1761
MEAN	44.5	110	57.6	58.5	66.1	53.9	33.7	33.8	61.0	56.4	63.3	58.7
MAX	154	774	65	71	80	91	52	120	273	193	242	78
MIN	24	30	50	52	55	32	16	12	3.2	21	26	27
AC-FT	2740	6520	3540	3600	3670	3310	2010	2080	3630	3470	3890	3490

CAL YR 1978 TOTAL 39809.25 MEAN 109 MAX 17100 MIN .50 AC-FT 78960
WTR YR 1979 TOTAL 21151.40 MEAN 57.9 MAX 774 MIN 3.2 AC-FT 41950

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.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 25,400 micromhos Oct. 22; minimum daily, 3,710 micromhos June 10.
WATER TEMPERATURES: Maximum daily, 31.0°C July 1, 10, 28; minimum daily, 3.5°C Dec. 9.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT												
27...	1000	57	28000	7.7	14.0	1.1	9.8	18	140	2700	2500	550
NOV												
15...	1200	41	12400	8.2	13.5	2.0	14.0	8	32	1300	1200	300
DEC												
11...	1000	59	10200	8.3	3.5	3.0	13.6	5	33	1700	1600	370
JAN												
24...	1300	57	11100	8.9	6.5	14	16.4	0	12	1900	1900	480
FEB												
20...	1430	69	9800	9.4	11.0	2.6	17.2	0	14	1700	1700	380
MAR												
21...	1000	54	12300	8.3	15.5	5.3	9.7	0	9	2000	1800	420
APR												
17...	1000	19	14800	8.4	20.5	1.0	12.2	67	19	1300	1200	490
MAY												
16...	1130	20	18400	8.2	21.5	30	9.8	7	34	2400	2300	500
JUN												
21...	0900	116	5200	8.1	25.5	15	6.3	51	280	1200	1000	280
JUL												
18...	0930	48	13300	8.1	27.0	3.4	6.2	31	820	2100	2100	510
AUG												
09...	0830	35	11200	8.2	27.0	16	7.7	17	10	1900	1800	460
SEP												
13...	0950	63	8750	8.2	25.0	7.5	8.3	90	22	1700	1600	490

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)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
OCT												
27...	310	5200	44	160	2500	7700	.6	11	16800	16500	1.7	1.7
NOV												
15...	140	2100	25	62	1100	3200	.4	8.7	7640	--	.41	.47
DEC												
11...	180	1700	18	61	1300	2900	.6	5.0	7000	6580	.53	.57
JAN												
24...	180	1700	17	53	1700	2800	.6	1.3	6970	6960	.01	.12
FEB												
20...	190	1700	18	49	1900	2500	.6	.1	6560	6750	.01	.00
MAR												
21...	220	2200	22	86	1800	3200	.8	5.8	8300	8010	.34	.39
APR												
17...	25	2600	31	83	2000	4300	.8	6.9	10000	9560	.02	.00
MAY												
16...	280	3400	30	28	2200	5500	.8	20	12500	12000	.02	.10
JUN												
21...	110	750	9.6	25	960	1200	.5	1.9	3540	3390	.02	.00
JUL												
18...	210	2400	23	22	2500	3800	.8	8.4	9490	9490	.03	.03
AUG												
09...	180	1900	19	68	1700	3000	.7	10	9170	7360	.05	.01
SEP												
13...	120	1400	15	43	1600	2300	.8	12	6620	6020	.03	.02

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (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												
27...	.17	.79	.96	.89	.030	.010	6.1	6.1	.3	31	4.8	64
NOV												
15...	.02	.85	.87	.46	.040	.010	6.5	4.4	--	13	1.4	89
DEC												
11...	.02	1.1	1.1	.46	.070	.030	--	3.2	--	15	2.4	97
JAN												
24...	.01	1.2	1.2	.28	.080	.010	8.8	3.6	6.0	20	3.1	94
FEB												
20...	.08	1.5	1.6	.44	.050	.020	13	4.6	10	15	2.8	51
MAR												
21...	.23	1.3	1.5	.78	.060	.020	--	5.7	1.4	15	2.2	66
APR												
17...	.09	1.9	2.0	.59	.060	.020	12	6.4	--	15	.77	98
MAY												
16...	.20	.90	1.1	.56	.060	.010	8.3	7.9	1.8	39	2.1	82
JUN												
21...	.04	1.2	1.2	.33	.130	.010	--	28	7.4	100	31	66
JUL												
18...	.09	1.0	1.1	.78	.100	.050	6.6	3.8	1.5	26	3.4	87
AUG												
09...	.08	.87	.95	.30	.050	.000	8.3	5.9	1.5	24	2.3	84
SEP												
13...	.09	.90	.99	.69	.030	.010	--	4.1	2.7	24	4.1	58

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)
OCT										
27...	1000	--	--	--	--	--	--	--	--	--
NOV										
15...	1200	--	--	--	--	--	--	--	--	--
DEC										
11...	1000	1	--	1	0	0	100	0	0	1
JAN										
24...	1300	--	--	--	--	--	--	--	--	--
FEB										
20...	1430	--	--	--	--	--	--	--	--	--
MAR										
21...	1000	1	--	1	0	0	0	0	0	3
APR										
17...	1000	--	--	--	--	--	--	--	--	--
MAY										
16...	1130	--	--	--	--	--	--	--	--	--
JUN										
21...	0900	1	--	0	0	0	100	1	1	0
JUL										
18...	0930	--	--	--	--	--	--	--	--	--
AUG										
09...	0830	--	--	--	--	--	--	--	--	--
SEP										
13...	0950	1	0	1	200	100	100	0	0	0

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	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)
OCT										
27...	--	--	--	--	--	--	--	--	--	--
NOV										
15...	--	--	--	--	--	--	--	--	--	--
DEC										
11...	10	10	0	0	0	1	2	1	1	130
JAN										
24...	--	--	--	--	--	--	--	--	--	--
FEB										
20...	--	--	--	--	--	--	--	--	--	--
MAR										
21...	20	0	20	0	0	0	1	1	0	200
APR										
17...	--	--	--	--	--	--	--	--	--	--
MAY										
16...	--	--	--	--	--	--	--	--	--	--
JUN										
21...	10	0	10	0	0	0	6	5	1	590
JUL										
18...	--	--	--	--	--	--	--	--	--	--
AUG										
09...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	20	0	20	0	0	0	2	1	1	540

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	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)
OCT 27...	--	30	--	--	--	--	--	--	--	--
NOV 15...	--	30	--	--	--	--	--	--	--	--
DEC 11...	90	40	3	0	3	70	0	70	.0	.0
JAN 24...	--	30	--	--	--	--	--	--	--	--
FEB 20...	--	40	--	--	--	--	--	--	--	--
MAR 21...	150	50	14	0	--	180	50	130	.0	.0
APR 17...	--	40	--	--	--	--	--	--	--	--
MAY 16...	--	40	--	--	--	--	--	--	--	--
JUN 21...	560	30	14	14	0	160	140	20	.1	.0
JUL 18...	--	20	--	--	--	--	--	--	--	--
AUG 09...	--	70	--	--	--	--	--	--	--	--
SEP 13...	--	20	4	4	0	100	70	30	1.1	.0

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	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 27...	--	--	--	--	--	--	--	--	--	--
NOV 15...	--	--	--	--	--	--	--	--	--	--
DEC 11...	.0	3	0	3	0	0	0	20	0	20
JAN 24...	--	--	--	--	--	--	--	--	--	--
FEB 20...	--	--	--	--	--	--	--	--	--	--
MAR 21...	.0	2	0	2	0	0	0	40	10	30
APR 17...	--	--	--	--	--	--	--	--	--	--
MAY 16...	--	--	--	--	--	--	--	--	--	--
JUN 21...	.1	1	0	1	0	0	0	30	20	10
JUL 18...	--	--	--	--	--	--	--	--	--	--
AUG 09...	--	--	--	--	--	--	--	--	--	--
SEP 13...	1.4	2	1	1	0	0	0	40	0	50

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 15...	1200	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
FEB 20...	1430	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 16...	1130	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3
AUG 09...	0830	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	P,P' DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 15...	2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 20...	--	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 16...	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 09...	--	ND	--	ND	--	ND	--	ND	--	ND	--

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)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)
NOV 15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND,
FEB 20...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 16...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 09...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRITHION, TOTAL (UG/L)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 20...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 16...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 09...	ND	--	ND	--	ND	--	ND	--	ND	--

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9390	20000	11300	10200	10400	9900	13000	15100	4480	7440	8510	7370
2	11600	19400	10900	10300	10700	10200	12600	15100	6940	8030	8850	7550
3	13200	19300	10800	10000	10800	11800	11300	15200	6390	8740	9410	7530
4	15000	10700	10800	9910	10500	11100	11100	15300	6970	9390	9850	8080
5	16200	15300	10700	10100	10300	10600	11400	15700	6520	10300	10200	8470
6	17600	4320	11000	9910	10600	11100	11700	15200	6310	10800	10600	8740
7	18900	4490	11000	9910	10700	11700	12000	15400	6560	12400	11500	9050
8	19600	5440	10700	10100	10700	11100	13900	15500	6920	12300	12200	9310
9	20300	6520	10800	10300	10700	11300	13000	15600	6730	12800	11800	9190
10	21400	7610	11000	10100	10500	11500	12700	15900	3710	13000	11500	9310
11	22200	8610	10400	10300	10600	11500	13300	16500	7320	13000	10600	9220
12	22600	9460	10900	10400	10000	12000	13900	17500	8020	13200	11500	9190
13	23000	10300	10900	10800	10600	12800	13800	17300	8710	13400	11400	9360
14	23500	11200	10400	10900	9910	12300	13500	17000	8780	13400	11300	9340
15	23800	12000	10500	10600	9910	12200	13400	17100	8350	13400	11300	11100
16	23800	12500	10600	11700	9910	13000	13800	17000	8150	13500	11200	10900
17	24000	---	10800	11800	10200	13200	14200	17900	8350	13800	11300	10700
18	24200	13800	10400	10400	10500	13700	14800	17900	8420	13800	11300	10600
19	24500	13600	10900	10300	10100	12000	14900	17900	11100	7670	11300	11100
20	24700	13300	11500	10600	9720	11900	15000	16600	5840	10300	6490	10200
21	25100	13600	11200	10600	10100	12000	15500	16700	5290	7370	5270	9730
22	25400	13700	11400	10300	10200	12800	15800	16000	5150	7480	7250	9490
23	25000	13500	11500	11300	10200	13400	15400	14800	5150	6810	9800	9440
24	24400	13100	11100	10900	9910	13100	15700	14400	5260	6240	9910	9120
25	24100	12800	11100	9830	9820	13200	15300	14300	5550	6180	9460	9050
26	24700	12200	10900	10400	9550	13700	15000	14200	5740	6060	8720	9120
27	23900	12000	11200	10400	9730	15000	14600	12500	5940	6200	8350	9290
28	20700	11700	10900	9910	10300	16400	14400	14000	6310	6680	6630	9190
29	22200	11400	11000	10000	---	13200	14600	17100	6600	7090	9100	9390
30	19400	11700	11000	10600	---	16400	14800	12500	6970	7760	9940	9590
31	19300	---	10600	10400	---	13700	---	10800	---	8150	8050	---
MEAN	21100	11800	10900	10400	10300	12500	13800	15600	6750	9890	9830	9320

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.5	18.0	11.5	5.5	6.0	13.5	18.5	24.0	18.0	31.0	29.0	30.0
2	23.0	19.0	12.0	4.0	6.5	13.0	18.5	23.0	19.5	30.5	26.5	29.5
3	23.5	19.5	11.0	4.0	7.0	13.5	17.5	22.0	22.5	27.5	27.5	30.5
4	24.0	16.0	10.5	4.5	7.0	13.5	19.0	22.5	24.0	27.0	27.0	27.5
5	23.0	16.5	10.0	4.5	6.0	13.5	19.5	23.0	25.5	29.5	27.0	29.0
6	23.0	16.0	8.5	4.5	6.0	12.5	18.5	24.5	26.5	30.0	26.5	28.5
7	23.0	15.0	6.0	4.0	7.5	15.5	21.0	24.0	26.5	30.0	27.0	28.0
8	23.5	15.0	4.0	4.0	9.0	16.0	20.5	24.0	28.0	30.5	27.5	28.5
9	24.5	17.0	3.5	4.5	9.5	15.5	20.0	24.0	24.5	30.0	28.0	28.5
10	24.0	16.5	4.0	4.0	10.0	15.5	18.5	23.5	24.0	31.0	28.5	28.0
11	24.0	14.5	4.5	6.0	11.0	14.5	17.5	24.0	26.5	30.0	25.0	27.0
12	24.0	14.0	4.5	7.5	11.5	15.5	16.0	23.5	26.5	29.0	24.5	27.0
13	19.5	15.0	5.5	7.5	12.5	17.0	17.5	24.5	27.5	29.0	25.0	23.0
14	20.0	15.0	6.5	7.0	13.5	14.5	20.0	24.5	28.5	28.0	24.5	23.0
15	20.0	13.5	7.5	5.5	14.0	14.0	21.5	24.5	26.5	30.0	25.0	19.5
16	20.0	13.0	8.5	5.5	11.5	13.5	30.5	23.5	28.0	28.0	24.0	19.5
17	20.0	13.0	8.0	6.5	11.5	15.0	23.5	25.5	26.0	28.0	24.0	20.5
18	21.5	13.0	8.5	9.0	10.5	16.5	25.0	26.0	27.5	28.0	21.5	20.5
19	21.0	13.0	10.5	9.5	11.0	17.0	25.5	27.0	26.5	24.0	23.5	22.5
20	20.0	13.0	10.0	8.5	11.5	16.5	23.0	26.0	26.5	24.0	19.5	24.0
21	19.0	12.5	10.0	8.5	8.0	16.0	23.0	24.5	27.5	26.0	19.5	23.5
22	20.5	13.0	8.5	9.0	12.5	16.5	23.5	25.0	28.5	27.0	24.0	25.0
23	16.5	13.5	8.5	8.5	12.0	18.0	24.0	26.0	29.0	27.0	26.0	24.5
24	15.5	12.5	8.5	8.0	13.0	17.5	24.0	25.0	29.0	29.0	29.5	25.5
25	15.5	14.0	9.0	8.5	13.5	17.5	24.5	25.5	30.0	29.0	29.5	25.0
26	15.5	14.5	8.5	9.0	13.0	18.5	24.5	27.0	29.0	30.0	28.5	24.5
27	16.0	12.5	8.0	8.5	12.0	18.0	24.5	24.0	30.5	30.0	27.5	24.5
28	17.5	11.5	8.5	7.5	12.0	18.0	23.5	26.0	30.5	31.0	27.5	24.5
29	17.5	11.5	7.0	7.5	---	18.5	22.0	25.5	30.5	30.0	27.5	25.0
30	18.0	11.0	6.5	6.5	---	18.5	22.0	26.0	30.5	29.5	28.0	25.5
31	17.0	---	7.0	5.5	---	18.5	---	25.5	---	30.0	29.5	---
MEAN	20.5	14.5	8.0	6.5	10.5	16.0	21.5	24.5	27.0	29.0	26.0	25.5

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 mi² (1,785 km²).

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.--42 years (water years 1938-79), 13.6 ft³/s (0.385 m³/s), 9,850 acre-ft/yr (12.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,400 ft³/s (2,310 m³/s) Oct. 2, 1955, gage height, 27.0 ft (8.23 m), from floodmarks, from rating curve extended above 1,500 ft³/s (42.5 m³/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, 2,910 ft³/s (82.4 m³/s) Aug. 19, gage height, 7.96 ft (2.426 m), no other peak above base of 1,700 ft³/s (48.1 m³/s); minimum, 0.16 ft³/s (0.005 m³/s) July 11-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	7.6	8.0	7.2	6.2	5.7	5.3	6.1	119	2.4	35	7.6
2	71	7.6	8.0	6.8	6.4	5.7	5.5	6.0	393	2.0	8.9	7.2
3	69	17	7.8	6.4	6.4	5.6	5.4	5.5	59	2.0	16	6.0
4	65	201	7.6	6.8	6.3	5.6	5.4	5.3	33	2.4	8.5	5.6
5	55	71	7.7	6.4	7.3	5.6	5.3	5.5	26	19	1.8	5.3
6	52	28	7.6	6.4	7.3	5.7	5.6	5.7	21	3.7	1.2	4.9
7	49	19	7.6	6.4	7.2	5.5	6.1	5.5	16	2.4	.90	4.5
8	49	14	7.6	6.4	6.6	5.7	6.0	5.2	14	1.5	.76	4.1
9	47	11	7.6	6.4	6.3	5.6	6.0	5.0	224	1.5	.86	4.5
10	47	11	7.6	6.4	6.2	5.4	5.6	4.8	37	.91	.94	4.5
11	47	9.9	7.6	6.4	6.0	5.6	4.8	4.9	23	.65	.78	4.5
12	46	9.8	7.2	6.4	5.7	6.0	4.6	4.9	18	.65	1.0	4.1
13	46	9.6	6.8	6.4	5.7	6.2	5.0	5.2	15	.65	48	4.1
14	46	9.6	6.8	6.4	5.7	6.0	5.3	5.2	13	.65	25	4.1
15	40	9.3	7.2	6.4	5.6	5.6	5.6	5.1	10	.65	15	4.9
16	45	9.1	6.8	6.2	5.5	5.8	5.7	5.2	9.0	.65	5.7	7.2
17	45	8.9	6.8	6.2	5.4	6.2	5.7	5.4	8.0	3.4	28	12
18	45	8.9	6.8	6.2	5.6	6.1	5.6	12	7.0	1.2	145	12
19	45	8.8	6.8	6.2	5.6	6.0	5.6	6.3	6.0	22	623	11
20	45	8.7	6.8	6.2	5.6	6.1	5.5	5.1	5.0	16	39	10
21	44	8.9	6.4	6.4	5.7	6.5	5.5	4.5	4.0	5.6	72	12
22	44	8.9	6.4	6.4	5.6	6.2	5.5	4.5	3.0	3.4	32	11
23	44	9.3	6.4	6.4	5.7	5.5	5.5	4.5	47	7.6	11	11
24	27	8.9	6.4	6.4	5.8	5.4	5.3	4.5	25	5.8	8.0	6.0
25	11	8.9	6.4	6.4	5.7	5.7	5.4	4.5	10	2.7	7.2	5.3
26	9.4	8.9	6.4	6.4	5.9	5.7	5.3	6.4	5.5	4.5	6.8	4.9
27	8.9	8.3	6.4	6.4	5.7	5.7	5.3	8.9	4.5	3.6	7.2	4.5
28	8.5	8.0	6.4	6.4	5.7	5.9	5.3	10	3.4	1.7	8.0	4.5
29	8.1	8.0	6.8	6.2	---	5.6	5.4	17	3.0	1.2	8.9	4.5
30	8.0	8.0	6.8	6.1	---	5.3	5.6	7.1	2.7	1.1	8.5	4.1
31	7.6	---	7.2	6.0	---	5.5	---	25	---	2.9	8.0	---
TOTAL	1249.5	565.9	218.7	198.1	168.4	178.7	163.7	210.8	1164.1	124.41	1182.94	195.9
MEAN	40.3	18.9	7.05	6.39	6.01	5.76	5.46	6.80	38.8	4.01	38.2	6.53
MAX	75	201	8.0	7.2	7.3	6.5	6.1	25	393	22	623	12
MIN	7.6	7.6	6.4	6.0	5.4	5.3	4.6	4.5	2.7	.65	.76	4.1
AC-FT	2480	1120	434	393	334	354	325	418	2310	247	2350	389

CAL YR 1978	TOTAL	12474.62	MEAN	34.2	MAX	4960	MIN	.00	AC-FT	24740
WTR YR 1979	TOTAL	5621.15	MEAN	15.4	MAX	623	MIN	.65	AC-FT	11150

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, 110,600 acre-ft (136 hm³) Mar. 29 to Apr. 12, gage height, 2,818.2 ft (858.99 m); minimum observed, 83,600 acre-ft (103 hm³) Sept. 30, gage height, 2,812.8 ft (857.34 m).

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

2,812.0	80,000
2,815.0	94,000
2,819.0	115,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97000	96500	104000	105700	107300	109500	110600	109500	102500	99000	97000	87650
2	97500	96500	104000	105700	107900	110100	110600	109500	103000	98500	96500	87650
3	97500	96500	104000	105700	107900	110100	110600	109000	104000	98500	96000	87650
4	97000	97500	104000	105700	107900	110100	110600	108400	104600	98500	95000	87650
5	97000	101000	104000	105700	107900	110100	110600	108400	104600	98500	95000	87650
6	97000	102500	104000	105700	107900	110100	110600	108400	104600	98500	94500	87650
7	97000	103000	104000	105700	108400	110100	110600	107900	104600	98500	94000	87200
8	97000	103000	104000	105700	108400	110100	110600	107300	104600	98000	94000	87200
9	97000	103000	104000	105700	108400	110100	110600	107300	104600	98000	93500	87200
10	97000	103500	104600	106200	108400	110100	110600	107300	104600	98000	93000	86750
11	97000	103500	104600	106200	108400	110100	110600	106800	104600	97500	92000	86750
12	97000	103500	104600	106200	109000	110100	110600	106200	104600	97500	91500	86300
13	96500	103500	104600	106200	109000	110100	110100	106200	104000	97500	91000	86300
14	96500	103500	104600	106200	109000	110100	110100	105700	103000	97000	90000	85850
15	96500	103500	104600	106200	109000	110100	110100	105700	102500	97000	89000	85850
16	96500	103500	104600	106200	109000	110100	110100	105100	102000	96500	88550	85400
17	96500	104000	104600	106800	109000	110100	110100	105100	101000	96000	88100	85400
18	96500	104000	104600	106800	109500	110100	110100	104600	100500	96000	87200	84950
19	96000	104000	104600	106800	109500	110100	110100	104000	100000	96000	86300	84950
20	96000	104000	104600	106800	109500	110100	110100	104000	99500	96500	87200	84950
21	96000	104000	104600	106800	109500	110100	110100	103500	99500	97500	88100	84950
22	96000	104000	105100	106800	109500	110100	110100	103500	99500	97500	88100	84500
23	96000	104000	105100	106800	109500	110100	110100	103500	99500	98000	88100	84500
24	96000	104000	105100	106800	109500	110100	110100	103000	99500	98000	88100	84500
25	96500	104000	105100	107300	109500	110100	109500	103000	99500	98000	87650	84500
26	96500	104000	105100	107300	109500	110100	109500	103000	99500	98000	87650	84050
27	96500	104000	105100	107300	109500	110100	109500	102500	99500	97500	87200	84050
28	96500	104000	105100	107300	109500	110100	109500	103000	99000	97500	87200	84050
29	96500	104000	105100	107300	---	110600	109500	103000	99000	97500	87200	84050
30	96500	104000	105100	107300	---	110600	109500	102500	99000	97500	87650	83600
31	96500	---	105700	107300	---	110600	---	102000	---	97000	87650	---
MAX	97500	104000	105700	107300	109500	110600	110600	109500	104600	99000	97000	87650
MIN	96000	96500	104000	105700	107300	109500	109500	102000	99000	96000	86300	83600
(†)	2815.5	2817.6	2817.3	2817.6	2818.0	2818.2	2818.0	2816.6	2816.0	2815.6	2813.7	2812.8
(‡)	0	+7500	+1700	+1600	+2200	+1100	-1100	-7500	-3000	-2000	-9350	-4050

CAL YR 1978 MAX 105700 MIN 22880 ‡ +82820
WTR YR 1979 MAX 110600 MIN 83600 ‡ -12900

† 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.--42 years (water years 1938-79), 171 ft³/s (4.843 m³/s), 123,900 acre-ft/yr (153 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, 1,180 ft³/s (33.4 m³/s) June 1, gage height, 10.50 ft (3.200 m); minimum, 13 ft³/s (0.37 m³/s) Apr. 11-16, 26-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	28	26	22	24	22	16	14	577	33	460	34
2	54	29	26	22	24	23	15	42	484	33	612	33
3	51	31	26	24	23	22	15	130	129	45	473	32
4	47	307	26	26	23	21	14	120	75	88	449	31
5	43	186	26	26	27	22	14	119	42	93	84	33
6	40	58	26	26	30	23	14	120	37	99	93	82
7	38	38	26	26	35	21	14	121	33	98	274	96
8	37	33	26	26	35	23	14	118	41	98	278	99
9	36	32	26	26	31	22	15	116	75	99	278	100
10	34	31	26	26	27	22	15	116	74	102	288	101
11	33	30	25	26	26	22	14	116	115	104	378	103
12	31	30	25	26	26	22	13	118	321	108	402	103
13	29	31	25	26	25	23	13	119	322	110	401	104
14	29	32	25	26	23	24	13	119	327	113	411	104
15	29	30	25	24	22	24	13	120	330	115	441	107
16	29	30	25	23	21	23	13	120	333	118	441	109
17	29	31	24	23	21	23	14	118	324	123	435	117
18	28	31	24	23	22	23	15	117	329	125	436	118
19	27	31	24	23	22	23	15	115	330	338	456	115
20	26	31	24	23	22	19	16	114	330	589	426	112
21	27	31	24	22	22	18	15	113	177	225	238	110
22	28	30	24	21	22	19	14	111	33	143	96	107
23	47	30	23	22	23	18	14	112	32	130	101	107
24	44	30	23	23	23	17	14	115	32	125	100	106
25	43	29	23	23	22	16	14	109	33	123	93	104
26	36	29	22	24	23	16	13	38	34	103	91	103
27	32	27	22	24	23	16	13	37	34	36	91	103
28	31	26	22	24	22	16	13	61	34	48	75	102
29	31	27	22	24	---	15	13	118	34	39	38	102
30	30	27	22	24	---	15	13	329	33	35	35	102
31	29	---	22	24	---	16	---	336	---	124	35	---
TOTAL	1110	1366	755	748	689	629	421	3671	5104	3762	8509	2779
MEAN	35.8	45.5	24.4	24.1	24.6	20.3	14.0	118	170	121	274	92.6
MAX	62	307	26	26	35	24	16	336	577	589	612	118
MIN	26	26	22	21	21	15	13	14	32	33	35	31
AC-FT	2200	2710	1500	1480	1370	1250	835	7280	10120	7460	16880	5510

CAL YR 1978	TOTAL	27292.2	MEAN 74.8	MAX 11400	MIN 2.0	AC-FT	54130	
WTR YR 1979	TOTAL	29543.0	MEAN 80.9	MAX 612	MIN 13	AC-FT	58600	

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 equation developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 29,400 micromhos May 16, 1978; minimum daily, 1,610 micromhos June 2, 1948.
WATER TEMPERATURES (1953-61, 1968-79): 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, 21,300 micromhos Apr. 7; minimum daily, 5,890 micromhos June 2.
WATER TEMPERATURES: Maximum daily, 26.0°C Aug. 21, Sept. 1, 4, 5; minimum daily, 0.5°C Dec. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 03...	1555	52	16600	--	23.0	2900	2700	670	300	3100
DEC 30...	1100	22	19200	--	8.5	3300	3100	820	300	3900
JAN 09...	1530	26	19900	--	6.0	3300	3100	820	300	3800
FEB 13...	1420	25	18400	--	12.5	3100	2900	760	290	3500
MAR 27...	1510	17	20200	7.7	17.0	3400	3200	820	320	4100
MAY 08...	1505	117	8560	--	20.5	1800	1600	490	130	1500
JUN 20...	1645	332	8070	--	25.0	1400	1300	410	100	1000
JUL 31...	1005	33	13100	--	22.0	2300	2200	620	190	2300
SEP 11...	0950	168	9700	--	23.0	1700	1600	460	140	1500

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 03...	25	48	230	0	2900	4800	.9	18	12000
DEC 30...	30	50	200	0	2900	6100	1.3	7.8	14200
JAN 09...	29	47	210	0	2800	5600	1.2	12	13500
FEB 13...	27	43	180	0	2700	5000	1.4	8.7	12400
MAR 27...	31	41	180	0	3000	6500	1.4	7.1	14900
MAY 08...	16	41	140	0	1600	2100	.6	4.4	5870
JUN 20...	11	37	120	0	780	1800	.5	5.6	4130
JUL 31...	21	42	140	0	2100	3700	.9	7.7	9030
SEP 11...	16	49	110	0	1600	2400	.6	8.5	6210

08412500 PECOS RIVER NEAR ORLA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	1110	18600	12900	38600	5560	16700	2670	8010	****
NOV. 1978.....	1366	14700	10100	37300	4190	15400	2100	7740	****
DEC. 1978.....	755	19800	13600	27800	5940	12100	2830	5770	****
JAN. 1979.....	748	19400	13400	27100	5820	11800	2780	5620	****
FEB. 1979.....	689	18700	12900	24000	5560	10300	2670	4980	****
MAR. 1979.....	629	18900	13000	22100	5630	9570	2710	4600	****
APR. 1979.....	421	20600	14200	16200	6230	7080	2950	3350	****
MAY 1979.....	3671	8760	6050	60000	2170	21500	1260	12500	1590
JUNE 1979.....	5104	8230	5680	78300	1980	27300	1180	16200	1490
JULY 1979.....	3762	8790	6070	61700	2180	22100	1260	12800	1600
AUG. 1979.....	8509	8670	5990	138000	2130	49000	1240	28500	1570
SEPT 1979.....	2779	10300	7150	53600	2710	20300	1480	11100	****
TOTAL	29543	**	**	585000	**	223000	**	121000	**
WTD.AVG.	81	10600	7300	**	2800	**	1500	**	*****

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14600	20600	20100	19400	18900	18600	20800	20000	6650	11400	8500	13100
2	15500	20600	20000	20300	18600	18400	20600	15000	5890	11400	7610	13200
3	16200	20400	20100	20100	18600	18500	20400	9570	8910	11300	8020	13100
4	17000	9280	19900	19500	18700	18400	20400	8710	10500	9290	8090	13000
5	17900	7990	19900	19600	18400	18600	20800	8650	12000	9120	9250	13100
6	18300	9320	20100	19700	18200	18200	21100	8500	12800	10300	9730	9610
7	18600	11200	19900	19900	19300	18200	21300	8490	13000	9810	8450	9700
8	18800	14100	20000	19800	20200	18400	21000	8560	12800	9590	8460	9600
9	19000	15900	19900	19900	19400	18700	20500	8420	10800	9450	8520	9630
10	19100	16200	20100	19700	19100	18400	21000	8400	9450	9370	8580	9660
11	19300	16300	19900	19600	18800	18300	21000	8380	9630	9290	8330	9710
12	19600	17000	20000	19500	18700	18200	21100	8370	8200	9160	8360	9780
13	19500	18100	20100	19800	18600	18400	21200	8350	8160	9090	8380	9770
14	19600	18800	20000	19600	18400	18400	21100	8400	8100	9040	8450	9820
15	19700	19300	20100	19400	18400	18600	21000	8420	8090	8970	8570	10000
16	19600	19600	19900	19200	18300	18200	20600	8630	8050	9040	8760	10500
17	19700	19800	19900	19200	18100	18100	19700	8710	8030	9540	8650	11000
18	19800	20000	19700	19300	18100	18200	20200	8560	7990	9200	8830	11300
19	20000	17800	19500	19400	18200	18700	20600	8710	7970	9120	9540	11200
20	20100	19900	19600	19500	18300	19200	20700	8630	8070	5990	8540	10900
21	20000	19900	19700	19400	18500	19600	20800	8710	9000	6440	8810	10600
22	20000	19800	19600	19100	18400	19800	20900	8770	10400	8350	10000	10400
23	19200	20000	19500	18900	18300	20000	20700	8800	10600	8780	10600	10300
24	15500	20100	19700	19100	18500	20200	20100	8560	11100	9000	11200	10200
25	19700	19900	19400	18900	18600	20400	20200	8750	12000	9170	10200	10200
26	20200	19800	19300	18800	18500	20000	20200	10000	12400	9370	9850	10000
27	20300	20000	19200	19000	18400	20200	20200	11300	11800	11500	9620	10000
28	20500	20000	19300	19100	18300	20200	20100	12600	11900	13300	9490	9900
29	20600	19800	19400	19000	---	19800	19900	10000	11600	14300	11000	9900
30	20500	20000	19300	18900	---	19600	19700	8000	11500	13600	11600	9960
31	20400	---	19100	19000	---	19800	---	7890	---	10000	11700	---
MEAN	19000	17700	19700	19400	18600	19000	20600	9450	9910	9780	9280	10600

08412500 PECOS RIVER NEAR ORLA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

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

08414500 REEVES COUNTY WATER IMPROVEMENT DISTRICT NO. 2 CANAL NEAR MENTONE, TX

LOCATION.--Lat 31°37'57", long 103°34'30", Loving County, Hydrologic Unit 13070001, on right bank 173 ft (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.

AVERAGE DISCHARGE.--33 years (water years 1923-24, 1940, 1943-57, 1965-79), 8.79 ft^3/s (0.249 m^3/s), 6,370 acre-ft/yr (7.85 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 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.00	.00	.00	.00	.00	.00	.00	35	.16	14	4.2
2	.07	.00	.00	.00	.00	.00	.00	.00	1.6	.14	53	8.9
3	.02	.00	.00	.00	.00	.00	.00	.00	1.6	.14	21	10
4	.02	.00	.00	.00	.00	.00	.00	.00	2.7	.15	19	9.7
5	.02	.00	.00	.00	.00	.00	.00	.09	18	.30	16	9.3
6	.07	.00	.00	.00	.00	.00	.00	1.0	16	10	11	9.0
7	.07	.00	.00	.00	.00	.00	.00	1.0	12	16	8.1	10
8	.00	.00	.00	.00	.00	.00	.00	1.0	8.8	16	13	14
9	.00	.00	.00	.00	.00	.00	.00	1.2	7.9	16	16	12
10	.00	.00	.00	.00	.00	.00	.00	2.0	15	16	16	12
11	.00	.00	.00	.00	.00	.00	.00	9.7	17	15	15	12
12	.00	.00	.00	.00	.00	.00	.00	34	20	15	17	11
13	.00	.00	.00	.00	.00	.00	.00	38	8.8	15	13	13
14	.00	.00	.00	.00	.00	.00	.00	28	8.4	15	8.6	21
15	.00	.00	.00	.00	.00	.00	.00	28	9.8	15	7.5	17
16	.00	.00	.00	.00	.00	.00	.00	27	9.3	15	9.4	9.3
17	.00	.00	.02	.00	.00	.00	.00	23	8.4	15	7.9	9.4
18	.00	.00	.02	.00	.00	.00	.00	9.3	8.4	17	7.9	4.5
19	.00	.00	.00	.00	.00	.00	.00	13	8.4	23	16	.44
20	.00	.00	.01	.00	.00	.00	.00	18	8.8	40	21	.39
21	.00	.00	.01	.00	.00	.00	.00	19	8.7	40	16	2.1
22	.00	.00	.01	.00	.00	.00	.00	16	7.2	49	7.4	7.5
23	.11	.00	.01	.00	.00	.00	.00	18	4.3	44	.59	9.1
24	.14	.00	.00	.00	.00	.00	.00	22	1.9	39	.45	8.2
25	.07	.00	.00	.00	.00	.00	.00	34	.33	39	.44	6.6
26	.02	.00	.00	.00	.00	.00	.00	50	.27	37	.44	6.6
27	.02	.00	.00	.00	.00	.00	.00	26	.24	34	.44	6.6
28	.02	.00	.00	.00	.00	.00	.00	16	.24	18	.44	6.6
29	.02	.00	.00	.00	---	.00	.00	30	.20	9.6	2.9	6.3
30	.02	.00	.00	.00	---	.00	.00	50	.20	15	3.9	6.3
31	.02	---	.00	.00	---	.00	---	57	---	8.8	.45	---
TOTAL	.73	.00	.08	.00	.00	.00	.00	572.29	249.48	593.29	343.85	263.03
MEAN	.024	.000	.003	.000	.000	.000	.000	18.5	8.32	19.1	11.1	8.77
MAX	.14	.00	.02	.00	.00	.00	.00	57	35	49	53	21
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.20	.14	.44	.39
AC-FT	1.4	.00	.2	.00	.00	.00	.00	1140	495	1180	682	522

CAL YR 1978 TOTAL 206.57 MEAN .57 MAX 41 MIN .00 AC-FT 410
WTR YR 1979 TOTAL 2022.75 MEAN 5.54 MAX 57 MIN .00 AC-FT 4010

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.

AVERAGE DISCHARGE.--31 years (water years 1940, 1943-57, 1965-79), 8.95 ft^3/s (0.253 m^3/s), 6,480 acre-ft/yr (7.99 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 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	16	.10	.00	.00	.00	.00	.00	16	.17	20	17
2	19	16	.10	.00	.00	.00	.00	.00	31	.16	58	10
3	5.1	15	.10	.00	.00	.00	.00	.00	50	.16	92	4.4
4	.64	32	.08	.00	.00	.00	.00	.00	20	.15	59	2.2
5	.33	34	.03	.00	.00	.00	.00	21	16	.13	59	1.6
6	.20	.29	.01	.00	.00	.00	.00	24	18	.26	62	1.1
7	.15	.17	.02	.00	.00	.00	.00	24	17	.24	28	.88
8	.11	.13	.04	.00	.00	.00	.00	24	15	.19	39	.70
9	.08	.13	.02	.00	.00	.00	.00	24	15	.16	70	.70
10	5.7	.12	.05	.00	.00	.00	.00	31	15	.15	68	.70
11	27	.11	.01	.00	.00	.00	.00	32	16	.13	49	.54
12	25	.10	.00	.00	.00	.00	.00	40	5.9	.12	56	.27
13	23	.09	.00	.00	.00	.00	.00	38	11	.11	66	.19
14	22	.08	.00	.00	.00	.00	.00	39	12	.10	68	.16
15	21	.07	.00	.00	.00	.00	.00	39	12	.10	69	.18
16	20	.09	.00	.00	.00	.00	.00	39	12	.09	69	.15
17	19	.10	.00	.00	.00	.00	.00	39	12	.09	70	.11
18	19	.10	.00	.00	.00	.00	.00	39	20	.15	69	5.8
19	18	.10	.00	.00	.00	.00	.00	39	40	.14	69	29
20	17	.10	.00	.00	.00	.00	.00	38	29	2.0	68	31
21	17	.10	.00	.00	.00	.00	.00	38	4.4	29	68	31
22	17	.10	.00	.00	.00	.00	.00	37	3.8	32	63	30
23	26	.09	.00	.00	.00	.00	.00	36	1.7	15	11	29
24	28	.10	.00	.00	.00	.00	.00	34	.84	15	.10	29
25	27	.10	.00	.00	.00	.00	.00	34	.64	7.6	.10	29
26	23	.09	.00	.00	.00	.00	.00	23	.51	3.9	.10	31
27	21	.10	.00	.00	.00	.00	.00	15	.40	2.6	.10	31
28	19	.10	.00	.00	.00	.00	.00	11	.31	.88	9.2	31
29	17	.11	.00	.00	---	.00	.00	9.6	.29	.16	50	32
30	16	.12	.00	.00	---	.00	.00	18	.29	.07	37	28
31	16	---	.00	.00	---	.00	---	20	---	.92	21	---
TOTAL	545.31	115.79	.56	.00	.00	.00	.00	805.60	396.08	111.93	1467.60	407.68
MEAN	17.6	3.86	.018	.000	.000	.000	.000	26.0	13.2	3.61	47.3	13.6
MAX	76	34	.10	.00	.00	.00	.00	40	50	32	92	32
MIN	.08	.07	.00	.00	.00	.00	.00	.00	.29	.07	.10	.11
AC-FT	1080	230	1.1	.00	.00	.00	.00	1600	786	222	2910	809

CAL YR 1978 TOTAL 1669.50 MEAN 4.57 MAX 189 MIN .00 AC-FT 3310
WTR YR 1979 TOTAL 3850.55 MEAN 10.5 MAX 92 MIN .00 AC-FT 7640

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. An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--35 years (water years 1923-25, 1940, 1942-57, 1965-79), 29.0 ft^3/s (0.821 m^3/s), 21,010 acre-ft/yr (25.9 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 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	.10	.00	.00	.00	.00	.00	.00	.22	.25	15	.00
2	135	.10	.00	.00	.00	.00	.00	.00	.49	.00	23	.00
3	163	.14	.00	.00	.00	.00	.00	.00	.83	.00	24	.00
4	153	.17	.00	.00	.00	.00	.00	17	.58	6.5	12	.00
5	143	.16	.00	.00	.00	.00	.00	65	.01	20	14	.00
6	128	.17	.00	.00	.00	.00	.00	61	.00	20	24	.00
7	116	.10	.00	.00	.00	.00	.00	61	.00	23	20	.00
8	107	.06	.00	.00	.00	.00	.00	59	.00	26	17	.00
9	99	.00	.02	.00	.00	.00	.00	59	.00	36	17	.00
10	92	.00	.05	.00	.00	.00	.00	46	.00	38	25	17
11	72	.00	.15	.00	.00	.00	.00	30	4.7	36	26	60
12	69	.00	.20	.00	.00	.00	.00	22	12	34	26	65
13	64	19	.05	.00	.00	.00	.00	22	10	18	26	65
14	61	17	.00	.00	.00	.00	.00	23	19	23	13	64
15	58	.00	.00	.00	.00	.00	.00	17	23	20	.00	62
16	55	.00	.00	.00	.00	.00	.00	17	22	13	.00	66
17	53	.00	.04	.00	.00	.00	.00	13	22	28	.00	61
18	50	.00	.10	.00	.00	.00	.00	3.3	22	26	.00	48
19	50	.00	.09	.00	.00	.00	.00	14	28	27	.00	57
20	48	.00	.03	.00	.00	.00	.00	9.4	37	27	.00	53
21	47	.00	.00	.00	.00	.00	.00	1.1	37	31	.00	34
22	46	.00	.00	.00	.00	.00	.00	7.7	34	37	4.6	25
23	30	.00	.00	.00	.00	.00	.00	22	30	36	18	21
24	.20	.00	.00	.00	.00	.00	.00	19	22	39	19	21
25	.17	.00	.00	.00	.00	.00	.00	21	29	37	19	21
26	.16	.00	.00	.00	.00	.00	.00	15	23	30	14	19
27	.20	.00	.00	.00	.00	.00	.00	15	14	30	.20	18
28	.20	.00	.00	.00	.00	.00	.00	13	6.1	29	.10	31
29	.11	.00	.00	.00	---	.00	.00	8.9	4.4	26	.10	26
30	.10	.00	.00	.00	---	.00	.00	.00	15	23	.10	32
31	.10	---	.00	.00	---	.00	---	.00	---	22	.00	---
TOTAL	1988.24	37.00	.73	.00	.00	.00	.00	661.40	416.33	761.75	357.10	866.00
MEAN	64.1	1.23	.024	.000	.000	.000	.000	21.3	13.9	24.6	11.5	28.9
MAX	163	19	.20	.00	.00	.00	.00	65	37	39	26	66
MIN	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	3940	73	1.4	.00	.00	.00	.00	1310	826	1510	708	1720

CAL YR 1978	TOTAL	3340.04	MEAN	9.15	MAX 221	MIN .00	AC-FT	6620
WTR YR 1979	TOTAL	5088.55	MEAN	13.9	MAX 163	MIN .00	AC-FT	10090

08431700 LIMPIA CREEK ABOVE FORT DAVIS, TX
(Hydrologic bench-mark station)

LOCATION (revised).--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. Prior to Mar. 1, 1979, at site 600 ft (183 m) upstream.

DRAINAGE AREA.--52.4 mi² (135.7 km²).

WATER-DISCHARGE RECORDS

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

GAGE (revised).--Water-stage recorder. 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 poor. No diversion above station. Recording rain gage at station.

AVERAGE DISCHARGE.--14 years, 2.90 ft³/s (0.0821 m³/s), 0.75 in/yr (19 mm/yr), 2,100 acre-ft/yr (2.59 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,420 ft³/s (96.9 m³/s) Sept. 25, 1978, gage height, 12.63 ft (3.850 m), present datum, from rating curve extended above 150 ft³/s (4.25 m³/s) on basis of slope-area measurements of 1,130, 1,560, and 2,630 ft³/s (32.0, 44.2, and 74.5 m³/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), revised, in 1939, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35 ft³/s (0.99 m³/s) Oct. 1, gage height, 4.58 ft (1.396 m), no peak above base of 1,000 ft³/s (28.3 m³/s); no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.3
2	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.1
3	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.0
4	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.0
5	14	2.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.0
6	11	.83	.00	.00	.00	.00	.00	.00	.00	.00	.00	.91
7	8.7	.60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.91
8	5.8	.35	.00	.00	.00	.00	.00	.00	.00	.00	.00	.91
9	3.7	.24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.91
10	2.3	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.82
11	1.0	.09	.00	.00	.00	.00	.00	.00	.00	.00	.00	.82
12	.70	.07	.00	.00	.00	.00	.00	.00	.00	.00	.00	.82
13	.43	.06	.00	.00	.00	.00	.00	.00	.00	.00	.00	.82
14	.30	.05	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.82
15	.23	.05	.00	.00	.00	.00	.00	.00	.00	.00	.26	.73
16	.18	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	.73
17	.12	.03	.00	.00	.00	.00	.00	.00	.00	.00	1.9	.73
18	.09	.02	.00	.00	.00	.00	.00	.00	.00	.00	5.0	.64
19	.07	.01	.00	.00	.00	.00	.00	.00	.00	.00	2.8	.56
20	.05	.01	.00	.00	.00	.00	.00	.00	.00	.00	2.4	.49
21	.04	.01	.00	.00	.00	.00	.00	.00	.00	.00	2.2	.42
22	.03	.01	.00	.00	.00	.00	.00	.00	.00	.00	2.1	.23
23	.02	.00	.00	.00	.00	.00	.00	.00	.01	.00	2.9	.07
24	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.7	.02
25	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.5	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.1	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.1	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.91	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.91	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	1.2	---
TOTAL	148.78	5.32	.00	.00	.00	.00	.00	.00	.01	.00	31.38	17.76
MEAN	4.80	.18	.000	.000	.000	.000	.000	.000	.000	.000	1.01	.59
MAX	34	2.7	.00	.00	.00	.00	.00	.00	.01	.00	5.0	1.3
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.09	.003	.000	.000	.000	.000	.000	.000	.000	.000	.02	.01
IN.	.11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.01
AC-FT	295	11	.00	.00	.00	.00	.00	.00	.02	.00	62	35

CAL YR 1978 TOTAL 3536.50 MEAN 9.69 MAX 1440 MIN .00 CFSM .19 IN 2.51 AC-FT 7010
WTR YR 1979 TOTAL 203.25 MEAN .56 MAX 34 MIN .00 CFSM .01 IN .14 AC-FT 403

NOTE.--No gage-height record Oct. 11 to Mar. 1.

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 07...	1727	.60	220	15.0	84	14	27	4.1	9.4

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV 07...	.4	3.5	86	0	21	7.3	.4	31	146

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 mi² (1,585 km²).

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.

REMARKS.--Records good. Considerable diversion for irrigation by spreader dams above station.

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.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft³/s (439 m³/s) Aug. 30, 1932, gage height, 10.45 ft (3.185 m), corrected, site and datum then in use; no flow most of times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,020 ft³/s (28.9 m³/s) May 26, gage height, 6.70 ft (2.042 m); no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	33	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.9	.00
4	.59	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.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	.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	.14	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	82	.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	.00	.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	---	.00	.00	---
TOTAL	108.59	.00	.00	.00	.00	.00	.00	82.14	.00	.00	1.91	.00
MEAN	3.50	.000	.000	.000	.000	.000	.000	2.65	.000	.000	.062	.000
MAX	64	.00	.00	.00	.00	.00	.00	82	.00	.00	1.9	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	215	.00	.00	.00	.00	.00	.00	163	.00	.00	3.8	.00

CAL YR 1978	TOTAL	8685.61	MEAN	23.8	MAX	4260	MIN	.00	AC-FT 17230
WTR YR 1979	TOTAL	192.64	MEAN	.53	MAX	82	MIN	.00	AC-FT 382

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.--34 years (water years 1924, 1940-57, 1965-79), 31.5 ft^3/s (0.892 m^3/s), 22,820 acre-ft/yr (28.1 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 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	279	2.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	70
2	277	2.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	54
3	281	1.8	.00	.00	.00	.00	.00	.00	22	.00	.00	40
4	279	3.7	.00	.00	.00	.00	.00	.00	187	.00	.00	3.5
5	269	5.0	.00	.00	.00	.00	.00	.00	225	.00	.00	.01
6	195	4.3	.00	.00	.00	.00	.00	.00	234	.00	55	.00
7	127	4.0	.00	.00	.00	.00	.00	.00	225	.00	183	.00
8	108	50	.00	.00	.00	.00	.00	.00	146	.00	156	.00
9	99	195	.00	.00	.00	.00	.00	.00	89	.00	75	.00
10	89	152	.00	.00	.00	.00	.00	.00	4.6	.00	34	.00
11	79	94	.00	.00	.00	.00	.00	.00	.24	.00	78	.00
12	54	4.7	.00	.00	.00	.00	.00	.00	.00	.00	74	.00
13	3.0	1.1	.00	.00	.00	.00	.00	.00	.00	.00	77	.00
14	.58	.48	.00	.00	.00	.00	.00	.00	.00	.00	103	.00
15	.25	.25	.00	.00	.00	.00	.00	.00	.00	.00	153	.00
16	.03	.21	.00	.00	.00	.00	.00	.00	32	.00	176	.00
17	.00	.06	.00	.00	.00	.00	.00	.00	184	.00	191	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	189	.00	200	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	191	.00	205	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	194	.24	210	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	188	.03	213	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	181	.00	214	.00
23	.14	.00	.00	.00	.00	.00	.00	.00	185	6.8	215	.00
24	4.6	.00	.00	.00	.00	.00	.00	.00	189	165	215	.00
25	4.3	.00	.00	.00	.00	.00	.00	.00	141	100	199	.00
26	2.9	.00	.00	.00	.00	.00	.00	.00	60	27	139	.00
27	3.4	.00	.00	.00	.00	.00	.00	.00	11	16	108	.00
28	3.4	.00	.00	.00	.00	.00	.00	.00	.06	.95	102	.00
29	2.9	.00	.00	.00	---	.00	.00	.00	.00	.00	102	.00
30	2.7	.00	.00	.00	---	.00	.00	.00	.00	.00	90	.00
31	2.7	---	.00	.00	---	.00	---	.00	---	.00	79	---
TOTAL	2166.90	521.20	.00	.00	.00	.00	.00	.00	2877.90	316.02	3646.00	167.51
MEAN	69.9	17.4	.000	.000	.000	.000	.000	.000	95.9	10.2	118	5.58
MAX	281	195	.00	.00	.00	.00	.00	.00	234	165	215	70
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	4300	1030	.00	.00	.00	.00	.00	.00	5710	627	7230	332

CAL YR 1978 TOTAL 4230.32 MEAN 11.6 MAX 281 MIN .00 AC-FT 8390
WTR YR 1979 TOTAL 9695.53 MEAN 26.6 MAX 281 MIN .00 AC-FT 19230

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 472 acre-ft (582,000 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.--30 years (water years 1943-57, 1965-79), 12.6 ft^3/s (0.357 m^3/s), 9,130 acre-ft/yr (11.3 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 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	24	23	15	30
2	.00	.00	.00	.00	.00	.00	.00	.00	22	20	3.5	31
3	.00	.00	.00	.00	.00	.00	.00	.00	20	19	.69	46
4	.00	15	.00	.00	.00	.00	.00	.00	16	19	.05	24
5	.00	2.8	.00	.00	.00	.00	.00	.00	.01	17	.00	15
6	.00	.12	.00	.00	.00	.00	.00	.00	.00	15	.00	14
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	16	.00	14
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	16	.00	14
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	17	30	13
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	16	33	11
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	18	27	2.3
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	17	19	2.0
13	.00	.00	.00	.00	.00	.00	.00	.00	.01	16	16	15
14	.00	.00	.00	.00	.00	.00	.00	.00	29	15	16	25
15	.00	.00	.00	.00	.00	48	.00	39	35	16	19	25
16	.00	.00	.00	.00	.00	41	.00	34	33	12	35	11
17	.00	.00	.00	.00	.00	39	.00	39	19	4.0	38	2.1
18	.00	.00	.00	.00	.00	31	.00	44	19	13	37	2.0
19	.00	.00	.00	.00	.00	34	24	41	35	16	39	2.0
20	.00	.00	.00	.00	.00	33	28	40	57	2.3	50	2.4
21	.00	.00	.00	.00	.00	40	30	36	58	.59	40	2.0
22	.00	.00	.00	.00	.00	81	26	19	59	.03	12	1.5
23	.00	.00	.00	.00	.00	82	11	20	52	.00	14	1.4
24	.00	.00	.00	.00	.00	63	.34	26	45	.00	19	1.3
25	.00	.00	.00	.00	.00	59	3.0	27	34	.00	14	1.3
26	.00	.00	.00	.00	.00	52	1.6	26	34	28	2.2	1.3
27	.00	.00	.00	.00	.00	31	.00	26	36	34	.55	1.4
28	.00	.00	.00	.00	.00	16	.00	24	33	34	.00	.66
29	.00	.00	.00	.00	---	.11	.00	24	30	28	.00	34
30	.00	.00	.00	.00	---	.00	.00	22	29	18	.00	39
31	.00	---	.00	.00	---	.00	---	25	---	14	6.3	---
TOTAL	.00	17.92	.00	.00	.00	650.11	123.94	512.00	719.02	463.92	486.29	384.66
MEAN	.000	.60	.000	.000	.000	21.0	4.13	16.5	24.0	15.0	15.7	12.8
MAX	.00	15	.00	.00	.00	82	30	44	59	34	50	46
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.66
AC-FT	.00	36	.00	.00	.00	1290	246	1020	1430	920	965	763

CAL YR 1978 TOTAL 245.42 MEAN .67 MAX 31 MIN .00 AC-FT 487
WTR YR 1979 TOTAL 3357.86 MEAN 9.20 MAX 82 MIN .00 AC-FT 6660

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.--31 years (water years 1941, 1943-57, 1965-79), 9.57 ft^3/s (0.271 m^3/s), 6,930 acre-ft/yr (8.54 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 1978 TO SEPTEMBER 1979
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	1.2	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.1	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.0	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.0	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.68	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	20	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.2	20	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	14	16	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	20	.02	.00
13	.00	.00	.00	.00	.00	.00	.07	.00	2.8	19	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	16	19	.00	.00
15	.00	.00	.00	.00	.00	15	.00	.57	17	19	.00	.00
16	.00	.00	.00	.00	.00	15	.00	14	17	24	.00	.00
17	.00	.00	.00	.00	.00	8.2	.00	15	15	22	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	15	17	.73	.00	.00
19	.00	.00	.00	.00	.00	.00	13	16	18	.74	.00	.00
20	.00	.00	.00	.00	.00	.00	10	18	20	.70	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	17	24	.58	8.4	.00
22	.00	.00	.00	.00	.00	.00	.00	.07	24	.50	19	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	12	.22	19	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	1.4	.00	20	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	1.3	.00	.51	.00
26	.00	.00	.00	.00	.00	.00	1.3	.00	1.2	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	1.9	.00	1.2	.00	2.9	.00
28	.00	.00	.00	.00	.00	3.0	.00	.00	1.2	.00	2.2	2.3
29	.00	.00	.00	.00	---	17	.00	.00	1.1	.00	1.4	17
30	.00	.00	.00	.00	---	11	.00	.00	1.0	.00	.00	17
31	.00	---	.00	.00	---	.07	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	69.27	26.27	95.64	191.20	147.86	129.56	36.30
MEAN	.000	.000	.000	.000	.000	2.23	.88	3.09	6.37	4.77	4.18	1.21
MAX	.00	.00	.00	.00	.00	17	13	18	24	24	20	17
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	137	52	190	379	293	257	72

CAL YR 1978 TOTAL 79.53 MEAN .22 MAX 24 MIN .00 AC-FT 158
WTR YR 1979 TOTAL 696.10 MEAN 1.91 MAX 24 MIN .00 AC-FT 1380

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.--31 years (water years 1940, 1943-57, 1965-79), 19.8 ft^3/s (0.561 m^3/s), 14,350 acre-ft/yr (17.7 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 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	7.0	8.0	14	32	33	1.8	.14	5.9	1.7	13	3.4
2	113	6.8	7.5	14	32	13	2.4	.14	8.6	1.8	15	3.5
3	122	6.8	7.4	14	31	14	1.8	.09	21	1.9	12	4.1
4	121	10	7.4	14	31	14	1.4	.20	8.9	2.0	9.8	32
5	83	18	7.4	14	31	14	1.4	.20	41	2.2	57	35
6	34	14	7.4	15	31	14	1.4	.04	56	2.2	74	28
7	16	16	7.4	14	31	4.3	1.4	.00	49	2.2	38	24
8	11	21	7.4	14	31	3.6	1.4	.02	13	2.3	21	22
9	1.3	8.1	7.0	14	30	3.5	1.4	.04	62	2.5	6.5	21
10	1.2	2.8	6.8	14	30	2.9	1.2	.06	56	2.6	4.6	23
11	1.3	2.9	6.8	14	26	1.9	1.2	.09	46	2.7	4.1	31
12	1.8	10	6.8	14	35	1.9	1.2	.13	34	2.7	4.1	42
13	5.1	10	6.8	13	49	1.9	1.2	.17	36	2.9	3.7	23
14	5.3	9.8	6.8	12	43	2.1	1.2	.14	29	2.9	4.0	13
15	5.1	8.9	6.8	11	40	2.4	1.0	.09	25	3.0	10	12
16	4.8	7.5	6.8	11	38	2.3	1.0	.09	2.4	3.1	4.4	12
17	4.8	8.5	7.8	10	37	2.2	1.0	.09	2.1	3.2	6.6	13
18	4.8	8.5	17	10	26	2.4	.82	.09	1.9	3.4	8.8	13
19	4.7	8.5	16	10	1.5	2.4	.82	.09	1.9	4.1	10	12
20	4.4	8.1	15	10	1.2	2.5	.65	.10	1.8	7.1	13	18
21	4.4	8.0	15	10	1.2	2.4	.65	.23	1.6	7.1	15	27
22	4.3	8.0	15	10	1.2	2.4	.65	.32	1.7	6.8	17	20
23	7.1	8.0	15	10	19	2.7	.50	13	1.6	7.4	19	34
24	13	8.0	15	10	25	2.7	.40	16	1.4	9.9	20	42
25	7.8	8.0	15	10	1.2	2.8	.40	10	1.3	7.9	12	40
26	7.3	8.0	15	10	.99	2.5	.40	8.2	1.2	5.7	4.7	35
27	8.0	8.0	14	10	1.1	2.1	.26	8.6	1.3	4.6	3.3	34
28	7.7	8.0	14	9.9	30	2.1	.26	8.8	1.3	12	3.1	35
29	7.4	8.0	14	9.7	---	2.1	.26	9.6	1.4	11	3.1	37
30	7.4	8.0	14	16	---	2.1	.14	9.4	1.5	11	3.1	33
31	7.0	---	14	32	---	2.1	---	6.8	---	11	3.4	---
TOTAL	728.0	273.2	330.3	393.6	686.39	164.3	29.61	92.96	515.8	150.9	423.3	722.0
MEAN	23.5	9.11	10.7	12.7	24.5	5.30	.99	3.00	17.2	4.87	13.7	24.1
MAX	122	21	17	32	49	33	2.4	16	62	12	74	42
MIN	1.2	2.8	6.8	9.7	.99	1.9	.14	.00	1.2	1.7	3.1	3.4
AC-FT	1440	542	655	781	1360	326	59	184	1020	299	840	1430

CAL YR 1978 TOTAL 2269.58 MEAN 6.22 MAX 122 MIN .00 AC-FT 4500
WTR YR 1979 TOTAL 4510.36 MEAN 12.4 MAX 122 MIN .00 AC-FT 8950

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 good. Flow is largely regulated by Red Bluff Reservoir (station 08410000). Numerous diversions above station for irrigation.

AVERAGE DISCHARGE.--40 years, 89.5 ft³/s (2.535 m³/s), 64,840 acre-ft/yr (79.9 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, 592 ft³/s (16.8 m³/s) Oct. 7, gage height, 5.89 ft (1.795 m); minimum daily, 4.0 ft³/s (0.11 m³/s) Sept. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	97	80	59	48	30	36	19	20	8.5	11	4.7
2	86	93	79	59	48	31	36	19	19	8.2	10	4.7
3	102	89	77	58	48	31	35	18	21	8.0	11	5.2
4	301	87	75	58	48	32	35	18	15	8.1	10	8.1
5	455	120	74	58	46	32	35	17	14	12	9.6	10
6	556	177	73	58	44	33	34	16	13	25	8.9	7.9
7	569	171	72	58	41	33	34	16	12	31	8.3	7.1
8	411	155	72	58	39	33	34	15	12	30	7.6	5.8
9	220	203	72	58	36	33	39	15	12	25	7.3	4.8
10	108	179	71	58	35	33	30	14	11	26	7.4	4.5
11	74	240	71	59	34	33	20	13	11	24	64	4.2
12	59	210	71	59	34	33	21	12	10	22	34	4.3
13	52	137	71	59	34	33	21	13	30	20	18	4.1
14	46	96	71	58	33	33	22	13	42	18	12	4.0
15	43	70	71	58	32	34	22	13	52	16	10	4.2
16	40	82	71	56	32	33	21	12	28	15	8.4	5.2
17	39	102	69	56	32	34	20	12	19	14	9.0	6.5
18	60	104	69	56	32	34	19	11	15	16	9.9	6.2
19	67	99	69	56	31	34	18	9.9	14	18	9.8	5.7
20	66	90	69	56	29	35	17	9.8	12	17	9.8	6.0
21	61	88	68	56	27	36	16	9.9	40	17	11	6.7
22	60	89	66	55	27	36	16	13	55	23	13	8.0
23	77	88	62	55	27	36	42	17	28	65	10	7.7
24	99	88	58	54	25	37	30	15	19	35	9.2	7.1
25	95	86	58	54	26	37	23	17	15	29	8.0	6.7
26	96	85	58	54	27	38	20	19	14	25	7.3	7.0
27	122	84	58	54	29	40	19	23	12	20	6.8	7.1
28	150	82	59	50	30	39	18	27	11	16	5.9	6.8
29	121	82	58	50	---	39	18	23	10	14	5.9	6.7
30	105	80	58	50	---	38	18	21	9.0	12	6.0	6.4
31	101	---	62	49	---	37	---	19	---	11	5.8	---
TOTAL	4576	3453	2112	1736	974	1070	769	489.6	595.0	628.8	364.9	183.4
MEAN	148	115	68.1	56.0	34.8	34.5	25.6	15.8	19.8	20.3	11.8	6.11
MAX	569	240	80	59	48	40	42	27	55	65	64	10
MIN	39	70	58	49	25	30	16	9.8	9.0	8.0	5.8	4.0
AC-FT	9080	6850	4190	3440	1930	2120	1530	971	1180	1250	724	364

CAL YR 1978 TOTAL 15709.3 MEAN 43.0 MAX 569 MIN 6.3 AC-FT 31160
WTR YR 1979 TOTAL 16951.7 MEAN 46.4 MAX 569 MIN 4.0 AC-FT 33620

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 equation developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 38,900 micromhos Aug. 6, 1965; minimum daily, 790 micromhos Apr. 26, 1957.
WATER TEMPERATURES (1953-59, 1964-68, 1970-79): Maximum daily, 35.0°C 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, 26,700 micromhos June 25; minimum daily, 2,260 micromhos Oct. 6.
WATER TEMPERATURES: Maximum daily, 32.0°C June 7, July 2, 6, 25; minimum daily, 3.0°C Jan. 9.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO
OCT 10...	1150	108	4910	18.0	1600	1500	510	82	600	6.5
NOV 20...	1155	90	13700	13.0	2700	2500	600	280	2100	18
DEC 31...	1132	62	19800	6.0	--	--	--	--	--	--
JAN 10...	1050	58	20800	3.5	3000	2800	460	450	4000	32
FEB 14...	1140	33	21200	12.0	3300	3100	530	480	4100	31
APR 30...	1130	19	23100	19.0	2800	2700	890	130	4800	40
MAY 31...	1230	19	25400	26.0	4800	4800	1000	570	5400	34
JUL 31...	1015	11	17900	30.0	3500	3500	810	370	3200	23
SEP 30...	1845	5.8	22600	27.0	4300	4300	800	570	4100	27

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT 10...	21	120	0	1600	900	.6	14	3790	.040
NOV 20...	34	160	0	2200	3600	1.2	3.0	8900	.000
DEC 31...	--	180	0	--	--	--	--	--	--
JAN 10...	30	230	0	2900	6200	1.6	8.0	14200	.020
FEB 14...	52	200	--	3700	5800	--	--	14800	--
APR 30...	22	78	0	3800	7000	2.0	5.8	16700	.060
MAY 31...	57	56	0	4400	7500	1.9	11	18900	.030
JUL 31...	75	80	--	3600	5200	2.0	11	13300	.070
SEP 30...	73	45	0	4100	6500	2.3	11	16200	--

08446500 PECOS RIVER NEAR GIRVIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	4576	7550	5340	66000	2070	25600	1280	15800	1420
NOV. 1978.....	3453	13500	9550	89000	3710	34600	2290	21300	****
DEC. 1978.....	2112	20200	14300	81400	5930	33800	3290	18700	****
JAN. 1979.....	1736	20600	14600	68300	6230	29200	3290	15400	****
FEB. 1979.....	974	20900	14800	39000	6380	16800	3370	8860	****
MAR. 1979.....	1070	21300	15100	43600	6520	18800	3460	9990	****
APR. 1979.....	769	22300	15800	32700	6860	14300	3680	7630	****
MAY 1979.....	489.6	24400	17300	22900	7660	10100	4180	5520	****
JUNE 1979.....	595	25000	17700	28500	7870	12600	4320	6930	****
JULY 1979.....	628.8	19400	13800	23400	5650	9590	3290	5580	****
AUG. 1979.....	364.9	16900	12000	11800	4660	4590	2880	2830	****
SEPT 1979.....	183.4	20900	14800	7310	6230	3090	3430	1700	****
TOTAL	16951.69	**	**	514000	**	213000	**	120000	**
WTD.AVG.	46	15900	11000	**	4700	**	2600	**	*****

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12500	9590	18700	20500	20600	22000	21600	23400	24600	24600	17900	18300
2	8280	10300	18900	20000	20700	21600	21600	23500	24500	24400	17500	18500
3	7950	11400	19100	20600	20600	21700	21500	23400	24400	24000	17300	18800
4	6730	12800	19300	20700	20500	21800	21600	23300	23000	23700	17000	18700
5	4020	14900	19500	20600	20300	21400	21500	23400	23900	23800	17100	19100
6	2260	16000	19600	20500	20200	20900	21400	23600	24000	23900	17000	19600
7	2660	10900	19800	20700	20500	21000	21800	23700	24100	23300	17200	19800
8	3180	13300	19900	20600	20400	21300	21900	23800	24000	23000	17300	20200
9	4040	10900	20000	20700	20300	21400	21600	23900	23000	22900	17400	20400
10	5320	15200	19900	20800	20600	21500	21800	23900	22500	23900	17200	20300
11	6600	14800	20200	20900	20900	21700	21800	24300	24300	23000	17300	20700
12	7950	8890	20300	20800	20800	21900	22000	24400	24600	21700	17600	20800
13	9310	10000	20300	20500	20900	21700	22100	24500	24700	19100	17900	20600
14	10500	14100	20400	20700	21000	21800	22300	24500	24900	18000	17800	21300
15	11600	14300	20500	20600	21100	21800	22000	24600	24100	17200	17800	21500
16	12400	14100	20400	20500	21300	21600	21800	24500	24500	16600	17600	21200
17	13300	13200	20500	20600	21200	21400	22200	24200	25600	15800	17000	21700
18	14300	12100	20400	20600	21300	21600	22700	24800	26200	15300	16700	22400
19	14600	12000	20500	20500	21400	21400	22600	24700	26500	15000	16000	21900
20	14400	13800	20400	20500	21500	21300	22900	24500	26300	14900	15600	20800
21	13900	14100	20700	20400	21500	21200	23600	24700	26500	14900	15500	21700
22	15200	14800	20600	20500	21400	20900	23400	25000	25800	16000	15400	21900
23	16200	15100	20700	20400	21500	21000	23100	25100	25500	16500	15500	21700
24	16600	15500	20600	20300	21700	21200	23000	25200	26100	17500	15400	21500
25	14000	15900	20700	20400	21800	21100	23500	25000	26700	18000	15600	21900
26	14300	16400	20800	20600	21700	21200	23800	25000	26500	19300	15800	21300
27	14000	17200	20900	20400	21600	21000	23700	25200	26100	19600	16000	22000
28	15100	17200	20900	20600	21000	20400	23200	25100	25600	19300	16300	22000
29	13800	17500	20800	20700	---	20600	22900	25200	24900	18900	16800	21900
30	13400	17900	20800	20700	---	20900	23100	25200	24300	18200	16700	22600
31	12800	---	20300	20800	---	21100	---	25300	---	17900	17300	---
MEAN	10700	13800	20200	20600	21000	21300	22400	24400	24900	19700	16800	20800

08446500 PECOS RIVER NEAR GIRVIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	21.0	18.0	6.0	9.0	17.0	21.0	21.0	24.0	30.0	30.0	26.0
2	26.0	21.0	17.0	6.0	10.0	18.0	16.0	24.0	25.0	32.0	30.0	31.0
3	25.0	20.0	12.0	7.0	10.0	11.0	17.0	22.0	26.0	24.0	27.0	30.0
4	25.0	20.0	14.0	9.0	8.0	15.0	19.0	17.0	25.0	26.0	30.0	27.0
5	24.0	19.0	14.0	6.0	7.0	12.0	18.0	22.0	25.0	29.0	30.0	27.0
6	22.0	16.0	10.0	6.0	11.0	14.0	19.0	25.0	27.0	32.0	30.0	26.0
7	23.0	17.0	9.0	6.0	11.0	18.0	23.0	24.0	32.0	31.0	29.0	29.0
8	22.0	17.0	7.0	5.0	14.0	15.0	23.0	24.0	27.0	31.0	30.0	30.0
9	24.0	19.0	6.0	3.0	10.0	15.0	19.0	25.0	30.0	29.0	29.0	29.0
10	24.0	19.0	9.0	6.0	11.0	13.0	20.0	24.0	27.0	30.0	26.0	25.0
11	25.0	16.0	9.0	9.0	14.0	18.0	17.0	20.0	28.0	29.0	26.0	29.0
12	25.0	17.0	8.0	14.0	15.0	18.0	17.0	21.0	24.0	26.0	28.0	30.0
13	20.0	17.0	7.0	7.0	16.0	18.0	17.0	25.0	27.0	30.0	29.0	28.0
14	22.0	20.0	7.0	7.0	18.0	12.0	25.0	21.0	29.0	30.0	31.0	26.0
15	22.0	15.0	8.0	5.0	18.0	12.0	24.0	22.0	28.0	30.0	30.0	21.0
16	---	13.0	10.0	9.0	10.0	13.0	23.0	24.0	26.0	---	30.0	20.0
17	22.0	14.0	10.0	11.0	9.0	15.0	23.0	20.0	28.0	31.0	30.0	19.0
18	23.0	15.0	15.0	13.0	7.0	19.0	24.0	27.0	30.0	28.0	29.0	20.0
19	23.0	15.0	16.0	13.0	10.0	18.0	23.0	27.0	30.0	27.0	27.0	25.0
20	20.0	15.0	13.0	12.0	14.0	20.0	26.0	20.0	27.0	27.0	27.0	27.0
21	22.0	14.0	12.0	12.0	12.0	21.0	24.0	25.0	29.0	28.0	27.0	27.0
22	20.0	18.0	13.0	10.0	10.0	17.0	26.0	26.0	30.0	27.0	30.0	24.0
23	15.0	19.0	12.0	8.0	11.0	18.0	22.0	28.0	29.0	27.0	29.0	24.0
24	15.0	19.0	12.0	8.0	14.0	18.0	23.0	27.0	30.0	31.0	26.0	25.0
25	18.0	18.0	13.0	7.0	12.0	20.0	24.0	25.0	30.0	32.0	27.0	27.0
26	20.0	17.0	10.0	5.0	11.0	18.0	22.0	22.0	25.0	29.0	27.0	26.0
27	17.0	18.0	7.0	4.0	12.0	18.0	26.0	25.0	27.0	30.0	26.0	27.0
28	20.0	17.0	6.0	7.0	15.0	21.0	24.0	24.0	31.0	27.0	25.0	27.0
29	20.0	---	14.0	9.0	---	20.0	21.0	25.0	31.0	29.0	30.0	28.0
30	20.0	19.0	10.0	8.0	---	19.0	19.0	28.0	26.0	25.0	27.0	27.0
31	21.0	---	6.0	8.0	---	23.0	---	26.0	---	30.0	28.0	---
MEAN	21.5	17.5	11.0	8.0	12.0	17.0	21.5	23.5	28.0	29.0	28.5	26.0

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 mi² (1,976 km²).

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 m³) and 530 acre-ft (653,000 m³) annually, respectively. National Weather Service rain gage and gage-height satellite telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 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, 78,100 ft³/s (2,210 m³/s) Sept. 20, 1974, gage height, 16.74 ft (5.102 m), from rating curve extended above 130 ft³/s (3.68 m³/s) on basis of slope-area measurement of peak flow; minimum, 13 ft³/s (0.37 m³/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 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 5	2345	*3,480	98.6	5.30	1.615
July 19	2000	2,610	73.9	4.77	1.454

Minimum daily discharge, 19 ft³/s (0.54 m³/s) July 13-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	24	35	40	29	30	31	30	27	22	35	25
2	25	26	35	38	29	31	31	30	26	22	31	24
3	25	26	35	37	29	31	31	30	27	22	29	24
4	25	67	35	36	31	31	30	28	28	22	28	28
5	25	894	36	36	36	31	30	28	33	21	27	25
6	23	1010	36	35	32	31	29	28	29	21	27	25
7	23	64	36	34	31	31	30	28	27	21	26	25
8	23	48	37	34	30	31	30	27	25	22	26	25
9	23	45	37	34	30	31	29	27	26	23	26	25
10	24	43	37	34	30	31	30	27	26	21	27	24
11	23	41	37	33	29	31	29	27	26	20	28	23
12	22	40	37	34	30	32	28	27	26	20	28	23
13	23	40	35	33	30	33	28	27	25	19	28	22
14	23	39	34	33	30	33	28	27	25	19	26	21
15	22	39	35	33	30	31	28	27	24	19	27	21
16	22	38	35	33	30	32	28	27	24	20	26	21
17	22	37	35	33	30	33	29	28	23	20	26	22
18	22	35	35	33	30	34	31	28	23	20	26	23
19	22	34	36	33	30	34	30	27	24	337	26	23
20	23	33	37	32	30	34	36	28	24	103	24	22
21	22	32	38	31	30	34	44	29	24	46	24	22
22	23	33	39	31	30	33	38	28	23	39	25	22
23	39	33	39	31	30	33	37	27	23	36	26	22
24	32	33	41	30	30	32	36	27	23	35	28	22
25	29	33	43	30	30	31	35	27	23	33	25	23
26	27	34	43	30	30	31	33	28	23	31	26	23
27	26	34	43	29	30	31	33	27	23	30	25	24
28	25	34	43	29	30	31	32	29	23	29	24	22
29	24	35	43	29	---	31	30	27	23	30	24	23
30	24	35	43	29	---	31	30	26	23	30	28	23
31	24	---	43	29	---	31	---	24	---	29	27	---
TOTAL	761	2959	1173	1016	846	985	944	855	749	1182	829	697
MEAN	24.5	98.6	37.8	32.8	30.2	31.8	31.5	27.6	25.0	38.1	26.7	23.2
MAX	39	1010	43	40	36	34	44	30	33	337	35	28
MIN	22	24	34	29	29	30	28	24	23	19	24	21
AC-FT	1510	5870	2330	2020	1680	1950	1870	1700	1490	2340	1640	1380

CAL YR 1978 TOTAL 11231 MEAN 30.8 MAX 1010 MIN 18 AC-FT 22280
WTR YR 1979 TOTAL 12996 MEAN 35.6 MAX 1010 MIN 19 AC-FT 25780

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.

REMARKS.--Records of specific conductance and discharge for water year 1979 are given in International Boundary and Water Commission Water Bulletins Nos. 48 and 49.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 25...	0935	257	2830	7.9	17.5	4.0	8.3	8	.3	53	96
NOV 29...	1000	340	4100	7.9	14.0	4.0	8.4	84	.4	65	56
DEC 27...	1040	286	4350	7.9	10.0	3.0	10.0	94	.4	12	22
JAN 24...	0950	264	4640	8.0	9.0	3.0	10.2	94	.4	4	15
FEB 28...	1005	228	4440	7.9	13.0	2.0	10.1	100	.4	4	15
MAR 28...	0930	228	4380	7.8	19.0	3.0	9.9	116	.8	8	31
APR 18...	0910	201	4280	7.5	23.5	4.0	7.5	93	.8	8	12
MAY 16...	0940	150	4740	7.9	23.0	1.3	7.7	95	1.9	16	21
JUN 20...	0925	253	2000	7.8	2.7	2.4	7.6	101	.8	28	24
JUL 18...	0955	165	2400	7.8	29.0	3.6	7.2	99	.7	62	43
AUG 15...	1035	220	2080	7.8	27.5	1.7	8.0	104	.0	75	8
SEP 12...	0920	169	2400	8.0	28.0	1.5	7.8	94	.4	32	22

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 25...	630	500	160	56	350	6.1	8.5	162	0	460
NOV 29...	890	710	190	100	560	8.2	11	210	0	580
DEC 27...	840	690	190	89	650	9.8	11	190	0	630
JAN 24...	--	18	--	--	--	--	--	210	0	--
FEB 28...	840	690	190	88	650	9.8	12	176	0	590
MAR 28...	820	680	180	89	600	9.1	10	168	0	580
APR 18...	690	560	170	65	650	11	11	156	0	590
MAY 16...	640	520	140	70	460	7.9	8.9	144	0	430
JUN 20...	410	260	99	40	260	5.6	5.6	180	0	250
JUL 18...	440	300	100	45	320	6.7	6.0	176	0	280
AUG 15...	420	280	100	41	260	5.5	5.7	170	0	260
SEP 12...	430	300	100	43	330	7.0	6.9	160	0	290

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	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)
OCT 25...	570	.7	14	1780	1700	.99	.01	1.0	.03	.27
NOV 29...	860	.7	13	2580	2420	.60	.01	.61	.01	.33
DEC 27...	980	.7	11	2810	2660	1.5	.01	1.5	.02	.38
JAN 24...	--	--	--	--	--	1.5	.02	1.5	.02	.38
FEB 28...	1100	.9	11	2850	2730	1.1	.02	1.1	.04	.28
MAR 28...	1000	.9	9.2	2790	2550	.38	.02	.40	.02	.32
APR 18...	1000	.8	9.0	2670	2570	--	--	--	--	--
MAY 16...	750	.8	8.7	2050	1940	.49	.04	.53	.05	.32
JUN 20...	410	.7	13	1210	1170	.84	.02	.86	.02	.39
JUL 18...	480	.8	16	1320	1330	.74	.04	.78	.03	.45
AUG 15...	430	.7	17	1260	1200	.91	.02	.93	.02	.61
SEP 12...	490	.8	17	1320	1360	.93	.04	.97	.02	.62

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 25...	.30	.33	.010	.000	--	1.4	.4	11	7.6	92
NOV 29...	.34	.30	.020	.010	1.6	--	--	19	17	100
DEC 27...	.40	.31	.020	.030	1.5	--	--	8	6.2	49
JAN 24...	.40	.37	.000	.000	--	--	--	8	5.7	65
FEB 28...	.32	.34	.000	.030	--	3.5	.5	15	9.2	88
MAR 28...	.34	.19	.000	.000	1.4	--	--	20	12	73
APR 18...	--	--	--	--	--	--	--	9	4.9	97
MAY 16...	.37	.31	.010	.010	2.5	--	--	21	8.5	80
JUN 20...	.41	--	.020	--	--	8.1	.8	14	9.6	95
JUL 18...	.48	.36	.010	.040	2.7	--	--	14	6.2	80
AUG 15...	.63	.39	1.00	.020	--	4.9	.5	25	15	76
SEP 12...	.64	.43	.000	.000	4.6	--	--	21	9.6	67

DATE	TIME	ARSENIC 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)
OCT 25...	0935	1	1	0	0	0	0	0	0	0
FEB 28...	1005	1	1	200	200	0	1	1	0	10
JUN 20...	0925	1	1	100	0	100	2	1	1	10
AUG 15...	1035	1	1	200	200	0	0	0	0	10

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)
OCT 25...	0	0	0	0	0	3	2	1	50	40
FEB 28...	0	10	2	2	0	5	4	1	50	40
JUN 20...	10	0	0	0	2	1	1	0	80	70
AUG 15...	0	10	0	0	0	1	0	1	80	70

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
OCT 25...	10	0	0	0	20	0	20	.0	.0	.2
FEB 28...	10	5	5	0	20	20	0	.0	.0	.0
JUN 20...	10	4	4	0	0	0	0	.2	.1	.1
AUG 15...	10	1	1	0	10	10	0	.4	.4	.0

DATE	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 25...	1	1	0	0	0	0	10	10	0
FEB 28...	1	0	2	1	1	0	20	10	10
JUN 20...	1	0	1	0	0	0	10	10	0
AUG 15...	0	0	0	0	0	0	10	0	10

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV 29...	1000	ND	--	ND	--	ND	--	ND	--	ND	--
FEB 28...	1005	ND	--	ND	--	ND	--	ND	--	ND	--
JUN 20...	0925	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 15...	1035	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV 29...	ND	--	ND	--	ND	--	ND	--	ND	--
FEB 28...	ND	--	ND	--	ND	--	ND	--	ND	--
JUN 20...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 15...	ND	--	ND	--	ND	--	ND	--	ND	--

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)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
NOV 29...	ND	--	ND	--	ND	--	ND	--	ND	--
FEB 28...	ND	--	ND	--	ND	--	ND	--	ND	--
JUN 20...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 15...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI-THION, TOTAL (UG/L)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA-THION, TOTAL (UG/L)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV 29...	ND	--	ND	--	ND	--	ND	--	ND	--
FEB 28...	ND	--	ND	--	ND	--	ND	--	ND	--
JUN 20...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 15...	ND	--	ND	--	ND	--	ND	--	ND	--

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	NOV 29,78		MAR 28,79		MAY 16,79		JUN 20,79	
TIME	1000		0930		0940		0925	
TOTAL CELLS/ML	7200		270		140		140	
DIVERSITY: DIVISION	0.3		1.4		1.1		1.0	
.CLASS	0.3		1.4		1.1		1.0	
..ORDER	0.3		1.5		1.1		1.8	
...FAMILY	0.3		3.1		1.5		2.1	
....GENUS	0.5		3.1		2.0		2.1	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	40#	15	--	-	--	-
...MICRACTINIACEAE								
....GOLENKINIA	--	-	10	4	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	--	-	--	-
....CHODATELLA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	52#	36
....SCENEDESMUS	--	-	30	11	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	5	2	13	9	13	9
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	69	1	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	6600#	92	--	-	--	-	26#	18
....MELOSIRA	210	3	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	--	-
...CYMBELLACEAE								
....AMPHORA	--	-	--	-	--	-	--	-
....CYMBELLA	--	-	45#	17	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	10	4	--	-	--	-
....SYNEDRA	--	-	5	2	--	-	13	9
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	5	2	--	-	--	-
...NAVICULACEAE								
....ENTOMONEIS	--	-	45#	17	--	-	--	-
....NAVICULA	--	-	--	-	26#	18	--	-
....STAURONEIS	--	-	--	-	65#	45	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	45#	17	13	9	39#	27
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	280	4	20	8	26#	18	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	5	2	--	-	--	-

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 1978 TO SEPTEMBER 1979

DATE	JUL 18,79	AUG 15,79	SEP 12,79
TIME	0955	1035	0920
TOTAL CELLS/ML	1900	430	10000
DIVERSITY: DIVISION	1.4	1.4	0.1
.CLASS	1.4	1.4	0.1
..ORDER	1.4	1.7	0.2
...FAMILY	2.1	1.7	0.2
....GENUS	2.2	1.8	0.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...HYDRODICTYACEAE.						
....PEDIASTRUM	--	-	--	-	--	-
...MICRACTINIACEAE						
....GOLENKINIA	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	24	1	--	-	*	0
....CHODATELLA	--	-	--	-	*	0
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	52	12	--	-
....SCENEDESMUS	37	2	13	3	55	1
....TETRASTRUM	73	4	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	13	3	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	52	12	--	-
....MELOSIRA	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	73	4	--	-	--	-
...CYMBELLACEAE						
....AMPHORA	--	-	--	-	*	0
....CYMBELLA	24	1	--	-	--	-
...DIATOMACEAE						
....DIATOMA	37	2	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	--	-
....SYNEDRA	61	3	--	-	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
....ENTOMONEIS	--	-	--	-	--	-
....NAVICULA	220	12	--	-	--	-
....STAURONEIS	--	-	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	200	10	13	3	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	37	2	13	3	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	1100#	58	--	-	--	-
....ANACYSTIS	--	-	270#	64	150	1
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	10000#	97
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%

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	LENGTH OF EXPO-SURE (DAYS)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS)
MAR						
28...	28	5.75	7.17	1.92	.000	--
AUG						
15...	28	1.34	1.57	.360	.000	639

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.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 422 micromhos Feb. 18, 1978; minimum daily, 200 micoromhos May 21, 1979.
WATER TEMPERATURES: Maximum daily, 300°C on many days during summer months; minimum daily, 4.0 °C January 14, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 415 micromhos Feb. 21; minimum daily, 200 micromhos May 21.
WATER TEMPERATURES: Minimum daily, 4.0°C January 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 24...	1220	325	400	7.9	19.0	2.0	8.5	94	.3	24	44
NOV 28...	1200	360	460	7.9	14.5	2.0	8.8	89	.3	22	19
DEC 26...	1250	320	420	7.9	12.0	2.0	9.0	89	.7	23	18
JAN 23...	1155	336	334	8.1	9.5	10	9.6	89	.6	3	30
FEB 27...	1310	314	440	8.1	14.5	5.0	10.0	101	.8	2	7
MAR 27...	1145	310	382	7.6	19.0	2.0	9.0	105	.7	10	34
APR 17...	1105	300	373	7.6	23.0	4.0	9.0	107	.6	9	12
MAY 15...	1110	270	395	7.7	20.5	1.2	9.1	107	1.8	11	10
JUN 19...	1140	408	408	7.5	25.0	3.1	8.3	105	.4	12	11
JUL 17...	1110	325	385	7.9	27.0	6.4	8.8	114	.3	35	22
AUG 14...	1155	310	350	7.8	25.0	2.5	8.5	106	.0	34	36
SEP 11...	1115	287	400	7.8	24.0	3.7	8.6	105	.0	18	36

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 24...	190	23	54	13	7.9	.3	1.3	202	0	14
NOV 28...	180	0	52	13	8.3	.3	1.3	230	0	11
DEC 26...	200	10	58	13	7.4	.2	1.5	230	0	6.3
JAN 23...	190	22	54	14	8.2	.3	1.0	208	0	7.8
FEB 27...	200	17	56	14	8.3	.3	1.2	220	0	7.8
MAR 27...	190	13	51	14	8.1	.3	1.2	210	0	11
APR 17...	170	0	46	13	8.5	.3	1.3	210	0	7.8
MAY 15...	180	14	49	14	8.3	.3	1.5	202	0	11
JUN 19...	190	20	54	13	8.0	.3	1.5	206	0	13
JUL 17...	180	2	50	14	8.0	.3	1.4	220	0	11
AUG 14...	190	22	53	13	8.7	.3	1.4	200	0	15
SEP 11...	170	9	48	13	8.1	.3	1.5	200	0	14

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	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)
OCT 24...	18	.3	14	209	222	1.9	.01	1.9	.01	.29
NOV 28...	18	.3	15	213	232	2.0	.01	2.0	.01	.53
DEC 26...	14	.3	14	235	228	2.1	.01	2.1	.01	.30
JAN 23...	16	.3	13	208	217	2.1	.02	2.1	.04	.24
FEB 27...	17	.3	13	275	226	2.0	.02	2.0	.03	.17
MAR 27...	18	.3	13	204	220	.88	.02	.90	.08	.07
APR 17...	12	.3	14	197	206	1.7	.02	1.7	.03	.33
MAY 15...	15	.4	13	201	212	1.6	.04	1.6	.06	.26
JUN 19...	14	.3	11	198	217	1.5	.04	1.5	.03	.26
JUL 17...	16	.3	16	200	225	1.5	.04	1.5	.08	2.1
AUG 14...	15	.3	14	197	219	1.6	.04	1.6	.02	.30
SEP 11...	15	.3	15	--	213	1.5	.06	1.6	.02	.30

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 24...	.30	.27	.010	.000	--	1.5	.4	5	4.4	88
NOV 28...	.54	.47	.010	.010	1.7	--	--	4	3.9	90
DEC 26...	.31	.35	.020	.020	--	--	--	9	7.8	80
JAN 23...	.28	.12	.010	.010	--	--	--	21	19	82
FEB 27...	.20	.22	.000	.050	--	2.9	.4	8	6.8	98
MAR 27...	.15	.14	.000	.010	.9	--	--	11	9.2	94
APR 17...	.36	.19	.010	.000	3.2	--	--	12	9.7	98
MAY 15...	.32	.29	.010	.010	1.8	--	--	12	8.7	90
JUN 19...	.29	.25	.040	.020	--	2.5	2.0	26	29	98
JUL 17...	2.2	.52	.010	.040	8.9	--	--	18	16	98
AUG 14...	.32	.12	.000	.000	--	.9	.6	16	13	100
SEP 11...	.32	.44	.010	.000	1.7	--	--	24	19	99

DATE	LENGTH OF EXPOSURE (DAYS)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS)
MAR 27...	28	43.1	44.1	2.52	.000	--
AUG 14...	28	17.3	17.9	.310	.000	1935

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC 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										
24...	1220	1	1	0	0	0	0	0	0	0
FEB										
27...	1310	1	1	100	0	100	1	1	0	10
JUN										
19...	1140	1	1	100	0	200	1	0	1	10
AUG										
14...	1155	1	1	100	0	100	0	0	1	20

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, 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)
OCT										
24...	0	0	2	2	0	3	3	0	60	50
FEB										
27...	10	0	2	2	0	4	3	1	30	20
JUN										
19...	0	10	0	0	2	2	2	0	100	90
AUG										
14...	10	10	0	0	<3	1	0	1	60	50

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
OCT										
24...	10	3	3	0	30	30	0	.0	.0	.0
FEB										
27...	10	8	8	0	10	10	0	.0	.0	.0
JUN										
19...	10	20	20	0	10	10	0	.1	.0	.2
AUG										
14...	<10	4	4	0	10	9	1	.3	.3	.0

DATE	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									
24...	0	0	1	0	0	0	20	10	10
FEB									
27...	1	0	1	1	1	0	20	10	10
JUN									
19...	1	1	0	0	0	0	10	10	0
AUG									
14...	0	0	0	0	0	0	10	0	10

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	NOV 28,78	MAR 27,79	MAY 15,79	JUN 19,79
TIME	1200	1145	1110	1140
TOTAL CELLS/ML	260	1800	1500	1800
DIVERSITY: DIVISION	1.1	1.1	0.3	1.7
.CLASS	1.1	1.1	0.3	1.7
..ORDER	1.1	1.5	0.5	2.0
...FAMILY	1.4	2.6	0.6	2.6
....GENUS	1.4	2.7	0.6	2.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...HYDRODICTYACEAE								
....PEDIASTRUM	14	6	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	310#	17
....SCENEDESMUS	--	-	91	5	--	-	100	6
....TETRASTRUM	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	15	1	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	30	2	--	-	13	1
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	45	3	13	1	--	-
...CYMBELLACEAE								
....CYMBELLA	--	-	140	8	13	1	65	4
....EPITHEMIA	--	-	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	--	-	140	8
...FRAGILARIACEAE								
....FRAGILARIA	--	-	50	3	26	2	--	-
....SYNEDRA	29	11	*	0	--	-	65	4
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	10	1	--	-	39	2
...NAVICULACEAE								
....CALONEIS	--	-	--	-	--	-	--	-
....DIPLONEIS	--	-	--	-	--	-	39	2
....NAVICULA	14	6	35	2	26	2	91	5
...NITZSCHIACEAE								
....NITZSCHIA	14	6	120	7	13	1	78	4
...TABELLARIACEAE								
....TABELLARIA	--	-	10	1	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	81	5	--	-	--	-
....ANACYSTIS	--	-	15	1	26	2	100	6
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	780#	44	--	-	740#	40
....APHANIZOMENON	190#	72	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	350#	20	1400#	92	--	-
....SCHIZOTHRIX	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	--	-	26	1
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	13	1

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

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	JUL 17,79	AUG 14,79	SEP 11,79
TIME	1110	1155	1115
TOTAL CELLS/ML	1500	2600	1100
DIVERSITY: DIVISION	1.3	0.2	1.0
.CLASS	1.3	0.2	1.0
..ORDER	1.4	0.6	1.0
...FAMILY	2.3	0.7	1.7
....GENUS	2.4	0.7	1.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...HYDRODICTYACEAE						
....PEDIASTRUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	12	1	--	-	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	--	-
....SCENEDESMUS	74	5	--	-	140	13
....TETRASTRUM	*	0	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	*	0	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	56	4	--	-	--	-
...CYMBELLACEAE						
....CYMBELLA	99	6	--	-	14	1
....EPITHEMIA	*	0	--	-	--	-
...DIATOMACEAE						
....DIATOMA	25	2	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	14	1
....SYNEDRA	43	3	26	1	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	31	2	--	-	--	-
...NAVICULACEAE						
....CALONEIS	--	-	--	-	14	1
....DIPLONEIS	--	-	--	-	--	-
....NAVICULA	210	14	26	1	--	-
...NITZSCHIACEAE						
....NITZSCHIA	110	7	26	1	69	6
...TABELLARIACEAE						
....TABELLARIA	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	25	2	--	-	--	-
....ANACYSTIS	--	-	190	7	--	-
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	160	15
....APHANIZOMENON	--	-	--	-	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	2300#	89	690#	63
....SCHIZOTHRIX	830#	54	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	--	-	*	0	--	-

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

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	10185	368	200	5620	14	398	10	269	170
NOV. 1978.....	11013	377	210	6240	15	442	10	295	180
DEC. 1978.....	10689	382	210	6120	15	434	10	289	180
JAN. 1979.....	10333	383	210	5940	15	420	10	279	180
FEB. 1979.....	8932	387	210	5180	15	366	10	246	180
MAR. 1979.....	9539	376	210	5390	15	381	10	255	180
APR. 1979.....	8688	367	200	4790	14	338	10	232	170
MAY 1979.....	12490	309	170	5770	12	408	8	271	150
JUNE 1979.....	12498	363	200	6820	14	483	10	322	170
JULY 1979.....	10115	364	200	5530	14	390	10	266	170
AUG. 1979.....	9515	356	200	5080	14	358	9	239	170
SEPT 1979.....	8651	359	200	4670	14	329	9	219	170
TOTAL	122648	**	**	67100	**	4750	**	3180	**
WTD.AVG.	336	365	200	**	14	**	9.6	**	170

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	360	361	383	388	406	379	369	372	368	363	349	357
2	362	360	381	391	401	380	370	354	386	360	348	359
3	362	352	376	342	395	389	364	365	380	366	339	358
4	362	364	386	383	389	385	371	360	376	360	344	361
5	374	375	385	353	399	345	368	374	372	367	333	360
6	356	381	384	357	360	389	365	345	365	366	364	362
7	354	383	383	375	366	353	364	355	376	366	368	332
8	359	376	367	388	399	391	365	365	368	372	346	351
9	363	381	394	372	368	380	365	354	372	366	355	362
10	383	383	397	370	381	378	371	356	355	369	351	361
11	379	379	400	372	390	376	375	373	325	366	354	361
12	346	375	378	395	395	365	376	361	345	350	355	365
13	357	380	382	393	406	375	373	373	360	366	356	363
14	362	372	373	358	404	385	369	368	376	367	354	366
15	367	371	366	379	401	387	367	367	379	368	353	369
16	370	372	369	377	362	384	365	363	370	368	355	364
17	381	391	374	382	385	387	375	370	360	370	357	373
18	363	377	377	388	339	373	370	365	354	371	355	375
19	365	383	371	383	395	369	354	356	360	372	356	372
20	368	381	370	393	381	368	363	361	366	364	356	346
21	370	381	374	385	415	362	362	200	372	358	364	371
22	379	386	378	373	402	376	357	240	354	355	356	342
23	375	383	380	393	366	377	362	290	353	358	358	352
24	371	387	387	400	380	385	366	340	358	365	360	352
25	375	377	388	383	389	383	348	362	360	371	362	338
26	376	373	398	385	391	380	365	384	360	370	366	366
27	385	374	390	395	390	383	370	387	356	369	366	362
28	386	378	383	403	384	375	373	390	368	362	368	360
29	368	380	384	399	---	371	368	373	372	355	367	359
30	376	387	393	403	---	360	376	383	374	351	366	358
31	371	---	390	409	---	369	---	387	---	365	363	---
MEAN	369	377	382	383	387	376	367	355	365	364	356	359

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	20.0	---	---	7.0	12.0	---	20.0	21.0	22.0	24.0	
2	22.0	24.0	---	8.0	12.0	18.0	19.0	20.0	21.0	21.0	23.0	
3	23.0	20.0	---	7.0	14.0	15.0	23.0	20.0	---	23.0	27.0	
4	25.0	20.0	12.0	9.0	15.0	13.0	22.0	15.0	23.0	23.0	27.0	
5	22.0	20.0	13.0	9.0	12.0	11.0	22.0	20.0	22.0	23.0	29.0	
6	20.0	16.0	14.0	9.0	9.0	14.0	21.0	20.0	24.0	24.0	28.0	
7	---	15.0	12.0	8.0	10.0	13.0	20.0	20.0	28.0	24.0	28.0	
8	24.0	---	8.0	8.0	10.0	13.0	24.0	25.0	26.0	25.0	28.0	
9	20.0	17.0	5.0	5.0	9.0	14.0	20.0	25.0	22.0	24.0	23.0	
10	20.0	17.0	6.0	8.0	10.0	---	20.0	25.0	---	25.0	22.0	
11	20.0	20.0	7.0	11.0	13.0	10.0	15.0	20.0	20.0	25.0	---	
12	25.0	20.0	---	10.0	15.0	13.0	15.0	20.0	26.0	29.0	25.0	
13	23.0	20.0	---	10.0	14.0	16.0	15.0	25.0	26.0	22.0	23.0	
14	---	20.0	---	4.0	15.0	15.0	20.0	25.0	24.0	---	23.0	
15	19.0	15.0	---	5.0	16.0	16.0	25.0	20.0	22.0	25.0	22.0	
16	18.0	14.0	---	7.0	10.0	---	20.0	18.0	---	23.0	21.0	
17	20.0	15.0	---	10.0	7.0	16.0	25.0	20.0	---	---	21.0	
18	20.0	16.0	---	16.0	7.0	17.0	25.0	20.0	25.0	24.0	22.0	
19	20.0	16.0	---	16.0	9.0	19.0	20.0	22.0	26.0	24.0	27.0	
20	---	17.0	---	12.0	14.0	20.0	20.0	20.0	---	24.0	22.0	
21	18.0	17.0	---	---	11.0	21.0	20.0	20.0	22.0	24.0	24.0	
22	18.0	16.0	---	12.0	14.0	19.0	25.0	20.0	24.0	24.0	25.0	
23	20.0	17.0	14.0	10.0	16.0	19.0	25.0	25.0	26.0	27.0	23.0	
24	18.0	15.0	14.0	9.0	18.0	20.0	25.0	25.0	---	---	---	
25	20.0	20.0	12.0	---	11.0	---	28.0	20.0	28.0	25.0	22.0	
26	17.0	19.0	---	12.0	13.0	22.0	20.0	20.0	28.0	---	---	
27	17.0	15.0	---	10.0	11.0	19.0	20.0	---	26.0	25.0	---	
28	17.0	14.0	12.0	10.0	15.0	20.0	20.0	---	22.0	25.0	---	
29	21.0	14.0	12.0	9.0	---	23.0	25.0	30.0	21.0	---	---	
30	18.0	---	14.0	9.0	---	21.0	20.0	24.0	23.0	28.0	---	
31	21.0	---	10.0	8.0	---	20.0	---	22.0	---	24.0	---	
MEAN	20.0	17.5	11.0	9.5	12.0	17.0	21.5	21.5	24.0	24.5	24.5	

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 1979 are given in International Boundary and Water Commission Water Bulletins Nos. 48 and 49.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 18...	0725	180	1010	8.1	21.0	260	140	72	19
NOV 15...	0830	57	996	8.0	18.5	240	120	65	18
DEC 20...	0820	918	1000	8.0	13.5	240	110	68	16
JAN 17...	0820	1830	1000	8.1	9.5	260	130	75	17
FEB 14...	0825	1790	1000	8.2	10.0	260	130	78	17
MAR 21...	0820	6290	1020	8.0	12.0	240	110	67	17
APR 18...	0815	2100	1020	8.3	17.0	260	130	78	17
MAY 16...	0715	5720	1020	8.0	24.1	260	130	78	17
JUN 20...	0720	2650	1030	8.0	24.0	270	140	79	17
JUL 18...	0720	1060	1020	7.8	26.0	--	--	20	--
AUG 15...	0720	1370	1020	7.9	25.5	250	130	71	17
SEP 19...	0715	692	1010	8.0	24.5	250	130	71	17

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 18...	120	3.3	5.2	140	0	250	100	17	652
NOV 15...	100	2.8	6.0	140	0	220	110	15	603
DEC 20...	110	3.1	5.6	150	0	220	93	15	602
JAN 17...	100	2.7	5.6	160	0	220	93	15	604
FEB 14...	100	2.7	5.1	160	0	230	95	15	619
MAR 21...	120	3.4	4.5	160	0	220	100	17	624
APR 18...	110	2.9	5.5	160	0	220	100	14	623
MAY 16...	110	2.9	5.1	160	0	240	100	16	645
JUN 20...	110	2.9	5.1	150	0	230	100	15	630
JUL 18...	110	--	4.9	150	0	210	110	--	529
AUG 15...	110	3.0	5.6	140	0	220	100	16	609
SEP 19...	110	3.0	5.7	140	0	230	98	17	618

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 1978 are given in International Boundary and Water Commission Water Bulletins Nos. 48 and 49. 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, 1,050 micromhos Sept. 18, 22; minimum daily, 452 micromhos June 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 02...	1515	2900	787	8.3	27.5	40	7.6	97	.7	2200	460
NOV 13...	1520	6300	751	8.2	22.0	30	6.8	80	1.8	--	--
DEC 04...	1440	4800	846	8.3	18.5	15	8.8	97	.6	240	140
JAN 08...	1432	3200	829	8.3	9.5	4.0	11.5	104	.7	600	320
FEB 05...	1530	2900	874	8.3	10.0	10	10.3	94	.9	470	1000
MAR 12...	1500	6600	978	8.2	14.5	25	[illegible]	96	1.4	K170	220
APR 24...	1035	2850	902	8.2	24.5	78	7.3	87	1.9	1400	2100
MAY 30...	1048	7500	943	8.0	27.0	140	7.2	91	1.6	K7300	5100
JUN 27...	1235	12800	996	8.3	28.5	46	7.6	97	--	5300	2000
JUL 17...	1112	4700	939	8.4	29.0	29	5.3	69	1.1	4400	790
AUG 15...	1000	1770	985	8.1	28.0	16	7.0	90	3.3	2600	1300
SEP 11...	1052	2450	996	8.3	27.5	--	7.2	91	1.6	4200	270

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 02...	230	86	67	14	70	2.0	3.6	170	0	130
NOV 13...	230	83	71	13	60	1.7	3.3	180	0	120
DEC 04...	250	110	77	15	79	2.2	4.3	170	0	160
JAN 08...	250	110	77	15	73	2.0	4.2	180	0	180
FEB 05...	260	120	79	16	83	2.2	3.5	170	0	190
MAR 12...	260	120	73	18	99	2.7	4.5	170	0	210
APR 24...	260	120	80	15	84	2.3	4.8	170	0	180
MAY 30...	250	130	74	16	100	2.7	5.0	152	0	210
JUN 27...	260	120	76	16	100	2.7	5.3	170	0	210
JUL 17...	260	130	76	16	100	2.7	9.9	150	0	230
AUG 15...	250	130	73	17	100	2.7	4.8	145	0	220
SEP 11...	250	130	73	17	98	2.7	5.0	150	0	220

08459000 RIO GRANDE AT LAREDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	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)	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)
OCT 02...	79	.7	15	502	463	.73	.00	.73	.01	.45
NOV 13...	65	.5	14	474	436	.91	.01	.92	.01	.25
DEC 04...	82	.7	14	524	516	.70	.01	.71	.01	.26
JAN 08...	74	.6	11	512	524	.60	.02	.62	.00	.73
FEB 05...	79	.6	14	548	549	.21	.02	.23	.01	.49
MAR 12...	93	.8	15	597	597	.65	.00	.65	.02	.51
APR 24...	83	.7	12	574	543	.38	.02	.40	.00	.57
MAY 30...	98	.8	14	605	593	.69	.02	.71	.04	.48
JUN 27...	100	.9	15	626	607	.68	.02	.70	.03	.33
JUL 17...	100	.8	16	622	623	.48	.02	.50	.04	.74
AUG 15...	100	.9	17	621	604	.26	.00	.26	.00	.48
SEP 11...	99	.8	16	618	603	.52	.02	.54	.03	.56

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 02...	.46	.37	.060	.020	16	--	--	89	697	96
NOV 13...	.26	.23	.060	.020	--	4.0	1.2	97	1650	84
DEC 04...	.27	.26	.040	.020	2.3	--	--	73	946	83
JAN 08...	.73	.07	.020	.010	2.6	--	--	21	181	89
FEB 05...	.50	.39	.020	.000	--	2.8	.7	24	188	88
MAR 12...	.53	.21	.020	.030	4.5	--	--	37	659	49
APR 24...	.57	.36	.050	.020	7.2	--	--	177	1360	99
MAY 30...	.52	.31	.050	.020	8.5	--	--	247	5000	89
JUN 27...	.36	.23	.170	.020	--	2.4	1.5	203	7020	81
JUL 17...	.78	2.9	.030	.040	5.8	--	--	92	1170	87
AUG 15...	.48	.17	.020	.020	--	2.7	.8	39	186	92
SEP 11...	.59	.59	.040	.010	3.5	--	--	52	344	97

DATE	LENGTH OF EXPOSURE (DAYS)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS)
SEP 11...	27	.830	.910	25.5	3.34	3.14

08459000 RIO GRANDE AT LAREDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	ARSENIC 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...	1520	3	2	100	20	80	0	0	<1	0
FEB 05...	1530	2	2	100	20	80	1	0	1	0
JUN 27...	1235	3	1	100	0	100	0	0	0	0
AUG 15...	1000	0	3	0	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)
NOV 13...	0	0	0	0	<3	3	3	0	960	960
FEB 05...	0	0	0	0	3	8	7	1	210	210
JUN 27...	0	0	2	1	1	11	7	4	2300	2300
AUG 15...	10	0	0	0	<3	1	0	1	630	620

DATE	IRON, DIS-SOLVED (UG/L AS FE)	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)
NOV 13...	0	0	0	1	40	40	2	.1	.1	.0
FEB 05...	<0	5	4	1	30	30	4	.0	.0	.0
JUN 27...	0	16	16	0	80	80	0	.3	.0	.3
AUG 15...	<10	4	3	1	30	30	<1	.1	.1	.0

DATE	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...	5	3	2	0	0	0	20	20	3
FEB 05...	1	0	1	0	0	0	10	7	<3
JUN 27...	1	0	1	0	0	0	40	30	10
AUG 15...	1	0	1	0	0	0	50	50	<3

08459000 RIO GRANDE AT LAREDO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE	NOV 13,78	MAR 12,79	MAY 30,79	JUN 27,79	JUL 17,79	AUG 15,79
TIME	1520	1500	1048	1235	1112	1000
TOTAL CELLS/ML	240	590	850	310	1700	2700
DIVERSITY: DIVISION	0.0	0.2	0.7	0.5	1.4	0.6
.CLASS	0.0	0.2	0.7	0.5	1.4	0.6
..ORDER	0.0	0.9	1.4	0.8	1.5	0.9
...FAMILY	0.7	2.5	1.7	1.5	1.6	0.9
....GENUS	0.7	2.8	1.7	1.5	1.7	1.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	--	-	--	-	13	1	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	210#	67	--	-	--	-
....KIRCHNERIELLA	43#	18	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	200#	82	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	160#	18	52#	17	860#	52	310	11
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	--	-	--	-	13	4	13	1	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....COSMARIUM	--	-	5	1	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	75	13	--	-	--	-	13	1	--	-
....MELOSIRA	--	-	35	6	470#	55	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	25	4	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	60	10	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	60	10	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	13	1	--	-
...NAVICULACEAE												
....GYROSIGMA	--	-	5	1	--	-	--	-	--	-	--	-
....NAVICULA	--	-	170#	29	78	9	13	4	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	--	-	140#	24	160#	18	26	8	490#	30	*	0
...SURIRELLACEAE												
....SURIRELLA	--	-	5	1	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	210	13	210	8
....ANACYSTIS	--	-	--	-	--	-	--	-	39	2	*	0
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-	2200#	80
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....TRACHELOMONAS	--	-	10	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 WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	198030	917	560	301000	95	50900	180	97700	260
NOV. 1978.....	187040	781	480	242000	78	39100	150	78000	220
DEC. 1978.....	111800	849	520	157000	83	25100	170	51000	240
JAN. 1979.....	95090	856	520	135000	84	21400	170	43800	240
FEB. 1979.....	70160	885	540	103000	87	16500	180	33500	250
MAR. 1979.....	199470	964	590	318000	100	54900	190	103000	270
APR. 1979.....	122060	893	550	181000	93	30600	180	58400	250
MAY 1979.....	178580	996	610	295000	110	52000	200	95600	280
JUNE 1979.....	280530	799	490	372000	82	62500	160	121000	220
JULY 1979.....	151070	931	570	233000	97	39800	180	75300	260
AUG. 1979.....	111380	975	600	180000	110	31600	200	58800	270
SEPT 1979.....	53929	993	610	88600	110	15700	200	28900	280
TOTAL	1759139	**	**	2610000	**	440000	**	845000	**
WTD.AVG.	4820	894	550	**	93	**	180	**	250

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	799	966	846	844	856	813	963	997	1010	1020	968	995
2	810	970	809	844	866	862	967	978	904	1010	978	996
3	812	975	849	800	886	876	988	937	785	697	981	995
4	741	972	872	822	862	860	1000	985	584	760	993	995
5	712	967	875	823	888	848	973	972	597	699	996	999
6	663	963	842	798	872	969	1020	1010	452	1010	1010	1010
7	684	672	871	830	889	986	957	997	497	1000	958	995
8	755	514	883	851	845	981	959	977	560	1010	906	978
9	922	562	863	820	874	957	991	998	632	1010	955	963
10	938	662	881	857	892	984	960	1000	747	968	983	973
11	956	712	879	870	899	973	924	1010	873	939	946	972
12	944	714	890	887	891	993	970	974	888	860	981	967
13	944	753	893	865	889	981	950	984	940	976	1010	972
14	947	781	888	861	873	976	971	1020	941	937	991	1000
15	952	788	891	855	872	962	971	993	959	970	1010	979
16	959	779	913	855	878	969	979	977	941	985	1000	996
17	962	790	925	867	890	989	714	975	934	978	1030	1000
18	951	922	904	872	894	991	572	960	930	974	1040	1050
19	955	802	849	867	901	996	925	1010	941	1000	997	1020
20	949	771	819	852	910	997	880	1010	939	1000	959	1030
21	961	769	765	846	916	1000	737	989	929	1020	914	1040
22	952	810	807	882	906	1020	676	1010	918	1030	880	1050
23	951	807	761	863	889	957	795	984	938	1020	971	1030
24	954	783	770	854	935	859	893	988	956	1020	958	1000
25	957	801	727	892	902	942	970	1020	1020	858	986	1000
26	950	815	764	875	902	978	1000	1010	1030	956	994	1000
27	944	825	818	871	894	976	1010	1020	1030	967	993	985
28	925	804	834	878	873	970	978	1030	1020	969	993	984
29	949	833	844	887	---	970	975	1000	1020	965	989	954
30	953	842	817	895	---	976	989	1040	1000	963	1000	991
31	962	---	845	891	---	997	---	956	---	970	986	---
MEAN	897	804	845	857	887	955	922	994	864	953	979	997

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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
OCT 03...	0940	802	8.2	26.5	6.6	84	.9	440000	58000	60
NOV 14...	0855	759	8.1	21.0	8.2	94	1.4	32000	4700	75
DEC 05...	0930	850	8.3	18.0	8.9	97	.9	31000	2200	37
JAN 09...	0852	841	8.2	9.5	10.3	93	1.3	92000	7600	6
FEB 06...	0840	917	8.3	10.0	10.4	95	1.6	82000	29000	23
MAR 13...	0905	980	8.2	13.0	10.2	97	1.4	110000	8400	83
APR 23...	1625	776	7.9	25.0	6.6	81	3.1	1200000	120000	332
MAY 29...	1810	998	8.1	27.5	8.4	107	1.4	740000	33000	143
JUN 27...	1712	965	8.2	29.0	7.0	91	--	200000	36000	206
JUL 16...	1917	1010	8.3	30.5	7.4	99	2.7	210000	20000	55
AUG 15...	1427	1000	8.1	29.0	6.6	86	3.0	380000	11000	44
SEP 11...	1400	994	8.4	29.0	6.4	84	2.6	170000	37000	34

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 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT							
04...	1300	1.0	1100	8.5	28.5	8.9	116
04...	1302	10	1100	8.5	28.5	8.9	116
04...	1304	20	1100	8.4	28.0	8.8	113
04...	1306	30	1100	8.2	27.5	7.2	92
04...	1308	41	1100	8.1	27.5	6.2	79
JAN							
25...	1425	1.0	1020	8.3	13.5	8.2	81
25...	1427	10	1020	8.2	13.5	8.1	80
25...	1429	20	1020	8.2	13.5	8.1	80
25...	1431	30	1020	8.2	13.5	8.1	80
25...	1433	40	1020	8.2	13.5	8.1	80
25...	1435	52	1020	8.2	13.5	8.0	79
MAY							
01...	1351	1.0	983	8.2	24.5	7.8	94
01...	1353	10	983	8.2	24.5	7.8	94
01...	1355	20	983	8.1	24.0	7.4	88
01...	1357	30	983	8.1	24.0	7.3	87
01...	1359	37	983	8.1	24.0	7.3	87
AUG							
07...	1405	1.0	961	8.0	30.0	7.6	100
07...	1407	10	961	8.0	29.5	7.5	98
07...	1409	20	961	7.9	29.5	6.9	90
07...	1411	30	961	7.9	29.5	6.7	88
07...	1413	41	961	7.8	29.5	6.4	84

263337099100101 INTERNATIONAL FALCON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT										
04...	1315	1.0	1100	8.5	28.0	1.40	8.9	114	260	170
04...	1317	10	1100	8.5	28.0	--	9.0	115	--	--
04...	1319	20	1100	8.3	27.5	--	7.6	97	--	--
04...	1321	30	1100	8.1	27.0	--	6.9	87	--	--
04...	1323	40	1100	8.1	27.0	--	6.4	81	--	--
04...	1325	50	1100	7.9	27.0	--	5.4	68	--	--
04...	1327	60	1100	7.9	27.0	--	5.0	63	--	--
04...	1329	70	1100	7.8	27.0	--	4.5	57	--	--
04...	1331	80	1100	7.8	26.5	--	4.0	51	--	--
04...	1333	95	1120	7.7	26.5	--	2.4	30	270	180
JAN										
25...	1525	1.0	1020	8.3	14.0	1.40	8.5	85	260	150
25...	1529	10	1020	8.3	13.5	--	8.2	81	--	--
25...	1531	20	1020	8.2	13.5	--	8.0	79	--	--
25...	1533	30	1020	8.2	13.5	--	8.0	79	--	--
25...	1535	40	1020	8.2	13.5	--	8.1	80	--	--
25...	1537	50	1020	8.2	13.5	--	8.2	81	--	--
25...	1539	60	1020	8.2	13.5	--	8.3	82	--	--
25...	1541	70	1020	8.2	13.5	--	8.4	83	--	--
25...	1543	80	1020	8.2	13.5	--	8.5	84	--	--
25...	1545	88	1020	8.2	13.5	--	8.4	83	250	150
MAY										
01...	1410	1.0	983	8.3	24.5	1.80	8.0	96	270	150
01...	1412	10	983	8.2	24.5	--	8.0	96	--	--
01...	1414	20	983	8.2	24.0	--	7.4	88	--	--
01...	1416	30	983	8.1	24.0	--	7.2	86	--	--
01...	1418	40	983	8.1	24.0	--	7.0	83	--	--
01...	1420	50	983	7.8	23.0	--	5.3	62	--	--
01...	1422	60	983	7.5	22.0	--	3.2	37	--	--
01...	1424	70	991	7.5	21.5	--	2.5	28	--	--
01...	1426	80	991	7.4	20.5	--	1.5	17	--	--
01...	1428	90	991	7.4	20.5	--	1.3	14	--	--
01...	1430	99	991	7.3	19.5	--	.1	1	280	160
AUG										
07...	1445	1.0	961	8.1	30.5	1.30	7.7	102	260	150
07...	1447	10	961	8.1	30.0	--	7.7	101	--	--
07...	1449	20	961	8.0	29.5	--	6.6	86	--	--
07...	1451	30	961	7.9	29.5	--	6.6	86	--	--
07...	1453	40	961	7.8	29.5	--	6.1	80	--	--
07...	1455	50	961	7.8	29.0	--	5.7	74	--	--
07...	1457	60	961	7.8	29.0	--	5.9	77	--	--
07...	1459	70	961	7.7	28.5	--	5.5	71	--	--
07...	1501	80	961	7.6	28.5	--	4.7	60	--	--
07...	1503	90	961	7.4	28.5	--	3.3	42	--	--
07...	1505	100	991	7.0	27.5	--	.3	4	270	130

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263337099100101 INTERNATIONAL FALCON RESERVOIR SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT										
04...	68	23	130	3.5	5.6	110	2	260	140	.7
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	70	24	130	3.4	5.6	120	0	260	140	--
JAN										
25...	70	20	110	3.0	5.1	130	0	210	130	.6
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	69	20	100	2.7	5.1	130	0	210	120	--
MAY										
01...	78	18	100	2.7	4.6	150	0	200	100	.7
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	81	19	100	2.6	4.6	150	0	200	100	--
AUG										
07...	69	21	99	2.7	4.7	130	0	230	100	.7
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	75	20	100	2.7	4.5	170	0	210	100	--

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT									
04...	10	694	.01	.00	--	.020	--	20	0
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	.00	.00	--	.020	--	<10	2
04...	--	--	--	--	--	--	--	--	--
04...	--	--	.00	.05	--	.020	--	<10	2
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	11	700	.02	.21	--	.040	--	30	40
JAN									
25...	9.8	620	.12	.05	--	.020	--	0	<1
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	.14	.06	--	.010	--	40	0
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	10	598	.13	.06	--	.040	--	10	3
MAY									
01...	13	588	.05	.02	.03	.010	.03	10	0
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	.10	.03	.15	.050	.15	10	0
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	.14	.02	.06	.020	.06	0	20
01...	15	594	.16	.03	.03	.010	.03	10	180
AUG									
07...	10	599	.00	.00	--	.000	.00	0	20
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	.01	.00	--	.000	.00	20	0
07...	--	--	.01	.01	--	.000	.00	0	10
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263326099092201 INTERNATIONAL FALCON RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
04...	1350	1.0	1100	8.5	28.0	8.8	113
04...	1352	10	1100	8.4	27.5	8.1	104
04...	1354	20	1100	8.2	27.0	7.0	89
04...	1356	30	1100	8.0	27.0	6.0	76
04...	1358	43	1100	8.0	27.0	5.9	75
JAN							
25...	1645	1.0	1020	8.3	13.5	8.1	80
25...	1647	10	1020	8.2	13.5	8.0	79
25...	1649	20	1020	8.2	13.5	8.0	79
25...	1651	30	1020	8.2	13.5	8.0	79
25...	1653	35	1020	8.2	13.5	7.9	78
MAY							
01...	1503	1.0	983	8.2	24.5	7.6	92
01...	1505	10	983	8.2	24.0	7.5	89
01...	1507	20	983	8.1	24.0	7.2	86
01...	1510	35	983	8.0	24.0	6.7	80
AUG							
07...	1425	1.0	961	8.0	30.0	7.5	99
07...	1427	10	961	8.0	29.5	7.1	93
07...	1429	20	961	7.8	29.0	6.4	83
07...	1431	30	961	7.8	29.0	6.4	83
07...	1433	43	961	7.8	29.5	6.5	85

263815099124901 INTERNATIONAL FALCON RESERVOIR SITE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
04...	1230	1.0	1100	8.4	28.0	8.9	114
04...	1232	10	1100	8.4	28.0	9.0	115
04...	1234	20	1100	8.4	27.5	8.5	109
04...	1236	30	1100	8.2	27.5	7.4	95
04...	1238	40	1100	7.8	27.5	4.5	58
04...	1240	46	1100	7.7	27.5	3.2	41
MAY							
01...	1315	1.0	983	8.2	25.0	7.7	94
01...	1317	10	983	8.2	24.5	7.6	92
01...	1319	20	983	8.1	24.5	7.4	89
01...	1321	30	983	8.1	24.5	7.2	87
01...	1323	40	983	8.1	24.5	7.2	87
01...	1325	53	983	7.5	23.5	3.2	38
AUG							
07...	1335	1.0	953	8.0	30.5	7.5	99
07...	1337	10	953	8.0	30.0	7.7	101
07...	1339	20	953	8.0	30.0	7.0	92
07...	1341	30	953	7.9	29.5	6.6	86
07...	1343	40	953	7.9	29.5	6.5	85
07...	1345	52	953	7.8	29.5	6.1	80

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263815099111901 INTERNATIONAL FALCON RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
04...	1200	1.0	1100	8.4	28.0	8.7	112
04...	1202	10	1100	8.4	27.5	8.6	110
04...	1204	20	1100	8.3	27.5	8.2	105
04...	1206	30	1100	8.3	27.5	8.2	105
04...	1208	40	1100	8.1	27.0	6.6	84
04...	1210	50	1100	7.9	27.0	5.3	67
04...	1212	60	1100	7.9	27.0	5.1	65
04...	1214	70	1100	7.7	26.5	3.7	47
04...	1216	80	1100	7.7	26.5	4.2	53
04...	1218	90	1100	7.7	26.5	3.3	42
JAN							
25...	1710	1.0	1020	8.3	13.5	8.1	80
25...	1712	10	1020	8.2	13.0	8.1	79
25...	1714	20	1020	8.2	13.0	8.1	79
25...	1716	30	1020	8.2	13.0	8.1	79
25...	1718	40	1020	8.2	13.0	8.2	80
25...	1720	50	1020	8.2	13.0	8.2	80
25...	1722	60	1020	8.2	13.0	8.2	80
25...	1724	70	1020	8.2	13.0	8.2	80
25...	1726	78	1020	8.2	13.0	8.2	80
MAY							
01...	1248	1.0	983	8.2	24.5	7.6	92
01...	1250	10	983	8.2	24.5	7.6	92
01...	1252	20	983	8.1	24.5	7.4	89
01...	1254	30	983	8.1	24.5	7.3	88
01...	1256	40	983	8.2	24.5	7.3	88
01...	1258	50	987	8.0	23.5	6.4	75
01...	1300	60	991	7.6	22.5	3.6	42
01...	1302	70	991	7.4	21.5	1.9	21
01...	1304	80	991	7.2	21.0	1.1	12
AUG							
07...	1310	1.0	953	8.1	30.5	7.7	102
07...	1312	10	953	8.0	30.0	7.3	96
07...	1314	20	953	8.0	30.0	6.8	89
07...	1316	30	953	8.0	29.5	6.7	88
07...	1318	40	953	7.9	29.5	6.6	86
07...	1320	50	953	7.9	29.5	6.1	80
07...	1322	60	953	7.7	29.5	5.0	65
07...	1324	70	953	7.3	29.0	2.6	34
07...	1326	77	953	7.6	29.0	4.0	52

264002099101701 INTERNATIONAL FALCON RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT								
04...	1145	1.0	1100	8.4	27.5	1.20	9.2	118
04...	1147	10	1100	8.4	27.5	--	9.2	118
04...	1149	20	1100	8.4	27.5	--	8.6	110
04...	1151	30	1100	8.0	27.0	--	6.0	76
04...	1153	40	1100	7.9	27.0	--	5.3	67
04...	1155	50	1100	7.8	26.5	--	4.2	53
04...	1157	58	1100	7.7	26.5	--	3.3	42
JAN								
25...	1425	1.0	1020	8.3	13.5	1.70	8.1	80
25...	1427	10	1020	8.3	13.5	--	8.2	81
25...	1429	20	1020	8.3	13.5	--	8.0	79
25...	1431	30	1020	8.3	13.5	--	8.0	79
25...	1433	40	1020	8.3	13.5	--	8.0	79
25...	1435	50	1020	8.3	13.5	--	8.0	79
25...	1437	60	1020	8.2	13.5	--	7.7	76
MAY								
01...	1206	1.0	983	8.2	24.5	1.80	7.6	92
01...	1208	10	983	8.2	24.5	--	7.6	92
01...	1210	20	983	8.2	24.0	--	7.4	88
01...	1212	30	983	8.1	24.0	--	7.3	87
01...	1214	40	991	8.1	24.0	--	7.2	86
01...	1216	50	991	7.5	22.5	--	3.2	37
01...	1218	60	991	7.3	22.0	--	1.3	15
01...	1220	73	991	7.2	21.5	--	.1	1
AUG								
07...	1230	1.0	953	8.1	30.5	1.40	7.7	102
07...	1232	10	953	8.1	30.0	--	7.7	101
07...	1234	20	953	8.1	29.5	--	7.2	94
07...	1236	30	953	8.0	29.5	--	6.9	90
07...	1238	40	953	8.0	29.5	--	6.9	90
07...	1240	50	953	7.8	29.0	--	5.0	65
07...	1242	57	953	7.7	29.5	--	4.9	64

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

264002099101701 INTERNATIONAL FALCON RESERVOIR SITE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT							
04...	.00	.00	--	.020	--	<10	<1
04...	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--
04...	.00	.11	--	.030	--	<10	3
JAN							
25...	.12	.05	--	.020	--	30	0
25...	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--
25...	.11	.07	--	.020	--	20	0
MAY							
01...	.04	.02	.03	.010	.03	40	10
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	.07	.19	.12	.040	.12	10	60
AUG							
07...	.01	.00	--	.000	.00	10	0
07...	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--
07...	.01	.01	--	.000	.00	0	0

264328099123101 INTERNATIONAL FALCON RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT										
04...	1100	1.0	1070	8.3	27.5	1.30	8.3	106	260	170
04...	1102	10	1070	8.3	27.5	--	8.2	105	--	--
04...	1104	20	1060	8.1	27.0	--	6.9	87	--	--
04...	1106	30	980	7.7	26.5	--	4.7	59	--	--
04...	1108	40	900	7.7	26.5	--	4.3	54	--	--
04...	1110	50	850	7.6	26.0	--	5.1	64	--	--
04...	1112	60	850	7.6	26.0	--	3.7	46	--	--
04...	1114	70	840	7.5	26.0	--	3.1	39	--	--
04...	1116	80	831	7.5	26.0	--	2.2	28	210	110
JAN										
25...	1325	1.0	950	8.3	13.0	--	8.1	79	260	140
25...	1327	10	950	8.2	13.0	--	8.1	79	--	--
25...	1329	20	950	8.2	13.0	--	8.0	78	--	--
25...	1331	30	950	8.2	13.0	--	8.1	79	--	--
25...	1333	40	950	8.2	13.0	--	8.1	79	--	--
25...	1335	50	950	8.2	13.0	--	8.0	78	--	--
25...	1337	60	950	8.2	13.0	--	8.2	80	--	--
25...	1339	70	950	8.2	13.0	--	8.3	81	--	--
25...	1341	85	950	8.2	13.0	--	8.2	80	260	140
MAY										
01...	1546	1.0	983	8.1	25.5	4.6	7.5	91	260	140
01...	1548	10	983	8.1	25.0	--	7.5	91	--	--
01...	1550	20	983	8.1	25.0	--	7.2	88	--	--
01...	1552	30	983	8.1	24.5	--	7.2	87	--	--
01...	1554	40	983	8.1	24.5	--	6.9	83	--	--
01...	1556	50	991	7.5	23.5	--	2.8	33	--	--
01...	1558	60	991	7.4	22.5	--	1.6	19	--	--
01...	1600	70	991	7.2	22.0	--	.5	6	--	--
01...	1602	83	996	7.2	21.5	--	.4	4	280	150
AUG										
07...	1510	1.0	953	8.1	30.5	.90	8.2	109	250	150
07...	1512	10	953	8.1	30.5	--	8.2	109	--	--
07...	1514	20	953	8.1	30.0	--	7.9	104	--	--
07...	1516	30	953	7.9	29.5	--	5.6	75	--	--
07...	1518	40	953	7.9	29.5	--	6.0	78	--	--
07...	1520	50	953	7.9	29.5	--	6.2	81	--	--
07...	1522	60	953	7.9	29.5	--	5.9	77	--	--
07...	1524	70	953	7.8	29.5	--	5.7	75	--	--
07...	1526	86	953	7.8	29.0	--	4.6	60	250	150

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

264328099123101 INTERNATIONAL FALCON RESERVOIR SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT									
04...	65	23	120	3.3	5.5	110	0	250	130
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	59	16	86	2.6	4.7	120	0	170	86
JAN									
25...	73	19	90	2.4	4.6	150	0	200	96
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	72	19	99	2.7	4.6	150	0	200	110
MAY									
01...	74	19	98	2.6	4.3	150	0	200	100
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	80	20	100	2.6	4.4	160	0	200	100
AUG									
07...	68	20	100	2.7	4.7	130	0	240	99
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	68	20	100	2.7	4.9	130	0	240	99

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT									
04...	10	658	.00	.00	--	.020	--	10	0
04...	--	--	--	--	--	--	--	--	--
04...	--	--	.00	.00	--	.020	--	<10	1
04...	--	--	--	--	--	--	--	--	--
04...	--	--	.12	.06	--	.030	--	<10	2
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	11	492	.10	.06	--	.050	--	<10	40
JAN									
25...	10	567	.23	.08	--	.030	--	10	<1
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	.23	.09	--	.020	--	0	0
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	10	589	.22	.12	--	.040	--	<0	6
MAY									
01...	14	583	.05	.03	.03	.010	.03	10	0
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	.04	.03	.06	.020	.06	0	0
01...	--	--	--	--	--	--	--	--	--
01...	--	--	.09	.02	.00	.000	.00	10	10
01...	--	--	--	--	--	--	--	--	--
01...	14	597	.08	.02	.06	.020	.06	10	20
AUG									
07...	10	606	.01	.03	--	.000	.00	0	0
07...	--	--	--	--	--	--	--	--	--
07...	--	--	.01	.00	--	.000	.00	20	0
07...	--	--	--	--	--	--	--	--	--
07...	--	--	.00	.00	--	.010	.03	0	10
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	11	607	.01	.06	--	.020	.06	0	10

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

264858099154201 INTERNATIONAL FALCON RESERVOIR SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
04...	1020	1.0	990	8.4	27.5	9.1	117
04...	1022	10	980	8.4	27.5	8.9	114
04...	1024	20	920	8.0	26.5	6.9	87
04...	1026	30	780	7.6	26.0	4.7	59
04...	1028	40	746	7.5	25.5	3.8	48
04...	1030	50	720	7.6	25.5	3.8	48
04...	1032	64	700	7.5	25.5	3.6	45
JAN							
25...	1240	1.0	900	8.3	12.5	8.3	81
25...	1242	10	900	8.3	12.5	8.3	81
25...	1244	20	900	8.3	12.5	8.3	81
25...	1246	30	900	8.3	12.5	8.3	81
25...	1248	40	900	8.3	12.5	8.3	81
25...	1250	50	900	8.3	12.5	8.4	82
25...	1252	63	900	8.2	12.5	8.2	80
MAY							
01...	1107	1.0	991	8.0	25.0	7.1	87
01...	1109	10	991	8.0	25.0	7.1	87
01...	1111	20	991	8.0	25.0	7.0	85
01...	1113	30	991	8.0	25.0	7.0	85
01...	1115	40	1000	8.0	25.0	6.6	80
01...	1117	50	1040	7.6	24.5	4.8	58
01...	1119	60	1040	7.2	23.5	.4	5
01...	1121	68	1070	7.2	23.0	.3	4
AUG							
07...	1130	1.0	957	8.0	30.5	7.4	98
07...	1132	10	957	8.0	30.0	6.8	89
07...	1134	20	957	7.9	30.0	6.5	86
07...	1136	30	957	7.9	29.5	6.2	81
07...	1138	40	957	7.9	29.5	6.2	81
07...	1140	50	957	7.8	29.5	6.0	78
07...	1142	62	957	7.7	29.5	5.2	68

265224099160701 INTERNATIONAL FALCON RESERVOIR SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT								
04...	0945	1.0	880	8.4	27.0	1.00	9.8	124
04...	0947	10	875	8.3	27.0	--	9.1	115
04...	0949	20	855	7.7	26.0	--	5.0	62
04...	0951	30	990	7.5	26.0	--	2.6	32
04...	0953	44	990	7.5	26.0	--	2.7	34
JAN								
25...	1153	1.0	897	8.3	12.5	--	8.4	82
25...	1155	10	897	8.3	12.5	--	8.4	82
25...	1157	20	897	8.3	12.5	--	8.4	82
25...	1159	30	897	8.3	12.5	--	8.5	83
25...	1201	40	897	8.3	12.5	--	8.5	83
25...	1203	48	890	8.3	12.5	--	8.6	83
MAY								
01...	1016	1.0	983	8.0	24.5	3.6	7.3	88
01...	1018	10	983	8.0	24.5	--	7.3	88
01...	1020	20	983	8.0	24.5	--	7.1	86
01...	1022	30	983	7.9	24.5	--	7.0	84
01...	1024	40	991	7.8	24.5	--	6.3	76
01...	1026	45	991	7.3	24.5	--	6.0	72
01...	1028	51	991	7.2	24.0	--	.6	7
AUG								
07...	0930	1.0	948	8.1	30.0	--	7.3	96
07...	0932	10	948	8.1	30.0	--	7.2	95
07...	0934	20	948	8.0	30.0	--	7.1	93
07...	0936	30	948	7.8	29.5	--	5.4	71
07...	0938	44	948	7.5	29.0	--	3.1	40

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265224099160701 INTERNATIONAL FALCON RESERVOIR SITE FC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT							
04...	.00	.00	--	.030	--	<10	<1
04...	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--
04...	.04	.05	--	.040	--	<10	3
JAN							
25...	.34	.09	--	.030	--	60	10
25...	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--
25...	.37	.09	--	.030	--	0	0
MAY							
01...	.07	.04	.06	.020	.06	20	0
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	.12	.05	.09	.030	.09	350	40
AUG							
07...	.01	.00	--	.000	.00	0	10
07...	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--
07...	.00	.11	--	.030	.09	10	20

265014099190601 INTERNATIONAL FALCON RESERVOIR SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT								
04...	1530	1.0	625	8.5	28.5	.50	10.7	139
04...	1532	10	615	8.2	27.0	--	9.4	119
04...	1534	20	612	8.0	27.0	--	8.1	103
04...	1536	30	619	7.7	25.5	--	5.7	71
04...	1538	43	650	7.7	25.5	--	4.4	55
JAN								
26...	1040	1.0	957	8.3	12.5	1.20	8.0	78
26...	1044	20	957	8.3	12.5	--	8.1	79
26...	1046	30	957	8.3	12.5	--	8.1	79
26...	1048	40	973	8.2	12.5	--	7.8	76
26...	1050	49	973	8.2	12.5	--	7.7	75
MAY								
01...	1727	1.0	1150	8.1	25.5	.60	7.4	90
01...	1729	10	1150	8.1	25.5	--	7.3	89
01...	1731	20	1120	8.0	25.0	--	6.9	84
01...	1733	30	1120	8.0	25.0	--	6.7	82
01...	1735	40	1120	7.9	25.0	--	6.4	78
01...	1737	48	1120	7.9	25.0	--	6.2	76
AUG								
07...	1050	1.0	990	8.1	30.0	1.10	7.7	101
07...	1052	10	990	8.0	29.5	--	7.4	97
07...	1054	20	990	7.9	29.0	--	6.4	83
07...	1056	30	990	7.9	29.0	--	6.0	78
07...	1058	40	1020	7.7	29.0	--	4.8	62
07...	1100	47	1020	7.6	29.0	--	4.1	53

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265014099190601 INTERNATIONAL FALCON RESERVOIR SITE GC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT							
04...	.22	.00	--	.040	--	<10	<1
04...	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--
04...	.55	.11	--	.070	--	<10	5
JAN							
26...	.53	.06	--	.020	--	0	0
26...	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--
26...	.54	.10	--	.040	--	10	0
MAY							
01...	.08	.04	.06	.020	.06	10	10
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--
01...	.08	.04	.03	.010	.03	0	0
AUG							
07...	.01	.00	--	.000	.00	0	10
07...	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--
07...	.07	.08	--	.020	.06	0	10

265213099190801 INTERNATIONAL FALCON RESERVOIR SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT										
04...	1500	1.0	693	8.7	28.5	.70	12.1	157	190	100
04...	1502	10	693	8.6	27.0	--	11.6	147	--	--
04...	1504	20	693	8.1	26.5	--	8.3	105	--	--
04...	1506	25	595	7.7	26.0	--	5.4	68	--	--
04...	1508	30	561	7.6	25.5	--	4.6	58	--	--
04...	1510	44	561	7.6	25.5	--	4.5	56	200	64
JAN										
26...	1120	1.0	887	8.3	12.5	9.0	8.0	78	260	120
26...	1124	10	887	8.3	12.5	--	8.1	79	--	--
26...	1126	20	887	8.3	12.5	--	8.0	78	--	--
26...	1128	30	887	8.3	12.5	--	8.1	79	--	--
26...	1130	40	887	8.3	12.0	--	8.1	79	--	--
26...	1132	53	898	8.3	12.0	--	7.8	76	260	120
MAY										
01...	1650	1.0	963	8.1	25.0	.10	7.0	85	270	160
01...	1652	10	963	8.0	25.0	--	7.0	85	--	--
01...	1654	20	963	8.0	25.0	--	7.0	85	--	--
01...	1656	30	930	8.0	25.0	--	6.8	83	--	--
01...	1658	40	930	8.0	24.5	--	6.5	78	--	--
01...	1700	50	1000	7.9	24.5	--	6.0	72	280	160
AUG										
07...	1005	1.0	969	8.0	29.5	.70	7.2	94	260	150
07...	1007	10	969	8.0	29.5	--	7.0	92	--	--
07...	1009	20	969	8.0	29.5	--	6.9	90	--	--
07...	1011	30	969	7.9	29.0	--	6.4	83	--	--
07...	1013	40	969	7.9	29.0	--	5.9	77	--	--
07...	1015	52	957	7.9	29.0	--	6.0	78	250	150

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265213099190801 INTERNATIONAL FALCON RESERVOIR SITE HC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT									
04...	54	13	68	2.2	4.4	98	4	160	71
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	62	9.9	32	1.0	4.1	160	0	95	39
JAN									
26...	73	18	73	2.0	3.8	170	0	170	81
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	74	18	75	2.0	4.0	170	0	170	78
MAY									
01...	80	18	98	2.6	4.2	140	0	210	97
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	80	20	100	2.6	4.6	150	0	210	94
AUG									
07...	70	20	100	2.7	4.8	130	0	230	100
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	68	20	99	2.7	4.9	130	0	240	100

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT									
04...	9.2	432	.07	.01	--	.050	--	20	0
04...	--	--	--	--	--	--	--	--	--
04...	--	--	.12	.01	--	.030	--	<10	2
04...	--	--	.41	.03	--	.040	--	<10	<1
04...	--	--	--	--	--	--	--	--	--
04...	9.5	330	.33	.04	--	.050	--	20	10
JAN									
26...	9.9	513	.44	.06	--	--	--	<0	<1
26...	--	--	--	--	--	--	--	--	--
26...	--	--	.44	.07	--	.020	--	0	10
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	10	513	.43	.10	--	.050	--	0	4
MAY									
01...	15	591	.11	.05	.06	.020	.06	10	10
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	.09	.04	.06	.020	.06	10	10
01...	--	--	--	--	--	--	--	--	--
01...	--	605	.10	.07	.03	.010	.03	70	20
AUG									
07...	12	601	.01	.00	--	.010	.03	0	10
07...	--	--	--	--	--	--	--	--	--
07...	--	--	.01	.00	--	.010	.03	20	0
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	12	608	.01	.03	--	.040	.12	0	10

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263337099100101 INTERNATIONAL FALCON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT							
04...	1315	1.0	2	0	0	0	4
04...	1321	30	--	--	--	--	--
04...	1325	50	--	--	--	--	--
04...	1333	95	2	0	0	0	4
JAN							
25...	1525	1.0	2	100	<1	0	2
25...	1535	40	--	--	--	--	--
25...	1545	88	1	100	<1	0	2
MAY							
01...	1410	1.0	1	100	0	10	1
01...	1420	50	--	--	--	--	--
01...	1428	90	--	--	--	--	--
01...	1430	99	2	100	0	0	0
AUG							
07...	1445	1.0	2	0	0	0	1
07...	1453	40	--	--	--	--	--
07...	1455	50	--	--	--	--	--
07...	1503	90	--	--	--	--	--
07...	1505	100	3	0	0	10	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT							
04...	20	0	0	.0	0	0	0
04...	<10	--	2	--	--	--	--
04...	<10	--	2	--	--	--	--
04...	30	0	40	.0	0	0	10
JAN							
25...	0	0	<1	.1	1	0	<3
25...	40	--	0	--	--	--	--
25...	10	0	3	.0	1	0	<3
MAY							
01...	10	0	0	.0	1	0	10
01...	10	--	0	--	--	--	--
01...	0	--	20	--	--	--	--
01...	10	0	180	.0	1	0	20
AUG							
07...	0	0	20	.0	1	0	10
07...	20	--	0	--	--	--	--
07...	0	--	10	--	--	--	--
07...	30	--	30	--	--	--	--
07...	70	0	220	.0	0	0	4

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS--Continued

263337099100101 INTERNATIONAL FALCON RESERVOIR SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE	OCT 4,78		JAN 25,79		MAY 1,79		AUG 7,79	
TIME	1316		1527		1411		1446	
TOTAL CELLS/ML	300000		15000		16000		630000	
DIVERSITY: DIVISION	0.2		0.3		1.2		0.1	
.CLASS	0.2		0.3		1.2		0.1	
..ORDER	0.6		0.5		2.0		0.3	
...FAMILY	1.8		0.6		2.3		0.8	
....GENUS	2.3		0.6		2.8		0.8	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	150	1	--	-
...MICRACTINIACEAE								
....GOLENKINIA	*	0	*	0	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	*	0	*	0	270	2	*	0
....KIRCHNERIELLA	--	-	--	-	460	3	--	-
....OOCYSTIS	*	0	*	0	1400	9	*	0
....SELENASTRUM	*	0	--	-	--	-	*	0
....TETRAEDRON	--	-	--	-	--	-	*	0
....TREUBARIA	*	0	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	*	0
....SCENEDESMUS	3600	1	320	2	1100	7	*	0
....TETRASTRUM	--	-	--	-	150	1	--	-
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	230	1	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	150	1	--	-
....CHLAMYDOMONAS	--	-	*	0	*	0	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....STAURASTRUM	--	-	--	-	120	1	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	*	0	81	1	--	-	*	0
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	260	2	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	*	0	*	0	--	-	*	0
...NITZSCHIACEAE								
....NITZSCHIA	*	0	--	-	--	-	*	0
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	--	-	--	-	1000	6	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	120	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	9300	1
....ANACYSTIS	24000	8	220	1	4700#	29	6000	1
....GOMPHOSPHAERIA	--	-	--	-	1500	10	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	13000	4	260	2	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	28000	4
....CYLINDROSPERMUM	84000#	28	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	22000	7	--	-	--	-	--	-
....OSCILLATORIA	130000#	42	14000#	92	4600#	29	550000#	88
...RIVULARIACEAE								
....RAPHIDIOPSIS	24000	8	--	-	--	-	25000	4

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 1978 TO AUGUST 1979

DATE	OCT 4,78	JAN 26,79	MAY 1,79	AUG 7,79
TIME	1501	1122	1651	1006
TOTAL CELLS/ML	34000	2700	43000	640000
DIVERSITY: DIVISION	0.3	0.7	0.7	0.1
.CLASS	0.3	0.7	0.7	0.1
..ORDER	0.7	1.5	1.7	0.3
...FAMILY	1.4	1.5	1.9	0.6
....GENUS	1.7	2.1	0.0	0.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	*	0
...COELASTRACEAE								
....COELASTRUM	280	1	--	-	1300	3	*	0
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	320	1	*	0
....DICTYOSPHAERIUM	--	-	--	-	1100	3	--	-
....KIRCHNERIELLA	*	0	--	-	*	0	--	-
....OOCYSTIS	*	0	--	-	930	2	*	0
....SELENASTRUM	--	-	20	1	--	-	--	-
....TETRAEDRON	*	0	--	-	*	0	*	0
....TREUBARIA	--	-	--	-	*	0	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	81	3	*	0	3400	1
....SCENEDESMUS	--	-	190	7	1300	3	4100	1
....TETRASTRUM	--	-	--	-	*	0	--	-
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	2200	5	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE	--	-	--	-	220	1	--	-
....CARTERIA	590	2	--	-	--	-	--	-
....CHLAMYDOMONAS	170	1	20	1	--	-	*	0
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	*	0	--	-	--	-	--	-
....STAURASTRUM	--	-	--	-	*	0	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	240	1	81	3	*	0	--	-
....MELOSIRA	--	-	--	-	--	-	*	0
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	*	0	--	-
....COCCONEIS	--	-	*	0	--	-	--	-
...NAVICULACEAE								
....DIPLONEIS	*	0	--	-	--	-	--	-
....NAVICULA	--	-	*	0	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	*	0	*	0	*	0
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	*	0	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	400	15	860	2	7700	1
....ANACYSTIS	1900	6	1400#	51	14000#	33	4000	1
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENOPSIS	--	-	--	-	--	-	31000	5
...OSCILLATORIACEAE								
....LYNGBYA	1700	5	--	-	--	-	--	-
....OSCILLATORIA	22000#	66	510#	18	12000#	29	570000#	90
....PHORMIDIUM	--	-	--	-	7100#	17	--	-
....SPIRULINA	--	-	--	-	--	-	*	0
...RIVULARIACEAE								
....RAPHIDIOPSIS	6200#	18	--	-	--	-	5000	1
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	--	-	*	0

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

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), revised, 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 1979 are given in International Boundary and Water Commission Water Bulletins Nos. 48 and 49.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 23...	1435	18	1100	7.7	24.5	280	180	72	24
NOV 20...	0900	5900	1060	7.8	21.0	250	150	62	22
DEC 18...	0900	2140	1060	8.2	16.5	260	150	68	21
JAN 15...	0930	1580	1040	8.1	13.0	270	160	73	21
FEB 28...	0900	1990	1020	8.2	13.5	270	160	77	20
MAR 19...	1000	8350	1010	7.7	--	260	150	73	20
APR 16...	0940	7050	1010	8.2	21.0	270	150	77	19
MAY 21...	0930	6940	995	8.1	22.9	270	150	76	19
JUN 18...	0930	13300	1000	7.9	26.0	270	150	75	19
JUL 16...	1000	58	999	7.9	26.5	260	150	73	19
AUG 28...	0820	162	985	7.8	28.0	230	120	63	18
SEP 24...	1430	395	1040	8.0	26.5	260	160	68	21

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 23...	120	3.1	5.4	120	0	260	130	12	683
NOV 20...	120	3.3	6.1	120	0	230	140	10	649
DEC 18...	120	3.3	5.7	130	0	230	130	9.9	649
JAN 15...	110	2.9	5.4	130	0	230	130	10	643
FEB 28...	100	2.6	5.0	140	0	240	110	9.7	631
MAR 19...	100	2.7	4.4	140	0	210	110	10	596
APR 16...	100	2.6	4.8	150	0	220	100	9.2	604
MAY 21...	100	2.7	4.8	150	0	240	100	11	625
JUN 18...	100	2.7	4.7	140	0	240	100	10	618
JUL 16...	100	2.7	4.6	140	0	220	100	12	598
AUG 28...	95	2.7	5.4	130	0	210	100	11	566
SEP 24...	110	3.0	5.5	120	0	230	100	12	606

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 1979 are given in International Boundry and Water Commission Water Bulletins Nos. 48 and 49.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 23...	1530	5490	647	7.9	--	220	87	66	13
NOV 13...	1530	1490	1990	7.6	24.5	450	260	130	31
DEC 18...	1500	3750	1030	7.8	15.0	290	170	82	20
JAN 15...	1615	2230	1110	8.2	12.0	270	160	75	21
FEB 20...	1600	2390	1070	8.2	13.0	280	170	79	21
MAR 19...	1520	4220	1140	7.7	20.5	270	150	77	20
APR 16...	1020	7900	1010	8.0	22.0	270	140	75	19
MAY 14...	1615	3270	1060	7.9	24.3	280	160	80	20
JUN 25...	1010	13200	1010	7.9	27.0	270	150	75	19
JUL 12...	1205	3520	1020	7.6	28.0	280	160	77	21
AUG 09...	1230	4440	977	8.0	29.5	250	140	69	19
SEP 17...	1500	1590	1080	7.9	24.0	260	150	72	20

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 23...	54	1.6	3.2	160	0	130	48	11	404
NOV 13...	250	5.1	6.8	240	0	350	320	14	1220
DEC 18...	110	2.8	5.4	140	0	220	130	10	646
JAN 15...	120	3.2	5.2	140	0	240	130	8.0	668
FEB 20...	110	2.8	5.0	140	0	240	120	9.5	654
MAR 19...	130	3.4	4.3	150	0	240	140	11	696
APR 16...	100	2.7	5.0	150	0	220	100	9.1	602
MAY 14...	110	2.9	5.1	150	0	240	120	11	660
JUN 25...	110	2.9	5.1	140	0	240	110	9.9	638
JUL 12...	100	2.6	4.7	140	0	220	110	11	613
AUG 09...	100	2.8	5.6	140	0	210	100	11	584
SEP 17...	120	3.2	6.1	140	0	230	120	12	649

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 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 23...	1630	--	658	7.8	--	220	81	67	13
NOV 13...	1620	--	1990	7.5	24.0	430	230	120	32
DEC 18...	1600	--	1090	7.8	16.0	270	140	74	21
JAN 15...	1745	--	1240	8.0	12.0	320	190	88	24
FEB 20...	1800	--	1180	8.1	12.0	310	190	86	23
MAR 19...	1610	1040	1050	7.6	20.5	270	140	74	20
APR 16...	1715	6000	1020	7.9	22.0	270	150	77	19
MAY 14...	1710	5200	1040	8.0	24.4	270	150	77	20
JUN 25...	1100	--	1010	8.0	28.0	270	150	76	19
JUL 12...	1320	--	1100	8.0	29.0	260	130	71	19
AUG 09...	1330	--	1030	8.2	29.5	260	150	72	20
SEP 17...	1630	--	1290	7.9	24.0	310	180	85	23

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 23...	57	1.7	3.3	170	0	130	49	12	415
NOV 13...	250	5.2	7.2	240	0	350	330	14	1220
DEC 18...	110	2.9	5.0	160	0	220	130	11	650
JAN 15...	130	3.2	5.5	160	0	250	150	9.7	736
FEB 20...	130	3.2	5.1	150	0	260	140	9.7	728
MAR 19...	100	2.7	4.5	150	0	220	120	11	623
APR 16...	110	2.9	5.0	150	0	220	110	9.2	624
MAY 14...	96	2.5	5.0	150	0	230	110	11	623
JUN 25...	110	2.9	4.8	140	0	240	100	10	629
JUL 12...	110	3.0	4.9	150	0	230	120	11	640
AUG 09...	110	3.0	5.7	140	0	220	110	11	618
SEP 17...	140	3.5	6.8	160	0	260	160	13	767

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) downsteam 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 September 1978.

REMARKS.--Records of and discharge for water year 1978 are given in International Boundary and Water Commission Water Bulletins Nos. 48 and 49. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equation developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,880 micromhos Feb. 21, 1978; minimum daily, 517 micromhos Sept. 13, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,450 micromhos Sept. 8; minimum daily, 595 micromhos Oct. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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 23...	1130	6500	1100	8.0	29.5	300	150	88	20
NOV 14...	1330	2020	1890	7.8	28.0	460	270	130	32
DEC 19...	0800	2000	1390	8.1	18.5	310	170	84	25
JAN 16...	0900	1700	1470	8.0	12.0	330	200	91	26
FEB 20...	1020	1480	1330	8.2	11.0	320	190	89	24
MAR 19...	1130	4600	1140	7.8	20.5	270	150	77	20
APR 20...	1500	1800	1250	8.0	24.5	300	170	84	23
MAY 15...	1630	3600	1170	8.0	24.4	290	170	82	21
JUN 18...	1100	14000	1110	8.0	26.5	290	150	78	22
JUL 16...	1115	1940	1190	7.8	29.5	260	150	72	20
AUG 21...	--	1100	1110	8.2	28.5	280	160	76	23
SEP 18...	0920	1490	1170	7.8	23.0	250	150	70	19

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 23...	120	3.0	3.5	180	0	200	150	13	683
NOV 14...	230	4.7	5.8	230	0	300	350	15	1180
DEC 19...	160	3.9	12	170	0	270	190	11	836
JAN 16...	170	4.0	6.2	160	0	290	200	10	872
FEB 20...	150	3.6	5.0	160	0	280	180	11	818
MAR 19...	120	3.2	4.5	150	0	240	130	12	677
APR 20...	140	3.5	4.9	160	0	250	160	9.9	751
MAY 15...	120	3.1	5.1	150	0	250	140	11	703
JUN 18...	120	3.1	5.0	160	0	250	130	11	695
JUL 16...	120	3.2	5.0	140	0	230	140	1.6	658
AUG 21...	130	3.4	5.6	150	0	260	130	12	711
SEP 18...	130	3.6	5.8	130	0	230	140	12	671

08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	337960	659	400	365000	81	73500	140	124000	160
NOV. 1978.....	150280	1140	690	279000	140	57800	230	94100	270
DEC. 1978.....	172540	1120	680	317000	140	63600	230	108000	270
JAN. 1979.....	91397	1210	730	180000	150	37900	250	60800	290
FEB. 1979.....	52410	1330	790	112000	180	25100	270	37700	320
MAR. 1979.....	122770	1110	670	222000	140	45500	230	75400	270
APR. 1979.....	103200	1130	680	190000	140	38200	230	64700	270
MAY 1979.....	83033	1210	730	164000	150	33600	250	55400	290
JUNE 1979.....	342670	1140	690	638000	140	130000	230	216000	280
JULY 1979.....	140150	1070	650	245000	130	49100	220	83400	260
AUG. 1979.....	43817	1140	690	81400	140	16700	230	27600	280
SEPT 1979.....	48025	1400	850	110000	200	25600	270	35600	340
TOTAL	1688252	**	**	2900000	**	597000	**	983000	**
WTD.AVG.	4630	1050	640	**	130	**	220	**	260

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	672	886	1110	1130	1280	1380	1060	1180	1360	1100	1080	1450
2	597	926	1100	1070	1300	1310	1060	1130	1360	1090	1090	1430
3	612	896	1130	1090	1300	1290	1060	1120	1300	1090	1100	1390
4	620	1020	1100	1100	1310	1300	1190	1090	1220	1110	1090	1390
5	626	1030	1090	1100	1330	1290	1110	1310	1280	1100	1070	1350
6	672	1030	1090	1110	1320	1280	1170	1250	1350	1100	1060	1440
7	622	1030	1090	1120	1300	1310	1180	1250	1210	830	1040	1580
8	638	1070	1090	1070	1290	1260	1170	1250	1220	765	1030	2450
9	734	1080	1100	1110	1300	1100	1130	1190	1190	1050	1060	1920
10	621	1100	1110	1180	1280	1080	1080	1200	1170	1270	1080	1500
11	616	1120	1120	1190	1290	1070	1080	1180	1160	1160	1100	1180
12	595	1160	1120	1240	1320	1070	1070	1210	1160	1220	1090	1060
13	605	1680	1170	1220	1410	1060	1070	1210	1150	1120	1090	1260
14	601	1640	1210	1220	1380	1060	1080	1120	1130	1210	1090	1030
15	613	1780	1160	1250	1380	1060	1060	1180	1120	1130	1100	1040
16	711	1290	1120	1370	1360	1070	1060	1180	1120	1140	1120	1020
17	678	1250	1220	1460	1360	1080	1100	1200	1120	1140	1070	1070
18	711	1150	1210	1490	1370	1070	1100	1170	1120	1140	1100	1070
19	636	1130	1190	1510	1350	1060	1230	1220	1110	1130	1090	1060
20	635	1100	1140	1540	1310	1070	1250	1210	1100	1180	1110	1090
21	669	1130	1160	1570	1420	1110	1330	1220	1090	1160	1130	1460
22	679	1120	1170	1420	1350	1070	1250	1170	1110	1090	1150	1490
23	686	1100	1170	1370	1330	1070	1130	1270	1110	1050	1140	1530
24	754	1070	1160	1380	1340	1060	1130	1270	1090	1040	1180	1500
25	796	1100	1120	1400	1330	1060	1100	1300	1090	1040	1260	1570
26	799	1070	1130	1290	1350	1060	1120	1510	1090	1060	1300	1520
27	789	1080	1080	1280	1370	1060	1100	1400	1100	1060	1300	1520
28	786	1120	1140	1280	1340	1060	1100	1350	1080	1070	1250	1510
29	933	1120	1100	1440	---	1050	1110	1300	1080	1070	1330	1450
30	836	1120	1120	1350	---	1050	1090	1310	1090	1070	1390	1480
31	838	---	1080	1320	---	1050	---	1320	---	1120	1460	---
MEAN	690	1150	1130	1280	1330	1130	1130	1230	1160	1090	1150	1390

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 are given in International Boundary and Water Commission Water Bulletins Nos. 48 and 49.

MONTHLY AND ANNUAL SUMMARY OF WATER AND SUSPENDED-SEDIMENT DISCHARGE WATER YEAR, OCTOBER 1978 TO SEPTEMBER 1979

DATE	DISCHARGE (CFS-DAYS)	MEAN WEIGHTED SUSPEMDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS)
OCT.. 1978....	78721	455	96700
NOV.....	5861	66	1040
DEC.....	4924	71	940
JAN. 1979.....	5025	68	917
FEB.....	4608	71	879
MAR.....	5436	107	1570
APR.....	8593	211	4890
MAY.....	8343	190	4280
JUNE.....	13097	317	11200
JULY.....	6507	171	3000
AUG.....	5879	152	2420
SEP.....	6085	159	2620
TOTAL.....	153079	316	130000

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 are given in International Boundary and Water Commission Water Bulletins Nos. 48 and 49.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)
OCT 03...	1430	.0	--	.00	.00	--	.0	--	.00	--
JAN 09...	1400	.0	0	--	.00	.0	.0	1	.00	.4
APR 24...	1840	.0	--	.00	.00	--	.0	--	.00	--
JUL 17...	1818	.0	0	.00	.00	.0	.0	0	.01	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 03...	.03	--	.00	--	.00	.01	--	.00	.02	--
JAN 09...	.00	.3	.00	.2	.04	.00	.2	.00	.00	.1
APR 24...	.00	--	.00	--	.00	.02	--	.00	.01	--
JUL 17...	.00	9.1	.00	.0	.00	.02	.2	.00	.01	.0

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
OCT 03...	.00	.00	--	.00	--	.00	--	.00	.00
JAN 09...	.00	.00	.0	.00	.0	.00	.0	.00	.00
APR 24...	.00	.00	--	.00	--	.00	--	.00	.07
JUL 17...	.00	.00	.0	.00	.0	.00	.0	.00	.69

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	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)
OCT 03...	.00	.00	.00	0	--	.00	.00	.00	.00
JAN 09...	.00	.00	.00	0	0	.00	.00	.00	.00
APR 24...	.00	.00	.00	0	--	.00	.02	.05	.00
JUL 17...	.00	.00	.08	0	0	.00	.01	.00	.00

08470300 ARROYO COLORADO FLOODWAY AT EL FUSTE SIPHON, SOUTH OF MERCEDES, TX--Continued

MONTHLY AND ANNUAL SUMMARY OF WATER AND SUSPENDED-SEDIMENT DISCHARGE
WATER YEAR, OCTOBER 1978 TO SEPTEMBER 1979

DATE	DISCHARGE (CFS-DAYS)	MEAN WEIGHTED SUSPEMDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS)
OCT.. 1978....	34278	301	27900
NOV.....	3798	83	850
DEC.....	4111	89	989
JAN. 1979.....	4070	82	897
FEB.....	3415	110	1010
MAR.....	5370	152	2200
APR.....	4613	132	1650
MAY.....	4638	168	2100
JUNE.....	5833	155	2440
JULY.....	5514	150	2240
AUG.....	6215	176	2950
SEP.....	4798	103	1340
TOTAL.....	86653	199	46600

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 1978 TO SEPTEMBER 1979

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	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)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	BICARBONATE (MG/L AS HCO3)
OCT 03...	1700	650	7.8	27.0	20	320	5.6	71	1.7	1900	--
NOV 14...	1550	1060	8.2	24.5	20	45	8.7	106	3.5	K24	--
DEC 06...	1005	1080	8.0	20.0	0	200	7.8	89	1.3	120	--
JAN 09...	1700	1070	8.2	12.5	10	50	10.1	98	.7	280	--
FEB 06...	1538	1390	8.1	14.0	10	20	9.9	100	.9	48	--
MAR 14...	0925	1050	8.0	18.0	0	60	9.8	101	.8	K49	--
APR 25...	0915	1240	7.9	25.0	15	120	7.6	92	1.1	K280	--
MAY 31...	0902	1300	8.0	28.5	--	15	6.3	80	2.8	220	--
JUN 29...	1020	1100	8.1	28.5	5	180	6.8	87	--	280	140
JUL 18...	0922	1250	8.3	30.0	5	7.8	6.2	82	2.0	120	--
AUG 16...	1433	1280	7.8	30.5	15	23	8.1	107	3.5	300	--
SEP 12...	1030	2220	8.1	28.0	15	230	7.1	89	2.6	240	--

DATE	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	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 + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 03...	--	120	63	402	852	104	.81	1.5	.31	8.2
NOV 14...	--	160	140	657	106	19	.91	.65	.09	5.1
DEC 06...	--	220	140	674	482	90	.24	.97	.27	6.8
JAN 09...	--	230	130	663	122	13	.56	.30	.08	3.8
FEB 06...	--	270	180	828	46	8	.23	.60	.02	3.4
MAR 14...	--	230	130	648	142	36	.25	.36	.01	5.0
APR 25...	--	250	160	780	317	34	.44	.75	.10	8.0
MAY 31...	--	260	160	809	27	12	.02	.44	.04	5.6
JUN 29...	0	250	120	669	424	62	.21	.65	.07	6.6
JUL 18...	--	260	150	765	17	4	.02	.60	.04	6.6
AUG 16...	--	270	140	802	45	15	.02	.51	.02	5.6
SEP 12...	--	450	390	1410	116	26	.23	.86	.19	9.7

08475000 RIO GRANDE AT 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 continues) 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, 1977-79): Maximum daily, 33.5°C on several days during July and August 1978; 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.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,100 micromhos Sept. 10; minimum daily, 595 micromhos Oct. 13.
WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 11; minimum daily, 15.0°C Jan. 10-12, 31.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,390 mg/L June 23; minimum daily mean, 25 mg/L July 15.
SEDIMENT LOADS: Maximum daily, 40,800 tons Oct. 4; minimum daily, 13 tons Aug. 24-26.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	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											
04...	0715	12200	--	--	30.0	--	--	--	--	--	--
04...	1015	12300	613	7.9	27.0	320	5.6	71	2.2	5900	2900
NOV											
15...	1005	1750	1063	8.1	25.0	30	8.6	106	2.0	84	140
DEC											
06...	1355	8500	1070	8.0	20.5	190	6.7	76	1.5	140	220
JAN											
10...	1010	4250	1100	8.0	12.0	60	10.0	96	.4	300	270
FEB											
07...	1010	1700	1370	8.1	13.0	25	8.5	84	.8	56	76
MAR											
14...	1330	2780	1070	8.1	18.0	60	8.4	86	1.5	400	240
APR											
25...	1322	4320	1240	7.8	27.0	170	7.8	97	1.6	K73000	K15000
MAY											
31...	1255	237	1320	8.0	29.0	34	5.6	72	2.6	200	<35
JUN											
28...	1352	9000	1070	7.9	28.5	--	7.1	91	--	610	1300
29...	1715	8780	--	--	29.0	--	--	--	--	--	--
30...	1730	8720	--	--	29.5	--	--	--	--	--	--
JUL											
10...	1730	5000	--	--	29.5	--	--	--	--	--	--
18...	1130	500	1250	8.3	31.0	16	6.5	86	2.2	90	830
AUG											
16...	0948	220	1428	8.0	29.0	7.8	7.8	100	3.0	200	25
SEP											
10...	1730	3280	--	--	27.5	--	--	--	--	--	--
12...	1415	2600	2370	8.1	29.0	160	7.0	91	2.9	18000	3600

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)
OCT										
04...	--	--	--	--	--	--	--	--	--	--
04...	180	81	52	12	52	1.7	3.5	120	0	110
NOV										
15...	300	150	90	19	110	2.8	3.7	190	0	170
DEC										
06...	280	170	76	21	110	2.9	6.4	130	0	210
JAN										
10...	280	160	76	21	120	3.1	6.3	140	0	230
FEB										
07...	320	190	90	24	150	3.6	2.3	160	0	270
MAR										
14...	270	140	72	21	110	2.9	4.7	150	0	220
APR										
25...	300	150	84	21	140	3.5	5.2	180	0	250
MAY										
31...	360	190	100	26	150	3.5	5.7	204	0	280
JUN										
28...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
JUL										
10...	--	--	--	--	--	--	--	--	--	--
18...	290	170	82	21	150	3.8	5.9	150	0	270
AUG										
16...	390	200	110	29	140	3.1	5.9	240	0	290
SEP										
10...	--	--	--	--	--	--	--	--	--	--
12...	490	330	120	47	320	6.3	7.8	200	0	460

DATE	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)	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)
OCT										
04...	--	--	--	--	--	--	--	--	--	--
04...	58	.4	8.0	378	355	.80	.01	.81	.03	.88
NOV										
15...	140	.3	13	660	640	.80	.01	.81	.02	.50
DEC										
06...	140	.6	10	664	638	.28	.01	.29	.01	.86
JAN										
10...	140	.6	10	685	673	.28	.02	.30	.02	.77
FEB										
07...	180	.6	12	821	808	.15	.02	.17	.04	1.9
MAR										
14...	120	.7	10	655	632	.24	.02	.26	.06	.28
APR										
25...	160	.7	15	782	765	.27	.00	.27	.03	1.2
MAY										
31...	170	.7	15	837	848	.00	.02	.02	.03	.47
JUN										
28...	--	--	--	--	--	.21	.02	.23	.02	.62
29...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
JUL										
10...	--	--	--	--	--	--	--	--	--	--
18...	150	.7	12	767	766	.00	.02	.01	.02	.58
AUG										
16...	160	.7	18	859	872	.00	.00	.00	.00	.44
SEP										
10...	--	--	--	--	--	--	--	--	--	--
12...	410	.7	17	1500	1480	.18	.04	.22	.16	.79

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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										
04...	--	--	--	--	--	--	--	1400	46100	99
04...	.91	.48	.120	.020	4.1	--	--	766	25400	85
NOV										
15...	.52	.26	.080	.000	--	3.1	2.5	88	416	86
DEC										
06...	.87	.71	.260	.030	6.2	--	--	569	13100	80
JAN										
10...	.79	.23	.090	.020	4.6	--	--	189	2170	68
FEB										
07...	1.9	.50	.060	.010	--	3.9	1.5	80	367	63
MAR										
14...	.34	.21	.010	.000	5.0	--	--	241	1810	73
APR										
25...	1.2	.49	.070	.020	7.1	--	--	558	6510	72
MAY										
31...	.50	.25	.060	.010	6.5	--	--	116	74	86
JUN										
28...	.64	.12	.100	.020	--	3.0	3.2	627	15200	80
29...	--	--	--	--	--	--	--	1140	27000	99
30...	--	--	--	--	--	--	--	1230	29000	99
JUL										
10...	--	--	--	--	--	--	--	1360	18400	99
18...	.60	.55	.040	.040	9.0	--	--	--	--	--
AUG										
16...	.44	.31	.020	.020	--	2.9	2.3	46	27	94
SEP										
10...	--	--	--	--	--	--	--	524	4640	98
12...	.95	.51	.310	.010	8.8	--	--	467	3280	86

DATE	TIME	ARSENIC 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										
15...	1005	3	2	100	0	100	0	0	<1	0
FEB										
07...	1010	3	2	100	0	100	1	0	<1	0
AUG										
16...	0948	2	3	200	100	100	0	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)
NOV										
15...	0	0	0	0	<3	4	4	0	1800	1800
FEB										
07...	0	0	0	0	<3	16	15	1	850	850
AUG										
16...	0	10	0	0	<3	1	0	1	410	400

DATE	IRON, DISSOLVED (UG/L AS FE)	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)
NOV										
15...	<0	1	1	0	100	100	<1	.1	.1	.0
FEB										
07...	<0	6	5	1	60	60	2	.0	.0	.0
AUG										
16...	<10	5	5	0	90	70	20	.2	.1	.1

DATE	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									
15...	0	0	2	0	0	0	20	20	<3
FEB									
07...	1	0	1	1	1	0	30	30	<3
AUG									
16...	0	0	0	0	0	0	10	7	<3

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV											
15...	--	--	--	--	ND	--	ND	--	ND	--	ND
15...	1005	ND	--	ND	--	ND	--	ND	--	ND	--
15...	2300	--	ND	--	--	--	--	--	--	--	--
FEB											
07...	1010	ND	--	ND	--	ND	--	ND	--	ND	--
MAR											
14...	1330	ND	--	ND	ND	ND	ND	ND	--	ND	--
APR											
25...	1322	ND	--	ND	--	ND	--	ND	--	ND	--
MAY											
31...	1255	ND	ND	ND	ND	ND	ND	ND	--	ND	--
JUN											
28...	1352	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
AUG											
16...	0948	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	P,P' DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV											
15...	--	--	ND	--	ND	--	ND	--	ND	--	ND
15...	--	ND	--	ND	--	ND	--	ND	--	ND	--
15...	--	--	--	--	--	--	--	--	--	--	--
FEB											
07...	--	ND	--	ND	--	ND	--	ND	--	ND	--
MAR											
14...	--	ND	--	ND	ND	ND	ND	ND	ND	ND	ND
APR											
25...	--	ND	--	ND	--	ND	--	ND	--	ND	--
MAY											
31...	.5	ND	--	ND	ND	ND	ND	ND	ND	ND	ND
JUN											
28...	8.0	ND	--	ND	ND	ND	ND	ND	ND	ND	ND
AUG											
16...	--	ND	--	ND	--	ND	--	ND	--	ND	--

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)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)
NOV										
15...	--	ND	--	ND	--	ND	--	ND	--	ND
15...	ND	--	ND	--	ND	--	ND	--	ND	--
15...	--	--	--	--	--	--	--	--	--	--
FEB										
07...	ND	--	ND	--	ND	--	ND	--	ND	--
MAR										
14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
APR										
25...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
31...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN										
28...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG										
16...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRITHION, TOTAL (UG/L)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV										
15...	--	ND	--	ND	--	ND	--	ND	--	ND
15...	ND	--	ND	--	ND	--	ND	--	ND	--
15...	--	--	--	--	--	--	--	--	--	--
FEB										
07...	ND	--	ND	--	ND	--	ND	--	ND	--
MAR										
14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
APR										
25...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
31...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN										
28...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG										
16...	ND	--	ND	--	ND	--	ND	--	ND	--

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
OCT							
04...	0715	12200	30.0	1400	46100	28	38
04...	1015	12300	27.0	766	25400	--	--
NOV							
15...	1005	1750	25.0	88	416	--	--
DEC							
06...	1355	8500	20.5	569	13100	--	--
JAN							
10...	1010	4250	12.0	189	2170	--	--
FEB							
07...	1010	1700	13.0	80	367	--	--
MAR							
14...	1330	2780	18.0	241	1810	--	--
APR							
25...	1322	4320	27.0	558	6510	--	--
MAY							
31...	1255	237	29.0	116	74	--	--
JUN							
28...	1352	9000	28.5	627	15200	--	--
29...	1715	8780	29.0	1140	27000	69	73
30...	1730	8720	29.5	1230	29000	66	66
JUL							
10...	1730	5000	29.5	1360	18400	64	68
AUG							
16...	0948	220	29.0	46	27	--	--
SEP							
10...	1730	3280	27.5	524	4640	64	70
12...	1415	2600	29.0	467	3280	--	--

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
OCT						
04...	66	92	95	99	100	--
04...	--	--	--	85	--	--
NOV						
15...	--	--	--	86	--	--
DEC						
06...	--	--	--	80	--	--
JAN						
10...	--	--	--	68	--	--
FEB						
07...	--	--	--	63	--	--
MAR						
14...	--	--	--	73	--	--
APR						
25...	--	--	--	72	--	--
MAY						
31...	--	--	--	86	--	--
JUN						
28...	--	--	--	80	--	--
29...	85	90	95	99	100	--
30...	81	90	96	99	100	--
JUL						
10...	78	87	92	99	100	--
AUG						
16...	--	--	--	94	--	--
SEP						
10...	80	88	91	98	99	100
12...	--	--	--	86	--	--

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	NOV 15,78		MAR 14,79		MAY 31,79		JUN 28,79	
TIME	1005		1330		1255		1352	
TOTAL CELLS/ML	120000		20000		50000		13000	
DIVERSITY: DIVISION	0.6		0.5		1.2		0.5	
.CLASS	0.6		0.5		1.2		0.5	
..ORDER	1.3		0.6		2.3		0.8	
...FAMILY	1.6		0.6		2.7		1.7	
....GENUS	2.3		0.7		2.9		1.7	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	7600#	15	--	-
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	380	1	--	-
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	*	0	--	-
....MICRACTINIUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	970	1	--	-	510	1	*	0
....CHLORELLA	--	-	--	-	--	-	--	-
....CHODATELLA	*	0	--	-	--	-	--	-
....CLOSTERIOPSIS	--	-	--	-	*	0	--	-
....DICTYOSPHAERIUM	3300	3	--	-	960	2	--	-
....KIRCHNERIELLA	*	0	--	-	--	-	100	1
....OOCYSTIS	1500	1	--	-	1100	2	*	0
....SELENASTRUM	*	0	--	-	--	-	*	0
....TETRAEDRON	--	-	--	-	*	0	*	0
...SCENEDESMACEAE								
....CRUCIGENIA	1700	1	160	1	760	2	--	-
....SCENEDESMUS	*	0	600	3	510	1	860	7
....TETRASTRUM	1100	1	--	-	250	1	*	0
..OEDOGONIALES								
...OEDOGONIACEAE								
....OEDOGONIUM	--	-	--	-	1300	3	--	-
..TETRASPORALES								
...COCCOMYXACEAE								
....ELAKATOTHRIX	*	0	--	-	--	-	--	-
..ULOTRICHALES								
...ULOTRICHACEAE								
....BINUCLEARIA	--	-	--	-	8900#	18	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	*	0	160	1	700	1	*	0
....PLATYMONAS	--	-	--	-	--	-	--	-
...PHACOTACEAE								
....PHACOTUS	*	0	--	-	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	--	-	*	0	--	-
....EUASTRUM	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	830	1	240	1	570	1	--	-
....MELOSIRA	*	0	--	-	--	-	--	-
..PENNALES								
...DIATOMACEAE								
....DIATOMA	--	-	*	0	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	*	0	--	-
....SYNEDRA	--	-	--	-	*	0	--	-
...NAVICULACEAE								
....ENTOMONEIS	--	-	--	-	*	0	--	-
....NAVICULA	--	-	240	1	*	0	--	-
...NITZSCHIACEAE								
....NITZSCHIA	1900	2	360	2	700	1	65	1
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	22000#	18	--	-	3100	6	--	-
....ANACYSTIS	62000#	51	--	-	2400	5	800	6
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	1800	15
....ANABAENOPSIS	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	17000	14	18000#	91	19000#	38	8200#	65
....SCHIZOTHRIX	--	-	--	-	--	-	--	-
....SPIRULINA	--	-	--	-	--	-	--	-
...RIVULARIACEAE								
....RAPHIDIOPSIS	5800	5	--	-	--	-	520	4
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	*	0	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	--	-	*	0	--	-

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

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE	JUL 18,79		AUG 16,79		SEP 12,79	
TIME	1130		0948		1415	
TOTAL CELLS/ML	410000		270000		400000	
DIVERSITY: DIVISION	0.1		0.1		0.2	
.CLASS	0.1		0.1		0.2	
..ORDER	0.3		0.3		0.4	
...FAMILY	0.5		0.4		0.4	
....GENUS	0.5		0.4		0.5	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	--	-
...HYDRODICTYACEAE						
....PEDIASTRUM	--	-	--	-	--	-
...MICRACTINIACEAE						
....GOLENKINIA	--	-	--	-	--	-
....MICRACTINIUM	--	-	*	0	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	*	0	*	0
....CHLORELLA	--	-	--	-	*	0
....CHODATELLA	--	-	*	0	--	-
....CLOSTERIOPSIS	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	1700	1	--	-
....KIRCHNERIELLA	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-
....TETRAEDRON	*	0	--	-	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	*	0	--	-	--	-
....SCENEDESMUS	*	0	*	0	3800	1
....TETRASTRUM	*	0	--	-	--	-
..OEDOGONIALES						
...OEDOGONIACEAE						
....OEDOGONIUM	--	-	--	-	--	-
..TETRASPORALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	--	-	--	-
..ULOTRICHALES						
...ULOTRICHACEAE						
....BINUCLEARIA	5100	1	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	*	0	--	-	--	-
....PLATYMONAS	--	-	--	-	*	0
...PHACOTACEAE						
....PHACOTUS	--	-	--	-	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	--	-
....EUASTRUM	*	0	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	*	0
....MELOSIRA	--	-	--	-	--	-
..PENNALES						
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-
...NAVICULACEAE						
....ENTOMONEIS	--	-	--	-	--	-
....NAVICULA	--	-	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	--	-	*	0	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	5300	1	3300	1	13000	3
....ANACYSTIS	3600	1	2100	1	*	0
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	--	-
....ANABAENOPSIS	9100	2	2700	1	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	380000#	94	260000#	95	--	-
....SCHIZOTHRIX	--	-	--	-	370000#	93
....SPIRULINA	*	0	--	-	3300	1
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..GYMNODINIALES						
...GYMNODINIACEAE						
....GYMNODINIUM	--	-	--	-	--	-

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

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

MONTH	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. 1978.....	303440	667	410	335000	83	67800	130	109000	170
NOV. 1978.....	135370	1060	650	238000	130	48400	210	77500	280
DEC. 1978.....	164610	1080	660	295000	130	59000	220	96500	280
JAN. 1979.....	88213	1150	710	168000	140	34500	230	54700	300
FEB. 1979.....	45100	1350	830	101000	180	22200	260	32200	350
MAR. 1979.....	72520	1110	680	134000	140	27400	220	43300	290
APR. 1979.....	64122	1130	700	120000	140	24600	230	39300	290
MAY 1979.....	69325	1190	730	136000	150	27800	240	44400	310
JUNE 1979.....	245303	1130	690	459000	140	93300	230	150000	290
JULY 1979.....	97865	1080	660	174000	130	35400	220	56900	280
AUG. 1979.....	12621	1250	770	26200	160	5500	250	8450	320
SEPT 1979.....	47215	1480	910	117000	210	26500	290	36500	380
TOTAL	1345704	**	**	2300000	**	472000	**	749000	**
WTD. AVG.	3690	1030	630	**	130	**	210	**	270

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	607	868	1080	1060	1320	1330	1050	1070	1250	1080	1150	1200
2	673	881	1060	1050	1330	1320	1050	1070	1330	1100	1110	1220
3	675	966	1050	1040	1320	1320	1030	1150	1310	1100	1140	1240
4	725	729	1060	1050	1310	1340	1080	1170	1300	1100	1150	1260
5	618	770	1060	1010	1300	1360	1070	1150	1320	1100	1200	1500
6	691	810	1080	1090	1310	1330	1110	1150	1340	1070	1270	1700
7	715	860	1090	1100	1320	1310	1120	1180	1350	1070	1280	1500
8	602	900	1080	1110	1320	1300	1160	1250	1340	1040	1330	1500
9	687	930	1090	1140	1340	1310	1200	1310	1250	1000	1270	1600
10	625	950	1080	1140	1390	1250	1170	1300	1200	900	1280	2100
11	630	966	1090	1160	1400	1040	1170	1230	1100	1020	1260	1600
12	605	1000	1100	1160	1410	1070	1150	1210	1080	1050	1300	2000
13	595	1010	1140	1180	1390	1060	1040	1200	1090	1100	1320	1810
14	600	1020	1160	1190	1400	1060	1040	1230	1080	1130	1290	1720
15	622	1070	1110	1210	1380	1060	1100	1230	1110	1150	1270	1140
16	632	1050	1130	1200	1320	1060	1190	1180	1090	1160	1240	1140
17	696	1100	1110	1170	1360	1060	1180	1160	1090	1170	1250	1140
18	660	1170	1120	1300	1340	1050	1060	1230	1100	1200	1400	1310
19	645	1180	1150	1240	1320	1050	1050	1170	1100	1150	1400	1310
20	650	1190	1140	1350	1340	1040	1080	1160	1100	1160	1390	1300
21	639	1190	1160	1340	1370	1060	1070	1210	1100	1180	1280	1610
22	652	1170	1100	1330	1320	1050	1130	1220	1140	1200	1310	1570
23	669	1180	1040	1440	1380	1060	1230	1230	1150	1230	1370	1500
24	645	1120	1050	1430	1330	1080	1240	1170	1150	1230	1370	1420
25	642	1120	1060	1290	1350	1070	1230	1200	1160	1150	1300	1290
26	752	1140	1040	1300	1360	1060	1270	1210	1150	1160	1280	1240
27	740	1130	1030	1270	1350	1050	1170	1220	1100	1160	1270	1690
28	1040	1130	1020	1250	1350	1050	1190	1320	1090	1200	1260	1720
29	1020	1120	1020	1230	---	1060	1100	1250	1050	1150	1250	1740
30	1030	1120	1040	1320	---	1050	1070	1240	1060	1150	1230	1740
31	862	---	1050	1320	---	1060	---	1240	---	1150	1210	---
MEAN	698	1030	1080	1210	1350	1140	1130	1200	1170	1120	1270	1490

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.0	28.5	28.5	---	15.5	25.0	---	29.0	30.0	---	30.5	28.0
2	30.0	28.0	28.5	16.0	16.0	24.5	27.0	30.0	30.0	29.0	30.0	---
3	30.0	28.0	28.5	16.5	16.0	25.0	27.0	29.5	---	29.0	30.0	28.0
4	30.0	28.0	28.5	16.0	---	---	27.5	29.0	30.5	29.0	30.5	28.0
5	29.5	---	28.5	16.0	15.5	25.0	27.5	29.5	30.0	29.5	---	28.0
6	29.5	---	28.5	16.5	15.5	26.0	27.5	---	30.5	29.0	30.5	28.0
7	29.0	---	28.5	---	15.5	26.0	27.5	29.0	30.5	29.0	30.5	28.5
8	29.0	---	25.0	16.0	15.5	25.5	---	29.5	30.0	---	30.5	28.0
9	29.0	---	25.0	16.0	16.0	26.0	26.5	29.5	30.5	29.5	30.5	---
10	29.0	---	---	15.0	16.5	26.0	27.0	29.5	---	29.5	30.5	27.5
11	29.0	28.5	23.5	15.0	---	---	27.5	29.5	30.5	29.5	31.0	28.0
12	29.0	---	22.5	15.0	17.0	26.0	27.0	29.5	30.0	29.5	---	28.0
13	29.0	28.0	21.0	15.5	17.5	26.0	28.0	---	30.0	29.5	30.0	28.0
14	28.5	28.0	20.0	---	17.5	25.5	28.0	29.0	30.0	29.5	30.0	27.5
15	28.5	28.0	20.0	15.5	---	25.5	---	29.5	30.5	---	---	27.5
16	28.5	28.0	20.0	15.5	18.5	26.0	28.0	29.5	30.5	30.0	30.0	---
17	29.0	28.5	---	16.0	19.5	26.0	28.0	29.5	---	29.5	30.0	27.5
18	29.5	28.5	20.0	15.5	---	---	28.5	29.5	30.5	29.5	30.0	27.5
19	28.5	---	19.5	15.5	20.0	26.0	28.5	30.0	30.0	29.5	---	27.5
20	28.0	28.5	20.0	15.5	20.0	26.0	28.5	---	30.5	30.0	30.0	27.5
21	28.0	28.0	19.0	---	21.0	26.0	28.5	30.0	30.0	30.0	30.0	27.5
22	28.0	28.0	19.0	15.5	22.0	26.0	---	30.0	30.0	---	30.0	27.0
23	28.0	28.5	19.0	16.0	22.0	26.0	29.5	30.0	30.0	30.0	30.0	---
24	28.5	28.5	---	16.0	23.0	26.5	29.5	30.0	---	30.0	29.0	27.0
25	28.5	28.5	19.0	16.0	---	---	29.5	30.0	29.0	30.0	29.0	27.5
26	28.5	---	19.0	16.5	23.5	27.0	29.5	30.5	29.0	30.5	---	27.5
27	28.5	28.5	19.0	15.5	24.0	27.0	29.5	---	29.5	30.0	29.0	27.5
28	28.5	28.5	18.0	---	25.0	26.5	29.5	30.0	29.5	30.0	29.0	27.0
29	---	28.0	18.0	15.5	---	26.5	---	30.0	29.0	---	28.5	---
30	28.0	28.5	17.0	15.5	---	27.0	29.5	30.5	29.5	30.0	28.5	---
31	28.0	---	---	15.0	---	27.0	---	30.0	---	---	28.0	---
MEAN	29.0	28.5	22.5	15.5	19.0	26.0	28.0	29.5	30.0	29.5	30.0	27.5

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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	12100	730	23800	3750	130	1320	7610	720	14800
2	12400	1150	38500	3690	122	1220	8320	770	17300
3	12400	1190	39800	3660	156	1540	8880	700	16800
4	12200	1240	40800	3600	134	1300	9100	790	19400
5	12300	760	25200	3610	140	1360	9150	800	19800
6	12600	600	20400	3640	150	1470	8810	870	20700
7	12900	730	25400	3600	140	1360	8250	700	15600
8	12900	700	24400	3460	130	1210	7730	550	11500
9	12700	590	20200	3130	120	1010	7550	490	9990
10	12700	740	25400	2640	100	713	7500	500	10100
11	12700	1050	36000	2420	180	1180	7190	490	9510
12	13000	780	27400	2300	140	869	6460	310	5410
13	12900	720	25100	1740	136	639	5330	190	2730
14	12600	670	22800	1460	140	552	4400	150	1780
15	12500	590	19900	1680	128	581	4020	250	2710
16	12300	520	17300	2090	200	1130	4040	250	2730
17	12100	670	21900	3450	460	4280	4290	250	2900
18	11700	900	28400	4560	700	8620	4140	390	4360
19	10700	650	18800	5430	650	9530	3680	260	2580
20	9490	500	12800	6020	750	12200	3160	250	2130
21	8600	600	13900	6440	950	16500	2910	210	1650
22	7920	530	11300	6480	950	16600	2770	220	1650
23	7120	420	8070	6580	720	12800	2700	310	2260
24	6220	320	5370	6860	670	12400	2890	400	3120
25	5180	320	4480	6890	580	10800	3180	390	3350
26	4360	260	3060	6990	530	10000	3530	250	2380
27	3700	260	2600	7170	550	10600	3640	200	1970
28	3500	350	3310	7370	540	10700	3240	220	1920
29	3730	340	3420	7360	560	11100	3170	180	1540
30	3980	250	2690	7300	600	11800	3210	200	1730
31	3940	160	1700	---	---	---	3760	180	1830
TOTAL	303440	---	574200	135370	---	175384	164610	---	216230

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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	4600	170	2110	1710	47	217	1590	58	249
2	5110	166	2290	1670	50	225	1620	62	271
3	5170	172	2400	1500	60	243	1600	66	285
4	4960	156	2090	1450	55	215	1690	50	228
5	4790	186	2410	1560	51	215	2000	45	243
6	4710	162	2060	1670	75	338	1870	36	182
7	4780	160	2060	1750	56	265	1350	76	277
8	4750	160	2050	1680	48	218	980	88	233
9	4660	130	1640	1580	70	299	1160	60	188
10	4120	150	1670	1650	49	218	1710	167	771
11	3960	210	2250	1940	45	236	2260	305	1860
12	3950	202	2150	2160	42	245	2730	297	2190
13	3840	132	1370	1860	38	191	2860	300	2320
14	3400	100	918	1370	44	163	2780	230	1730
15	3100	94	787	1160	50	157	2750	200	1490
16	2720	92	676	1050	74	210	2620	300	2120
17	2020	132	720	1010	46	125	2480	271	1810
18	1390	56	210	1360	47	173	2430	245	1610
19	979	100	264	1650	48	214	2600	258	1810
20	849	95	218	1730	35	163	2750	308	2290
21	680	90	165	1760	48	228	2690	280	2030
22	781	88	186	1480	74	296	2330	365	2300
23	828	112	250	1400	60	227	2270	270	1650
24	966	138	360	1680	61	277	2430	220	1440
25	1090	166	489	1830	80	395	2630	245	1740
26	1100	156	463	1980	93	497	3180	210	1800
27	1510	142	579	1890	50	255	3340	275	2480
28	1840	150	745	1570	49	208	3080	215	1790
29	1940	153	801	---	---	---	3000	150	1220
30	1830	68	336	---	---	---	2890	185	1440
31	1790	56	271	---	---	---	2850	135	1040
TOTAL	88213	---	34988	45100	---	6713	72520	---	41087

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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	3010	105	853	4070	230	2530	107	90	26
2	3260	165	1450	4270	330	3800	124	100	33
3	3350	147	1330	4020	400	4340	652	740	1300
4	2280	85	523	4130	185	2060	1500	760	3080
5	1200	105	340	4580	110	1360	2800	310	2340
6	836	65	147	4920	140	1860	3290	320	2840
7	802	35	76	4760	120	1540	4810	1060	13800
8	584	45	71	4010	85	920	6970	960	18100
9	555	65	97	3550	80	767	8130	640	14000
10	764	80	165	2960	80	639	9170	830	20500
11	888	60	144	2360	60	382	10200	1220	33600
12	825	60	134	1900	50	256	10800	1070	31200
13	577	560	872	1820	105	516	11000	790	23500
14	546	555	818	2450	250	1650	11000	910	27000
15	369	480	478	2790	220	1660	11100	900	27000
16	270	380	277	2650	180	1290	11100	790	23700
17	746	280	564	2650	140	1000	11200	930	28100
18	1330	230	826	2250	105	638	11400	880	27100
19	2670	220	1590	1930	80	417	11400	860	26500
20	2970	215	1720	1390	73	274	11300	1070	32600
21	2360	230	1470	846	73	167	11000	980	29100
22	2080	260	1460	471	150	191	10600	1160	33200
23	2930	360	2850	509	220	302	10300	1390	38700
24	4010	435	4710	735	200	397	10000	1350	36500
25	4330	500	5850	1190	300	964	9890	1370	36600
26	4410	390	4640	625	160	270	9620	1050	27300
27	4290	435	5040	299	115	93	9260	880	22000
28	4060	405	4440	318	110	94	9080	650	15900
29	3900	340	3580	265	125	89	8780	690	16400
30	3920	260	2750	370	210	210	8720	1170	27500
31	---	---	---	237	110	70	---	---	---
TOTAL	64122	---	49265	69325	---	30746	245303	---	639519

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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	8480	1040	23800	632	76	130	1340	44	159
2	8280	850	19000	394	40	43	918	48	119
3	7920	560	12000	347	59	55	747	50	101
4	7390	480	9580	356	68	65	642	61	106
5	6740	540	9830	269	70	51	588	72	114
6	5920	520	8310	196	79	42	721	65	127
7	5850	520	8210	158	69	29	754	50	102
8	6880	470	8730	501	76	103	749	49	99
9	6960	380	7140	526	64	91	1420	300	1150
10	6070	250	4100	278	71	53	3050	1280	10500
11	4710	210	2670	189	64	33	3370	760	6920
12	3510	180	1710	194	70	37	2540	510	3500
13	2310	150	936	282	73	56	1950	420	2210
14	1510	45	183	330	86	77	2630	710	5040
15	1210	25	82	181	85	42	3590	610	5910
16	1060	75	215	224	82	50	3940	390	4150
17	775	45	94	298	95	76	3450	270	2520
18	497	45	60	284	82	63	2560	170	1180
19	522	60	85	220	85	50	1650	110	490
20	792	55	118	198	86	46	1240	100	335
21	1000	90	243	230	91	57	1220	110	362
22	1050	110	312	216	86	50	1470	150	595
23	1200	105	340	142	41	16	1530	200	826
24	1740	80	376	108	43	13	1360	170	624
25	1670	80	361	105	45	13	1090	156	459
26	958	65	168	108	44	13	801	28	61
27	516	40	56	178	45	22	510	82	113
28	507	45	62	467	174	219	409	86	95
29	525	50	71	1110	102	306	496	82	110
30	582	70	110	2050	86	476	480	80	104
31	731	70	138	1850	43	215	---	---	---
TOTAL	97865	---	119090	12621	---	2592	47215	---	48181
YEAR	1345704		1937995						

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 stations during water year 1979

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Colorado River basin				
08129500	Dove Creek Spring near Knickerbocker, TX	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*, 1959-79	10- 4-78 11-14-78 12-19-78 1-31-79 4-19-79 5-30-79 7-11-79 8-31-79	21 22 19 18 20 20 18 15
08131300	South Concho River above Pecan Creek near San Angelo, TX	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)	1963-79	10- 4-78 11-14-78 12-18-78 1-30-79 3-12-79 4-16-79 5-30-79 7-13-79 8-31-79	4.0 4.5 4.8 5.2 5.6 6.0 4.3 3.5 3.2
08143900	Springs at Fort McKavett, TX	Lat 30°50'03", long 100°05'37", Menard County, at Fort McKavett.	(a)	1902, 1905, 1922, 1942, 1948-49, 1951-52, 1955-56, 1958-79	2-15-79 8-29-79	30 25
08146500	San Saba Springs at San Saba, TX	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, 1959-79	11-29-78	7.6
08149400	South Llano River near Telegraph, TX	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, 1959-79	1- 8-79 7-11-79	21 19
08149500	Seven Hundred Springs near Telegraph, TX	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, 1959-79	1- 8-79 7-11-79	18 14
08153050	Pedernales River near Stonewall, TX	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 Branch, and at mile 68.9.	-	1979	6-20-79 7-10-79 9-12-79	216 100 49
08155250	Barton Creek at Lost Creek near Austin, TX	Lat 30°16'28", long 97°50'39", Travis County, at Lost Creek Boulevard and 6 mi west of the State Capitol Building in Austin.	-	1979	1-30-79 2-26-79 5-17-79 6-28-79 8- 8-79	51 89 85 21 8.2
08155400	Barton Creek above Barton Springs at Austin, TX	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	1919-79	1-19-79 3-16-79 4- 5-79 6-13-79 9-19-79	41 11 212 47 1.9

* Operated as a continuous-record station.
a Not applicable.

Discharge measurements made at low-flow partial-record stations during water year 1979--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Guadalupe River basin				
08168000	Hueco Springs near New Braunfels, TX	Lat 29°45'31", long 98°08'34", Comal County, two springs located 200 and 400 ft west of the Guadalupe River, 0.3 mi upstream from mouth of Elm Creek, and 4.2 mi north of New Braunfels.	(a)	1944-79	10- 6-78 11-13-78 12-26-78 2- 6-79 3-21-79 4-30-79 6- 4-79 7-16-79 8-30-79	44 38 36 100 114 92 115 92 64
08168600	Blieders Creek at New Braunfels, TX	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.	-	1962-79	2- 6-79	0
08168700	Panther Canyon at New Braunfels, TX	Lat 29°42'47", long 98°08'14", Comal County, at Landa Park Drive crossing in Landa Park at New Braunfels.	-	1962-79	2- 6-79	0
08168800	Dry Comal Creek at New Braunfels, TX	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.	-	1962-79	2- 6-79	1/
08177180	Coleto Creek at Coletoville Road near Schroeder, TX	Lat 28°45'46", long 97°09'53", Goliad County, at bridge on Coletoville Road, 1.4 mi upstream from Turkey Creek, 4.7 mi downstream from Hog Thief Creek, and 5.9 mi downstream from station 08177000 (discontinued).	393	1978-79	10-24-78 12- 4-78 12-18-78 1- 4-79 2- 7-79 2-26-79	15 24 15 66 578 50
08177250	Turkey Creek at first crossing upstream from Coleto Creek near Schroeder, TX	Lat 28°45'02", long 97°10'52", Goliad County, at bridge on first crossing upstream from Coleto Creek and 0.9 mi upstream from Coleto Creek (discontinued).	21.8	1978-79	10-24-78 12- 4-78 12-18-78 1- 4-79 2-26-79	.22 .28 .16 .51 .45
08177450	Coleto Creek at damsite near Victoria, TX	Lat 28°43'23", long 97°09'49", Victoria County, about 100 ft downstream from centerline targets at Coleto Creek damsite (discontinued).	494	1978-79	10-24-78 12- 4-78 12-19-78 1- 4-79 2-26-79	20 22 21 79 68
		Nueces River basin				
08204000	Leona River spring flow near Uvalde, TX	Lat 29°09'10", long 99°44'30", 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)	1931-33*, 1942-66*, 1967-79	10- 2-78 11-20-78 1- 2-79 2-14-79 5- 2-79 6-12-79 7-25-79 9- 5-79	31 27 30 9.2 23 63 41 39
		Rio Grande basin				
08425500	Phantom Lake Spring near Toyahvale, TX	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*, 1967-79	10-11-78 11-21-78 1- 9-79 2-13-79 3-27-79 5- 8-79 6-20-79 7-31-79 9-12-79	27 13 7.1 5.5 4.4 4.2 3.9 3.6 7.1
08427000	Giffin Springs at Toyahvale, TX	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*, 1941-79	1- 9-79 7-31-79	3.8 3.9

* Operated as a continuous-record station.
1/ Surface runoff; springflow not measured.
a Not applicable.

Discharge measurements made at low-flow partial-record stations during water year 1979--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Rio Grande basin--Continued				
08427500	San Solomon Springs at Toyahvale, TX	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*, 1966-79	10-11-78 11-21-78 1- 9-79 2-13-79 3-27-79 5- 8-79 6-20-79 7-31-79 9-12-79	47 38 34 30 26 39 32 26 28
08444500	Comanche Springs at Fort Stockton, TX	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*, 1965-79	1- 8-79 8- 1-79	0 0
08456300 c/	Las Moras Springs at Brackettville, TX	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, 1951-79	10-11-78 11-14-78 12-12-78 1- 9-79 2-13-79 3-13-79 4-10-79 5- 8-79 6-12-79 7-10-79 8-14-79 9-11-79	17 34 21 16 14 11 33 33 28 21 15 10

* 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 or 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 1979

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
Colorado River basin							
08155550	West Bouldin Creek at Riverside Drive, Austin, TX	Lat 30°15'49", long 97°45'17", Travis County, on upstream side of eastbound bridge on Riverside Drive in Austin.	3.12	1975-79	5-21-79	4.64	1,080
08156650	Shoal Creek at Steck Avenue, Austin, TX	Lat 30°21'55", long 97°44'11", Travis County, on downstream side of bridge on Steck Avenue in Austin.	3.19	1975-79	7-19-79	3.63	957
08156750	Shoal Creek at White Rock Drive, Austin, TX	Lat 30°20'21", long 97°44'50", Travis County, on downstream side of bridge on White Rock Drive in Austin.	7.56	1975-79	7-19-79	10.77	1,920
08158100	Walnut Creek at Farm Road 1325 near Austin, TX	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	1975-79	12-31-79	4.57	233
08158200	Walnut Creek at Dessau Road, Austin, TX	Lat 30°22'30", long 97°39'37", Travis County, on downstream side of bridge on Dessau Road and 8.4 mi northeast of the State Capitol Building in Austin.	26.2	1975-79	5-21-79	8.60	1,200
08158300	Ferguson Branch at Springdale Road, Austin, TX	Lat 30°19'53", long 97°39'12", Travis County, on downstream side of bridge on Springdale Road in Austin.	1.63	1975-79	5-21-79	8.60	1,040
08158400	Little Walnut Creek at Interstate Highway 35, Austin, TX	Lat 30°20'57", long 97°41'34", Travis County, on downstream frontage road bridge in Interstate Highway 35 in Austin.	5.57	1975-79	5-21-79	6.20	2,090
08158500	Little Walnut Creek at Manor Road, Austin, TX	Lat 30°18'34", long 97°40'04", Travis County, on downstream side of bridge on Manor Road in Austin.	12.1	1975-79	5-21-79	12.10	5,640
08158820	Bear Creek at Farm Road 1626 near Manchaca, TX	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, TX	24.0	1979	7-27-79	6.57	1,900
08158880	Boggy Creek (South) at Circle S Road, Austin, TX	Lat 30°10'50", long 97°46'55", Travis County, on downstream side of bridge on Circle S Road in Austin.	3.58	1976-79	2-23-79	8.65	1,800
08158930	Williamson Creek at Manchaca Road, Austin, TX	Lat 30°13'16", long 97°47'36", Travis County, on downstream side of bridge on Manchaca Road in Austin.	19.0	1975-79	5-22-79	12.49	5,560
Guadalupe River basin							
08169500	Guadalupe River at New Braunfels, TX	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*, 1974-79	7-27-79	14.45	14,200
08173900	Guadalupe River at Gonzales, TX	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.	-	1977-79	5- 3-79	22.47	11,800
08177900	San Antonio River at Navarro Street, San Antonio, TX	Lat 29°25'50", long 98°29'24", Bexar County, at bridge on Navarro Street in San Antonio.	-	1973-79	6- 1-79	e643.69	-
08178100	San Pedro Creek at Santa Rosa Street, San Antonio, TX	Lat 29°25'51", long 98°29'49", Bexar County, at bridge on Santa Rosa Street in San Antonio.	-	1973-79	4-29-79	e645.07	-
08178350	Martinez Creek at Fredericksburg Road, San Antonio, TX	Lat 29°27'22", long 98°31'04", Bexar County, at bridge on Fredericksburg Road in San Antonio.	-	1973-79	1-10-79	e682.22	-
08178400	Alazan Creek at West Martin Street, San Antonio, TX	Lat 29°25'51", long 98°30'51", Bexar County, at bridge on West Martin Street in San Antonio.	-	1973-79	6- 1-79	e639.39	-

* Operated as a continuous-record station.
e Elevation, in feet, above National Geodetic Vertical Datum of 1929.

Annual maximum stage and (or) discharge during water year 1979--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Guadalupe River basin--Continued					
08178450	Apache Creek at South Zarzamora Street, San Antonio, TX	Lat 29°24'47", long 98°31'42", Bexar County, at bridge on South Zarzamora Street in San Antonio.	-	1973-79	6- 1-79	e630.58	-
08178500	San Pedro Creek at Furnish Street, San Antonio, TX	Lat 29°24'22", long 98°30'38", Bexar County, at bridge on Furnish Street in San Antonio.	-	1973-79	6- 1-79	e607.19	-
08178550	San Antonio River at Ashley Street (Berg's Mill), San Antonio, TX	Lat 29°20'04", long 98°27'20", Bexar County, at bridge on Ashley Street in San Antonio.	-	1973-79	6- 1-79	e516.12	-
08178720	Salado Creek at Rittiman Road, San Antonio, TX	Lat 29°29'05", long 98°24'59", Bexar County, at bridge on Rittiman Road in San Antonio.	-	1968-79	4-21-79	e660.97	-
08178740	Salado Creek at East Houston Street, San Antonio, TX	Lat 29°25'27", long 98°25'55", Bexar County, at bridge on East Houston Street in San Antonio.	-	1969-79	4-21-79	e605.82	-
08178760	Salado Creek at U.S. Highway 87, San Antonio, TX	Lat 29°23'53", long 98°25'35", Bexar County, at bridge on U.S. Highway 87 in San Antonio.	-	1969-79	4-21-79	e583.21	-
08178780	Salado Creek at Southcross Boulevard, San Antonio, TX	Lat 29°22'28", long 98°25'32", Bexar County, at bridge on Southcross Boulevard in San Antonio.	-	1969-79	4-21-79	e556.78	-
		Nueces River basin					
08207220	Rutledge Hollow at 7th Street, Poteet, TX	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	6- 5-79	e420.45	-
08207300	Atascosa River at U.S. Highway 281, Pleasanton, TX	Lat 28°57'44", long 98°28'51", Atascosa County, at bridge on U.S. Highway 281 in Pleasanton.	-	1973-79	4-23-79	e345.28	-
		San Fernando Creek basin					
08212300	Tranquitas Creek at Kingsville, TX	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	1965-79	8-21-79	-	0

e Elevation, in feet, above National Geodetic Vertical Datum of 1929.

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 1979

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Guadalupe River basin						
San Antonio Springs	San Antonio River	Lat 29°27'56", long 98°28'04", Bexar County, just above Hildebrandt Street in San Antonio, TX.	-	1951-52, 1959-62, 1972, 1974-77, 1979	2-28-79 2-26-79	82 71
San Pedro Springs	San Pedro Creek	Lat 29°26'42", long 98°30'06", Bexar County, at San Pedro Park in San Antonio, TX.	-	1933-35, 1951-52, 1958-61, 1966, 1971, 1974-77, 1979	2-28-79 7-26-79	12 13
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, TX.	-	1939-41, 1952-53, 1962, 1965-79	10-11-78 11-14-78 12-12-78 1- 9-79 2-13-79 3-13-79 4-10-79 5- 8-79 6-12-79 7-10-79 8-14-79 9-11-79	15 16 16 16 13 12 16 13 13 13 14 12
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, TX.	-	1939-41, 1952-53, 1965-79	10-11-78 11-14-78 12-12-78 1- 9-79 2-13-79 3-13-79 4-10-79 5- 8-79 6-12-79 7-10-79 8-14-79 9-11-79	0 0 .39 0 0 0 0 0 1.1 0 0 0

1/ Measurements by International Boundary and Water Commission.

INDEX

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

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	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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