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-78-3

WATER YEAR 1978

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

CALENDAR FOR WATER YEAR 1978

1977

OCTOBER

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1978

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AUGUST

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SEPTEMBER

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U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-78-3

WATER YEAR 1978

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
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1979

Preface

This report was prepared by the U.S. Geological Survey in cooperation with the State of Texas and with 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 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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7. Author(s)			8. Performing Organization Rept. No. USGS-WDR-TX-78-3
9. Performing Organization Name and Address U.S. Geological Survey, Water Resources Division 300 East Eight Street Austin, TX 78701			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address U.S. Geological Survey, Water Resources Division 300 East Eight Street Austin, TX 78701			13. Type of Report & Period Covered Oct. 1, 1977 to Sept. 30, 1978 14.

15. Supplementary Notes

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

16. Abstracts

Surface-water data for the 1978 water year for Texas are presented in three volumes, appropriately identified as to content by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Also included are crest-stage and flood-hydrograph partial-record stations, reconnaissance partial-record stations, and low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. Records for a few pertinent stations in bordering States are also included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Texas.

17. Key Words and Document Analysis. 17a. Descriptors

*Texas, *Hydrologic data, *Surface water, *Water Quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water analyses

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group

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

WATER RESOURCES DATA FOR TEXAS, 1978

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 1978 water year are presented in three volumes, appropriately identified by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Records for a few pertinent stations in bordering states are also included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey in cooperation with State and Federal agencies in Texas.

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

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1975 water year, water data for streamflow and water quality are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as 'U.S. Geological Survey Water-Data Report TX-78-3.' 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 cooperative agreements with the Geological Survey in 1978 are:

Texas Department of Water Resources, J. M. Rose, 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 of 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; Chocolate Bayou Land and Water Company; 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; Richmond Rice Association; 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 1978 water year, two of the four index stations, Neches River near Rockland in east Texas and North Bosque River near Clifton in central Texas, had deficient runoff for the year. The index station in the west, North Concho River near Carlsbad, was in the median range, and the index station Guadalupe River near Spring Branch, in south-central Texas, was in the excessive range. 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, continued to decrease from 81 percent of capacity in September 1977, to 78 percent of capacity at the end of September 1978.

The 1978 water year began with deficient streamflow across the Panhandle and North Texas and near normal runoff in the remainder of the State. By the end of July, drought conditions had spread across the eastern two-thirds of the State with deficient streamflow noted in all areas except in the Rio Grande, Pecos, and Devils River Basins in far west Texas.

On July 31, 1978, tropical storm Amelia struck the Texas coast in the vicinity of Corpus Christi. The storm moved inland and produced torrential rains of 20 to 30 inches on August 1 and 2. The heaviest rainfall occurred north of the Edwards Escarpment in the Medina, Sabinal, and Guadalupe River Basins. Remnants of the storm continued to move northward into the Brazos River Basin where the storm collided with a stationary cold front. On August 3 and 4, rainfall amounts from 20 to 30 inches were recorded north of Abilene in Shackelford and Throckmorton Counties.

Along the path of the storm, flooding to some degree occurred in an area of approximately 25,000 square miles. Major flooding, some of it record breaking, occurred at the gaging stations and miscellaneous sites listed on the following page.

The large volume of runoff associated with the August floods in the upper Brazos River Basin had considerable effect on the water quality in the streams and reservoirs. The following table lists four sampling sites in the Brazos River basin in downstream order. The table shows the variations, before and after the flood, in the average specific conductance, along the centerline section of the three reservoirs and the range of specific conductance on the Brazos River below Whitney Lake.

	Before flood		After flood	
	Date (1978)	Specific conductance 1/	Date (1978)	Specific conductance 1/
Hubbard Creek Reservoir	June 9	1450	Aug. 29	700
Possum Kingdom Reservoir	June 13	4000	Aug. 30	1600
Whitney Lake	June 23	1600	Sept. 5	3000
Brazos River below Whitney Lake	July 1 - Aug. 1	1300 - 1600	Aug. 2-31	1600 - 3700

1/ In micromhos per centimeter at 25 C.

No.	Date	Site	Drainage area (mi^2)	Discharge (cfs)	Discharge (cfsm)	Recurrence Interval
08085500	Aug.4	Clear Fork Brazos River at Fort Griffin	3,988	149,000	37.4	> 100
08086150	Aug.4	North Fork Hubbard Creek near Albany	39.3	103,000	2,620	> 100
08086212	Aug.4	Hubbard Creek below Albany	613	330,000	538	> 100
08166000	.....	Johnson Creek near Ingram	114	73,900	648	60
08167000	.....	Guadalupe River at Comfort	838	240,000	286	> 100
08167500	.....	Guadalupe River near Spring Branch	1,315	158,000	120	> 100
08179000	.....	Medina River near Pipe Creek	474	281,000	593	> 100
		Miscellaneous sites				
a/08152800	.....	Spring Creek near Fredericksburg	14.1	42,500	3,010	> 100
.....	.....	Turtle Creek at SH 16 near Kerrville	26.5	32,700	1,230	...
.....	.....	North Prong Medina River near Medina	67.5	123,000	1,820	...

a/ Formerly gaged site.

Seventeen counties in central Texas sustained widespread damages from tropical storm Amelia. Thirty-three persons were drowned and 154 were injured. More than 1,400 homes were destroyed or damaged. Total damages from this storm were estimated to be more than 110 million dollars.

At the end of the 1978 water year, streamflow was excessive in the Guadalupe, San Antonio, and Pecos River Basins, and deficient in the remainder of the State.

DEFINITION OF TERMS

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

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

Use of the new terminology began with data for the 1978 water year, and therefore, it first appears in this publication. Definitions on which the terminology is based are included in the 'Definitions' section 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 multicelled plants, containing chlorophyll and lacking roots, stems, and leaves.

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

> Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which

produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL 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 organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually mL (milliliters) or L (liters).

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

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

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

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

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

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

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

Cubic foot per second (FT^3/S, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot pasing 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 a subsamples of the filtrate.

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

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

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 solition 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.

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 Unit Subcommittee on Sediment Terminology. The classification is as follows:

Classification	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 distribution 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, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, 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 bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceous 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 in a given time. It is computed by multiplying discharge (ft^3/s) times mg/L times 0.0027.

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

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

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

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

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

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

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

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

Substrate is the physical surface upon which an organism lived.

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

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

SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

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

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

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

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

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys, the computed contents may be increasingly in error due to the gradual accumulation of sediment.

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. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. 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 of 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 reivsed; '(m)' that only the instantaneous minimum was revised; '(P)' that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the Unites 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.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of 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 figure 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 crest 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 (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. 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 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 appropriate daily discharges 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 sources, of indefinite stage-relation, or of any other unusual condition at the gage site are indicated only if they are a month of 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. 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 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 due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such station, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

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

EXPLANATION OF SURFACE-WATER QUALITY RECORDS

Collection and examination of data

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

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

Water analysis

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

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

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

At stream-gaging stations where daily samples are obtained, tables are included to show monthly and annual means of specified conductance; concentrations of dissolved solids, chloride, sulfate, hardness; and loads of dissolved solids, chloride, and sulfate. The means 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 values 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.

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 measurement, 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 discharge 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-A12. *Fluorometric procedures are dye tracing*, by J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 p. $0.35. Not currently available.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p. $0.65.

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. $0.35.

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 collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 p. $2.40.

5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 p. $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 Slack: USGS--TWRI Book 5, Chapter A4. 1977. Revised edition. 332 p. $20.00.

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. $16.00.

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.

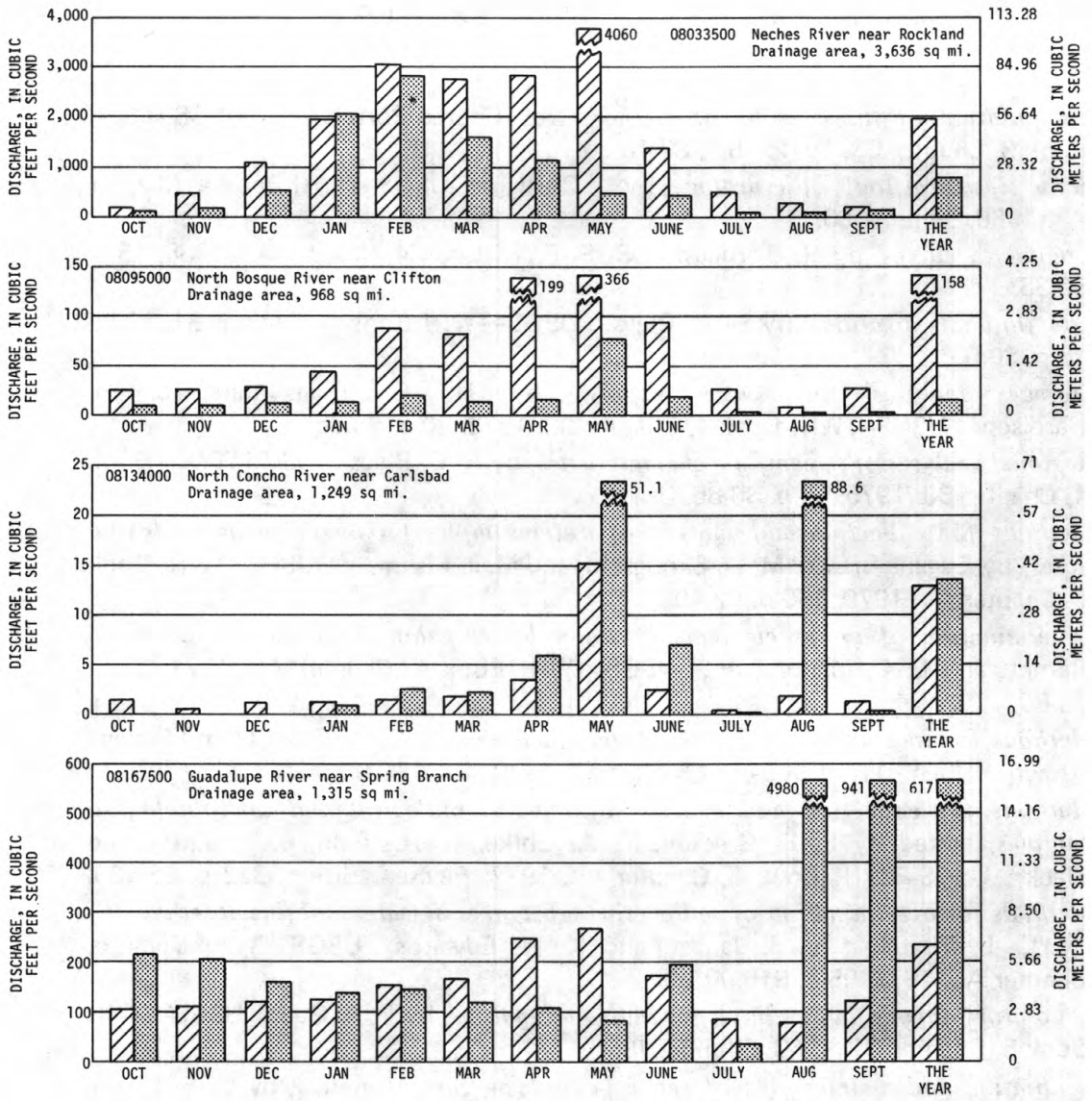

FIGURE 1.--COMPARISON OF DISCHARGE AT FOUR LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 1978 WATER YEAR WITH MEDIAN DISCHARGE FOR THE PERIOD 1941-70

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 500 ft (150 m) wide located at the left end of dam, and the second 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 in (610 mm) gate into a 30 in (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, 22,510 acre-ft (27.8 hm³) Oct. 1, elevation, 2,218.10 ft (676.077 m); minimum, 7,630 acre-ft (9.41 hm³) Sept. 20, 21, elevation, 2,209.00 ft (673.303 m).

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

2,209.0	7,630
2,214.0	14,780
2,219.0	24,420

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22510	20120	18510	16930	15710	14750	13040	10910	10680	11930	10190	8500
2	22430	20040	18460	16880	15680	14710	12970	10910	10700	11900	10120	8430
3	22340	19980	18420	16820	15650	14680	12910	10880	10760	11860	10060	8370
4	22140	19880	18380	16780	15580	14620	12870	10880	10780	11830	9990	8310
5	22020	19830	18320	16750	15540	14550	12810	10820	10760	11830	9920	8330
6	21930	19770	18290	16710	15510	14550	12750	10760	10990	11770	9900	8310
7	21850	19730	18250	16660	15470	14490	12690	10730	12690	12140	9860	8260
8	21790	19690	18210	16600	15440	14450	12600	10700	13440	12080	9790	8220
9	21730	19610	18160	16550	15400	14390	12510	10680	13510	11930	9740	8200
10	21650	19540	18120	16510	15370	14360	12450	10620	13480	11830	9680	8160
11	21570	19460	18080	16490	15370	14290	12390	10590	13310	11760	9680	8120
12	21490	19420	18030	16440	15330	14240	12320	10560	13280	11620	9660	8070
13	21410	19380	17970	16420	15330	14190	12260	10530	13230	11560	9660	8020
14	21330	19340	17920	16410	15300	14130	12200	10480	13180	11450	9530	7960
15	21240	19310	17830	16370	15250	14050	12110	10420	13060	11390	9470	7930
16	21160	19270	17750	16320	15210	14000	12050	10390	13090	11310	9390	7850
17	21080	19230	17610	16300	15180	13930	11990	10280	13070	11250	9330	7800
18	21000	19150	17590	16290	15140	13870	11830	10250	13060	11130	9260	7740
19	20920	19070	17550	16270	15110	13800	11770	10220	12970	11020	9130	7680
20	20880	19000	17500	16230	15020	13770	11710	10300	12870	10910	9130	7630
21	20840	18960	17440	16220	14990	13740	11650	10300	12810	10820	9090	7630
22	20780	18920	17410	16200	14950	13670	11560	10280	12750	10760	9050	9050
23	20720	18920	17330	16200	14900	13610	11480	10220	12690	10700	9020	11190
24	20640	18880	17300	16110	14850	13540	11390	10190	12570	10820	8980	11420
25	20590	18840	17260	16080	14810	13480	11330	10140	12480	10760	8910	11510
26	20550	18800	17220	16030	14800	13440	11280	10080	12390	10700	8860	11900
27	20450	18730	17190	15970	14780	13380	11190	10060	12320	10620	8810	13180
28	20350	18690	17130	15920	14760	13310	11110	9980	12200	10500	8740	13670
29	20290	18650	17100	15870	---	13250	11050	9920	12080	10480	8680	13800
30	20250	18570	17000	15820	---	13150	10990	9920	12000	10330	8610	13790
31	20170	---	16990	15770	---	13090	---	10450	---	10280	8560	---
MAX	22510	20120	18510	16930	15710	14750	13040	10910	13510	12140	10190	13800
MIN	20170	18570	16990	15770	14760	13090	10990	9920	10680	10280	8560	7630
(†)	2216.95	2216.12	2215.26	2214.57	2213.99	2212.96	2211.56	2211.18	2212.25	2211.06	2209.76	2213.39
(‡)	-2380	-1600	-1580	-1220	-1010	-1670	-2100	-540	+1550	-1720	-1720	+5230
(††)	1210	933	1070	1100	1020	1100	1130	713	991	1380	812	627

CAL YR 1977 MAX 41850 MIN 16990 ‡ -25030 †† 20100
WTR YR 1978 MAX 22510 MIN 7630 ‡ -8760 †† 12090

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

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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
NOV 29...	1415	646	8.2	11.5	140	0	36	11	84

DATE	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)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 29...	3.1	6.2	210	0	71	51	1.0	6.3	370

08118500 BULL CREEK NEAR IRA, TX
(Low-flow partial-record station)

LOCATION.--Lat 32°36'00", long 101°05'38", Scurry County, Hydrologic 12080002, 200 ft (61 m) upstream from bridge on Farm Road 2085, 1.9 mi (3.1 km) upstream from mouth, and 5.3 mi (8.5 km) downstream from Chimney Creek, 5.5 mi (8.8 km) west of Ira, and 8.3 mi (13.4 km) downstream from Bull Creek diversion dam.

DRAINAGE AREA.--25.6 mi² (66.3 km²) below Bull Creek diversion dam; 426 mi² (1,100 km²) above diversion dam.

PERIOD OF RECORD.--Periodic discharge measurements: February 1975 to current year. Operated as a daily discharge station October 1947 to December 1953, October 1958 to September 1962. Periodic water-quality data: December 1964 to June 1967, February 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN 16...	0830	.06	6290	7.8	7.0	1400	1200	300	150
MAR 20...	0815	.06	6080	7.6	12.5	1400	1200	310	140

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)
JAN 16...	860	10	9.4	260	0	600	1800	2.1	3850
MAR 20...	850	10	6.8	240	0	690	1600	.9	3720

08118600 COLORADO RIVER BELOW BULL CREEK NEAR IRA, TX
(Low-flow partial-record station)

LOCATION.--Lat 32°34'54", long 101°05'42", Scurry County, Hydrologic Unit 12080002, just downstream from Bull Creek, 5.1 mi (8.2 km) downstream from Colorado River Dam (Lake J. B. Thomas), and 5.5 mi (8.9 km) west of Ira, and at mile 831.8 (1,338.7 km).

PERIOD OF RECORD.--Chemical analyses: October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN 16...	1045	.17	21400	7.8	7.0	1900	1600	420	200
MAR 20...	0930	.04	19400	7.7	17.0	1900	1700	420	200

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)
JAN 16...	4600	46	14	290	0	2000	7000	3.4	14400
MAR 20...	4100	41	15	220	0	1800	6000	.1	12600

08119000 BLUFF CREEK NEAR IRA, TX
(Low-flow partial-record station)

LOCATION.--Lat 32°35'29", long 101°03'02", Scurry County, Hydrologic Unit 12080002, at bridge on Farm Road 1606, 1.8 mi (2.9 km) upstream from mouth and 2.8 mi (4.5 km) west of Ira.

DRAINAGE AREA.--42.6 mi² (110.3 km²).

PERIOD OF RECORD.--Periodic discharge measurements: February 1975 to current year. Operated as a daily discharge station October 1947 to September 1965. Periodic water-quality data: March 1964 to June 1967, February 1975 to current year.

DISCHARGE AND WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN 16...	1120	.35	2670	8.0	7.0	920	700	230	83
MAR 20...	1000	.15	3200	7.9	13.5	930	750	230	87

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)
JAN 16...	240	3.5	4.8	260	0	710	380	5.8	1780
MAR 20...	340	4.8	4.6	220	0	720	540	1.9	2030

08119100 BLUFF CREEK AT MOUTH NEAR IRA, TX
(Low-flow partial-record station)

LOCATION.--Lat 32°34'20", long 101°03'21", Scurry County, Hydrologic Unit 12080002, 150 ft (46 m) upstream from mouth and 2.9 mi (4.7 km) west of Ira.

DRAINAGE AREA.--44.1 mi² (114.2 km²).

PERIOD OF RECORD.--Periodic discharge measurements and water-quality data: February 1975 to current year.

DISCHARGE AND WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN 16...	1230	.35	3870	7.9	6.5	1000	800	250	94
MAR 20...	1030	.15	28100	7.5	13.0	2300	2200	490	260

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)
JAN 16...	500	6.8	5.6	260	0	830	750	5.3	2560
MAR 20...	6000	55	43	120	0	2300	8300	.1	17500

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); 20 years (water years 1959-78) partially regulated, 10.5 ft³/s (0.297 m³/s), 7,610 acre-ft/yr (9.38 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 cuve 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, 427 ft³/s (12.1 m³/s) July 23, gage height, 6.67 ft (2.033 m); no flow at times.

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	.04	.15	.48	1.2	.59	.25	.00	3.5	.00	.00	.00
2	.00	.02	.16	.36	.86	.59	.30	3.7	1.5	.00	.00	.00
3	.00	.01	.16	.42	.74	.65	.28	5.3	.83	.00	.00	.00
4	.00	.01	.17	.36	.69	.56	.20	1.5	.69	.00	.00	.00
5	.00	.02	.14	.40	.62	.58	.17	.84	15	.00	.00	.00
6	.00	.04	.14	.41	.85	.65	.17	.55	121	.00	.00	.00
7	.00	.08	.10	.42	1.2	.57	.14	.26	16	.00	.00	.00
8	.00	.30	.22	.39	1.3	.43	.11	.08	3.4	.00	.00	.00
9	.00	.07	.17	.30	1.2	.39	.24	.02	1.2	.00	.00	.00
10	.01	.04	.17	.27	.88	.31	.37	.01	.31	.00	.00	.00
11	.00	.06	.21	.31	.71	.37	.24	.02	.12	.00	1.6	.00
12	.00	.10	.27	.35	2.8	.21	.21	.01	.06	.00	2.6	.00
13	.00	.14	.34	.38	1.6	.30	.13	.00	.02	.00	.95	.00
14	.02	.16	.28	.46	.85	.32	.08	.00	.02	.00	.31	.00
15	.01	.17	.28	.55	.70	.33	.06	.00	.02	.00	.03	.00
16	.01	.14	.27	.74	.72	.29	.05	.00	.02	.00	.01	.00
17	.01	.13	.22	.60	1.1	.26	.05	.00	.02	.00	.00	.00
18	.01	.14	.24	.60	.99	.28	.02	.00	.01	.00	.00	.00
19	.01	.14	.24	.40	.81	.26	.02	.64	.01	.00	.00	.00
20	.01	.15	.19	.42	.66	.31	.02	29	.00	.00	.00	2.2
21	.02	.11	.15	.45	.52	.33	.01	9.5	.00	.00	.00	170
22	.04	.09	.16	.49	.46	.28	.01	2.4	.00	.00	.00	41
23	.05	.13	.22	.54	.41	.44	.00	1.3	.00	77	.00	7.8
24	.03	.15	.21	.63	.36	.36	.00	.83	.00	53	.00	3.4
25	.03	.14	.26	.56	.50	.50	.00	.66	.00	5.1	.00	12
26	.03	.13	.28	.61	.42	.52	.00	.51	.00	2.0	.00	11
27	.04	.14	.31	.50	.50	.48	.00	.37	.00	.58	.00	6.2
28	.09	.14	.38	.42	.57	.36	.00	.25	.00	.12	.00	2.6
29	.06	.13	.60	.47	---	.26	.00	.41	.00	.02	.00	2.2
30	.08	.15	.70	.58	---	.31	.00	5.4	.00	.01	.00	1.4
31	.05	---	.61	1.1	---	.29	---	1.5	---	.00	.00	---
TOTAL	.61	3.27	8.00	14.97	24.22	12.38	3.13	65.06	163.73	137.83	5.50	259.80
MEAN	.020	.11	.26	.48	.87	.40	.10	2.10	5.46	4.45	.18	8.66
MAX	.09	.30	.70	1.1	2.8	.65	.37	29	121	77	2.6	170
MIN	.00	.01	.10	.27	.36	.21	.00	.00	.00	.00	.00	.00
AC-FT	1.2	6.5	16	30	48	25	6.2	129	325	273	11	515

CAL YR 1977 TOTAL 937.04 MEAN 2.57 MAX 318 MIN .00 AC-FT 1860
WTR YR 1978 TOTAL 698.50 MEAN 1.91 MAX 170 MIN .00 AC-FT 1390

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.

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, 49,300 micromhos Nov. 9; minimum daily, 739 micromhos June 6.
WATER TEMPERATURES: Minimum daily, 36.0°C June 12; minimum daily, 0.0°C on several days during December, January, and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
NOV										
29...	1330	.13	39600	7.5	7.0	2600	2400	580	270	8900
DEC										
22...	0830	.19	33700	7.8	.0	2200	2100	540	210	7500
JAN										
16...	1325	.69	24800	7.7	5.5	2200	2000	470	240	5000
FEB										
25...	1645	.48	20700	--	16.5	1600	1500	390	160	4500
MAR										
20...	1400	.24	24700	7.7	24.0	1900	1800	450	200	5500
MAY										
03...	1300	4.4	16700	--	12.0	1600	1500	360	180	3300
JUN										
07...	1310	13	1420	--	27.0	180	100	55	9.8	210
SEP										
21...	1100	201	1500	--	16.0	160	85	50	9.4	230
23...	1130	7.8	2290	--	20.0	210	120	59	15	390

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									
29...	77	27	190	0	2300	14000	--	14	26200
DEC									
22...	69	19	184	0	1900	12000	--	9.0	22300
JAN									
16...	47	18	230	0	1600	8000	--	5.5	15400
FEB									
25...	48	16	170	0	1700	7000	--	3.4	13900
MAR									
20...	54	23	160	0	1800	8200	--	4.1	16300
MAY									
03...	35	15	160	0	1500	5100	--	2.9	10500
JUN									
07...	6.9	4.9	91	0	99	340	.2	7.7	771
SEP									
21...	7.8	5.4	96	0	88	370	.2	5.0	805
23...	12	7.2	110	0	100	610	.3	6.6	1240

08119500 COLORADO RIVER NEAR IRA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	0.61	34900	23100	38	12500	21	1970	3.4	****
NOV. 1977.....	3.27	40000	26500	234	14500	128	2100	19	****
DEC. 1977.....	7	34600	22800	493	12300	266	1960	42	****
JAN. 1978.....	14.97	22900	14900	603	7680	310	1670	68	****
FEB. 1978.....	24.22	18700	12000	785	5980	391	1560	102	****
MAR. 1978.....	12.38	23000	15000	501	7720	258	1670	56	****
APR. 1978.....	3.13	29700	19500	165	10400	88	1840	16	****
MAY 1978.....	65.06	10800	6650	1170	3140	551	670	117	****
JUNE 1978.....	163.73	1920	1100	488	500	221	96	42	200
JULY 1978.....	137.83	2030	1090	405	530	197	95	35	210
AUG. 1978.....	5.5	10500	6440	96	2800	42	590	8.7	****
SEPT 1978.....	259.8	1910	1040	731	500	350	93	65	200
TOTAL	698.5	**	**	5710	**	2820	**	574	**
WTD.AVG.	1.91	4940	3000	**	1500	**	300	**	520

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	43000	38100	26500	20000	21700	27800	---	10900	---	---	---
2	---	42700	38000	25700	19500	21300	28000	25500	9900	---	---	---
3	---	40800	38000	24900	19100	21000	27700	15900	11300	---	---	---
4	---	35300	37600	24300	18900	20000	28900	21200	11800	---	---	---
5	---	27900	38800	25100	18800	20400	29900	22300	7500	---	---	---
6	---	28800	39700	24700	19200	20000	25300	23600	739	---	---	---
7	---	41800	35500	24000	19500	20100	29900	24400	1290	---	---	---
8	---	43300	35200	24900	19200	20000	32800	25800	2650	---	---	---
9	---	49300	45200	25100	19400	20200	32300	27300	4570	---	---	---
10	28800	42900	41500	25900	18500	20400	31800	29000	7020	---	---	---
11	---	32500	39600	23800	18600	21700	30700	29900	8470	---	11800	---
12	---	38200	38900	22600	16600	21500	28600	33900	10500	---	9480	---
13	---	38000	39800	23700	17800	22300	28200	---	12000	---	10000	---
14	28600	41600	37500	22800	17200	23500	29900	---	14000	---	12700	---
15	28300	39800	34900	23200	17700	24300	29600	---	16800	---	15800	---
16	28100	42000	36600	24900	18100	24100	31900	---	19700	---	20200	---
17	28000	41600	35900	25200	17200	23500	32100	---	24300	---	---	---
18	26700	42900	34800	23500	18800	24000	33200	---	27300	---	---	---
19	26000	36400	33700	22500	17900	24400	35100	35000	29500	---	---	---
20	24100	40600	34200	22400	18400	24600	37000	7560	---	---	---	12600
21	23700	42500	34900	22600	18800	26300	36400	5560	---	---	---	1540
22	22900	38500	34200	21700	19200	26000	35100	8030	---	---	---	996
23	33700	39000	33700	20700	19400	25800	---	10500	---	1840	---	2340
24	36600	38700	33900	21100	20100	26200	---	12400	---	1910	---	4680
25	35300	38300	35400	21700	20700	26500	---	14800	---	3550	---	1470
26	36700	39500	34300	22200	20900	25600	---	16500	---	5560	---	2230
27	37400	36200	33000	22000	21100	25200	---	18000	---	9100	---	5670
28	33800	41100	31900	21800	21600	25700	---	19700	---	11500	---	7320
29	42000	39700	31200	20900	---	26500	---	20100	---	14300	---	8990
30	41900	38400	28800	20500	---	26300	---	10500	---	15700	---	10400
31	42000	---	27100	19300	---	26200	---	11400	---	---	---	---
MEAN	31800	39400	35900	23200	19000	23400	31000	19500	12100	7930	13300	5290

08119500 COLORADO RIVER NEAR IRA, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	14.5	3.5	1.0	2.5	7.5	16.0	---	21.0	---	---	---
2	---	5.5	2.0	3.5	3.5	14.0	16.5	14.0	22.0	---	---	---
3	---	18.5	4.0	8.5	6.0	1.0	19.5	11.0	21.0	---	---	---
4	---	19.0	8.5	10.0	2.0	11.5	11.0	12.0	21.5	---	---	---
5	---	11.5	11.0	10.0	11.5	2.0	18.0	26.5	20.0	---	---	---
6	---	9.0	1.0	3.0	6.0	8.0	30.0	23.5	20.0	---	---	---
7	---	15.0	3.5	13.0	6.0	7.5	17.0	29.0	19.0	---	---	---
8	---	15.0	4.0	2.0	.0	3.0	17.0	15.0	20.0	---	---	---
9	---	8.0	.0	.0	.0	2.5	19.0	13.0	19.5	---	---	---
10	29.0	2.0	1.0	.0	6.0	6.5	13.5	17.0	32.0	---	---	---
11	---	2.0	6.0	1.5	3.5	17.0	11.5	19.0	21.5	---	28.0	---
12	---	14.5	10.0	4.0	12.0	7.0	9.5	16.5	36.0	---	23.5	---
13	---	9.0	11.0	4.0	11.0	7.0	17.0	---	22.5	---	24.0	---
14	---	9.5	10.0	.0	---	7.0	14.0	---	22.5	---	23.5	---
15	---	10.0	13.5	3.0	---	18.0	14.5	---	21.0	---	25.0	---
16	---	6.5	10.0	7.0	---	14.0	17.0	---	22.0	---	33.0	---
17	24.0	6.5	2.0	.0	---	4.0	17.0	---	22.0	---	---	---
18	12.0	5.0	2.5	1.0	3.0	6.0	8.0	---	22.0	---	---	---
19	15.0	17.0	6.0	.5	11.0	9.5	10.0	---	23.0	---	---	---
20	13.0	14.0	6.0	.0	5.0	14.5	17.5	20.0	---	---	---	---
21	14.5	7.0	.0	.0	.0	18.0	11.5	20.0	---	---	---	16.0
22	17.0	19.0	.0	9.0	10.0	24.0	16.5	20.5	---	---	---	16.0
23	25.0	10.0	4.0	10.5	12.0	20.5	---	21.0	---	22.0	---	20.0
24	12.0	---	14.0	4.0	12.0	---	---	22.0	---	29.0	---	24.0
25	12.0	6.5	4.0	.0	16.5	22.5	---	31.0	---	30.5	---	20.0
26	16.0	12.0	10.0	.0	4.0	10.0	---	25.0	---	25.0	---	19.0
27	18.0	7.5	3.0	7.0	10.0	9.0	---	23.0	---	34.0	---	18.0
28	16.0	11.0	8.5	.0	9.0	10.0	---	20.0	---	26.0	---	17.0
29	14.0	10.0	5.0	4.0	---	12.0	---	19.5	---	23.0	---	19.0
30	18.0	12.0	12.5	3.0	---	10.5	---	25.5	---	23.5	---	18.0
31	13.0	---	5.0	2.0	---	15.5	---	20.0	---	---	---	---
MEAN	17.0	10.5	6.0	3.5	7.0	10.5	15.5	20.0	22.5	26.5	26.0	18.5

08120500 DEEP CREEK NEAR DUNN, TX

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

WATER-DISCHARGE RECORDS

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.--25 years (water years 1954-78), 11.6 ft³/s (0.329 m³/s), 0.84 in/yr (21 mm/yr), 8,400 acre-ft/yr (10.4 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 velocity-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.--Maximum discharge, 1,230 ft³/s (34.8 m³/s) May 29, gage height, 12.29 ft (3.746 m), no other peak above base of 850 ft³/s (24.1 m³/s); no flow for many days.

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	.04	1.6	2.5	2.1	2.5	2.0	1.5	.58	37	.85	.00	.00
2	.02	1.9	2.5	2.1	1.8	1.7	1.5	12	7.1	.81	.00	.00
3	.01	1.5	2.5	2.5	1.5	1.5	1.3	11	4.4	.72	.00	.00
4	.01	1.5	3.6	2.6	1.3	1.6	.91	1.9	4.2	1.4	.00	.00
5	.06	1.6	3.3	2.5	1.1	1.5	.63	.70	12	1.3	.00	.00
6	.27	1.9	3.5	2.5	1.3	2.0	.40	.23	166	.93	.00	.00
7	.25	2.2	2.6	2.4	2.8	2.2	.68	.09	16	.54	.00	.00
8	.21	3.0	1.8	2.3	2.5	1.6	.89	.05	5.1	.20	.00	.00
9	.05	3.5	2.0	2.1	1.7	1.4	.74	.02	3.2	.20	.00	.00
10	.05	2.4	2.1	2.2	1.7	1.4	.42	.01	2.5	.13	.00	.00
11	.02	2.8	2.8	2.2	1.6	1.5	.64	.01	3.3	.08	.00	.00
12	.03	3.1	2.2	2.3	6.3	1.4	.63	.01	3.3	.05	.00	.00
13	.79	3.8	2.4	2.2	4.2	1.6	.52	.01	3.4	.03	.00	.00
14	1.5	3.6	2.5	2.2	2.3	1.9	.40	.01	3.7	.02	.00	.00
15	1.3	3.0	2.6	2.2	2.0	1.8	.47	.02	3.7	.01	.00	.00
16	1.3	3.1	5.6	2.4	1.9	1.5	.38	.03	3.6	.00	.00	.00
17	.74	2.9	3.0	2.1	2.1	1.4	.44	.03	3.2	.00	.00	.00
18	.58	2.7	2.5	2.0	2.2	1.4	.85	.06	3.1	.00	.00	.00
19	.56	3.3	2.4	1.9	2.3	1.1	.84	.07	3.1	.00	.00	.00
20	.54	3.9	2.6	1.8	2.0	1.0	.87	80	2.9	.00	.00	.00
21	.26	2.5	2.4	1.9	2.0	1.1	.92	9.5	2.7	.00	.00	67
22	.08	2.2	2.5	1.9	2.0	1.3	.80	2.5	2.7	.00	.00	21
23	.18	3.2	2.4	2.1	2.0	1.6	.76	1.2	3.0	.00	.00	4.6
24	.82	2.9	2.9	2.2	1.9	1.5	.80	.66	2.5	.00	.00	2.3
25	.84	2.5	2.0	2.2	1.8	1.2	.80	.29	2.1	.00	.00	2.2
26	.39	2.1	2.0	1.7	1.5	1.1	.82	.19	1.6	.00	.00	9.0
27	.18	2.2	3.0	1.5	1.8	1.0	.57	.15	1.3	.00	.00	8.4
28	.15	2.4	2.6	1.5	2.1	1.1	.34	1.1	1.2	.00	.00	3.6
29	.24	3.0	2.6	1.6	---	1.3	.52	346	1.1	.00	.00	2.1
30	.77	2.5	2.7	1.8	---	1.2	.59	32	.91	.00	.00	2.3
31	1.2	---	2.3	2.1	---	1.5	---	5.6	---	.00	.00	---
TOTAL	13.44	78.8	82.4	65.1	60.2	45.4	21.93	506.02	309.91	7.27	.00	122.50
MEAN	.43	2.63	2.66	2.10	2.15	1.46	.73	16.3	10.3	.23	.000	4.08
MAX	1.5	3.9	5.6	2.6	6.3	2.2	1.5	346	166	1.4	.00	67
MIN	.01	1.5	1.8	1.5	1.1	1.0	.34	.01	.91	.00	.00	.00
CFSM	.002	.01	.01	.01	.01	.007	.004	.08	.05	.001	.000	.02
IN.	.00	.01	.02	.01	.01	.01	.00	.10	.06	.00	.00	.02
AC-FT	27	156	163	129	119	90	43	1000	615	14	.00	243

CAL YR 1977 TOTAL 2241.14 MEAN 6.14 MAX 1040 MIN .00 CFSM .03 IN .42 AC-FT 4450
WTR YR 1978 TOTAL 1312.97 MEAN 3.60 MAX 346 MIN .00 CFSM .02 IN .25 AC-FT 2600

08120500 DEEP CREEK NEAR DUNN, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN 16...	1145	2.3	1570	7.9	5.5	370	21	100	28
MAR 20...	1130	.79	1490	7.8	16.0	360	61	100	26

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)
JAN 16...	190	4.3	11	420	0	190	190	15	931
MAR 20...	190	4.4	9.8	360	0	190	190	11	894

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.--13 years (water years 1966-78), 30.5 ft³/s (0.864 m³/s), 22,100 acre-ft/yr (27.2 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 Texas Department of Highways and Public Transportation bridge plans.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,200 ft³/s (34.0 m³/s) May 29, gage height, 8.69 ft (2.649 m); no flow at times.

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	.83	1.4	3.4	4.6	6.4	4.7	1.6	.58	96	.13	.11	.00
2	.86	1.6	3.4	4.3	6.8	4.8	1.8	31	44	.10	.07	.00
3	.63	1.6	3.4	4.2	6.6	4.8	1.7	43	25	.06	.04	.00
4	.59	1.8	3.4	4.2	5.9	4.7	1.6	21	19	.09	.02	.00
5	.59	2.1	3.8	4.2	5.5	4.7	1.5	14	113	.07	.02	.00
6	.59	2.1	3.7	4.6	5.2	4.7	1.4	10	729	.02	.01	.00
7	.59	2.3	3.6	4.5	6.1	4.7	1.1	8.2	198	.01	.00	.00
8	.69	3.4	3.8	4.5	7.2	4.6	1.1	7.0	61	.00	.00	.00
9	.68	2.8	3.4	4.5	7.8	4.7	1.2	6.4	30	.00	.00	.00
10	.82	2.7	3.0	4.5	6.8	4.1	1.5	5.8	17	.00	.00	.00
11	.82	2.7	2.9	4.2	6.4	3.8	1.5	5.3	11	.00	.00	.00
12	.74	2.1	3.4	4.4	7.5	3.6	1.5	5.0	9.0	.00	.00	.00
13	.71	2.1	3.8	4.6	11	3.6	1.4	4.4	7.3	.00	.00	.00
14	.66	2.3	3.7	4.8	7.9	3.6	1.2	3.9	6.0	.00	.00	.00
15	.66	2.5	3.6	4.5	6.4	3.4	1.1	3.4	5.1	.00	.01	.00
16	1.3	2.3	4.0	5.1	6.0	3.4	1.1	2.9	4.6	.00	.07	.00
17	1.4	2.3	4.9	5.1	6.0	3.0	1.1	2.5	3.9	.00	.02	.00
18	1.4	2.3	3.7	5.2	5.9	2.7	.98	2.2	2.9	.00	.00	.00
19	1.3	2.3	3.4	4.8	5.7	2.3	.93	2.2	2.4	.00	.00	.00
20	1.1	2.3	3.3	4.9	6.0	2.3	.91	347	1.9	.00	.00	.00
21	.95	3.2	3.1	5.0	5.5	2.1	.88	159	1.7	.00	.00	100
22	.95	2.9	3.0	5.2	5.2	1.8	.93	33	1.5	.00	.00	347
23	1.0	2.6	2.9	5.2	5.1	1.9	1.0	14	1.2	.00	.00	103
24	1.0	2.5	3.3	5.2	5.0	2.1	1.0	7.8	1.2	123	.00	25
25	.99	3.0	3.9	5.2	5.0	2.1	1.0	5.8	1.1	34	.00	76
26	1.2	3.0	3.8	5.2	4.9	1.9	.90	5.2	.95	6.1	.00	38
27	1.4	2.9	3.5	5.1	4.7	1.8	.78	4.4	.64	2.0	.00	37
28	1.5	2.8	3.6	4.9	4.7	1.7	.71	5.9	.43	.71	.00	18
29	1.4	2.7	4.5	4.7	---	1.6	.66	629	.31	.40	.00	7.5
30	1.3	2.7	4.7	4.7	---	1.6	.61	208	.20	.24	.00	4.6
31	1.2	---	4.7	5.5	---	1.6	---	36	---	.19	.00	---
TOTAL	29.85	73.3	112.6	147.6	173.2	98.4	34.69	1633.88	1395.33	167.12	.37	756.10
MEAN	.96	2.44	3.63	4.76	6.19	3.17	1.16	52.7	46.5	5.39	.012	25.2
MAX	1.5	3.4	4.9	5.5	11	4.8	1.8	629	729	123	.11	347
MIN	.59	1.4	2.9	4.2	4.7	1.6	.61	.58	.20	.00	.00	.00
AC-FT	59	145	223	293	344	195	69	3240	2770	331	.7	1500

CAL YR 1977	TOTAL	9609.98	MEAN 26.3	MAX 3660	MIN .00	AC-FT	19060	
WTR YR 1978	TOTAL	4622.44	MEAN 12.7	MAX 729	MIN .00	AC-FT	9170	

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.

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 (1965-77): Maximum daily, 36.0°C Aug. 2, 1966; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,870 micromhos May 19; minimum daily, 474 micromhos Sept. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 25...	1505	.94	5110	7.6	20.5	900	690	210	91	790
NOV 14...	1425	2.9	4170	8.0	14.0	970	690	230	97	610
DEC 05...	1745	4.2	3780	8.0	12.0	910	580	210	93	500
JAN 16...	1050	5.7	6070	8.1	6.0	1100	750	240	110	950
MAR 20...	1035	2.3	5710	8.2	15.0	990	710	200	120	960
APR 24...	1340	.97	7100	--	24.5	1300	1000	270	140	1200
JUN 21...	1030	1.8	3250	--	26.0	590	400	150	53	480
JUL 28...	1100	.71	2390	--	25.5	300	210	85	21	380
SEP 23...	1950	78	661	--	20.0	120	34	38	7.1	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 25...	11	11	250	0	660	1200	--	8.3	3090
NOV 14...	8.5	12	340	0	760	830	.8	6.9	2710
DEC 05...	7.2	11	400	0	730	700	1.1	10	2450
JAN 16...	13	10	370	0	860	1400	--	4.3	3760
MAR 20...	13	9.4	350	0	900	1300	--	.4	3660
APR 24...	15	11	310	0	1200	1700	--	3.3	4680
JUN 21...	8.6	9.3	240	0	480	690	.6	8.5	1990
JUL 28...	9.6	7.1	110	0	250	560	.3	4.8	1360
SEP 23...	3.2	6.1	110	0	52	120	.3	7.5	368

08120700 COLORADO RIVER AT COLORADO CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	29.85	5900	3790	305	1100	89	1180	95	1060
NOV. 1977.....	73.3	4330	2710	536	930	183	680	134	780
DEC. 1977.....	112.6	3770	2330	708	830	253	540	164	680
JAN. 1978.....	147.6	6060	3900	1550	1170	465	1180	470	1090
FEB. 1978.....	173.2	6310	4070	1900	1260	591	1190	557	1140
MAR. 1978.....	98.4	5900	3790	1010	1100	293	1180	313	1060
APR. 1978.....	34.69	6600	4270	400	1380	129	1210	113	1190
MAY 1978.....	1633.88	1830	1070	4710	360	1590	240	1080	330
JUNE 1978.....	1395.33	1750	970	3670	330	1240	240	921	310
JULY 1978.....	167.12	2170	1230	555	430	192	300	134	390
AUG. 1978.....	0.37	3560	2190	2.2	780	0.8	510	0.4	640
SEPT 1978.....	756.1	1190	660	1360	220	440	150	314	210
TOTAL	4622.43	**	**	16700	**	5470	**	4300	**
WTD.AVG.	12.66	2250	1300	**	440	**	340	**	400

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5510	4960	3850	5070	5850	5960	6280	7600	2040	4310	3040	---
2	5580	4700	3810	5310	6330	5970	6080	2050	2720	4430	3080	---
3	5770	4730	3920	5390	6430	5620	6240	4180	3370	4520	3130	---
4	5940	4960	3840	5430	6200	5710	6280	6500	3590	4460	3150	---
5	6130	5220	3780	5890	6600	5800	6300	5000	1870	4550	3200	---
6	6280	5290	3840	6370	6750	5940	6380	3490	1400	4690	3240	---
7	6400	5270	3800	6350	6740	5880	6280	4500	1620	4820	---	---
8	6500	5180	3780	6190	6660	5860	6410	5630	2040	---	---	---
9	6380	4580	3770	5850	6410	5590	6500	6610	2310	---	---	---
10	6300	4410	3720	6140	6230	5670	6500	6900	2390	---	---	---
11	6650	4320	3690	6420	6780	5850	6420	7190	2490	---	---	---
12	6540	4270	3730	6380	6760	6100	6280	7470	2580	---	---	---
13	6480	4090	3760	6190	7230	6220	6270	7530	2660	---	---	---
14	6520	4170	3720	6120	5920	5770	6310	7580	2740	---	---	---
15	6650	4180	3690	6030	6310	5910	6380	7640	2830	---	4610	---
16	6760	4220	3720	6070	6530	5910	6650	7670	2910	---	4820	---
17	6880	4230	3660	5910	6420	5710	6910	7810	3010	---	4960	---
18	6980	4250	3550	6330	6290	5780	6940	7840	3100	---	---	---
19	6260	4280	3240	6250	6130	5670	6960	7870	3130	---	---	---
20	6090	4300	3300	6340	6080	5820	6980	2140	3140	---	---	---
21	5970	4150	3490	6190	6060	6010	7080	2220	3320	---	---	2480
22	5600	3620	3660	6240	5950	6090	7080	2530	3390	---	---	474
23	5190	3750	3720	6430	5830	6200	7030	3290	3470	---	---	707
24	5060	4000	3700	6230	5790	6160	7100	4020	3600	2110	---	2250
25	5110	3830	3670	6200	5740	6120	7060	4170	3670	2290	---	2080
26	5090	3910	3660	6170	5660	6050	7030	4230	3700	2370	---	1880
27	5130	3990	3710	6000	5690	5980	7150	4410	3830	2320	---	1700
28	5150	4010	3710	6070	5860	6160	7240	4400	3900	2460	---	2060
29	5270	4050	4060	6080	---	6230	7300	786	4110	2660	---	2550
30	5320	4030	4270	6020	---	6310	7440	910	4220	2820	---	3040
31	5210	---	4580	5940	---	6290	---	1750	---	2950	---	---
MEAN	5960	4370	3750	6050	6260	5950	6700	5030	2970	3450	3690	1910

08120700 COLORADO RIVER AT COLORADO CITY, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	---				---	20.0	20.0	26.0	29.0	28.0	---
2	22.0	10.0				---	21.0	12.0	---	---	---	---
3	22.0	10.0				---	20.0	12.0	---	30.0	27.0	---
4	---	10.0				---	20.0	20.0	---	---	22.0	---
5	19.0	13.0				---	---	---	---	---	---	---
6	---	16.0				---	25.0	25.0	22.0	---	29.0	---
7	20.0	---				---	24.0	---	---	---	---	---
8	19.0	11.0				6.0	---	---	---	---	---	---
9	17.0	---				---	25.0	---	27.0	---	---	---
10	13.0	---				9.0	16.0	---	---	---	---	---
11	13.0	---				---	21.0	---	---	---	---	---
12	10.0	---				---	24.0	---	---	---	---	---
13	10.0	---				6.0	---	---	---	---	---	---
14	10.0	---				8.0	---	---	---	---	---	---
15	12.0	---				15.0	21.0	---	---	---	27.0	---
16	---	---				10.0	25.0	---	---	---	29.0	---
17	---	---				17.0	20.0	---	29.0	---	---	---
18	15.0	---				---	---	---	30.0	---	---	---
19	15.0	---				15.0	21.0	---	---	---	---	---
20	15.0	16.0				18.0	---	---	30.0	---	---	---
21	17.0	7.0				10.0	20.0	---	29.0	---	---	26.0
22	18.0	8.0				---	23.0	26.0	29.0	---	---	18.0
23	21.0	---				---	21.0	28.0	---	---	---	20.0
24	20.0	---				---	---	28.0	---	25.0	---	---
25	23.0	---				15.0	---	---	---	30.0	---	20.0
26	19.0	---				18.0	22.0	---	30.0	31.0	---	---
27	---	---				20.0	---	---	29.0	29.0	---	21.0
28	16.0	---				20.0	---	---	31.0	29.0	---	24.0
29	17.0	---				---	26.0	21.0	31.0	28.0	---	---
30	22.0	---				21.0	---	---	---	---	---	28.0
31	---	---				---	---	---	---	29.0	---	---
MEAN	17.0	11.0				14.0	22.0	21.5	28.5	29.0	27.0	22.5

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); 26 years (water years 1953-78) regulated, 36.1 ft³/s (1.022 m³/s), 26,150 acre-ft/yr (32.2 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, 613 ft³/s (17.4 m³/s) June 6, gage height, 6.82 ft (2.079 m); no flow at times.

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	.13	.11	.24	.09	.95	.15	.44	.05	104	.00	.00	.01
2	.11	.08	.21	.09	.72	.24	.35	3.5	99	.00	.00	.01
3	.14	.05	.17	.09	.62	.24	.12	.62	38	.18	.00	.01
4	.20	.06	.20	.09	.41	.15	.11	6.3	24	1.5	.00	.27
5	.41	.09	.15	.15	.41	.24	.14	.62	19	.04	.00	.15
6	.41	.10	.15	.15	.64	.24	.21	.35	410	.03	.00	.08
7	.37	.14	.15	.18	.99	.41	.35	.22	250	.01	.00	.08
8	.24	.51	.22	.12	.60	.24	.46	.11	103	.00	.02	.28
9	.21	.21	.17	.09	.79	.24	.76	.09	40	.00	.04	.09
10	.39	.15	.19	.15	.41	.24	.80	.10	25	.00	.04	.08
11	.19	.15	.18	.15	.41	.41	.46	.10	18	.00	.06	.06
12	.15	.19	.24	.21	1.5	.24	.54	.06	15	.00	.06	.04
13	.09	.24	.26	.28	.28	.41	.45	.03	13	.00	.05	.03
14	.09	.33	.21	.38	.15	.24	.48	.04	8.5	.00	.03	.02
15	.09	.26	.17	.46	.15	.24	.45	.04	1.2	.00	.24	.01
16	.09	.24	.16	.67	.21	.24	.69	.04	.57	.00	.05	.01
17	.10	.22	.09	.36	.43	.24	.47	.02	.41	.00	.03	.01
18	.15	.24	.05	.41	.24	.24	.21	.01	.21	.00	.01	.01
19	.12	.24	.07	.41	.31	.24	.16	.00	.05	.00	.00	.00
20	.09	.22	.09	.41	.36	.24	.24	58	.02	.00	.00	.03
21	.13	.15	.12	.41	.26	.41	.42	270	.01	.00	.00	20
22	.15	.13	.13	.53	.33	.24	.43	89	.00	.00	.00	108
23	.15	.15	.13	.81	.24	.41	.51	31	.00	.00	.00	41
24	.15	.19	.19	1.0	.24	.23	.45	19	.00	.00	.00	1.6
25	.15	.16	.10	.95	.24	.20	.17	13	.00	.00	.00	1.9
26	.15	.16	.12	.44	.24	.24	.16	11	.00	.00	.00	2.2
27	.16	.15	.20	.62	.24	.24	.25	9.4	.00	.00	.00	1.5
28	.24	.15	.31	.62	.24	.29	.21	8.3	.00	.00	.00	.81
29	.17	.15	.66	.66	---	.21	.04	289	.00	.00	.01	.57
30	.17	.16	.28	.93	---	.36	.05	238	.00	.00	.00	.41
31	.13	---	.21	1.3	---	.50	---	70	---	.00	.00	---
TOTAL	5.52	5.38	5.82	13.21	12.61	8.46	10.58	1118.00	1168.97	1.76	.64	179.27
MEAN	.18	.18	.19	.43	.45	.27	.35	36.1	39.0	.057	.021	5.98
MAX	.41	.51	.66	1.3	1.5	.50	.80	289	410	1.5	.24	108
MIN	.09	.05	.05	.09	.15	.15	.04	.00	.00	.00	.00	.00
AC-FT	11	11	12	26	25	17	21	2220	2320	3.5	1.3	356
(†)	106	193	279	374	498	311	133	357	118	250	0	940

CAL YR 1977 TOTAL 6934.45 MEAN 19.0 MAX 2070 MIN .00 AC-FT 13750 † 3390
WTR YR 1978 TOTAL 2530.22 MEAN 6.93 MAX 410 MIN .00 AC-FT 5020 † 3560

† 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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (1946-54, 1956-69, 1971-78): 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, 33,000 micromhos Apr. 22, 30, May 1; minimum daily, 976 micromhos May 30.
WATER TEMPERATURES: Minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 19...	1420	.09	15600	7.9	20.0	1500	1300	310	170	3100
NOV 30...	1100	.15	22500	7.6	7.0	2000	1800	450	210	4700
JAN 16...	0935	.48	22200	7.5	6.5	2100	1900	480	230	4600
MAR 20...	0920	.20	24300	7.4	14.0	2300	2100	520	250	5300
APR 29...	1030	.05	33000	--	21.5	2500	2400	550	280	7000
MAY 03...	0930	.27	14300	--	11.0	1200	1100	260	140	2900
JUN 08...	0900	113	1580	--	23.0	230	130	65	17	230
JUL 04...	1300	.01	7190	--	36.0	640	560	160	58	1400
SEP 25...	1800	1.7	2980	--	20.0	290	180	75	25	520

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 19...	35	16	220	0	1600	4500	--	1.4	9810
NOV 30...	46	19	240	0	2100	7100	--	.7	14700
JAN 16...	43	17	300	0	2100	7200	--	2.4	14800
MAR 20...	48	21	240	0	2300	7900	--	1.0	16400
APR 29...	61	98	200	0	2800	10000	--	5.1	20800
MAY 03...	36	14	140	0	1200	4300	--	5.1	8890
JUN 08...	6.6	5.7	120	0	170	330	.4	8.5	886
JUL 04...	24	11	98	0	890	1900	.6	4.8	4470
SEP 25...	13	7.9	140	0	250	760	.4	6.0	1710

COLORADO RIVER BASIN

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	5.52	14800	9150	136	4410	66	1490	22	****
NOV. 1977.....	5.38	20900	13100	190	6370	93	1950	28	****
DEC. 1977.....	5.82	23100	14600	229	7090	111	2100	33	****
JAN. 1978.....	13.21	24000	15200	541	7380	263	2150	77	****
FEB. 1978.....	12.61	22600	14200	485	6930	236	2060	70	****
MAR. 1978.....	8.46	24300	15400	351	7470	171	2170	50	****
APR. 1978.....	10.58	29000	18500	529	8990	257	2480	71	****
MAY 1978.....	1117	2330	1360	4120	590	1770	220	660	270
JUNE 1978.....	1168.97	2530	1430	4500	640	2040	230	741	280
JULY 1978.....	1.76	7290	4420	21	2090	10	710	3.5	670
AUG. 1978.....	0.64	14600	9050	16	4330	7.4	1460	2.4	****
SEPT 1978.....	179.27	4620	2740	1330	1290	622	440	212	450
TOTAL	2530.22	**	**	12400	**	5650	**	1970	**
WTD.AVG.	6.93	3100	1800	**	830	**	290	**	330

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13000	19200	22200	24200	24000	24100	24900	33000	1730	---	---	18900
2	13200	19100	22300	23500	23900	24200	26200	14300	1970	---	---	19000
3	13300	19300	22500	23600	22500	24100	25900	14500	2960	7640	---	18700
4	13200	19400	22700	23400	22300	23500	26500	30200	3250	7250	---	16000
5	12800	19100	22500	23500	23400	22700	27200	28500	3590	7500	---	16600
6	12600	19200	23000	24200	23800	23400	27300	24100	2680	7030	---	17200
7	13000	19200	22900	24100	24100	23800	26900	23500	2500	6730	---	17300
8	13300	19700	22700	24300	24400	23600	28000	22800	1760	---	14500	17500
9	14600	20100	22900	24600	22500	23500	28900	23200	2300	---	12900	20200
10	14500	21600	23000	25200	22200	23600	27100	23000	3030	---	13200	19800
11	15000	21500	23000	24700	21900	23700	27000	23400	3630	---	13000	21000
12	15300	21000	23100	24400	21500	24800	28500	23500	4240	---	13300	22400
13	15200	20800	22700	24100	20900	24600	29800	23600	4610	---	13500	23700
14	15200	20700	23000	25000	20800	23300	29900	23500	5370	---	14900	23800
15	15200	20500	23400	25100	21000	22600	29900	25000	6030	---	15000	24000
16	15300	20700	23300	22900	21200	24300	29700	26000	5980	---	16800	24200
17	15300	20900	23400	23000	21000	24600	29500	27200	6770	---	16300	24100
18	15400	21400	24100	23500	20900	25000	29600	27100	6700	---	17800	24000
19	15500	21300	23300	23800	22000	25500	29800	---	7090	---	---	---
20	15600	21400	23100	23500	22100	25000	29600	5980	6980	---	---	23100
21	15700	21500	24200	23200	22600	24900	29500	1690	10000	---	---	10300
22	15700	21900	24100	23300	22500	24100	33000	4070	---	---	---	4400
23	16000	21700	24200	23200	22400	23900	29800	4750	---	---	---	1960
24	16200	21800	23800	24000	22100	23700	29900	5230	---	---	---	3060
25	16500	21900	24300	23800	22200	23500	31800	5250	---	---	---	2930
26	16700	21800	24000	24000	22900	24000	31900	5460	---	---	---	4550
27	17000	22000	24200	24300	22300	24900	32500	5650	---	---	---	6160
28	17100	22200	24100	24800	21600	25300	32400	5800	---	---	---	6700
29	17500	22300	22700	24700	---	25500	32800	1070	---	---	18500	7220
30	17900	22400	22600	24600	---	25600	33000	976	---	---	---	8500
31	18000	---	23800	24300	---	25700	---	1820	---	---	---	---
MEAN	15200	20900	23300	24000	22300	24200	29300	16100	4440	7230	15000	15400

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	5.5	1.0	.5	.0	7.0	19.0	18.0	23.0	---	---	---
2	26.0	5.0	.0	.5	.0	8.0	28.0	12.5	22.5	---	---	---
3	24.0	5.0	2.5	.0	.0	8.0	29.0	11.5	24.0	37.0	---	---
4	23.0	4.5	2.0	.0	.0	4.0	25.5	16.5	28.0	36.0	---	---
5	21.0	5.5	.0	2.0	.5	5.0	19.5	17.0	23.5	37.0	---	33.0
6	21.0	5.0	.0	2.0	.5	6.0	29.0	15.5	24.0	29.5	---	27.0
7	22.0	4.5	.0	1.5	.0	6.5	20.0	23.0	21.0	38.0	---	27.0
8	22.0	4.5	1.0	.0	.0	6.0	22.5	20.0	28.5	---	---	24.0
9	19.0	4.0	.0	.0	.0	6.5	21.0	23.0	30.0	---	---	25.0
10	18.5	1.0	.0	.0	.0	14.0	15.0	24.5	30.5	---	---	23.5
11	19.0	1.0	.0	.0	.0	11.5	13.0	27.5	32.0	---	---	33.0
12	18.0	2.0	2.0	.0	.0	9.5	19.0	20.0	33.0	---	---	33.5
13	20.5	2.0	2.5	.0	.0	11.0	17.5	28.0	28.0	---	22.0	31.5
14	19.0	4.0	1.5	.0	.0	9.0	26.0	22.0	34.0	---	25.0	32.0
15	19.0	3.0	2.5	.0	.0	8.0	27.5	29.5	33.5	---	26.5	---
16	16.0	4.5	1.0	.5	.0	17.5	31.0	20.0	26.0	---	26.5	---
17	14.5	4.0	.0	.0	.0	13.0	27.5	28.0	33.0	---	25.0	---
18	13.0	4.0	.0	.0	.0	13.0	30.5	30.0	24.0	---	32.0	---
19	12.0	3.5	.0	.0	.0	20.0	14.0	---	25.0	---	---	---
20	13.5	5.0	.0	.0	.0	26.0	16.5	24.0	23.5	---	---	---
21	13.0	4.0	.5	.0	.5	21.5	14.5	25.0	35.5	---	---	19.0
22	11.0	3.0	.5	.5	.0	28.0	27.0	27.0	---	---	---	19.0
23	9.0	3.0	.0	.0	.5	22.0	17.5	29.0	---	---	---	18.5
24	7.0	4.0	.0	.5	.5	24.0	17.0	30.0	---	---	---	23.5
25	5.5	3.0	.5	.0	.5	19.0	24.0	29.0	---	---	---	20.0
26	6.0	3.0	.0	.0	---	17.5	22.0	27.0	---	---	---	21.0
27	5.0	2.0	.0	.0	---	15.5	20.0	25.0	---	---	---	22.5
28	4.5	1.0	.0	.0	---	26.0	17.0	26.0	---	---	---	27.0
29	5.0	.0	.0	.0	---	21.0	21.5	24.0	---	---	---	27.5
30	6.0	1.0	.0	.0	---	21.5	17.0	24.5	---	---	---	27.0
31	4.0	---	.0	.0	---	20.0	---	29.5	---	---	---	---
MEAN	15.0	3.5	.5	.5	.0	14.5	21.5	23.5	27.5	35.5	26.0	25.5

08123000 LAKE COLORADO CITY NEAR COLORADO CITY, TX

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

DRAINAGE AREA.--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 (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), which 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 9,560 acre-ft (11.8 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, 15,990 acre-ft (19.7 hm³) Sept. 30, elevation, 2,058.17 ft (627.330 m); minimum, 13,880 acre-ft (17.1 hm³) Aug. 25, 31, elevation, 2,056.07 ft (626.690 m).

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

2,056.0	13,820
2,058.0	15,820
2,060.0	17,980

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14510	14960	15000	14890	14810	15610	14830	14610	14990	14480	14150	13910
2	14530	14910	15020	14880	14850	15580	14810	14740	15030	14500	14140	13920
3	14540	14880	15040	14870	14850	15560	14780	14740	15000	14650	14150	13920
4	14560	14860	15060	14850	14890	15550	14740	14760	14970	14790	14160	14000
5	14580	14840	15080	14840	14920	15530	14710	14780	14930	14770	14170	14020
6	14590	14820	15100	14830	14990	15520	14680	14800	14900	14760	14170	14010
7	14600	14810	15120	14800	15020	15490	14630	14810	14860	14740	14170	14040
8	14600	14800	15130	14780	15060	15470	14600	14800	14820	14730	14160	14060
9	14630	14740	15140	14750	15090	15460	14600	14810	14790	14720	14160	14070
10	14680	14700	15140	14720	15120	15430	14570	14810	14770	14700	14160	14080
11	14670	14700	15160	14700	15150	15410	14590	14820	14760	14680	14150	14080
12	14680	14680	15200	14690	15230	15380	14590	14820	14740	14650	14140	14080
13	14700	14670	15200	14680	15260	15350	14590	14820	14740	14600	14120	14060
14	14710	14650	15230	14660	15280	15330	14600	14810	14720	14550	14100	14070
15	14710	14650	15230	14670	15310	15290	14620	14820	14710	14510	14080	14060
16	14730	14680	15200	14630	15340	15270	14630	14810	14690	14450	14030	14060
17	14750	14690	15170	14610	15370	15250	14610	14810	14660	14410	14010	14040
18	14770	14720	15150	14590	15410	15220	14610	14800	14660	14360	14000	14010
19	14750	14750	15140	14560	15450	15190	14610	14840	14650	14350	13980	14000
20	14750	14760	15110	14550	15470	15160	14610	15180	14640	14330	13940	14030
21	14770	14770	15090	14550	15490	15130	14610	15220	14620	14310	13930	14210
22	14790	14800	15060	14530	15520	15110	14620	15220	14600	14310	13910	15230
23	14810	14830	15050	14520	15550	15090	14630	15190	14580	14270	13900	15620
24	14830	14850	15030	14540	15580	15060	14610	15150	14570	14250	13890	15720
25	14860	14870	15000	14560	15600	15040	14610	15110	14550	14240	13890	15810
26	14870	14900	14980	14580	15630	15020	14610	15060	14530	14220	13920	15890
27	14900	14910	14960	14610	15650	14990	14600	15020	14510	14190	13910	15940
28	14930	14920	14980	14650	15630	14950	14610	14980	14500	14170	13900	15970
29	14950	14950	14970	14680	---	14910	14610	14960	14480	14160	13890	15980
30	14980	14970	14960	14730	---	14890	14610	14920	14480	14170	13890	15990
31	14990	---	14940	14780	---	14870	---	14930	---	14160	13890	---
MAX	14990	14970	15230	14890	15650	15610	14830	15220	15030	14790	14170	15990
MIN	14510	14650	14940	14520	14810	14870	14570	14610	14480	14160	13890	13910
(†)	2057.19	2057.17	2057.14	2056.98	2057.82	2057.07	2056.81	2057.13	2056.68	2056.35	2056.08	2058.17
(‡)	+470	-20	-30	-610	+850	-760	-260	+320	-450	-320	-270	+2100
(††)	116	95	103	96	86	134	182	172	217	235	216	131

CAL YR 1977 MAX 20250 MIN 14510 ‡ -5330 †† 1600
WTR YR 1978 MAX 15990 MIN 13890 ‡ +1470 †† 1780

† 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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
NOV 30...	0910	2790	8.1	11.5	680	540	120	92	390
JAN 11...	1440	2890	7.7	10.0	700	550	130	91	400

DATE	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)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 30...	6.5	27	170	0	710	460	1.0	6.1	1890
JAN 11...	6.6	26	180	0	680	520	1.1	5.0	1940

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 Co. Water may be pumped from the reservoir through a 24 in (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, 450 ft (137 m) wide by 1,800 ft (549 m) long, 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, 16,860 acre-ft (20.8 hm³) Oct. 2, elevation, 2,060.37 ft (628.001 m); minimum, 7,830 acre-ft (9.65 hm³) Sept. 30, elevation, 2,046.35 ft (623.727 m).

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

2,046.0	7,660
2,054.0	12,160
2,061.0	17,360

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16760	15380	14490	13800	13450	12480	12390	11160	12920	11670	10460	8970
2	16820	15370	14440	13800	13420	12500	12400	11180	12980	11620	10400	8920
3	16760	15350	14390	13800	13410	12480	12390	11240	12980	11630	10360	8880
4	16710	15350	14350	13800	13360	12470	12380	11210	12980	11670	10310	8870
5	16660	15340	14350	13810	13320	12470	12380	11160	12960	11650	10270	8840
6	16620	15340	14220	13800	13290	12470	12370	11120	13040	11580	10220	8790
7	16570	15350	14180	13810	13270	12470	12380	11060	13050	11510	10170	8760
8	16510	15350	14150	13800	13220	12470	12360	11010	13040	11460	10130	8720
9	16470	15320	14080	13800	13180	12470	12370	10960	13010	11390	10080	8670
10	16440	15310	14030	13790	13140	12470	12330	10900	12940	11340	10030	8630
11	16340	15310	13990	13780	13100	12480	12270	10870	12890	11280	9980	8580
12	16280	15300	13950	13780	13100	12470	12220	10800	12860	11250	9920	8540
13	16220	15310	13910	13790	13060	12470	12160	10750	12810	11210	9870	8480
14	16170	15310	13870	13790	13020	12470	12100	10700	12740	11200	9810	8440
15	16120	15290	13830	13800	12980	12470	12050	10650	12680	11200	9800	8380
16	16060	15240	13840	13800	12940	12460	12000	10600	12610	11180	9760	8330
17	16010	15180	13830	13800	12890	12450	11940	10540	12540	11130	9700	8280
18	15970	15130	13830	13800	12850	12450	11870	10490	12470	11080	9650	8220
19	15970	15090	13830	13800	12800	12440	11810	10540	12410	11020	9590	8170
20	15940	15040	13820	13790	12750	12450	11750	12260	12350	10950	9580	8130
21	15900	14970	13800	13790	12710	12440	11680	12880	12280	10890	9520	8140
22	15840	14930	13800	13800	12670	12440	11640	12920	12200	10860	9470	8090
23	15800	14870	13800	13800	12620	12440	11590	12930	12140	10850	9420	8060
24	15750	14830	13800	13790	12590	12440	11530	12920	12070	10820	9360	8040
25	15690	14790	13800	13760	12540	12430	11460	12920	12010	10760	9300	8010
26	15650	14730	13790	13690	12490	12430	11410	12920	11950	10760	9270	7990
27	15600	14680	13790	13650	12470	12420	11350	12890	11880	10710	9220	7960
28	15560	14640	13800	13610	12490	12420	11300	12910	11820	10670	9170	7920
29	15510	14580	13810	13560	---	12400	11250	12890	11760	10610	9110	7880
30	15470	14530	13810	13540	---	12400	11190	12890	11700	10560	9050	7830
31	15420	---	13830	13500	---	12400	---	12930	---	10510	9000	---
MAX	16820	15380	14490	13810	13450	12500	12400	12930	13050	11670	10460	8970
MIN	15420	14530	13790	13500	12470	12400	11190	10490	11700	10510	9000	7830
(†)	2058.54	2057.37	2056.39	2055.91	2054.47	2054.34	2052.50	2055.10	2053.30	2051.36	2048.62	2046.35
(‡)	-1400	-890	-700	-330	-1010	-90	-1210	+1740	-1230	-1190	-1510	-1170
(††)	0	682	684	362	1270	0	539	886	1080	1290	1340	1430

CAL YR 1977 MAX 17510 MIN 13710 ‡ -990 †† 2440
WTR YR 1978 MAX 16820 MIN 7830 ‡ -8990 †† 9560

† 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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
DEC 05...	1305	1160	7.8	15.0	420	280	86	49	88

DATE	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)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
DEC 05...	1.9	9.4	170	0	320	91	.6	1.3	729

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.

WATER-DISCHARGE RECORDS

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

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.--19 years (water years 1960-78), 1.16 ft³/s (0.0329 m³/s), 840 acre-ft/yr (1.04 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, 1057, 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, 90 ft³/s (2.55 m³/s) Sept. 21, gage height, 3.92 ft (1.195 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	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	77
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	66
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	29
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	11
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.4
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.9
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.4
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.1
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	2.2
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	1.8
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	207.80
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	6.93
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	77
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	412
(†)	0	0	0	0	0	59	0	0	0	0	0	10

CAL YR 1977 TOTAL 125.32 MEAN .34 MAX 31 MIN .00 AC-FT 249 † 198
WTR YR 1978 TOTAL 207.80 MEAN .57 MAX 77 MIN .00 AC-FT 412 † 69

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

08123650 BEALS CREEK ABOVE BIG SPRING, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1973 to current year.
WATER TEMPERATURES: April 1973 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 74,000 micromhos May 9, 1974; minimum daily, 2,310 micromhos Sept. 22, 1978.
WATER TEMPERATURES: Maximum daily, 36.0°C July 9, 30, 1977; minimum daily, 0.0°C Dec. 31, 1976, Jan. 9, 29, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,970 micromhos Sept. 30; minimum daily, 2,310 micromhos Sept. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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
SEP 21...	1722	86	2430	520	480	78	78	320	6.1

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
SEP 21...	13	44	0	390	580	.3	2.2	1480

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	0	*******	*******	0	*******	0	*******	0	****
NOV. 1977.....	0	*******	*******	0	*******	0	*******	0	****
DEC. 1977.....	0	*******	*******	0	*******	0	*******	0	****
JAN. 1978.....	0	*******	*******	0	*******	0	*******	0	****
FEB. 1978.....	0	*******	*******	0	*******	0	*******	0	****
MAR. 1978.....	0	*******	*******	0	*******	0	*******	0	****
APR. 1978.....	0	*******	*******	0	*******	0	*******	0	****
MAY 1978.....	0	*******	*******	0	*******	0	*******	0	****
JUNE 1978.....	0	*******	*******	0	*******	0	*******	0	****
JULY 1978.....	0	*******	*******	0	*******	0	*******	0	****
AUG. 1978.....	0	*******	*******	0	*******	0	*******	0	****
SEPT 1978.....	207.8	2490	1470	823	620	349	400	225	470
TOTAL	207.8	**	**	823	**	349	**	225	**
WTD.AVG.	0.57	2490	1500	**	620	**	400	**	470

08123650 BEALS CREEK ABOVE BIG SPRING, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1												---
2												---
3												---
4												---
5												---
6												---
7												---
8												---
9												---
10												---
11												---
12												---
13												---
14												---
15												---
16												---
17												---
18												---
19												---
20												---
21												2410
22												2310
23												2340
24												2540
25												2750
26												3300
27												3110
28												3270
29												4550
30												5970
31												---
MEAN												3260

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1												---
2												---
3												---
4												---
5												---
6												---
7												---
8												---
9												---
10												---
11												---
12												---
13												---
14												---
15												---
16												---
17												---
18												---
19												---
20												---
21												---
22												16.0
23												19.0
24												18.0
25												20.0
26												20.0
27												21.0
28												25.0
29												23.0
30												24.0
31												---
MEAN												20.5

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.--WDR 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.--20 years, 23.0 ft³/s (0.651 m³/s), 0.32 in/yr (8 mm/yr), 16,660 acre-ft/yr (20.5 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, 454 ft³/s (12.9 m³/s) Sept. 23, gage height, 6.30 ft (1.920 m), no peak above base of 900 ft³/s (25.5 m³/s); no flow at times.

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	.98	1.8	3.0	4.0	4.0	3.6	2.2	1.8	23	.00	.65	9.3
2	1.2	1.9	3.1	3.4	4.1	3.6	2.4	16	84	13	.11	4.5
3	3.5	1.7	3.1	3.4	4.1	3.5	2.4	23	122	5.2	.03	2.0
4	12	1.2	3.2	3.1	4.0	3.7	2.1	5.3	18	16	.02	4.0
5	6.1	1.8	3.0	3.3	4.5	3.6	2.0	5.3	8.3	22	.01	3.4
6	3.6	2.3	3.1	3.6	4.1	4.0	2.0	3.1	5.9	7.3	.00	8.6
7	3.7	2.4	3.0	3.4	4.5	3.6	2.6	2.4	16	2.6	1.8	2.9
8	2.9	3.4	2.9	3.2	4.8	3.6	3.6	1.6	10	.84	1.1	2.0
9	1.7	2.8	2.7	3.1	7.1	3.4	5.0	.89	6.5	.33	.72	1.6
10	2.8	2.4	2.9	3.0	4.0	3.3	3.1	.73	3.4	.16	.55	.98
11	2.1	2.5	3.0	3.0	6.6	3.2	2.4	.73	2.8	.09	.28	1.3
12	2.7	2.0	2.7	3.1	6.3	3.2	2.9	.28	2.4	.04	.30	.84
13	3.0	2.6	3.1	3.1	8.9	3.0	2.6	.47	2.3	.01	.51	.52
14	1.9	2.5	3.3	3.3	13	2.9	2.0	.36	1.8	.00	.54	.34
15	1.9	2.7	3.3	3.6	5.9	2.7	1.8	.21	1.4	.00	.19	.24
16	1.9	2.6	3.1	4.1	4.9	2.8	1.6	.30	1.0	.00	.12	.18
17	1.9	2.8	2.8	4.0	4.9	2.9	1.3	.15	.70	.00	.06	.12
18	1.9	2.8	2.8	4.0	4.7	2.8	1.4	.08	.47	.00	.02	.10
19	1.2	2.7	2.5	4.0	7.8	2.8	1.2	.05	.25	.00	.00	.11
20	.63	1.6	2.6	4.0	4.9	1.9	1.1	112	.12	.00	.00	.33
21	1.5	.93	2.9	3.8	4.3	1.8	.76	37	.11	.00	.00	80
22	1.9	2.1	3.0	3.6	4.0	2.2	.49	30	.09	.01	.00	154
23	2.0	2.5	3.2	3.6	3.8	3.2	.53	6.9	.09	6.7	.00	372
24	3.3	4.4	3.0	4.0	3.6	2.7	2.0	3.4	.07	4.5	.00	84
25	2.2	2.9	3.3	3.8	3.6	2.7	2.1	2.8	.04	3.8	.00	45
26	1.9	3.0	3.2	3.8	3.6	2.5	1.8	2.7	.01	2.1	.00	35
27	2.0	3.0	3.2	3.8	3.8	2.7	1.6	2.6	.00	.87	.51	32
28	2.2	2.7	3.1	3.4	3.6	2.8	4.6	2.7	.00	.56	1.7	22
29	2.1	3.0	3.5	3.4	---	2.5	2.3	2.8	.00	.25	113	12
30	2.0	2.9	3.9	3.3	---	2.5	2.2	5.9	.00	.07	18	8.2
31	2.0	---	4.7	4.0	---	2.5	---	2.8	---	1.2	27	---
TOTAL	80.71	73.93	96.2	110.2	143.4	92.2	64.08	274.35	310.75	87.63	167.22	887.56
MEAN	2.60	2.46	3.10	3.55	5.12	2.97	2.14	8.85	10.4	2.83	5.39	29.6
MAX	12	4.4	4.7	4.1	13	4.0	5.0	112	122	22	113	372
MIN	.63	.93	2.5	3.0	3.6	1.8	.49	.05	.00	.00	.00	.10
CFSM	.000	.000	.000	.000	.001	.000	.000	.001	.001	.000	.001	.003
IN.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	160	147	191	219	284	183	127	544	616	174	332	1760

CAL YR 1977 TOTAL 4322.58 MEAN 11.8 MAX 394 MIN .43 CFSM .001 IN .02 AC-FT 8570
WTR YR 1978 TOTAL 2388.23 MEAN 6.54 MAX 372 MIN .00 CFSM .001 IN .01 AC-FT 4740

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.

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, 12,800 micromhos May 1; minimum daily, 550 micromhos Sept. 21.
WATER TEMPERATURES: Maximum daily, 33.0°C June 26, July 9, 12, 27; minimum daily, 2.0°C Jan. 10, 11, 19-21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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)
OCT 03...	1445	4.6	9470	8.6	22.0	60	9.1	110	12	20000
DEC 31...	0915	4.7	9580	8.5	10.0	--	--	--	--	--
JAN 12...	0930	3.2	9950	7.2	1.5	--	--	--	--	--
MAR 29...	1125	2.7	11200	--	18.0	--	--	--	--	--
APR 30...	1015	19	12600	--	23.0	--	--	--	--	--
MAY 04...	0915	5.0	8370	--	--	--	--	--	--	--
JUN 08...	1030	5.6	7120	--	--	--	--	--	--	--
JUL 31...	1100	.40	2830	--	28.0	--	--	--	--	--
AUG 30...	1130	11	850	--	28.0	--	--	--	--	--

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)
OCT 03...	1100	2900	1900	1800	280	300	1500	15	39	190
DEC 31...	--	--	2200	2000	360	320	1500	14	44	250
JAN 12...	--	--	2300	2100	360	330	1500	14	42	240
MAR 29...	--	--	2400	2200	350	360	1800	16	44	150
APR 30...	--	--	2600	2400	370	400	2200	19	59	240
MAY 04...	--	--	1800	1700	270	270	1200	12	35	160
JUN 08...	--	--	1500	1300	250	220	1100	12	29	230
JUL 31...	--	--	470	390	76	68	400	8.0	14	100
AUG 30...	--	--	170	75	48	13	96	3.2	5.4	120

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	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, 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)
OCT 03...	4	1300	2500	1.6	2.1	6460	6020	.00	.01	.00
DEC 31...	12	1500	2500	--	7.1	--	6370	--	--	--
JAN 12...	0	1600	2600	--	9.1	--	6560	--	--	--
MAR 29...	0	1700	3000	--	5.9	--	7330	--	--	--
APR 30...	0	2100	3500	--	3.5	--	8750	--	--	--
MAY 04...	0	1300	2100	--	6.3	--	5260	--	--	--
JUN 08...	0	1200	1800	.7	12	--	4730	--	--	--
JUL 31...	0	310	650	.9	5.9	--	1570	--	--	--
AUG 30...	0	61	170	.6	6.2	--	459	--	--	--

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)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 03...	.03	2.8	2.8	1.1	.32	.07	16	103	1.3	99
DEC 31...	--	--	--	--	--	--	--	--	--	--
JAN 12...	--	--	--	--	--	--	--	--	--	--
MAR 29...	--	--	--	--	--	--	--	--	--	--
APR 30...	--	--	--	--	--	--	--	--	--	--
MAY 04...	--	--	--	--	--	--	--	--	--	--
JUN 08...	--	--	--	--	--	--	--	--	--	--
JUL 31...	--	--	--	--	--	--	--	--	--	--
AUG 30...	--	--	--	--	--	--	--	--	--	--

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT 03...	1445	8	3	5	400	100	300	10	5	5

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
OCT 03...	0	0	10	50	50	0	10	10	0	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)
OCT 03...	10	<100	<99	1	220	190	30	.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 03...	1	1	0	<10	<10	0	20	10	10

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	80.71	7950	5050	1100	2030	441	1240	271	1680
NOV. 1977.....	73.93	8860	5710	1140	2300	459	1410	281	1890
DEC. 1977.....	96.2	9460	6140	1600	2490	646	1520	394	2020
JAN. 1978.....	110.2	9860	6430	1910	2610	776	1590	473	2110
FEB. 1978.....	143.4	9440	6130	2370	2480	960	1510	586	2020
MAR. 1978.....	92.2	10600	6950	1730	2820	702	1720	428	****
APR. 1978.....	64.08	11000	7250	1260	2950	510	1800	311	****
MAY 1978.....	274.35	3890	2420	1790	960	708	570	420	760
JUNE 1978.....	310.75	3140	1870	1570	720	604	420	356	590
JULY 1978.....	87.63	5910	3760	891	1510	356	900	213	1220
AUG. 1978.....	167.22	1170	640	291	230	105	120	52	210
SEPT 1978.....	887.56	2030	1190	2840	450	1070	250	602	370
TOTAL	2388.23	**	**	18500	**	7340	**	4390	**
WTD.AVG.	6.54	4560	2900	**	1100	**	680	**	910

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9530	8690	9310	9630	9900	10100	11100	12800	3950	---	2840	7780
2	9480	8730	9350	9410	9800	8790	11200	10000	5500	10900	2660	5530
3	9470	8700	9400	9630	9680	9620	11500	9320	1390	10400	2790	5040
4	8520	8670	9340	9370	9810	10300	11400	8400	780	2920	2880	4520
5	8050	8660	9270	9240	9680	10200	11300	6250	1650	2810	2990	4600
6	7640	8700	9310	9370	9770	10400	11200	7740	4830	2480	---	4850
7	7500	8770	9480	9410	10200	10300	11300	5820	4390	4650	2430	5700
8	6230	8550	9400	9440	9860	10200	11000	4430	6000	6420	1990	5930
9	6260	8620	9300	9450	9500	10000	10500	3350	2890	8580	1710	6260
10	6290	8730	9180	9630	10000	9810	11000	3100	2250	8800	1630	6500
11	6980	8770	9250	9670	10300	10100	11200	3040	2050	8960	1670	6890
12	7180	8700	9310	9860	9210	10400	11000	3380	2100	9050	1710	6690
13	7850	8480	9440	12300	10000	10500	11100	3620	2310	9160	1760	6070
14	9310	8600	9480	11600	10000	10600	11000	3880	2570	---	1800	5510
15	8630	8730	9350	10700	8900	10500	11200	3850	3110	---	1770	5950
16	7670	8850	9400	10100	10100	10900	11100	3790	3910	---	1720	7450
17	7180	8930	9480	9910	8980	11000	11200	3890	5050	---	1730	8200
18	6840	8970	9500	9810	9020	11500	11300	4000	6280	---	1810	8870
19	6630	8700	9510	9910	10100	11200	11300	4080	7130	---	---	8760
20	6590	8560	9530	9860	8710	11100	11500	1550	7710	---	---	7850
21	6550	8550	9580	9720	6690	11000	11000	930	7880	---	---	550
22	6660	8600	9530	9590	6210	11200	10700	1460	8240	7920	---	1030
23	7230	8550	9510	9500	6690	11300	10600	8370	8470	10500	---	1090
24	8040	8810	9490	9370	7840	11300	10700	12000	8800	10200	---	2250
25	8700	9000	9500	9590	9420	11300	10200	10700	8990	9360	---	3330
26	8740	9720	9490	9680	10200	11100	10000	9490	9190	5590	---	3780
27	8700	9670	9440	9590	10500	11000	10100	8620	---	3710	3100	5290
28	8630	9320	9810	9630	10700	11100	10200	7950	---	2810	5150	6850
29	9140	9160	9900	10000	---	11200	11500	7300	---	2830	1000	7110
30	8940	9200	9710	10900	---	11000	12600	7150	---	3050	860	7160
31	8710	---	9580	10100	---	11000	---	6870	---	2860	1570	---
MEAN	7870	8820	9460	9870	9350	10600	11000	6040	4900	6540	2160	5580

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	18.0	13.0	6.0	5.0	11.0	27.0	20.0	25.0	---	27.0	24.0
2	23.0	13.0	8.0	4.0	5.0	11.0	26.0	17.0	25.0	31.0	30.0	24.0
3	20.0	13.0	9.0	4.0	6.0	7.0	23.0	14.0	22.0	28.0	23.0	---
4	22.0	13.0	---	7.0	5.0	5.0	21.0	14.0	28.0	27.0	25.0	26.0
5	23.0	14.0	11.0	7.0	12.0	---	24.0	19.0	26.0	27.0	22.0	26.0
6	24.0	14.0	6.0	8.0	7.0	11.0	19.0	22.0	25.0	28.0	---	24.0
7	25.0	16.0	6.0	8.0	8.0	10.0	21.0	27.0	24.0	28.0	24.0	24.0
8	21.0	13.0	10.0	9.0	5.0	8.0	22.0	21.0	24.0	27.0	25.0	23.0
9	---	9.0	5.0	4.0	4.0	15.0	22.0	27.0	30.0	33.0	26.0	24.0
10	23.0	8.0	4.0	2.0	4.0	12.0	17.0	22.0	23.0	27.0	25.0	29.0
11	16.0	9.0	14.0	2.0	7.0	12.0	15.0	23.0	29.0	29.0	24.0	25.0
12	14.0	9.0	12.0	3.0	10.0	15.0	18.0	28.0	26.0	33.0	25.0	27.0
13	15.0	13.0	11.0	5.0	7.0	13.0	20.0	21.0	31.0	27.0	28.0	26.0
14	19.0	13.0	9.0	5.0	6.0	18.0	20.0	28.0	27.0	---	27.0	25.0
15	16.0	14.0	11.0	6.0	6.0	13.0	22.0	27.0	26.0	---	28.0	27.0
16	17.0	14.0	12.0	8.0	7.0	17.0	27.0	23.0	28.0	---	25.0	27.0
17	16.0	12.0	9.0	4.0	4.0	12.0	22.0	32.0	---	---	27.0	---
18	19.0	11.0	13.0	5.0	3.0	20.0	17.0	32.0	25.0	---	32.0	31.0
19	17.0	17.0	9.0	2.0	3.0	20.0	19.0	28.0	26.0	---	---	26.0
20	20.0	20.0	7.0	2.0	5.0	16.0	24.0	21.0	27.0	---	---	27.0
21	20.0	11.0	5.0	2.0	9.0	6.0	18.0	25.0	29.0	---	---	16.0
22	19.0	---	4.0	6.0	7.0	24.0	19.0	24.0	28.0	26.0	---	17.0
23	21.0	12.0	8.0	6.0	9.0	23.0	27.0	26.0	24.0	---	---	18.0
24	18.0	12.0	10.0	8.0	9.0	15.0	20.0	25.0	24.0	26.0	---	---
25	27.0	11.0	---	5.0	9.0	14.0	23.0	26.0	26.0	32.0	---	21.0
26	19.0	17.0	5.0	8.0	13.0	22.0	21.0	24.0	33.0	32.0	---	21.0
27	19.0	14.0	6.0	4.0	13.0	16.0	21.0	25.0	---	33.0	---	19.0
28	18.0	10.0	7.0	8.0	12.0	22.0	22.0	29.0	---	27.0	31.0	19.0
29	18.0	9.0	10.0	7.0	---	18.0	25.0	24.0	---	27.0	29.0	20.0
30	23.0	11.0	10.0	5.0	---	19.0	23.0	25.0	---	25.0	24.0	23.0
31	20.0	---	10.0	5.0	---	21.0	---	25.0	---	28.0	22.0	---
MEAN	20.0	13.0	9.0	5.5	7.0	15.0	21.5	24.0	26.5	28.5	26.0	23.5

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.--11 years, 60.8 ft³/s (1.722 m³/s), 44,050 acre-ft/yr (54.3 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, 1,480 ft³/s (41.9 m³/s) June 2, gage height, 6.24 ft (1.902 m); no flow July 16-22, Aug. 15-29.

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	.96	4.1	6.6	6.4	6.6	4.8	5.5	.01	122	.01	.05	25
2	1.0	3.5	6.6	6.7	6.7	4.6	4.2	112	462	.02	.03	23
3	17	3.3	6.6	6.6	7.3	3.8	4.1	74	331	.07	1.7	10
4	18	3.5	5.8	6.6	7.7	4.7	3.8	33	159	.23	2.2	5.0
5	13	3.6	6.0	6.6	6.9	6.5	4.0	19	71	29	4.5	3.2
6	17	4.2	7.2	6.6	6.7	6.0	3.5	11	60	39	1.8	1.9
7	12	4.1	8.1	5.0	8.1	4.6	4.3	8.7	322	16	.86	2.1
8	8.2	6.6	7.0	5.1	8.7	4.4	6.6	6.0	478	8.2	.39	8.9
9	7.3	4.8	6.6	6.0	9.2	5.4	23	3.7	148	3.6	.14	5.9
10	7.3	6.3	7.6	6.6	8.5	6.9	11	2.8	72	1.9	.04	2.9
11	5.8	7.0	8.5	5.9	12	5.2	7.3	2.3	39	1.0	.03	2.2
12	4.4	7.6	8.6	5.8	10	6.7	7.1	1.2	25	.56	.02	1.5
13	4.8	7.2	7.1	5.8	11	4.4	6.0	.62	19	.18	.01	1.1
14	4.4	6.9	7.2	6.3	9.9	4.1	4.5	.57	16	.05	.01	.70
15	4.0	6.9	7.2	7.8	17	3.1	4.1	.29	14	.02	.00	.46
16	4.5	6.8	6.6	6.5	15	3.8	3.9	.16	12	.00	.00	.38
17	3.8	6.6	5.6	6.5	9.2	4.2	2.2	.06	9.5	.00	.00	.54
18	3.5	6.7	6.2	7.1	7.1	4.5	1.3	.03	5.0	.00	.00	.30
19	3.3	7.4	6.1	5.1	6.1	4.4	1.0	.02	3.5	.00	.00	.21
20	3.5	6.8	5.4	5.4	4.6	3.9	1.1	187	2.3	.00	.00	.18
21	3.5	4.8	5.4	6.5	7.9	4.3	1.2	265	1.5	.00	.00	1.3
22	3.6	5.1	6.7	7.0	6.9	4.1	.57	370	1.2	.00	.00	123
23	2.8	5.1	6.0	7.7	5.2	3.0	.40	161	.80	.56	.00	315
24	2.8	4.1	4.9	6.8	6.0	2.8	.31	67	.52	.18	.00	473
25	3.6	3.8	5.1	6.2	4.0	2.8	.29	36	.33	.07	.00	150
26	4.7	7.1	5.7	7.4	4.7	4.0	.28	25	.21	.05	.00	93
27	5.7	7.3	6.5	6.7	5.1	4.5	.16	19	.19	.03	.00	73
28	5.8	6.6	7.4	6.0	4.6	5.6	.10	22	.08	.02	.00	56
29	6.1	7.3	9.1	6.2	---	5.0	.04	14	.05	.01	.00	37
30	6.4	6.6	8.1	6.4	---	4.7	.03	62	.02	.02	38	23
31	6.8	---	7.9	6.2	---	5.1	---	323	---	.02	27	---
TOTAL	195.56	171.7	209.4	197.5	222.7	141.9	111.88	1826.46	2375.20	100.80	76.78	1439.77
MEAN	6.31	5.72	6.75	6.37	7.95	4.58	3.73	58.9	79.2	3.25	2.48	48.0
MAX	18	7.6	9.1	7.8	17	6.9	23	370	478	39	38	473
MIN	.96	3.3	4.9	5.0	4.0	2.8	.03	.01	.02	.00	.00	.18
AC-FT	388	341	415	392	442	281	222	3620	4710	200	152	2860

CAL YR 1977 TOTAL 13825.47 MEAN 37.9 MAX 2450 MIN .39 AC-FT 27420
WTR YR 1978 TOTAL 7069.65 MEAN 19.4 MAX 478 MIN .00 AC-FT 14020

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 13,600 micromhos Mar. 18, May 19, 1969; minimum daily, 235 micromhos Aug. 10, 1974.
WATER TEMPERATURES: Maximum daily, 29.0°C on several days during summer months of 1968 and 1973; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 11,000 micromhos Apr. 29, May 1; minimum daily, 1,180 micromhos June 2.
WATER TEMPERATURES: Maximum daily, 27.0°C July 14, 15: minimum daily, 0.0°C Jan. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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											
04...	0800	13	5270	6.8	19.5	--	--	--	--	--	--
NOV											
01...	0730	2.7	6920	8.1	18.5	35	6.5	73	8.1	680	240
14...	1040	5.4	7330	7.7	13.0	--	--	--	--	--	--
DEC											
06...	0815	5.0	7650	7.8	4.5	6	9.6	78	2.1	84	42
JAN											
09...	1500	7.7	8280	8.2	7.5	10	12.9	115	8.1	77	40
FEB											
06...	1505	8.8	8300	8.5	7.5	9	15.1	135	4.6	83	47
MAR											
06...	1710	5.0	8290	9.7	16.0	25	13.7	147	>41	20	<1
APR											
12...	1100	6.0	9500	8.5	18.0	55	8.6	97	6.5	1600	1600
MAY											
09...	1100	3.5	11000	8.3	20.5	70	5.5	65	11	2100	420
JUN											
13...	1030	23	2600	8.1	26.0	55	6.5	82	7.2	2000	830
JUL											
18...	1130	.03	6800	8.0	33.5	10	9.5	136	9.3	760	110
SEP											
01...	1030	25	3200	8.3	23.8	30	9.6	117	11	--	1400

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											
04...	--	1200	1100	290	120	720	9.0	13	95	0	1100
NOV											
01...	760	1700	1600	360	190	1000	11	19	130	0	1200
14...	--	1800	1600	390	190	1000	10	20	160	0	1500
DEC											
06...	160	1800	1700	410	200	1100	11	17	190	0	1800
JAN											
09...	53	2000	1800	370	250	1100	11	21	170	0	1600
FEB											
06...	84	1900	1800	380	240	1300	13	22	160	16	1600
MAR											
06...	60	2000	1900	380	250	1200	12	24	55	12	1500
APR											
12...	7800	2400	2300	510	280	1500	13	26	140	4	2000
MAY											
09...	1000	2500	2400	420	360	1800	16	41	150	0	1900
JUN											
13...	60	470	380	110	47	400	8.0	9.4	110	0	410
JUL											
18...	900	1600	1500	370	170	930	10	19	150	0	1100
SEP											
01...	1100	590	510	130	65	410	7.3	15	98	0	450

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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...	1100	--	6.3	--	3400	--	--	--	--	--
NOV										
01...	1700	.8	5.5	4680	4540	.00	.03	.01	.09	1.0
14...	1700	--	5.6	--	4880	--	--	--	--	--
DEC										
06...	1700	.8	3.9	5360	5330	.01	.00	.01	.14	.96
JAN										
09...	1900	.8	1.2	563	5330	.02	.01	.03	.14	1.4
FEB										
06...	2100	.8	.5	5790	5740	.14	.04	.18	.02	1.4
MAR										
06...	2000	.8	2.8	5660	5400	.00	.01	.01	.10	3.9
APR										
12...	2700	.7	.4	6980	7090	.04	.01	.05	.08	1.7
MAY										
09...	2900	1.0	1.2	7830	7500	.05	.04	.09	.18	2.4
JUN										
13...	560	--	--	1120	--	.00	.01	.01	.00	1.2
JUL										
18...	1700	.6	5.8	4980	4370	.01	.00	.01	.01	1.8
SEP										
01...	670	.8	5.9	1970	1800	.01	.02	.03	.01	2.8

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...	--	--	--	--	--	--	--	--	--	--
NOV										
01...	1.1	.48	.15	.03	11	--	--	111	.81	95
14...	--	--	--	--	--	--	--	--	--	--
DEC										
06...	1.1	1.1	.05	.01	6.9	--	--	17	.23	60
JAN										
09...	1.5	.80	.17	.03	8.4	--	--	41	.85	57
FEB										
06...	1.4	.95	.28	.07	--	13	--	9	.21	72
MAR										
06...	4.0	1.0	.60	.24	33	--	--	13	.18	99
APR										
12...	1.8	1.1	.20	.09	12	--	--	83	1.3	99
MAY										
09...	2.6	1.4	.27	.08	23	--	--	121	1.1	99
JUN										
13...	1.2	.60	.15	.21	--	5.8	3.2	54	3.4	100
JUL										
18...	1.8	.88	.10	.09	14	--	--	11	.00	97
SEP										
01...	2.8	1.5	.20	.11	13	--	--	36	2.4	98

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
FEB 06...	1505	3	0	3	100	0	100	0	0	3
JUN 13...	1030	5	0	5	200	0	300	0	0	0

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
FEB 06...	20	20	0	1	0	1	1	0	2	130
JUN 13...	10	10	0	0	0	0	8	7	1	1200

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)
FEB 06...	--	10	2	0	3	60	20	40	.0	.0
JUN 13...	1200	0	10	7	3	150	140	10	.2	.2

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)
FEB 06...	.0	4	3	1	0	0	0	20	0	20
JUN 13...	.0	0	0	0	0	0	0	20	10	10

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
OCT 04...	0800	.0	.00	.00	.0	.00	.00	.00	.00
FEB 06...	1505	.0	.00	.00	.0	.00	.00	.00	.15
JUN 13...	1030	.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)
OCT 04...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB 06...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN 13...	.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)
OCT 04...	.00	--	.00	0	.00	.00	.00	.00
FEB 06...	.00	--	.00	0	.00	.00	.00	.00
JUN 13...	.00	.00	.00	0	.00	.00	.02	.00

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	NOV 1,77	MAR 6,78	MAY 9,78	JUN 13,78	JUL 18,78	SEP 1,78
TIME	0730	1710	1100	1030	1130	1030
TOTAL CELLS/ML	13000	670000	9500	110000	130000	5100
DIVERSITY: DIVISION	1.1	0.7	1.3	1.3	0.6	0.4
.CLASS	1.1	0.7	1.3	1.3	0.6	0.4
..ORDER	1.6	0.7	1.6	1.7	1.6	0.4
...FAMILY	2.0	0.7	2.1	2.3	1.9	0.6
....GENUS	2.5	0.7	3.0	2.5	2.2	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												
...OOCYSTACEAE												
....DICHOTOMOCOCCUS	--	-	570000#	85	--	-	--	-	--	-	--	-
...CHARACIACEAE												
....SCHROEDERIA	350	3	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	1700	13	--	-	2000#	21	--	-	940	1	--	-
....CHODATELLA	--	-	--	-	--	-	--	-	*	0	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	18000#	17	760	1	--	-
....KIRCHNERIELLA	700	5	--	-	890	9	1400	1	--	-	--	-
....OOCYSTIS	--	-	--	-	2100#	23	1100	1	--	-	--	-
....SELENASTRUM	350	3	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	60	1	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	*	0	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	760	1	--	-
....SCENEDESMUS	1400	11	--	-	950	10	49000#	46	1500	1	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	2100#	16	--	-	360	4	4600	4	760	1	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	*	0	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	*	0	--	-	3200	3	7400	6	--	-
....MELOSIRA	--	-	--	-	240	3	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	28	1
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	--	-	--	-	--	-	41	1
...EUNOTIACEAE												
....EUNOTIA	--	-	--	-	--	-	--	-	--	-	*	0
...FRAGILARIACEAE												
....SYNEDRA	--	-	--	-	360	4	--	-	--	-	28	1
...NAVICULACEAE												
....NAVICULA	--	-	--	-	540	6	*	0	--	-	83	2
...NITZSCHIACEAE												
....NITZSCHIA	--	-	--	-	--	-	2100	2	--	-	170	3
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...MALLOMONADACEAE												
....MALLOMONAS	--	-	--	-	--	-	--	-	--	-	*	0
.XANTHOPHYCEAE												
..HETEROCOCCALES												
...CHLOROTHECIACEAE												
....OPHIOCYTIUM	--	-	--	-	--	-	*	0	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	84000	13	--	-	*	0	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCOCCALES												
...CHROCOCCACEAE												
....AGMENELLUM	5600#	42	--	-	--	-	--	-	60000#	46	--	-
....ANACYSTIS	700	5	--	-	--	-	4300	4	5300	4	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	16000	12	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	1700#	18	16000#	15	35000#	27	4700#	92

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 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE TIME	NOV 1,77 0730		MAR 6,78 1710		MAY 9,78 1100		JUN 13,78 1030		JUL 18,78 1130		SEP 1,78 1030	
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
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	15000	2	--	-	5000	5	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-	*	0	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	760	1	--	-
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	350	3	--	-	240	3	--	-	--	-	--	-
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-	*	0

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

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

DATE	LENGTH OF EXPOSURE (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)	SAMPLING METHOD
DEC 06...	35	2.60	3.23	.680	.000	POLYETHYLENE STRIP
MAY 09...	27	1.65	2.12	3.63	.840	POLYETHYLENE STRIP
JUL 18...	35	8.11	9.84	21.2	.320	POLYETHYLENE STRIP

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	195.56	6200	3980	2100	1440	762	1140	601	1420
NOV. 1977.....	171.7	7320	4840	2250	1770	820	1380	637	1720
DEC. 1977.....	209.4	7950	5330	3010	1950	1100	1510	852	1890
JAN. 1978.....	197.5	8240	5550	2960	2030	1080	1570	836	1960
FEB. 1978.....	222.7	8110	5460	3280	2000	1200	1540	929	1930
MAR. 1978.....	141.9	8790	5980	2290	2190	841	1690	646	2110
APR. 1978.....	111.88	9240	6320	1910	2320	701	1780	538	2230
MAY 1978.....	1826.46	3280	1970	9730	690	3400	530	2610	640
JUNE 1978.....	2375.2	1790	1040	6640	340	2180	290	1870	340
JULY 1978.....	100.8	5850	3720	1010	1350	366	1060	290	1320
AUG. 1978.....	76.78	6590	4280	886	1560	324	1210	252	1520
SEPT 1978.....	1439.77	2650	1550	6010	530	2070	410	1600	470
TOTAL	7069.64	**	**	42100	**	14800	**	11700	**
WTD.AVG.	19.37	3540	2200	**	780	**	610	**	710

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5700	7020	7570	8220	8790	8850	9950	11000	1230	6340	7780	3470
2	5720	7120	7600	8230	8650	8630	10000	3740	1180	6360	7990	2390
3	5710	7150	7630	8230	8470	8590	10200	2950	2470	6300	6900	2030
4	5370	7170	7600	8270	8340	8520	10300	6340	3010	6180	6160	2180
5	6070	7200	7550	8300	8330	8480	10000	6900	2710	6090	7310	2370
6	6290	7220	7600	8330	8310	8310	10100	7930	2530	6000	8090	2610
7	6970	7250	7800	8310	8050	8410	10000	8350	1200	5900	8150	2890
8	6560	6860	7890	8300	7910	8700	10200	9840	1220	3680	8180	2360
9	5870	6950	7920	8280	7760	8780	7680	10500	1870	5150	8230	2190
10	5470	6980	7800	8270	7700	8410	6750	10900	2890	6890	8330	2330
11	5430	6900	7780	8300	7810	8020	9360	10800	2810	7580	8380	2540
12	5400	6950	7770	8270	7700	7710	9440	10700	2670	7910	8450	2790
13	5340	7100	7850	8300	8080	7590	9760	10800	2750	8030	8630	3050
14	5440	7300	7920	8080	7990	7650	10200	10600	3000	8130	8780	3320
15	5720	7460	7890	8240	7960	7830	10400	10700	3280	8230	---	3550
16	6120	7570	7920	8080	8020	8210	10500	10800	3570	---	---	3760
17	6600	7490	7950	8170	8000	8670	10500	10600	3830	---	---	3940
18	6920	7360	7980	8300	7990	8860	10600	10700	4040	---	---	4110
19	7090	7220	8050	8370	7760	9220	10700	10700	4230	---	---	4260
20	7160	7170	8100	8240	8180	9340	10800	2970	4440	---	---	4410
21	7010	7410	8110	8270	8370	9440	10900	3320	4620	---	---	4510
22	6690	7500	8200	8110	8510	9400	10800	3070	4820	---	---	4270
23	6560	7580	8270	8120	8340	9220	10700	2230	5070	7750	---	2150
24	6520	7630	8290	8110	8180	9180	10600	2280	5270	7360	---	2170
25	6640	7600	8320	8050	8300	9220	10600	2530	5430	7060	---	2840
26	6760	7660	8280	8110	8410	9350	10700	2870	5610	7110	---	2740
27	6820	7750	8270	8140	8370	9530	10800	3230	5800	7290	---	3060
28	6730	7810	8280	8200	8440	9670	10900	3580	5970	7500	---	3440
29	6640	7550	8200	8300	---	9750	11000	3150	6130	7580	---	3740
30	6670	7520	8110	8330	---	9850	10900	4710	6260	7670	6180	4010
31	6780	---	8210	8640	---	9900	---	2950	---	7760	6860	---
MEAN	6280	7320	7960	8240	8170	8820	10200	6830	3660	6910	7780	3120

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	17.0	8.0	---	4.0	10.0	18.0	18.0	23.0	25.0	23.0	23.0
2	20.0	11.0	10.0	2.0	4.0	10.0	19.0	17.0	24.0	25.0	24.0	24.0
3	19.0	14.0	12.0	3.0	5.0	---	19.0	11.0	23.0	26.0	24.0	25.0
4	19.0	14.0	10.0	6.0	8.0	6.0	19.0	12.0	24.0	25.0	24.0	25.0
5	18.0	15.0	10.0	6.0	6.0	4.0	18.0	18.0	23.0	26.0	22.0	24.0
6	19.0	14.0	7.0	8.0	5.0	10.0	19.0	21.0	22.0	25.0	23.0	24.0
7	24.0	15.0	5.0	9.0	6.0	8.0	23.0	19.0	22.0	25.0	24.0	24.0
8	22.0	14.0	9.0	5.0	---	5.0	20.0	20.0	21.0	25.0	26.0	22.0
9	17.0	14.0	5.0	3.0	2.0	7.0	20.0	18.0	23.0	25.0	26.0	23.0
10	18.0	11.0	4.0	2.0	2.0	14.0	15.0	18.0	24.0	25.0	26.0	25.0
11	16.0	12.0	6.0	1.0	4.0	13.0	12.0	20.0	23.0	26.0	26.0	24.0
12	12.0	12.0	9.0	1.0	6.0	9.0	14.0	15.0	25.0	25.0	26.0	25.0
13	12.0	13.0	10.0	6.0	6.0	10.0	16.0	19.0	25.0	26.0	25.0	25.0
14	15.0	13.0	9.0	4.0	5.0	9.0	20.0	18.0	24.0	27.0	25.0	26.0
15	15.0	15.0	9.0	4.0	5.0	10.0	22.0	21.0	23.0	27.0	---	26.0
16	14.0	14.0	11.0	8.0	4.0	9.0	19.0	22.0	25.0	---	---	25.0
17	15.0	13.0	8.0	3.0	---	8.0	20.0	22.0	24.0	---	---	25.0
18	18.0	10.0	7.0	2.0	3.0	5.0	15.0	23.0	23.0	---	---	24.0
19	17.0	16.0	8.0	1.0	3.0	10.0	14.0	24.0	24.0	---	---	23.0
20	20.0	17.0	6.0	.0	4.0	15.0	15.0	20.0	24.0	---	---	22.0
21	19.0	10.0	4.0	1.0	4.0	15.0	16.0	21.0	24.0	---	---	23.0
22	17.0	11.0	5.0	2.0	5.0	16.0	18.0	22.0	24.0	---	---	17.0
23	17.0	12.0	6.0	3.0	7.0	18.0	19.0	24.0	24.0	25.0	---	18.0
24	16.0	11.0	---	6.0	12.0	13.0	19.0	24.0	25.0	25.0	---	19.0
25	17.0	10.0	---	3.0	12.0	14.0	17.0	23.0	24.0	25.0	---	20.0
26	16.0	10.0	6.0	3.0	9.0	12.0	15.0	24.0	24.0	25.0	---	20.0
27	17.0	11.0	5.0	5.0	12.0	14.0	16.0	23.0	23.0	24.0	---	19.0
28	18.0	10.0	5.0	6.0	11.0	13.0	18.0	23.0	24.0	25.0	---	19.0
29	20.0	9.0	7.0	5.0	---	14.0	20.0	22.0	23.0	24.0	---	21.0
30	19.0	7.0	12.0	4.0	---	14.0	20.0	23.0	25.0	24.0	23.0	20.0
31	20.0	---	10.0	6.0	---	20.0	---	24.0	---	24.0	23.0	---
MEAN	17.5	12.5	7.5	4.0	6.0	11.0	18.0	20.5	23.5	25.0	24.5	22.5

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 municial, 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, 154,800 acre-ft (191 hm³) Oct. 1, elevation, 1,863.98 ft (568.141 m); minimum, 119,800 acre-ft (148 hm³) Sept. 22, 23; minimum elevation, 1,857.97 ft (566.309 m) Sept. 23.

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

1,857.0	114,900	1,862.0	142,400
1,859.0	125,400	1,863.0	148,400
1,861.0	136,400	1,864.0	154,900

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	154600	150100	147300	142600	140000	139300	135900	132800	132800	131800	125500	122200
2	154200	150000	147100	142500	140000	139200	135800	132500	134400	131800	125300	122200
3	153900	150000	147000	142300	139900	139100	135700	132500	135300	131500	128300	122000
4	153700	149900	146900	142200	139800	139000	135600	132600	135500	131200	128100	121800
5	153600	149800	146800	142100	139800	138900	135500	132600	135500	131000	128000	121800
6	153200	149800	146700	142100	139600	138900	135400	132600	135500	130800	127900	121600
7	153300	149700	146500	142000	139700	138700	136100	132500	135600	130600	127700	121600
8	153000	149600	146400	141900	139800	138600	136200	132300	136200	130400	127500	121600
9	152600	149600	146300	141700	139900	138500	136500	132100	136400	130200	127300	121400
10	152300	149500	146200	141500	139800	138400	136400	131900	136200	130000	127100	121200
11	152200	149400	146100	141400	139700	138300	136300	131900	136300	129600	126800	121200
12	152100	149400	145900	141400	140300	138100	136200	131700	136200	129400	126600	121400
13	152000	149300	145700	141300	140200	138000	136100	131500	136100	129000	126400	121300
14	151900	149200	145300	141300	140100	138000	135900	131400	136000	128600	126200	121100
15	151800	149200	145100	141100	140100	137800	135900	131300	135700	128600	126000	120900
16	151600	149200	144900	141000	140100	137800	135700	131100	135500	128400	125700	120700
17	151400	149100	144700	141000	140000	137700	135600	131000	135200	128200	125500	120500
18	151300	149100	144300	140800	140000	137600	135100	130800	135200	128000	125300	120200
19	151100	148900	144100	140700	139900	137500	134900	130700	134900	127800	125100	120000
20	151000	148800	144000	140600	139800	137400	134600	131700	134800	127500	125000	119900
21	150900	148500	143800	140500	139800	137300	134600	132100	134500	127300	124600	120000
22	150900	148400	143600	140500	139700	137100	134500	132600	134200	127200	124500	119800
23	150800	148300	143500	140500	139600	137000	134500	132800	134000	127000	124100	119900
24	150800	148200	143400	140400	139600	136800	134400	132900	133800	126800	123800	120600
25	150700	148100	143200	140400	139500	136600	134100	132700	133600	126700	123600	120800
26	150600	148000	143100	140300	139400	136500	133700	132600	133000	126500	123400	120800
27	150500	147800	143000	140200	139400	136300	133600	132400	132700	126300	123100	121100
28	150500	147700	142900	140200	139300	136200	133500	132400	132300	126200	122900	121200
29	150400	147600	142800	140100	---	136200	133400	132500	132200	126000	122700	121200
30	150400	147500	142700	140100	---	136100	133200	132300	132000	125800	122500	121200
31	150200	---	142600	140100	---	136000	---	132600	---	125700	122300	---
MAX	154600	150100	147300	142600	140300	139300	136500	132900	136400	131800	128300	122200
MIN	150200	147500	142600	140100	139300	136000	133200	130700	132000	125700	122300	119800
(†)	1863.28	1862.85	1862.04	1861.61	1861.49	1860.93	1860.42	1860.30	1860.20	1859.05	1858.43	1858.23
(‡)	-4600	-2700	-4900	-2500	-800	-3300	-2800	-600	-600	-6300	-3400	-1100
(††)	2080	1840	1790	1840	1620	2430	2490	2120	1930	2410	2170	2070

CAL YR 1977 MAX 165900 MIN 142600 ‡ -23000 †† 24630
WTR YR 1978 MAX 154600 MIN 119800 ‡ -33600 †† 24790

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

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 RES AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
JAN							
07...	1215	1.0	3150	8.2	10.0	10.4	96
07...	1218	10	3150	8.2	10.0	10.4	96
07...	1221	20	3150	8.2	10.0	10.4	96

315335100312401 - E. V. SPENCE RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	HARDNESS (CA,MG) (MG/L)
JAN									
07...	1100	1.0	3150	8.2	9.5	2.40	10.6	97	620
07...	1103	10	3150	8.2	9.5	--	10.6	97	--
07...	1106	20	3150	8.2	9.5	--	10.6	97	--
07...	1109	30	3150	8.2	9.5	--	10.5	96	--
07...	1112	40	3150	8.2	9.0	--	10.4	94	--
07...	1115	50	3150	8.1	8.5	--	10.1	90	--
07...	1118	60	3150	8.1	8.5	--	9.7	87	--
07...	1121	68	3150	8.1	8.5	--	9.6	85	640

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JAN									
07...	500	120	77	430	7.5	13	140	0	460
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	530	130	77	400	6.9	13	140	0	510

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN									
07...	700	.4	3.8	1870	.04	.07	.02	10	0
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	.06	.12	.03	80	20
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	700	.4	3.8	1900	.07	.10	.04	410	80

315413100312501 - E. V. SPENCE RES AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
JAN							
07...	1045	1.0	3150	8.2	9.5	10.6	97
07...	1048	10	3150	8.2	9.5	10.6	97
07...	1051	20	3150	8.2	9.5	10.5	96
07...	1054	30	3150	8.2	9.5	10.2	94
07...	1057	45	3150	8.1	9.0	10.2	92

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

315558100342601 - E. V. SPENCE RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	HARDNESS (CA,MG) (MG/L)
JAN									
07...	1312	1.0	3270	8.2	8.5	1.50	10.5	95	700
07...	1316	10	3230	8.1	8.5	--	10.3	92	--
07...	1319	20	3180	8.2	9.0	--	10.5	95	--
07...	1322	30	3180	8.2	9.0	--	10.5	95	--
07...	1325	40	3270	7.9	8.5	--	8.7	78	650

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JAN									
07...	580	130	90	390	6.4	14	140	0	540
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	540	130	79	480	8.2	14	140	0	540

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN								
07...	700	3.6	1940	.04	.18	.07	60	10
07...	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--
07...	760	3.5	2080	.04	.18	.07	90	20

315619100335601 - E. V. SPENCE RES BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
JAN							
07...	1255	1.0	3180	8.2	9.5	10.4	95
07...	1258	10	3180	8.2	9.5	10.4	95
07...	1300	24	3180	8.2	9.5	10.2	94

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

315712100352001 - E. V. SPENCE RES CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
JAN							
07...	1350	1.0	3310	8.2	9.0	10.9	98
07...	1353	10	3310	8.2	9.0	10.9	98
07...	1356	24	4150	8.0	9.0	8.7	78

315810100364901 - E.V.SPENCE RES DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	HARDNESS (CA,MG) (MG/L)
JAN									
07...	1436	1.0	3910	8.3	9.5	.60	11.2	103	820
07...	1440	6.0	3920	8.3	9.5	--	11.2	103	820

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JAN									
07...	700	170	97	500	7.6	14	150	0	620
07...	700	170	96	590	9.0	14	150	0	750

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN								
07...	880	2.8	2360	.01	.08	.05	40	20
07...	920	2.8	2620	.01	.07	.05	110	20

315335100312401 - E. V. SPENCE RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)
JAN							
07...	1100	1.0	1	300	0	0	1
07...	1112	40	--	--	--	--	--
07...	1121	68	2	300	0	10	7

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
JAN							
07...	10	1	0	.0	0	0	20
07...	80	--	20	--	--	--	--
07...	410	2	80	.0	1	0	20

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

315335100312401 E. V. SPENCE RESERVOIR SITE AC
PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JANUARY 1978

DATE	JAN 7,78
TIME	1121
TOTAL CELLS/ML	16000
DIVERSITY: DIVISION	0.3
.CLASS	0.3
..ORDER	0.9
...FAMILY	1.7
....GENUS	2.6

ORGANISM	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OOCYSTACEAE		
....DICTYOSPHAERIUM	1300	8
....OOCYSTIS	3400#	20
....TETRAEDRON	210	1
...SCENEDESMACEAE		
....CRUCIGENIA	4600#	28
....SCENEDESMUS	3700#	22
..TETRASPORALES		
...COCCOMYXACEAE		
....ELAKATOTHRIX	370	2
...PALMELLACEAE		
....SPHAEROCYSTIS	1800	11
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..CHROCCOCCALES		
...CHROCCOCCACEAE		
....ANACYSTIS	1100	6

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 RES DC
PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JANUARY 1978

DATE	JAN 7,78
TIME	1440
TOTAL CELLS/ML	5100
DIVERSITY: DIVISION	0.7
.CLASS	0.8
..ORDER	1.4
...FAMILY	2.1
....GENUS	0.0

ORGANISM	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OOCYSTACEAE		
....ANKISTRODESMUS	760	15
....DICTYOSPHAERIUM	920#	18
....FRANCEIA	32	1
....KIRCHNERIELLA	32	1
....OOCYSTIS	700	14
....TETRAEDRON	63	1
...SCENEDESMACEAE		
....CRUCIGENIA	130	2
....SCENEDESMUS	1100#	21
..VOLVOCALES		
...CHLAMYDOMONADACEAE	320	6
....CHLAMYDOMONAS	320	6
..ZYGNEMATALES		
...DESMIDIACEAE		
....COSMARIUM	32	1
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..PENNALES		
...NAVICULACEAE		
....ENTOMONEIS	32	1
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	160	3
..PENNALES		
...FRAGILARIACEAE		
....SYNEDRA	32	1
...NAVICULACEAE		
....NAVICULA	32	1
...NITZSCHIACEAE		
....NITZSCHIA	130	2
EUGLENOPHYTA (EUGLENOIDS)		
.CRYPTOPHYCEAE		
..CRYPTOMONIDALES		
...CRYPTOCHRYSIDACEAE		
....CHROOMONAS	95	2
.EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....EUGLENA	95	2
....EUTREPTIA	95	2
....PHACUS	*	0
....TRACHELOMONAS	63	1

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

315235100312201 - E. V. SPENCE RES AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUN							
08...	1115	1.0	3370	8.2	25.5	7.5	100
08...	1117	10	3370	8.1	25.0	7.4	99
08...	1119	20	3370	8.1	25.0	7.3	97
08...	1122	33	3360	8.1	25.0	7.0	93

315335100312401 - E. V. SPENCE RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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, DISSOLVED (MG/L AS CACO3)
JUN									
08...	1025	1.0	3370	8.2	25.5	1.50	7.5	100	670
08...	1027	10	3370	8.1	25.0	--	7.0	93	--
08...	1029	20	3370	8.1	24.5	--	6.8	89	--
08...	1031	30	3360	8.0	24.0	--	6.1	79	--
08...	1033	40	3340	7.5	22.5	--	2.5	32	--
08...	1035	52	3340	7.2	21.5	--	1.7	21	660

DATE	HARDNESS, NONCARBONATE, DIS. (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)
JUN									
08...	560	140	78	460	7.7	15	140	0	450
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	540	140	76	460	7.8	460	150	0	440

DATE	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)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUN									
08...	770	.5	4.0	1990	.01	.00	.00	20	10
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	.01	.00	.01	30	10
08...	--	--	--	--	.01	.08	.01	20	0
08...	760	.5	5.0	2420	.00	.19	.01	30	640

315413100312501 - E. V. SPENCE RES AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUN							
08...	1130	1.0	3370	8.2	25.5	7.5	100
08...	1132	10	3370	8.2	25.0	7.4	99
08...	1135	25	3370	8.1	25.0	7.1	95

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

315558100342601 - E. V. SPENCE RESERVOIR SITE 8C

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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, DISSOLVED (MG/L AS CACO3)
JUN									
08...	1155	1.0	3380	8.2	26.0	.70	7.0	95	640
08...	1157	10	3380	8.1	25.5	--	6.5	87	--
08...	1159	20	3380	8.0	24.5	--	5.4	71	--
08...	1201	30	3370	7.6	24.0	--	3.8	49	640

DATE	HARDNESS, NONCARBONATE, DIS. (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)
JUN									
08...	520	140	70	470	8.1	15	140	0	440
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	520	140	70	470	8.1	15	140	0	460

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUN								
08...	760	4.1	1970	.01	.00	.01	20	10
08...	--	--	--	--	--	--	--	--
08...	--	--	--	.01	.00	.00	40	0
08...	760	4.4	1990	.01	.06	.01	20	20

315619100335601 - E. V. SPENCE RES 8L

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUN							
08...	1220	1.0	3380	8.1	26.0	6.7	91
08...	1223	10	3380	8.0	25.0	6.4	84
08...	1225	21	3380	7.8	25.0	4.9	65

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

315712100352001 - E. V. SPENCE RES CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUN							
08...	1240	1.0	2520	8.4	26.0	8.8	119
08...	1243	10	2940	8.1	25.5	6.6	88
08...	1246	25	3330	7.8	25.5	4.6	61

315810100364901 - E.V.SPENCE RES DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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, DISSOLVED (MG/L AS CACO3)
JUN									
08...	1315	1.0	2340	8.4	27.0	.20	8.4	115	410
08...	1320	7.0	2450	8.2	26.5	--	7.1	97	430

DATE	HARDNESS, NONCARBONATE, DIS. (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)
JUN									
08...	310	100	40	330	7.1	7.8	120	5	320
08...	330	110	38	340	7.1	7.9	130	0	320

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUN								
08...	480	4.3	1350	.04	.03	.10	20	10
08...	510	4.9	1400	.06	.01	.23	20	20

315335100312401 - E. V. SPENCE RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)
JUN							
08...	1025	1.0	1	200	0	10	2
08...	1031	30	--	--	--	--	--
08...	1033	40	--	--	--	--	--
08...	1035	52	2	300	0	0	0

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
JUN							
08...	20	4	10	.0	0	0	20
08...	30	--	10	--	--	--	--
08...	20	--	0	--	--	--	--
08...	30	3	640	.0	0	0	60

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

315335100312401 E. V. SPENCE RESERVOIR SITE AC
PHYTOPLANKTON ANALYSES, JUNE 1978 TO JUNE 1978

DATE	JUN 8,78
TIME	1026
TOTAL CELLS/ML	44000
DIVERSITY: DIVISION	0.9
.CLASS	0.9
..ORDER	1.0
...FAMILY	1.3
....GENUS	1.8

ORGANISM	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OOCYSTACEAE		
....CHODATELLA	1200	3
....KIRCHNERIELLA	*	0
....OOCYSTIS	3500	8
....TETRAEDRON	3400	8
...SCENEDESMACEAE		
....CRUCIGENIA	300	1
....SCENEDESMUS	2500	6
....TETRASTRUM	300	1
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	*	0
..ZYGNEMATALES		
...DESMIDIACEAE		
....COSMARIUM	450	1
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	*	0
..PENNALES		
...FRAGILARIACEAE		
....SYNEDRA	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..CHROCCOCCALES		
...CHROCCOCCACEAE		
....AGMENELLUM	600	1
....ANACYSTIS	31000#	69
....COCCOCHLORIS	600	1
..HORMOGONALES		
...OSCILLATORIACEAE		
....LYNGBYA	600	1

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 RES DC
PHYTOPLANKTON ANALYSES, JUNE 1978 TO JUNE 1978

DATE	JUN 8,78
TIME	1316
TOTAL CELLS/ML	110000
DIVERSITY: DIVISION	1.4
.CLASS	1.4
..ORDER	1.7
...FAMILY	2.1
....GENUS	2.2

ORGANISM	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...COELASTRACEAE		
....COELASTRUM	5700	5
...OOCYSTACEAE		
....DICTYOSPHAERIUM	18000#	16
...SCENEDESMACEAE		
....ACTINASTRUM	2900	3
....SCENEDESMUS	3600	3
..TETRASPORALES		
...PALMELLACEAE		
....SPHAEROCYSTIS	2900	3
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	2500	2
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	63000#	56
..PENNALES		
...NITZSCHIACEAE		
....NITZSCHIA	710	1
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..HORMOGONALES		
...OSCILLATORIACEAE		
....LYNGBYA	11000	10
EUGLENOPHYTA (EUGLENOIDS)		
.EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....EUGLENA	1400	1
....PHACUS	710	1

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); 10 years (water years 1969-78) regulated, 2.29 ft³/s (0.0649 m³/s), 1,660 acre-ft/yr (2.05 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, 148 ft³/s (4.19 m³/s) June 27, gage height, 4.25 ft (1.295 m); no flow at times.

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	.30	.00	.33	.93	.49	1.1	.17	15	.13	1.9	.20	.07
2	.08	.00	.32	1.0	.49	1.3	.10	45	.15	1.2	.19	.06
3	.12	.00	.27	.67	.53	1.4	.05	2.1	.14	.63	16	.06
4	.11	.00	.24	.13	.53	1.3	.04	.62	.10	25	5.3	.06
5	.10	.00	14	.11	.46	1.3	.04	.39	.09	83	2.0	.06
6	.10	.00	6.2	.12	.54	1.4	.05	.22	.11	7.2	1.0	.06
7	.10	.00	1.3	.11	.72	1.5	.20	.32	.09	2.7	.76	.09
8	.08	.03	.67	.11	.50	1.5	.33	.16	.05	1.5	.60	.11
9	.09	.01	.23	.12	.89	1.3	.34	.10	.05	.71	.45	.08
10	.11	.01	.14	.14	.83	1.2	.46	.07	.05	.20	.38	.07
11	.10	.02	.12	.19	.73	1.2	.45	.07	.04	.20	.31	.06
12	.07	.02	.13	.22	1.5	1.2	.43	.06	.03	.20	.25	.06
13	.08	.02	.10	.15	1.2	1.2	.38	.07	.03	36	.42	.04
14	.07	.02	.04	.13	.85	1.2	.41	.07	.03	120	.57	.03
15	.08	.02	.05	.15	.56	1.4	.39	.07	.04	20	.55	.00
16	.07	.01	.11	.22	.60	1.5	.39	.09	.04	3.7	.50	.01
17	.04	.02	.29	.19	.45	1.3	.35	.08	.04	2.0	.45	.00
18	.00	.06	.69	.16	.36	1.0	.26	.04	.03	.87	.35	.00
19	.00	.15	.90	.17	.32	.12	.20	.02	.04	.33	.27	.00
20	.00	.43	.99	.17	.29	.04	.21	17	.03	.20	.23	.01
21	.00	.90	.99	.19	.26	.04	.24	3.9	.00	.18	.20	.11
22	.05	.88	1.1	.25	.29	.09	.20	.97	.00	.17	.13	.10
23	.01	.69	1.1	.21	.35	.08	.20	.58	.00	.17	25	.08
24	.00	.62	1.0	.18	.58	.09	.38	.31	.00	.18	63	.07
25	.00	.63	1.1	.26	.74	.11	.12	.17	.00	.19	2.8	.10
26	.00	.59	1.0	.27	.79	.10	.04	.12	23	.21	.71	.10
27	.00	.39	.99	.27	.75	.08	.03	.08	146	.48	.24	.14
28	.00	.37	.99	.36	.81	.07	.02	.11	91	.31	.16	.11
29	.00	.37	.78	.36	---	.13	.02	.38	5.0	.24	.15	.08
30	.00	.37	.75	.38	---	.18	.01	.25	2.7	.20	.13	.06
31	.00	---	.81	.42	---	.21	---	.17	---	.18	.09	---
TOTAL	1.76	6.63	37.73	8.34	17.41	24.64	6.51	88.59	269.01	310.05	123.39	1.88
MEAN	.057	.22	1.22	.27	.62	.79	.22	2.86	8.97	10.0	3.98	.063
MAX	.30	.90	14	1.0	1.5	1.5	.46	45	146	120	63	.14
MIN	.00	.00	.04	.11	.26	.04	.01	.02	.00	.17	.09	.00
AC-FT	3.5	13	75	17	35	49	13	176	534	615	245	3.7

CAL YR 1977 TOTAL 706.00 MEAN 1.93 MAX 83 MIN .00 AC-FT 1400
WTR YR 1978 TOTAL 895.94 MEAN 2.45 MAX 146 MIN .00 AC-FT 1780

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 in (610 mm) concrete pipe. The capacity curve is based no 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, 21,870 acre-ft (27.0 hm³) Oct. 1, elevation, 1,990.9 ft (606.83 m); minimum, 13,090 acre-ft (16.1 hm³) Aug. 1, 2, elevation, 1,983.7 ft (604.63 m).

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

1,983.0	12,430	1,988.0	17,810
1,985.0	14,380	1,981.0	22,020

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21870	20680	19830	18870	18070	17810	17310	16340	15660	14480	13090	14380
2	21720	20680	19830	18870	18070	17810	17310	16340	15660	14380	13090	14280
3	21720	20530	19690	18730	18070	17810	17310	16340	15660	14380	13980	14280
4	21720	20530	19690	18730	17940	17940	17190	16230	15660	14380	15430	14180
5	21720	20530	19690	18730	17940	17940	17190	16110	15660	14280	15430	14180
6	21570	20530	19550	18600	17940	17940	17190	16110	15660	14280	15430	14180
7	21570	20530	19550	18600	18070	17810	17190	16110	15660	14180	15320	14080
8	21420	20530	19410	18600	18070	17810	17190	16110	15660	14180	15320	14080
9	21420	20390	19410	18600	18070	17810	17190	16110	15660	14180	15320	14080
10	21420	20390	19410	18470	18070	17810	17190	16110	15540	14080	15320	14080
11	21280	20250	19410	18470	18070	17810	17190	16110	15540	13980	15220	14080
12	21280	20250	19270	18470	18070	17810	17190	16110	15430	13980	15220	13980
13	21130	20250	19270	18470	18070	17810	17190	16110	15430	13880	15220	13980
14	21130	20250	19270	18470	18070	17690	17070	16000	15430	13780	15220	13880
15	21130	20250	19270	18470	18070	17690	17070	16000	15320	13780	15220	13880
16	20980	20250	19270	18470	18070	17690	17070	16000	15320	13680	15110	13780
17	20980	20110	19270	18470	18070	17690	17070	16000	15220	13680	15110	13780
18	20980	20110	19130	18470	18070	17690	16940	16000	15220	13580	15010	13780
19	20830	20110	19130	18470	18070	17560	16820	15890	15110	13480	14910	13680
20	20830	19970	19130	18340	18070	17560	16820	15890	15010	13380	14910	13680
21	20980	19970	19130	18340	18070	17560	16820	16000	15010	13380	14800	13680
22	20980	19970	19130	18340	18070	17560	16690	16000	15010	13380	14800	13680
23	20830	19970	19130	18340	18070	17560	16690	15890	14910	13190	14800	13680
24	20830	19970	19000	18340	18070	17440	16690	15890	14800	13380	14690	13580
25	20830	19830	19000	18340	17940	17440	16570	15890	14800	13380	14690	13580
26	20830	19830	18870	18210	17940	17440	16570	15890	14690	13380	14590	13480
27	20830	19830	18870	18210	17940	17440	16570	15890	14690	13380	14590	13480
28	20830	19830	18870	18210	17940	17440	16570	15770	14590	13280	14480	13480
29	20830	19830	18870	18070	---	17440	16460	15770	14590	13280	14480	13480
30	20830	19830	18870	18070	---	17310	16460	15770	14480	13190	14380	13480
31	20830	---	18870	18070	---	17310	---	15770	---	13190	14380	---
MAX	21870	20680	19830	18870	18070	17940	17310	16340	15660	14480	15430	14380
MIN	20830	19830	18870	18070	17940	17310	16460	15770	14480	13190	13090	13480
(†)	1990.2	1989.5	1988.8	1988.2	1988.1	1987.6	1986.9	1986.3	1985.1	1983.8	1985.0	1984.1
(‡)	-1190	-1000	-960	-800	-130	-630	-850	-690	-1290	-1290	+1190	-900
(††)	397	331	342	339	300	378	462	452	487	589	496	415

CAL YR 1977 MAX 26310 MIN 18870 ‡ -6390 †† 4500
WTR YR 1978 MAX 21870 MIN 13090 ‡ -8540 †† 4990

† 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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
JAN 09...	1010	1310	7.7	7.0	490	340	99	58	92

DATE	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)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
JAN 09...	1.8	9.1	180	0	330	150	.4	8.1	835

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 current year. Monthly discharge only for some periods published in WSP 1312. Gage-height records collected in this vicinity from 1903-29 are contained in reports of the National Weather Service.

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

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 except those affected by backwater on Aug. 3-6, which are poor. 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); 10 years (water years 1969-78) partially regulated, 45.7 ft³/s (1.294 m³/s), 33,110 acre-ft/yr (40.8 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, 17,500 ft³/s (496 m³/s) Aug. 3, gage height, 22.94 ft (6.992 m); maximum gage height, 23.95 ft (7.300 m) Aug. 3 (backwater from Elm Creek); no flow at times.

REVISIONS.--The maximum discharges for water year 1976 and 1977 have been revised to 1,300 ft³/s (36.8 m³/s) Nov. 2, 1975, gage height, 5.20 ft (1.585 m), from floodmarks at old site, and 932 ft³/s (26.4 m³/s) Oct. 29, 1976, gage height, 4.52 ft (1.378 m); revised daily discharges, in cubic feet per second, for high-water periods are given below. These figures supersede those published in the reports for 1975-76.

May 4, 1975	44	May 25, 1975	193	Apr. 28, 1976	95	Mar. 27, 1977	114
5	132	26	106	29	584	28	134
6	80	27	97	30	277	29	82
10	340	28	425	May 1	114	Apr. 15	247
11	868	29	213	July 11	103	16	221
12	214	30	138	12	90	17	529
13	76	31	99	17	92	18	223
14	43	July 27	102	18	139	19	124
15	57	Nov. 2	507	19	188	20	119
16	43	3	368	20	108	21	277
17	31	4	157	Sept. 20	66	22	164
18	26			21	57	23	100
19	24	Apr. 12, 1976	145	28	168	24	76
20	25	13	139	Oct. 29	558	May 30	59
21	26	14	77	30	550	June 1	136
22	24	16	83	31	202	2	188
23	24	17	137	Nov. 1	120	26	91
24	273	18	143	2	84	27	137

Month	Total	Mean	Max	Min	Ac-ft
May 1975	3,726	120	868	10	7,390
July	750.2	24.2	102	7.3	1,490
WTR YR 1975	36,101.8	98.9	2,280	2.3	71,610
November 1975	1,488	49.6	507	11	2,950
April	1,986.8	66.2	584	3.0	3,940
May	781.2	25.2	114	2.4	1,550
July	982.5	31.7	188	.03	1,950
September	608.7	20.3	168	3.1	1,210
CAL YR 1975	16,907.20	46.3	868	2.3	33,540
WTR YR 1976	7,758.26	21.2	584	.03	15,380
October 1976	1,788.6	57.7	558	8.1	3,550
November	1,027	34.2	120	22	2,040
March	779.6	25.1	134	8.6	1,550
April	2,650	88.3	529	15	5,260
May	997	32.2	68	12	1,980
June	988.5	33.0	188	1.8	1,960
CAL YR 1976	9,009.46	24.6	584	.03	17,870
WTR YR 1977	10,595.50	29.0	558	0	21,020

08126500 COLORADO RIVER AT BALLINGER, TX--Continued

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	4.1	6.9	4.1	5.0	6.0	2.4	.09	2.8	.00	.00	7.9
2	.00	3.7	6.5	3.7	5.1	5.4	1.6	316	2.9	.00	3.3	8.9
3	.00	3.6	6.1	5.0	5.9	5.4	2.0	328	5.2	.00	9200	7.5
4	.00	3.6	6.1	5.2	6.0	5.4	2.6	65	83	.16	1300	7.0
5	.00	3.7	5.7	5.2	6.7	5.2	2.6	25	18	.01	193	6.7
6	.00	3.5	5.7	3.6	6.8	5.5	3.0	39	7.8	.00	86	6.5
7	.00	3.1	4.6	3.8	6.8	5.9	3.1	1530	6.0	.00	37	6.4
8	.00	4.5	4.3	3.5	6.7	6.2	2.6	172	5.3	.00	23	7.3
9	.00	4.2	4.0	3.3	12	5.7	3.7	30	4.5	.00	18	6.7
10	.00	4.3	4.3	3.6	12	5.7	19	10	2.8	.00	16	6.9
11	.00	4.3	4.0	3.6	9.0	5.0	4.1	6.3	2.9	.01	16	6.3
12	.00	4.3	2.2	4.4	24	5.1	2.4	4.9	3.0	.09	28	5.4
13	.00	4.3	3.4	4.3	23	4.3	2.1	4.0	1.8	.21	15	4.7
14	.00	4.3	3.6	4.2	22	5.0	2.1	3.4	1.5	.03	12	4.6
15	.00	4.3	3.7	3.6	14	4.1	1.4	3.2	1.3	.03	9.8	4.8
16	.00	4.4	2.8	3.5	8.5	4.3	1.1	2.9	1.1	.00	9.6	4.7
17	.00	5.0	2.4	4.1	6.4	4.4	1.6	2.4	.87	.00	9.1	5.0
18	.00	4.7	2.7	4.3	5.6	4.3	1.6	2.1	.69	.00	8.3	4.9
19	.00	4.3	3.4	4.3	5.6	4.6	1.5	1.9	.69	.00	7.6	4.9
20	.00	2.3	3.3	4.7	5.8	4.7	1.5	3.2	.19	.00	7.5	4.6
21	.00	2.0	3.0	5.0	5.8	4.6	1.8	3.2	.03	.00	7.2	4.0
22	48	2.6	2.4	5.3	5.9	3.9	1.6	39	.00	.00	7.1	3.9
23	149	3.2	2.9	5.3	5.7	3.5	.94	36	.03	.00	6.9	3.9
24	45	5.2	3.8	5.3	5.2	3.4	.86	13	.00	.00	7.1	3.9
25	18	5.9	4.1	4.4	5.2	3.5	1.3	7.7	.00	.00	7.2	3.5
26	10	5.8	4.3	5.1	5.7	2.5	1.3	5.6	.00	.00	6.8	3.3
27	6.9	5.6	4.3	5.0	5.6	2.4	1.3	4.2	.00	.00	7.0	4.3
28	5.0	5.8	4.6	5.3	5.5	2.2	1.1	4.2	.00	.00	7.4	3.4
29	4.0	6.1	4.5	4.9	---	2.6	.78	4.8	.00	.00	6.8	2.9
30	3.7	6.5	4.9	5.1	---	2.7	.21	3.5	.00	.00	6.9	2.4
31	3.7	---	4.6	5.3	---	2.5	---	3.0	---	.00	7.1	---
TOTAL	293.30	129.2	129.1	138.0	241.5	136.0	73.19	2673.59	152.40	.54	11076.70	157.2
MEAN	9.46	4.31	4.16	4.45	8.63	4.39	2.44	86.2	5.08	.017	357	5.24
MAX	149	6.5	6.9	5.3	24	6.2	19	1530	83	.21	9200	8.9
MIN	.00	2.0	2.2	3.3	5.0	2.2	.21	.09	.00	.00	.00	2.4
AC-FT	582	256	256	274	479	270	145	5300	302	1.1	21970	312

CAL YR 1977 TOTAL 7586.50 MEAN 20.8 MAX 529 MIN .00 AC-FT 15050
WTR YR 1978 TOTAL 15200.72 MEAN 41.6 MAX 9200 MIN .00 AC-FT 30150

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 to Setember 1978.

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.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,760 micromhos Jan. 11; minimum daily, 283 micromhos Aug. 3.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 9; minimum daily, 1.0°C Jan. 20.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,380 mg/L May 7; minimum daily mean, 6 mg/L Feb. 16, 22.
SEDIMENT LOADS: Maximum daily, 94,100 tons Aug. 3; minimum daily, 0 tons on several days during June and July.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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										
31...	1330	3.6	2450	7.4	21.0	910	760	220	88	230
NOV										
30...	1100	6.9	3360	8.0	12.0	1400	1300	340	140	270
JAN										
18...	1550	4.4	3610	7.7	6.0	1500	1300	370	150	290
FEB										
27...	1315	5.5	2760	7.7	14.0	1100	940	270	100	240
APR										
25...	1410	1.5	3170	--	22.0	1300	1100	290	140	260
AUG										
08...	0945	23	1020	--	26.5	310	200	78	28	79
SEP										
19...	0940	4.7	3740	--	27.0	1500	1300	350	150	320

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...	3.3	7.1	190	0	630	390	.6	12	1670
NOV									
30...	3.1	6.7	120	0	1100	490	.5	14	2420
JAN									
18...	3.2	5.5	260	0	1100	540	.6	8.6	2590
FEB									
27...	3.2	5.0	180	0	870	390	.7	16	1980
APR									
25...	3.1	6.6	210	0	1000	420	.7	6.3	2230
AUG									
08...	2.0	6.1	140	0	210	140	.3	8.7	619
SEP									
19...	3.6	8.3	210	0	1100	620	.5	14	2670

08126500 COLORADO RIVER AT BALLINGER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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
MAY							
07...	1530	1780	22.0	3830	18400	23	37
AUG							
03...	1815	16500	23.0	8830	393000	22	30
03...	1830	16500	25.0	3810	170000	58	70
04...	1300	530	25.0	1200	1720	65	76

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
MAY							
07...	78	91	96	98	99	100	--
AUG							
03...	35	39	40	41	42	46	90
03...	80	83	89	91	95	97	100
04...	83	94	97	99	100	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	293.3	2580	1700	1340	390	310	730	577	1000
NOV. 1977.....	129.2	3360	2400	837	520	181	1060	370	1370
DEC. 1977.....	129.1	3480	2510	874	540	188	1110	388	1420
JAN. 1978.....	137	3450	2480	924	530	199	1100	410	1410
FEB. 1978.....	241.5	3040	2110	1380	470	304	920	601	1220
MAR. 1978.....	135	3160	2220	814	490	178	970	358	1270
APR. 1978.....	73.19	3320	2360	466	510	101	1040	205	1340
MAY 1978.....	2673.59	1070	650	4690	150	1070	200	1450	350
JUNE 1978.....	152.4	2020	1290	529	300	124	480	198	740
JULY 1978.....	0.54	3290	2340	3.4	510	0.7	1030	1.5	1330
AUG. 1978.....	11076.66	342	200	5930	40	1210	53	1580	110
SEPT 1978.....	157.2	3580	2600	1100	550	235	1150	490	1470
TOTAL	15200.67	**	**	18900	**	4100	**	6630	**
WTD.AVG.	41.65	727	460	**	100	**	160	**	240

08126500 COLORADO RIVER AT BALLINGER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	2570	3430	3460	3260	2860	3520	3540	2240	---	---	3460
2	---	2810	3450	3520	3330	2840	3540	2230	2190	---	2690	3530
3	---	2920	3440	3120	3380	2890	3470	1390	2340	---	283	3570
4	---	2990	3520	3590	3360	2950	3390	1060	1950	3230	350	3610
5	---	3050	3530	3630	3390	2910	3410	917	1990	3310	517	3540
6	---	3140	3480	3670	3420	2900	3470	1280	2010	---	675	3510
7	---	3180	3470	3700	3330	2960	3500	712	1950	---	837	3500
8	---	2630	3490	3690	3450	3030	3530	850	1980	---	1090	3550
9	---	3180	3470	3730	3020	3080	3490	1160	2000	---	1510	3590
10	---	3290	3440	3700	3250	3120	3300	1290	2100	---	1740	3610
11	---	3420	3450	3760	3360	3140	3450	1370	2150	3500	1930	3640
12	---	3490	3430	3720	2760	3110	3600	1440	2180	3410	1600	3650
13	---	3540	3370	3660	3000	3180	3730	1480	2310	3250	1820	3630
14	---	3620	3400	3580	3210	3130	3630	1560	2320	3360	1750	3660
15	---	3600	3390	3620	2880	3200	3360	1750	2330	3440	1510	3680
16	---	3620	3380	3500	2960	3190	3450	1810	2330	---	1500	3690
17	---	3580	3360	3300	2860	3240	3210	1830	2400	---	1580	3670
18	---	3580	3350	3700	2940	3270	2990	2000	2460	---	1770	3680
19	---	3480	3390	3480	2870	3280	2900	1960	2520	---	1960	3690
20	---	3490	3430	3600	3220	3350	2840	1830	2660	---	2200	3660
21	---	3580	3500	3520	2870	3370	2780	2620	2800	---	2440	3570
22	2830	3390	3510	3380	2850	3390	2800	1740	---	---	2630	3650
23	2470	3440	3490	3320	2810	3420	2860	1550	3010	---	2780	3600
24	2660	3490	3520	3240	2740	3440	2920	1730	---	---	2840	3610
25	2930	3510	3550	3220	2700	3450	2900	1820	---	---	3150	3610
26	2620	3550	3540	3190	2690	3450	2920	1850	---	---	3200	3580
27	2580	3580	3560	3170	2670	3470	2960	1900	---	---	3220	3260
28	2170	3560	3590	3190	2780	3490	3090	1950	---	---	3320	3420
29	2220	3540	3600	3210	---	3470	3210	1720	---	---	3390	3520
30	2330	3490	3610	3240	---	3490	3380	2190	---	---	3430	3550
31	2490	---	3600	3290	---	3510	---	2210	---	---	3460	---
MEAN	2530	3340	3480	3470	3050	3210	3250	1700	2280	3360	2040	3580

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	21.0	13.0	7.0	5.0	14.0	---	---	---		---	25.0
2	---	16.0	---	6.0	5.0	13.0	---	20.0	25.0		---	26.0
3	---	16.0	10.0	7.0	6.0	---	25.0	14.0	29.0		25.0	31.0
4	---	---	14.0	8.0	6.0	8.0	22.0	18.0	30.0		25.0	27.0
5	---	17.0	10.0	10.0	10.0	11.0	21.0	23.0	26.0		24.0	25.0
6	---	18.0	7.5	---	7.0	11.0	26.0	20.0	28.0		27.5	---
7	---	15.0	10.0	12.0	8.0	9.0	25.0	22.0	27.0		26.0	25.0
8	---	15.0	11.0	11.0	5.0	10.0	24.0	---	---		25.0	25.0
9	---	13.0	8.0	7.0	4.0	17.0	---	23.0	29.0		32.0	25.0
10	---	13.0	6.0	4.0	6.0	13.0	20.0	22.0	30.0		---	---
11	---	12.0	7.0	5.0	4.0	15.0	19.0	26.0	29.0		31.0	25.0
12	---	13.0	10.0	6.0	7.0	15.0	19.0	24.0	30.0		28.0	24.5
13	---	15.0	13.0	6.0	7.0	16.0	23.0	24.0	29.0		26.0	27.0
14	---	14.0	13.0	6.0	7.0	15.0	23.0	25.0	---		---	29.0
15	---	15.0	12.0	8.5	8.0	14.0	25.0	26.0	30.0		27.0	---
16	---	17.0	10.0	10.0	8.0	14.0	---	28.0	31.0		27.0	31.0
17	---	15.0	11.0	6.0	7.0	18.0	---	28.0	29.0		26.0	30.5
18	---	13.0	12.0	5.0	7.0	15.0	23.0	28.0	30.0		27.0	29.0
19	---	17.0	---	4.0	7.0	19.0	22.0	28.0	---		26.0	29.0
20	---	19.0	10.0	1.0	8.5	20.0	---	25.0	---		30.0	---
21	---	13.5	9.0	2.0	5.0	21.0	17.0	25.0	---		28.0	25.0
22	20.0	15.0	9.0	5.0	8.0	22.0	---	25.0	---		29.0	22.0
23	20.0	16.0	9.0	6.0	14.0	20.0	---	---	---		29.0	25.0
24	20.0	14.0	11.5	5.0	12.0	16.0	---	25.5	---		31.0	22.0
25	20.0	13.0	8.0	9.0	11.0	16.0	---	25.0	---		28.0	22.0
26	25.0	14.0	10.0	5.0	---	20.0	---	29.0	---		---	22.0
27	23.0	15.0	7.0	5.0	13.5	17.0	---	28.0	---		30.0	21.0
28	24.0	12.0	9.0	---	14.0	20.0	---	30.0	---		30.0	25.0
29	24.0	12.0	12.5	6.0	---	18.0	---	26.0	---		30.0	25.0
30	23.0	12.0	9.0	6.5	---	19.0	---	28.0	---		28.0	23.0
31	22.0	---	12.0	7.0	---	23.0	---	28.0	---		28.0	---
MEAN	22.0	15.0	10.0	6.5	8.0	16.0	22.5	25.0	29.0		28.0	25.5

08126500 COLORADO RIVER AT BALLINGER, TX--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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	4.1	---	---	5.0	42	.57	6.0	18	.29
2	3.7	---	---	5.1	18	.25	5.4	16	.23
3	5.0	---	---	5.9	30	.48	5.4	7	.10
4	5.2	---	---	6.0	30	.49	5.4	10	.15
5	5.2	---	---	6.7	38	.69	5.2	10	.14
6	3.6	---	---	6.8	42	.77	5.5	12	.18
7	3.8	---	---	6.8	24	.44	5.9	32	.51
8	3.5	---	---	6.7	36	.65	6.2	35	.59
9	3.3	---	---	12	32	1.0	5.7	22	.34
10	3.6	---	---	12	10	.32	5.7	24	.37
11	3.6	---	---	9.0	24	.58	5.0	16	.22
12	4.4	---	---	24	30	1.9	5.1	36	.50
13	4.3	---	---	23	23	1.4	4.3	30	.35
14	4.2	---	---	22	12	.71	5.0	31	.42
15	3.6	---	---	14	7	.26	4.1	14	.15
16	3.5	---	---	8.5	6	.14	4.3	20	.23
17	4.1	---	---	6.4	14	.24	4.4	25	.30
18	4.3	56	.65	5.6	8	.12	4.3	30	.35
19	4.3	26	.30	5.6	10	.15	4.6	20	.25
20	4.7	33	.42	5.8	7	.11	4.7	30	.38
21	5.0	38	.51	5.8	15	.23	4.6	28	.35
22	5.3	29	.41	5.9	6	.10	3.9	32	.34
23	5.3	42	.60	5.7	24	.37	3.5	35	.33
24	5.3	17	.24	5.2	14	.20	3.4	26	.24
25	4.4	17	.20	5.2	9	.13	3.5	26	.25
26	5.1	17	.23	5.7	10	.15	2.5	17	.11
27	5.0	14	.19	5.6	10	.15	2.4	16	.10
28	5.3	25	.36	5.5	17	.25	2.2	17	.10
29	4.9	39	.52	---	---	---	2.6	30	.21
30	5.1	64	.88	---	---	---	2.7	21	.15
31	5.3	64	.92	---	---	---	2.5	20	.14

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	2.4	24	.16	.09	55	.01	2.8	70	.53
2	1.6	25	.11	316	1750	2110	2.9	80	.63
3	2.0	20	.11	328	1540	1700	5.2	58	.81
4	2.6	27	.19	65	220	39	83	75	17
5	2.6	58	.41	25	75	5.1	18	52	2.5
6	3.0	21	.17	39	455	175	7.8	65	1.4
7	3.1	28	.23	1530	3380	6810	6.0	70	1.1
8	2.6	30	.21	172	1790	831	5.3	60	.86
9	3.7	30	.30	30	170	14	4.5	70	.85
10	19	37	1.9	10	78	2.1	2.8	44	.33
11	4.1	52	.58	6.3	67	1.1	2.9	40	.31
12	2.4	24	.16	4.9	56	.74	3.0	72	.58
13	2.1	29	.16	4.0	73	.79	1.8	46	.22
14	2.1	26	.15	3.4	54	.50	1.5	46	.19
15	1.4	24	.09	3.2	45	.39	1.3	45	.16
16	1.1	30	.09	2.9	68	.53	1.1	50	.15
17	1.6	62	.27	2.4	42	.27	.87	37	.09
18	1.6	62	.27	2.1	51	.29	.69	35	.07
19	1.5	49	.20	1.9	46	.24	.69	32	.06
20	1.5	46	.19	3.2	73	.63	.19	30	.02
21	1.8	44	.21	3.2	42	.36	.03	30	.00
22	1.6	28	.12	39	90	9.5	.00	32	.00
23	.94	30	.08	36	92	8.9	.03	35	.00
24	.86	45	.10	13	80	2.8	.00	---	---
25	1.3	45	.16	7.7	80	1.7	.00	---	---
26	1.3	37	.13	5.6	65	.98	.00	---	---
27	1.3	37	.13	4.2	48	.54	.00	---	---
28	1.1	37	.11	4.2	74	.84	.00	---	---
29	.78	32	.07	4.8	80	1.0	.00	---	---
30	.21	40	.02	3.5	36	.34	.00	---	---
31	---	---	---	3.0	44	.36	---	---	---

08126500 COLORADO RIVER AT BALLINGER, TX--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	.00	---	---	.00	---	---	7.9	40	.85
2	.00	---	---	3.3	100	.9	8.9	30	.72
3	.00	---	.00	9200	2560	94100	7.5	35	.71
4	.16	35	.02	1300	1380	7210	7.0	38	.72
5	.01	35	.00	193	310	162	6.7	52	.94
6	.00	---	---	86	210	49	6.5	55	.97
7	.00	---	---	37	168	17	6.4	79	1.4
8	.00	---	---	23	105	6.5	7.3	60	1.2
9	.00	---	---	18	78	3.8	6.7	30	.54
10	.00	---	---	16	55	2.4	6.9	31	.58
11	.01	37	.00	16	50	2.2	6.3	36	.61
12	.09	35	.01	28	52	3.9	5.4	40	.58
13	.21	40	.02	15	40	1.6	4.7	27	.34
14	.03	40	.00	12	38	1.2	4.6	24	.30
15	.03	32	.00	9.8	40	1.1	4.8	25	.32
16	.00	---	---	9.6	55	1.4	4.7	34	.43
17	.00	---	---	9.1	72	1.8	5.0	34	.46
18	.00	---	---	8.3	85	1.9	4.9	39	.52
19	.00	---	---	7.6	65	1.3	4.9	40	.53
20	.00	---	---	7.5	65	1.3	4.6	45	.56
21	.00	---	---	7.2	60	1.2	4.0	62	.67
22	.00	---	---	7.1	55	1.1	3.9	50	.53
23	.00	---	---	6.9	55	1.0	3.9	42	.44
24	.00	---	---	7.1	40	.8	3.9	54	.57
25	.00	---	---	7.2	42	.8	3.5	32	.30
26	.00	---	---	6.8	42	.8	3.3	36	.32
27	.00	---	---	7.0	35	.7	4.3	32	.37
28	.00	---	---	7.4	30	.6	3.4	40	.37
29	.00	---	---	6.8	35	.6	2.9	50	.39
30	.00	---	---	6.9	35	.7	2.4	40	.26
31	.00	---	---	7.1	37	.7	---	---	---
YEAR	15200.72		113377.45						

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 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 760 acre-ft (937,000 m³) from Lake Winters, capacity, 3,060 acre-ft (3.77 hm³).

AVERAGE DISCHARGE.--46 years (water years 1933-78), 47.5 ft³/s (1.345 m³/s), 1.37 in/yr (35 mm/yr), 34,410 acre-ft/yr (42.4 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.

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; highest stage not affected by backwater from Colorado River since at least 1904 was that of Oct. 13, 1957, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,400 ft³/s (663 m³/s) Aug. 3, gage height, 9.17 ft (2.795 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.74	.81	1.8	2.4	2.7	1.2	.03	.36	.00	.00	.80
2	.00	.42	.82	1.6	2.7	2.6	.99	218	.26	.00	.00	3.1
3	.00	.32	.84	1.6	2.7	2.3	.88	73	.23	.00	8760	5.1
4	.00	.30	.89	1.6	3.1	2.0	.75	24	.18	.00	12200	4.0
5	.00	.30	.82	1.8	3.2	2.0	.67	14	.13	.00	1270	4.4
6	.00	.33	.67	1.8	3.0	2.2	.68	14	.14	.00	230	4.4
7	.00	.40	.64	1.8	4.1	2.8	.60	56	.20	.00	108	6.3
8	.00	.88	.81	1.5	3.7	2.2	.50	12	.23	.00	71	14
9	.00	.93	.75	1.2	7.9	2.0	.93	4.6	.17	.00	58	9.2
10	.00	.93	.72	1.3	7.7	2.3	23	2.2	.12	.00	49	5.9
11	.00	.92	.82	1.4	7.2	2.6	15	2.1	.07	.00	41	4.0
12	.00	.86	1.1	1.6	12	2.3	8.7	1.8	.04	.00	32	5.7
13	.00	.85	1.4	1.7	14	2.1	4.0	1.1	.02	.00	25	3.0
14	.00	.91	1.4	1.8	14	1.7	2.2	.71	.00	.00	20	2.2
15	.00	.92	1.4	1.7	11	1.6	1.6	.55	.00	.00	16	1.6
16	.00	.95	1.2	2.5	8.8	1.3	1.2	.45	.00	.00	13	1.3
17	.00	.80	.82	2.0	7.7	1.3	.95	.30	.00	.00	11	1.0
18	.00	.63	.85	2.5	5.5	1.2	.60	.21	.00	.00	9.2	.74
19	.00	.63	.94	2.4	5.1	1.2	.45	.17	.00	.00	7.2	.59
20	.00	.70	1.0	2.2	3.9	1.3	.32	.26	.00	.00	4.7	.54
21	.00	.62	1.0	2.7	2.8	1.3	.24	.46	.00	.00	3.3	.47
22	.16	.56	.92	3.1	2.7	1.2	.21	.53	.00	.00	2.5	.43
23	5.7	.51	1.0	3.1	2.7	1.3	.20	.48	.00	.00	1.9	.43
24	19	.43	1.2	3.4	2.6	1.2	.19	.38	.00	.00	1.8	.53
25	12	.51	1.3	2.7	2.4	1.1	.15	.29	.00	.00	1.7	.76
26	5.0	.55	1.4	2.0	2.0	1.1	.10	.27	.00	.00	1.6	.92
27	2.4	.66	1.3	2.0	2.4	.98	.06	.24	.00	.00	2.0	1.9
28	2.1	.77	1.4	1.9	3.0	.75	.05	.30	.00	.00	1.9	3.8
29	1.8	.76	1.9	1.9	---	.74	.04	.66	.00	.00	1.6	6.3
30	1.4	.75	2.0	2.0	---	.95	.04	.56	.00	.00	1.1	2.9
31	1.0	---	2.2	2.2	---	1.5	---	.48	---	.00	.80	---
TOTAL	50.56	19.84	34.32	62.8	150.3	51.82	66.50	430.13	2.15	.00	22945.30	96.31
MEAN	1.63	.66	1.11	2.03	5.37	1.67	2.22	13.9	.072	.000	740	3.21
MAX	19	.95	2.2	3.4	14	2.8	23	218	.36	.00	12200	14
MIN	.00	.30	.64	1.2	2.0	.74	.04	.03	.00	.00	.00	.43
CFSM	.003	.001	.002	.004	.01	.004	.005	.03	.000	.000	1.57	.007
IN.	.00	.00	.00	.00	.01	.00	.01	.03	.00	.00	1.81	.01
AC-FT	100	39	68	125	298	103	132	853	4.3	.00	45510	191

CAL YR 1977 TOTAL 5995.43 MEAN 16.4 MAX 567 MIN .00 CFSM .04 IN .47 AC-FT 11890
WTR YR 1978 TOTAL 23910.03 MEAN 65.5 MAX 12200 MIN .00 CFSM .14 IN 1.89 AC-FT 47430

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.

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

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,680 micromhos Jan. 14; minimum daily, 244 micromhos Aug. 4.
WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 11, 20, 24, Sept. 3; minimdum daily, 1.0°C Jan. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 31...	1050	.96	1330	7.8	21.0	420	230	81	54	120
NOV 30...	1050	.75	3120	8.2	12.0	980	810	160	140	330
DEC 31...	1700	1.5	3520	8.2	12.0	1100	950	170	160	350
FEB 27...	1100	2.3	3350	7.6	11.5	1100	890	190	150	330
APR 30...	1600	.07	3540	--	25.0	1100	890	160	160	380
MAY 30...	1320	.63	1340	--	27.0	440	270	86	54	110
AUG 22...	1320	6.6	931	--	29.5	300	170	68	32	74
SEP 19...	1030	.62	2000	--	26.0	600	450	120	74	180

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...	2.5	7.5	240	0	170	230	.6	11	792
NOV 30...	4.6	8.3	200	0	520	690	.7	8.3	1960
DEC 31...	4.6	7.0	160	0	580	760	.6	5.9	2110
FEB 27...	4.3	5.2	250	0	520	800	.7	13	2130
APR 30...	5.1	8.7	210	0	530	790	.8	5.0	2140
MAY 30...	2.3	6.2	200	0	200	210	.5	11	776
AUG 22...	1.9	5.3	160	0	120	150	.3	12	540
SEP 19...	3.2	7.4	190	0	260	420	.4	11	1170

08127000 ELM CREEK AT BALLINGER, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	50.56	1660	960	131	330	46	240	33	520
NOV. 1977.....	19.84	2820	1700	90	610	32	450	24	890
DEC. 1977.....	34.32	3410	2070	192	750	69	550	51	1080
JAN. 1978.....	62.8	3460	2100	356	760	129	560	94	1090
FEB. 1978.....	150.3	3380	2050	832	740	301	540	220	1070
MAR. 1978.....	51.82	3220	1950	273	700	99	510	72	1020
APR. 1978.....	66.5	3290	1990	358	720	129	530	95	1040
MAY 1978.....	430.13	1170	650	754	220	253	150	177	360
JUNE 1978.....	2.15	1290	720	3.9	250	1.4	180	1	400
JULY 1978.....	0	*******	*******	0	*******	0	*******	0	****
AUG. 1978.....	22945.27	282	150	9550	33	2040	22	1370	88
SEPT 1978.....	96.31	1390	780	203	270	70	190	50	430
TOTAL	23910	**	**	12700	**	3170	**	2190	**
WTD.AVG.	65.51	355	190	**	49	**	34	**	110

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	2360	3190	3490	3590	3260	3270	3520	1310		---	1140
2	---	2430	3200	3520	3530	3220	3250	1000	1300		---	1120
3	---	2440	3190	3000	3400	3230	3260	1230	1290		286	1180
4	---	2490	3220	3520	3500	3240	3220	1900	1240		244	1220
5	---	2520	3240	3490	3540	3250	3230	1380	1250		443	1230
6	---	2440	3250	3520	3590	3240	3270	1010	1300		472	1250
7	---	2640	3260	3550	3550	3230	3290	1310	1250		478	1270
8	---	2610	3280	3510	3540	3210	3330	1340	1270		540	1310
9	---	2640	3300	3500	3450	3190	3320	1390	1280		556	1390
10	---	2660	3310	3340	3480	3200	3230	1290	1300		678	1510
11	---	2670	3330	3470	3450	3200	3280	1300	1290		655	1650
12	---	2690	3340	3550	3390	3230	3330	1310	1250		750	1650
13	---	2750	3390	3220	3360	3180	3340	1330	2200		850	1770
14	---	2800	3380	3680	3350	3220	3350	1320	---		840	1840
15	---	2840	3390	3550	3300	3200	3360	1340	---		831	1860
16	---	2930	3380	2430	3330	3200	3380	1320	---		809	1900
17	---	2900	3430	3450	3300	3220	3400	1330	---		831	1970
18	---	2930	3440	3540	3250	3160	3410	1330	---		850	1980
19	---	2970	3450	3390	3260	3230	3430	2060	---		904	2040
20	---	3000	3440	3570	3290	3220	3390	1340	---		947	2060
21	---	3010	3470	3540	3300	3200	3430	1330	---		927	2090
22	1220	2860	3460	3450	3290	3210	3450	1330	---		947	2100
23	1300	3060	3460	3330	3280	3200	3480	1320	---		969	2110
24	1420	3070	3470	3560	3240	3190	3490	1320	---		986	2130
25	1790	3060	3480	3580	3280	3200	3500	1330	---		1040	2150
26	1950	3050	3510	3590	3290	3210	3420	1340	---		1100	2190
27	2010	3070	3490	3590	3300	3220	3450	1350	---		1040	2220
28	1910	3080	3520	3600	3270	3210	3490	1340	---		1060	2240
29	2190	3100	3510	3590	---	3220	3520	1300	---		1110	2260
30	2240	3140	3520	3580	---	3240	3540	1290	---		1100	2240
31	2310	---	3500	3570	---	3250	---	1300	---		1110	---
MEAN	1830	2810	3380	3460	3380	3220	3370	1420	1350		805	1770

08127000 ELM CREEK AT BALLINGER, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	20.0	12.0	5.0	5.0	13.0	20.0	22.0	---		---	26.0
2	---	17.0	---	6.0	5.0	13.0	---	20.0	25.0		---	28.0
3	---	17.0	10.0	8.0	5.0	---	24.0	12.0	29.0		24.0	31.0
4	---	---	16.0	7.0	6.0	8.0	22.0	18.0	29.5		24.0	27.0
5	---	18.0	10.0	10.0	9.0	10.0	20.0	23.0	26.0		23.0	26.0
6	---	18.0	7.0	---	7.0	10.0	25.0	20.0	27.0		26.0	---
7	---	16.0	10.0	10.0	8.0	9.5	24.0	24.0	26.0		26.0	25.0
8	---	15.0	11.0	10.0	6.0	9.0	24.0	---	---		25.0	25.0
9	---	12.0	8.0	7.0	5.0	16.0	---	22.0	30.0		29.0	25.0
10	---	13.0	7.0	5.0	7.0	13.0	19.0	22.0	30.0		28.0	26.0
11	---	13.0	10.0	5.0	5.0	14.5	19.0	26.0	29.0		31.0	25.0
12	---	13.0	10.0	5.0	6.0	14.0	19.0	24.0	30.0		28.0	25.0
13	---	14.0	11.0	7.0	6.0	15.5	22.0	25.0	29.0		26.0	27.0
14	---	15.0	13.0	6.0	6.5	14.0	22.0	24.0	---		---	29.0
15	---	14.0	12.5	7.0	7.0	13.0	24.0	25.0	---		25.0	---
16	---	17.0	10.0	8.0	7.0	14.0	---	28.0	---		28.0	30.0
17	---	15.0	12.0	5.0	7.0	17.0	24.0	27.0	---		27.0	29.0
18	---	12.0	14.0	4.0	6.5	14.0	---	28.0	---		27.0	28.0
19	---	14.0	---	3.5	8.0	18.0	22.0	28.0	---		27.0	28.0
20	---	20.0	9.0	1.0	7.5	20.0	19.0	25.0	---		31.0	---
21	---	13.0	8.0	2.0	6.0	20.0	19.0	25.0	---		28.0	24.0
22	21.0	14.0	7.0	4.0	7.0	21.0	25.0	25.0	---		28.0	22.0
23	20.0	16.0	11.0	2.5	7.0	19.0	27.0	---	---		29.0	24.0
24	21.0	13.0	13.0	5.0	11.0	17.0	25.0	25.0	---		31.0	22.0
25	23.0	12.0	10.0	7.0	10.0	15.0	26.0	25.0	---		---	22.0
26	23.0	14.0	10.0	5.0	---	19.0	26.0	28.0	---		29.0	22.5
27	23.0	13.0	7.0	5.0	13.0	18.0	20.0	28.0	---		30.0	21.0
28	23.0	12.0	9.0	---	15.0	19.0	20.0	30.0	---		30.0	24.5
29	23.0	12.0	12.0	5.0	---	17.0	21.0	28.0	---		29.0	25.0
30	24.0	12.0	9.0	6.0	---	20.0	25.0	28.0	---		27.0	23.0
31	22.0	---	12.0	5.0	---	21.0	---	28.0	---		28.0	---
MEAN	22.5	14.5	10.5	5.5	7.5	15.5	22.5	24.5	28.0		27.5	25.5

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 600 ft (180 m) upstream from station at Christoval (station 08128000). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years (water years 1941-78), 6.78 ft^3/s (0.192 m^3/s), 4,910 acre-ft/yr (6.05 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	1.8	3.2	6.0	4.6	5.8	7.2	7.0	8.5	14	14	15
2	14	2.1	5.3	3.8	4.6	3.5	7.0	7.2	8.4	14	15	15
3	12	3.2	4.6	3.8	4.6	3.4	7.0	7.1	17	14	16	15
4	3.7	3.6	2.9	3.8	4.6	5.0	6.9	7.1	8.9	13	18	15
5	5.1	2.8	5.5	3.8	4.6	6.0	6.8	7.1	7.5	13	17	15
6	9.5	2.7	5.5	5.8	4.7	4.8	6.6	6.9	7.7	13	17	15
7	8.6	2.7	5.6	5.1	4.3	4.1	6.5	6.5	7.4	13	16	15
8	8.6	2.6	4.1	4.5	4.2	4.1	6.3	6.4	7.3	13	13	15
9	6.6	2.6	3.0	4.5	4.2	5.1	6.3	6.8	7.4	13	5.4	14
10	4.7	2.5	2.9	4.5	4.1	5.0	6.3	6.3	7.3	13	5.3	14
11	5.9	2.9	3.4	4.5	4.5	5.0	6.5	5.9	7.1	13	6.4	14
12	5.8	3.7	6.1	4.5	4.7	5.4	6.4	5.8	7.4	13	12	14
13	4.8	3.6	4.8	4.7	3.8	7.0	6.3	6.7	7.5	13	16	14
14	3.8	2.3	2.4	4.7	3.8	8.3	6.2	8.1	7.4	14	16	14
15	5.1	2.0	2.9	4.7	3.7	5.8	6.3	8.1	7.3	14	16	14
16	5.8	2.0	5.2	4.7	3.7	5.0	5.0	8.0	6.9	14	16	14
17	5.7	2.5	5.2	4.7	3.6	5.0	4.9	7.9	6.3	14	16	14
18	5.6	2.9	4.8	4.6	3.6	4.9	7.0	8.3	7.5	14	16	14
19	5.4	2.4	3.9	4.6	3.5	4.4	9.2	8.6	8.1	14	16	14
20	5.5	3.0	3.9	4.6	3.5	4.0	9.3	9.0	8.1	14	16	14
21	5.5	3.4	3.6	4.6	3.5	3.9	6.9	8.9	7.9	14	16	14
22	5.1	2.8	3.5	4.6	3.4	3.6	5.5	8.8	7.7	14	16	14
23	3.1	3.8	3.4	4.5	3.4	3.1	5.4	7.7	7.9	14	16	14
24	2.9	4.3	3.3	4.5	3.4	3.6	9.3	6.7	9.1	14	16	14
25	2.2	4.3	3.3	4.6	3.4	4.1	12	6.6	13	14	17	13
26	1.6	4.3	3.3	4.6	4.1	3.7	10	6.6	13	14	17	13
27	2.7	4.2	3.3	4.6	6.4	3.3	7.2	6.3	13	14	17	14
28	6.6	2.8	3.3	4.6	6.4	2.9	7.1	6.3	13	14	15	13
29	6.4	2.5	3.3	4.6	---	4.1	7.1	7.9	13	14	15	13
30	6.3	3.2	5.8	4.6	---	5.7	7.1	8.2	14	14	15	13
31	5.6	---	5.3	4.6	---	7.7	---	8.1	---	14	15	---
TOTAL	181.0	89.5	126.6	142.3	116.9	147.3	211.6	226.9	272.6	424	458.1	423
MEAN	5.84	2.98	4.08	4.59	4.18	4.75	7.05	7.32	9.09	13.7	14.8	14.1
MAX	14	4.3	6.1	6.0	6.4	8.3	12	9.0	17	14	18	15
MIN	1.6	1.8	2.4	3.8	3.4	2.9	4.9	5.8	6.3	13	5.3	13
AC-FT	359	178	251	282	232	292	420	450	541	841	909	839

CAL YR 1977 TOTAL 2024.5 MEAN 5.55 MAX 15 MIN 1.6 AC-FT 4020
WTR YR 1978 TOTAL 2819.8 MEAN 7.73 MAX 18 MIN 1.6 AC-FT 5590

08128000 SOUTH CONCHO RIVER AT CHRISTOVAL, TX

LOCATION (revised).--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. Prior to Nov. 16, 1977, at site 160 ft (49 m) upstream.

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) 600 ft (180 m) upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--48 years, 33.8 ft³/s (0.957 m³/s), 24,490 acre-ft/yr (30.2 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 attended as noted above, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 160 ft³/s (4.53 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 3	1300	1,520	43.0	a5.03	1.533	Aug. 3	0100	*2,760	78.2	a6.38	1.945

a From floodmark.

Minimum discharge, 15 ft³/s (0.42 m³/s) Sept. 25-27.

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	42	44	39	37	35	29	31	28	28	21	20	20
2	34	43	39	39	35	31	31	28	27	21	55	21
3	41	41	37	38	35	31	35	27	334	21	566	21
4	47	40	36	37	35	31	35	27	55	21	50	21
5	45	42	35	37	35	30	34	27	32	21	28	21
6	39	42	35	37	35	31	38	25	32	17	21	21
7	39	43	37	38	35	33	35	25	31	18	20	20
8	38	44	39	39	35	33	32	27	31	20	20	18
9	39	42	37	39	35	33	34	27	31	20	20	18
10	42	41	37	39	35	31	33	28	31	20	20	18
11	39	42	37	39	34	30	31	30	30	20	20	18
12	37	41	36	39	36	30	31	30	30	20	20	18
13	38	39	38	39	35	29	31	29	30	20	20	18
14	40	41	39	39	35	27	31	28	30	20	20	18
15	39	41	40	39	35	29	31	27	30	20	20	17
16	37	39	38	38	35	31	34	27	30	20	20	17
17	37	37	37	38	31	31	35	27	30	20	20	17
18	37	37	37	38	31	31	33	26	29	20	20	17
19	37	38	39	37	31	31	29	25	28	20	20	17
20	37	37	39	37	31	34	28	28	28	20	20	17
21	37	37	39	38	31	35	31	27	28	20	20	17
22	45	37	39	39	31	35	33	27	28	19	20	17
23	43	38	39	39	31	35	33	25	28	18	20	16
24	43	39	39	39	31	35	29	25	27	18	20	16
25	44	39	39	39	31	36	25	25	22	18	20	15
26	45	39	39	39	31	37	26	25	21	18	20	15
27	44	40	39	39	29	38	29	25	21	18	20	17
28	39	41	39	35	28	38	30	26	21	19	20	17
29	39	41	39	35	---	37	30	25	21	20	21	17
30	39	41	39	35	---	35	28	25	21	20	21	16
31	39	---	38	35	---	32	---	24	---	20	21	---
TOTAL	1241	1206	1179	1175	927	1009	946	825	1165	608	1243	536
MEAN	40.0	40.2	38.0	37.9	33.1	32.5	31.5	26.6	38.8	19.6	40.1	17.9
MAX	47	44	40	39	36	38	38	30	334	21	566	21
MIN	34	37	35	35	28	27	25	24	21	17	20	15
AC-FT	2460	2390	2340	2330	1840	2000	1880	1640	2310	1210	2470	1060

CAL YR 1977 TOTAL 21799 MEAN 59.7 MAX 1920 MIN 33 AC-FT 43240
WTR YR 1978 TOTAL 12060 MEAN 33.0 MAX 566 MIN 15 AC-FT 23920

NOTE.--No gage-height record Aug. 2-28.

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 mi² (6,309 km²), of which 1,055 mi² (2,732 km²) 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.--17 years, 17.6 ft³/s (0.498 m³/s), 12,750 acre-ft/yr (15.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft³/s (439 m³/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.--Peak discharges above base of 1,700 ft³/s (48.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 29	1430	2,870	81.3	13.54	4.127	Aug. 4	0630	*6,310	179	17.60	5.364
Aug. 3	1000	2,960	83.8	13.67	4.167						

Minimum discharge, no flow at times.

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	1.8	7.7	10	9.5	9.1	7.0	2.8	22	.24	.00	1.7
2	.00	1.9	7.0	9.5	9.5	9.1	6.6	9.2	18	.21	.00	1.1
3	.00	2.0	7.0	10	9.5	9.1	6.6	5.5	16	.21	501	.70
4	.00	2.1	7.0	10	9.5	9.1	6.6	4.6	34	.19	999	.53
5	.00	2.3	7.1	10	9.5	9.1	6.3	4.6	25	.14	94	19
6	.00	2.4	6.4	10	9.5	8.6	6.6	4.6	46	.06	32	2.8
7	.16	2.4	6.7	10	9.5	8.6	6.6	7.0	43	.01	17	1.0
8	.98	3.5	7.5	9.9	9.5	8.2	6.3	3.8	22	.00	9.5	.88
9	.81	3.5	7.3	9.1	10	8.2	7.0	2.9	16	.00	4.6	.77
10	.90	3.5	6.6	9.1	10	8.6	7.8	2.6	14	.00	3.5	.58
11	.82	3.7	6.6	9.1	10	8.2	7.0	2.7	11	.00	4.8	.51
12	.78	3.8	7.5	9.1	13	7.8	7.0	2.5	11	.00	3.5	.41
13	.86	4.1	7.4	9.5	13	7.8	6.6	2.2	9.3	.00	2.4	.41
14	.90	4.3	7.4	9.5	11	8.2	6.3	2.0	8.4	.00	1.6	.27
15	1.0	4.0	7.3	9.8	10	7.8	6.3	1.7	7.3	.00	1.3	.22
16	1.0	4.0	7.4	10	10	7.0	6.3	1.6	5.9	.00	1.0	.21
17	.90	3.8	8.4	10	10	6.6	6.3	1.3	5.1	.00	.90	.32
18	.95	3.9	8.3	10	9.5	6.3	5.9	.95	4.4	.00	.90	.09
19	.98	5.8	8.6	9.2	9.5	6.3	5.6	.22	3.9	.00	.82	.13
20	1.1	6.6	9.5	9.1	9.1	6.6	5.3	15	3.3	.00	.66	.00
21	1.1	6.7	9.1	10	8.6	7.0	4.9	6.8	2.6	.00	.59	.01
22	1.6	6.9	9.1	11	8.6	7.0	4.6	5.7	2.0	.00	.46	.19
23	1.8	7.4	9.1	11	9.1	7.2	4.6	4.6	1.7	.00	.41	.26
24	1.9	7.0	9.1	11	9.1	7.4	4.0	3.3	1.3	.00	.36	.30
25	1.9	7.3	9.1	10	9.1	6.6	3.5	2.5	.99	.00	.32	.32
26	1.6	7.4	9.1	10	8.6	6.6	3.5	2.1	.71	.00	.32	.32
27	1.8	7.4	9.1	10	8.6	7.0	3.3	2.0	.50	.00	.46	.60
28	2.1	7.4	9.1	9.5	9.2	7.4	3.4	2.1	.43	.00	.42	.47
29	1.9	7.8	10	9.5	---	7.0	3.3	638	.56	.00	52	.38
30	1.9	8.2	10	9.5	---	7.0	3.2	79	.37	.00	7.0	.46
31	1.9	---	10	9.5	---	7.0	---	33	---	.00	2.3	---
TOTAL	31.64	142.9	251.5	303.9	272.0	237.5	168.3	856.87	336.76	1.06	1743.12	34.94
MEAN	1.02	4.76	8.11	9.80	9.71	7.66	5.61	27.6	11.2	.034	56.2	1.16
MAX	2.1	8.2	10	11	13	9.1	7.8	638	46	.24	999	19
MIN	.00	1.8	6.4	9.1	8.6	6.3	3.2	.22	.37	.00	.00	.00
AC-FT	63	283	499	603	540	471	334	1700	668	2.1	3460	69

CAL YR 1977 TOTAL 3395.67 MEAN 9.30 MAX 123 MIN .00 AC-FT 6740
WTR YR 1978 TOTAL 4380.49 MEAN 12.0 MAX 999 MIN .00 AC-FT 8690

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.--18 years, 15.0 ft³/s (0.425 m³/s), 10,870 acre-ft/yr (13.4 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 at 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 ast least 1853.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 134 ft³/s (3.79 m³/s) May 2, gage height, 4.83 ft (1.472 m), no peak above base of 400 ft³/s (11.3 m³/s); minimum, 0.02 ft³/s (0.001 m³/s) July 18-23.

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	4.5	18	18	13	17	19	9.2	1.1	14	.14	.04	11
2	6.0	14	18	17	17	18	7.1	44	9.2	.13	.04	12
3	9.6	16	17	16	18	18	6.5	30	12	.12	.28	8.8
4	8.3	18	17	16	18	19	6.3	19	12	.11	.17	9.0
5	8.5	19	16	14	17	18	5.4	14	13	.10	.11	9.1
6	7.8	19	15	9.7	17	19	4.8	15	56	.08	.11	7.1
7	4.5	17	16	8.8	19	20	4.5	15	35	.06	.09	8.2
8	4.2	19	15	13	19	17	4.5	14	17	.05	.07	15
9	5.1	15	12	14	18	19	4.9	10	15	.06	.22	13
10	9.4	17	16	8.4	17	17	6.4	12	15	.06	1.7	12
11	6.6	17	18	11	17	13	7.3	14	14	.05	2.7	11
12	8.4	15	20	14	25	16	6.8	13	14	.04	2.8	9.9
13	11	14	18	12	24	16	6.3	11	11	.05	2.3	8.9
14	12	15	16	11	22	14	7.7	10	11	.05	1.7	8.4
15	10	17	18	13	20	12	8.3	9.6	10	.05	.98	5.1
16	10	15	18	13	18	10	6.8	6.9	8.3	.04	1.4	3.8
17	14	15	16	12	18	10	5.8	3.3	4.3	.04	1.4	5.8
18	15	18	17	12	19	8.5	3.5	3.1	1.8	.04	.74	6.1
19	12	17	16	11	19	12	2.3	1.4	1.2	.03	.33	6.0
20	11	13	16	14	19	7.0	2.6	16	1.1	.03	.24	6.6
21	12	13	14	18	18	4.4	4.7	15	.76	.02	.44	5.2
22	18	13	11	17	18	7.5	4.2	18	.49	.02	.93	5.6
23	22	11	11	17	17	7.1	4.8	16	.37	.03	.47	7.1
24	22	13	16	18	18	8.5	5.8	15	.31	.04	.28	9.1
25	19	13	15	16	18	7.6	3.7	14	.28	.05	.30	8.7
26	18	13	15	15	17	8.5	3.1	15	.27	.05	.68	8.8
27	19	17	15	15	18	10	2.7	15	.19	.05	.70	10
28	21	17	16	16	19	9.0	1.8	15	.16	.04	.36	11
29	22	16	15	17	---	7.0	1.2	15	.15	.03	.19	10
30	21	20	16	17	---	8.1	1.7	16	.14	.04	.28	8.3
31	19	---	14	17	---	8.2	---	14	---	.04	5.6	---
TOTAL	390.9	474	491	435.9	521	388.4	150.7	430.4	278.02	1.74	27.65	260.6
MEAN	12.6	15.8	15.8	14.1	18.6	12.5	5.02	13.9	9.27	.056	.89	8.69
MAX	22	20	20	18	25	20	9.2	44	56	.14	5.6	15
MIN	4.2	11	11	8.4	17	4.4	1.2	1.1	.14	.02	.04	3.8
AC-FT	775	940	974	865	1030	770	299	854	551	3.5	55	517

CAL YR 1977 TOTAL 11358.10 MEAN 31.1 MAX 2860 MIN 3.9 AC-FT 22530
WTR YR 1978 TOTAL 3850.31 MEAN 10.5 MAX 56 MIN .02 AC-FT 7640

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. 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.--18 years, 18.0 ft³/s (0.510 m³/s), 13,040 acre-ft/yr (16.1 hm³/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 67 ft³/s (1.90 m³/s) Aug. 3, gage height, 3.85 ft (1.173 m); maximum gage height, 3.90 ft (1.189 m) Oct. 22; no peak above base of 100 ft³/s (2.83 m³/s); minimum discharge, 8.8 ft³/s (0.25 m³/s) July 22, 23.

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	31	30	29	28	26	26	24	22	25	19	13	25
2	31	30	29	29	26	26	23	23	25	18	14	22
3	32	28	29	29	26	25	24	21	25	17	28	20
4	32	28	29	29	26	25	24	21	25	17	27	19
5	32	29	29	29	26	25	25	22	24	17	22	20
6	32	29	27	29	26	25	25	21	28	16	22	18
7	32	29	28	29	26	24	24	22	27	15	19	19
8	31	29	28	28	25	24	23	24	23	15	19	20
9	31	28	27	28	25	23	29	23	23	14	19	19
10	32	28	28	28	25	23	30	22	22	15	20	19
11	30	28	28	28	25	23	28	23	22	15	20	19
12	29	28	28	28	28	23	28	22	21	13	21	19
13	30	27	28	28	25	22	28	22	20	12	20	16
14	30	27	28	28	25	20	26	22	19	12	20	15
15	30	27	28	27	25	20	27	22	20	12	20	15
16	31	27	29	27	25	20	28	22	19	11	19	15
17	31	27	28	27	25	20	28	22	20	11	17	15
18	30	27	28	27	25	20	28	22	21	12	18	14
19	30	28	28	27	25	21	28	22	20	13	18	15
20	30	29	27	27	25	20	28	30	20	13	19	15
21	30	28	27	27	25	20	28	26	20	12	19	15
22	40	28	27	27	25	22	28	25	20	11	19	16
23	34	28	28	27	25	22	27	24	19	11	18	17
24	30	29	28	27	25	22	26	24	19	14	17	17
25	30	29	28	27	26	22	25	23	20	12	17	18
26	29	28	28	26	26	23	25	22	20	9.9	19	17
27	30	28	28	26	26	23	23	24	21	11	19	22
28	30	29	28	26	26	22	21	27	20	12	18	21
29	30	29	29	26	---	22	21	24	19	14	19	22
30	30	30	28	26	---	22	21	23	19	12	20	22
31	30	---	28	26	---	23	---	23	---	12	21	---
TOTAL	960	849	870	851	714	698	773	715	646	417.9	601	546
MEAN	31.0	28.3	28.1	27.5	25.5	22.5	25.8	23.1	21.5	13.5	19.4	18.2
MAX	40	30	29	29	28	26	30	30	28	19	28	25
MIN	29	27	27	26	25	20	21	21	19	9.9	13	14
AC-FT	1900	1680	1730	1690	1420	1380	1530	1420	1280	829	1190	1080

CAL YR 1977 TOTAL 16934.0 MEAN 46.4 MAX 3670 MIN 21 AC-FT 33590
WTR YR 1978 TOTAL 8640.9 MEAN 23.7 MAX 40 MIN 9.9 AC-FT 17140

08131200 TWIN BUTTES RESERVOIR NEAR SAN ANGELO, TX

LOCATION (revised).--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 1,925 ft (586.7 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, 153,700 acre-ft (190 hm³) May 10, 12, 13, 17, elevation, 1,936.33 ft (590.193 m); minimum, 118,000 acre-ft (145 hm³) Sept. 25, 26, elevation, 1,931.20 ft (588.630 m).

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

1,931.0	116,800
1,934.0	136,500
1,937.0	159,500

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	144100	142900	144100	145300	148500	152600	150200	142900	140700	134300	118700	120700
2	143700	142900	144100	145400	148700	152500	149700	143600	140500	133900	118500	120600
3	143600	142800	144100	145600	148800	152600	149500	143500	141000	133400	121800	120600
4	143500	142900	144100	145600	148900	152700	149200	143400	141200	133100	123800	120600
5	143300	143000	144000	145800	149100	152800	149000	143300	141000	132500	124300	120600
6	143200	143000	144100	145900	149300	153300	148800	142900	142600	132000	124500	120400
7	143100	143200	144400	145900	149400	153200	148600	142800	142800	131400	124500	120600
8	142800	143300	144000	145900	149700	153300	148300	142500	142800	130800	124300	120500
9	142800	143300	144000	146000	149700	153400	148500	142100	142800	130300	124300	120400
10	142600	143400	144100	146000	150000	153500	148400	142000	142800	129800	124200	120300
11	142400	143300	144200	146200	150000	153500	148300	141600	142700	129300	124100	120300
12	142300	143300	144400	146200	150800	153600	148200	141300	142700	128700	124000	120200
13	142200	143300	144400	146400	150900	153600	148000	141100	142600	128100	123900	120000
14	142000	143400	144500	146400	150900	153700	147900	140900	142500	127600	123700	119800
15	141800	143500	144700	146700	151100	153500	147700	140600	142300	127200	123400	119700
16	141800	143500	144500	146700	151200	153700	147700	140500	141900	126600	123100	119600
17	141700	143500	144500	146800	151300	153500	147400	140200	141500	126400	122900	119400
18	141700	143600	144600	146700	151500	153500	147300	139700	141200	125400	122600	119200
19	141700	143700	144500	146800	151600	153200	147000	139400	140700	124700	122400	119000
20	141600	143700	144600	147000	151600	153000	146800	140400	140200	124100	122300	118600
21	141800	143600	144600	147300	151700	152900	146600	140700	139700	123500	122000	118400
22	142300	143700	144700	147400	151800	152700	146300	140700	139200	122800	121800	118200
23	142500	143700	144600	147600	151900	152500	146200	140500	138600	122300	121600	118200
24	142500	143800	144600	147600	152000	152300	145800	140400	138000	121800	121300	118100
25	142600	143800	144700	147700	152100	152000	145300	140200	137400	121300	121100	118100
26	142700	143900	144700	147800	152300	151700	145000	140000	136500	120900	121300	118100
27	142800	143800	144700	147900	152400	151400	144600	139700	136100	120400	121100	118400
28	142900	143800	144800	147900	152300	151000	144200	139500	135400	120000	120800	118400
29	143000	143900	145000	148000	---	150700	143800	140600	134900	119600	120800	118400
30	143000	144000	145100	148200	---	150600	143300	140700	134500	119400	120600	118300
31	143000	---	145100	148300	---	150300	---	140600	---	119100	120600	---
MAX	144100	144000	145100	148300	152400	153700	150200	143600	142800	134200	124500	120700
MIN	141600	142800	144000	145300	148500	150300	143300	139400	134600	119100	118500	118100
(†)	1934.91	1935.04	1935.19	1935.62	1936.15	1935.88	1934.94	1934.57	1933.71	1931.36	1931.60	1931.24
(‡)	-1400	+1000	+1100	+3200	+4000	-2000	-7000	-2700	-6000	-15500	+1500	-2300

CAL YR 1977 MAX 202100 MIN 141600 ‡ -39100
WTR YR 1978 MAX 153700 MIN 118100 ‡ -26100

† 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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
NOV 01...	0820	669	7.6	20.5	210	59	43	24	53
MAY 06...	1015	712	--	24.0	220	69	47	26	57
JUL 18...	0910	698	--	28.0	200	63	40	25	57

DATE	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)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 01...	1.6	5.4	180	0	55	92	.4	13	375
MAY 06...	1.7	5.1	190	0	54	92	.4	9.6	385
JUL 18...	1.7	5.5	170	0	59	99	.5	13	383

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 mi² (215.5 km²).

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

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

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

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

AVERAGE DISCHARGE.--17 years, 1.68 ft³/s (0.0476 m³/s), 0.27 in/yr (7 mm/yr), 1,220 acre-ft/yr (1.50 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,780 ft³/s (192 m³/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 ft³/s (59.5 m³/s) on basis of slope-area measurement of 30,500 ft³/s (864 m³/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 ft³/s (864 m³/s), by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 278 ft³/s (7.87 m³/s) June 3, gage height, 1.32 ft (0.402 m), no other peak above base of 100 ft³/s (2.83 m³/s); no flow for many days.

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	.62	1.0	1.2	.63	.34	.20	.02	.00	.00	.00	.00
2	.00	.44	1.0	1.2	.63	.33	.19	.02	.00	.00	.00	.00
3	.00	.21	1.0	1.2	.63	.34	.18	.03	47	.00	.00	.00
4	.00	.19	1.1	1.2	.63	.34	.18	.02	5.6	.00	.00	.00
5	.00	.23	1.1	1.2	.63	.34	.16	.02	1.0	.00	.00	.00
6	.00	.24	1.1	1.2	.63	.41	.17	.02	1.3	.00	.00	.00
7	.00	.40	1.1	1.2	.34	.63	.16	.02	1.3	.00	.00	.00
8	.06	.62	1.1	1.2	.34	.59	.14	.01	.55	.00	.00	.00
9	.06	.63	1.2	1.2	.44	.44	.18	.00	.28	.00	.00	.00
10	.10	.63	1.2	1.2	.44	.35	.73	.00	.20	.00	.00	.00
11	.22	.65	1.2	1.2	.42	.31	.79	.00	.18	.00	.00	.00
12	.20	.67	1.2	1.2	.93	.26	.48	.00	.15	.00	.00	.00
13	.20	.68	1.2	1.2	.67	.30	.29	.00	.10	.00	.00	.00
14	.24	.70	1.2	1.2	.39	.33	.23	.00	.04	.00	.00	.00
15	.28	.72	1.2	1.2	.34	.27	.21	.00	.01	.00	.00	.00
16	.29	.74	1.2	1.2	.33	.25	.20	.00	.00	.00	.00	.00
17	.30	.76	1.2	1.2	.33	.25	.19	.00	.00	.00	.00	.00
18	.31	.77	1.2	1.3	.34	.24	.16	.00	.00	.00	.00	.00
19	.34	.79	1.2	1.5	.31	.23	.12	.00	.00	.00	.00	.00
20	.34	.81	1.2	1.2	.32	.23	.12	.00	.00	.00	.00	.00
21	.39	.83	1.2	1.2	.34	.22	.12	.00	.00	.00	.00	.00
22	.87	.85	1.2	1.2	.34	.20	.19	.00	.00	.00	.00	.00
23	.88	.86	1.2	1.3	.74	.20	.11	.00	.00	.00	.00	.00
24	.88	.88	1.2	1.5	1.2	.22	.08	.00	.00	.00	.00	.00
25	.88	.90	1.2	1.4	.88	.19	.05	.00	.00	.00	.00	.00
26	.77	.92	1.2	.88	.88	.20	.04	.00	.00	.00	.00	.00
27	.63	.94	1.2	.88	.69	.22	.03	.00	.00	.00	.00	.00
28	.63	.95	1.2	.88	.42	.20	.03	.00	.00	.00	.00	.00
29	.63	.97	1.2	.63	---	.20	.02	.00	.00	.00	.00	.00
30	.63	.99	1.2	.66	---	.20	.02	.00	.00	.00	.00	.00
31	.63	---	1.2	.88	---	.20	---	.00	---	.00	.00	---
TOTAL	10.76	20.59	36.1	35.81	15.21	9.03	5.77	.16	57.71	.00	.00	.00
MEAN	.35	.69	1.16	1.16	.54	.29	.19	.005	1.92	.000	.000	.000
MAX	.88	.99	1.2	1.5	1.2	.63	.79	.03	47	.00	.00	.00
MIN	.00	.19	1.0	.63	.31	.19	.02	.00	.00	.00	.00	.00
CFSM	.004	.008	.01	.01	.006	.003	.002	.000	.02	.000	.000	.000
IN.	.00	.01	.02	.02	.01	.00	.00	.00	.03	.00	.00	.00
AC-FT	21	41	72	71	30	18	11	.3	114	.00	.00	.00

CAL YR 1977 TOTAL 1701.89 MEAN 4.66 MAX 460 MIN .00 CFSM .06 IN .76 AC-FT 3380
WTR YR 1978 TOTAL 191.14 MEAN .52 MAX 47 MIN .00 CFSM .006 IN .09 AC-FT 379

NOTE.--No gage-height record Nov. 10 to Dec. 11 and Dec. 16 to Jan. 16.

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

LOCATION (revised).--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; 7 years (water years 1972-78), 18.5 ft^3/s (0.524 m^3/s), 13,400 acre-ft/yr (16.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 125 ft^3/s (3.54 m^3/s) June 25, 1978; no flow for long periods.

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	.82	.00	.00	.00	3.1	.00	105	96	2.5	86	51	10
2	.06	.00	.00	.00	2.9	.00	99	87	2.5	82	49	7.9
3	.01	.00	.00	.00	2.9	.00	93	45	2.6	80	24	3.2
4	.00	.00	.00	.00	2.7	.00	87	51	2.2	80	.05	.55
5	.00	.00	.00	.00	2.7	.00	82	63	2.1	82	.00	.00
6	.00	.00	.00	.00	2.9	.00	73	70	4.0	89	.00	.33
7	.00	.00	.00	.00	2.8	.00	63	70	.19	91	.00	2.7
8	.00	.00	.00	.00	2.8	.00	59	70	.02	96	.00	2.9
9	.00	.00	.00	.00	2.7	.00	59	67	.02	93	.00	2.9
10	.00	.00	.00	.00	2.7	.00	50	56	.02	88	.00	2.9
11	.00	.00	.00	.00	2.7	.00	35	51	.02	96	.00	2.9
12	.00	.00	.00	.00	3.4	1.8	28	46	.05	96	.00	2.9
13	.00	.00	.00	.00	2.5	18	22	43	.05	96	.00	2.7
14	.00	.00	.00	.00	2.4	18	22	32	.05	104	.00	2.9
15	.00	.00	.00	.00	2.3	26	22	26	9.6	114	.00	2.7
16	.00	.00	.00	.00	.37	29	22	29	44	113	.00	2.7
17	.00	.00	.00	.00	.02	32	21	38	54	113	.00	2.7
18	.00	.00	.00	.00	.02	41	22	53	61	118	.00	2.7
19	.00	.00	.00	.00	.02	47	27	60	75	124	.00	2.7
20	.00	.00	.00	.00	.02	48	34	60	84	124	.00	2.6
21	.00	.00	.00	.00	.02	64	40	33	110	123	.00	2.6
22	.00	.00	.00	.00	.02	80	50	6.4	119	123	.00	2.4
23	.00	.00	.00	.00	.02	89	50	23	124	114	1.9	.06
24	.00	.00	.00	.00	.02	99	58	33	124	107	11	.00
25	.00	.00	.00	.00	.02	100	70	33	125	96	13	.00
26	.00	.00	.00	.00	.02	100	77	33	119	88	18	.00
27	.00	.00	.00	.00	.02	100	85	33	114	71	18	.00
28	.00	.00	.00	.00	.02	106	90	31	113	57	18	.00
29	.00	.00	.00	.00	---	105	96	2.5	104	56	20	.00
30	.00	.00	.00	2.4	---	106	96	.15	89	57	19	.00
31	.00	---	.00	3.0	---	105	---	2.1	---	54	13	---
TOTAL	.89	.00	.00	5.40	42.11	1314.80	1737	1343.15	1484.92	2911	255.95	65.94
MEAN	.029	.000	.000	.17	1.50	42.4	57.9	43.3	49.5	93.9	8.26	2.20
MAX	.82	.00	.00	3.0	3.4	106	105	96	125	124	51	10
MIN	.00	.00	.00	.00	.02	.00	21	.15	.02	54	.00	.00
AC-FT	1.8	.00	.00	11	84	2610	3450	2660	2950	5770	508	131

CAL YR 1977 TOTAL 8424.61 MEAN 23.1 MAX 116 MIN .00 AC-FT 16710
WTR YR 1978 TOTAL 9161.16 MEAN 25.1 MAX 125 MIN .00 AC-FT 18170

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 ft (1,860 m) dam with a 5,590 ft (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, 11,140 acre-ft (13.7 hm³) Mar. 10, gage height, 31.42 ft (9.577 m); minimum, 10,260 acre-ft (12.7 hm³) Jan. 18, gage height, 30.85 ft (9.403 m).

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

30.0	9,170
32.0	12,070

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10430	10770	10570	10550	10630	11010	10490	10490	10430	10570	10570	10600
2	10470	10710	10570	10530	10650	10970	10430	10500	10490	10550	10470	10550
3	10490	10660	10570	10520	10660	10970	10430	10400	10570	10500	10530	10500
4	10470	10630	10570	10500	10660	10970	10430	10400	10600	10490	10440	10490
5	10460	10600	10520	10470	10680	10970	10440	10390	10580	10470	10430	10440
6	10470	10550	10530	10470	10710	11030	10470	10360	11050	10500	10390	10410
7	10460	10520	10580	10440	10730	11010	10500	10320	10980	10530	10370	10490
8	10500	10530	10490	10400	10740	11000	10500	10320	10890	10570	10370	10500
9	10490	10500	10490	10370	10740	11000	10630	10370	10840	10580	10370	10500
10	10490	10520	10500	10340	10770	11000	10610	10440	10790	10610	10370	10500
11	10530	10530	10520	10340	10770	10980	10630	10530	10710	10630	10360	10520
12	10570	10550	10550	10330	10930	10950	10630	10530	10650	10630	10370	10520
13	10570	10550	10530	10330	10920	10920	10630	10500	10650	10630	10340	10500
14	10570	10580	10550	10320	10920	10840	10630	10500	10660	10600	10340	10490
15	10570	10580	10580	10330	10930	10730	10610	10520	10610	10570	10370	10470
16	10580	10580	10530	10300	10950	10650	10600	10550	10500	10490	10390	10440
17	10580	10570	10520	10290	10930	10610	10570	10520	10490	10470	10410	10430
18	10600	10580	10530	10290	10970	10630	10530	10470	10490	10400	10410	10370
19	10630	10580	10500	10300	11010	10600	10470	10460	10530	10390	10410	10370
20	10650	10550	10520	10340	10970	10580	10440	10430	10530	10410	10430	10400
21	10710	10550	10520	10400	10980	10600	10430	10370	10470	10410	10440	10430
22	10770	10570	10570	10440	10970	10610	10430	10330	10430	10410	10440	10460
23	10790	10550	10530	10490	10980	10580	10440	10300	10440	10490	10430	10520
24	10790	10570	10530	10520	10970	10570	10440	10300	10470	10610	10410	10570
25	10810	10550	10530	10530	10970	10570	10440	10330	10490	10660	10370	10580
26	10790	10580	10530	10550	10980	10570	10460	10340	10520	10630	10460	10600
27	10820	10530	10570	10570	11080	10570	10440	10360	10530	10610	10470	10650
28	10840	10520	10580	10580	11000	10530	10440	10370	10550	10630	10490	10650
29	10840	10550	10630	10600	---	10520	10490	10300	10570	10610	10500	10630
30	10840	10550	10610	10600	---	10500	10490	10330	10600	10650	10520	10610
31	10840	---	10570	10610	---	10470	---	10360	---	10610	10580	---
MAX	10840	10770	10630	10610	11080	11030	10630	10550	11050	10660	10580	10650
MIN	10430	10500	10490	10290	10630	10470	10430	10300	10430	10390	10340	10370
(†)	31.23	31.05	31.06	31.09	31.33	31.00	31.01	30.92	31.08	31.09	31.07	31.09
(‡)	+400	-290	+20	+40	+390	-530	-20	-130	+240	+10	-30	+30

CAL YR 1977 MAX 11910 MIN 10120 ‡ +240
WTR YR 1978 MAX 11080 MIN 10290 ‡ +170

† Gage height, in feet, at end of meonth.
‡ 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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
NOV 01...	0915	875	7.7	21.0	240	75	53	26	82
JUN 06...	0830	1010	--	25.5	290	110	68	29	110
JUL 18...	0825	854	--	29.0	230	67	48	27	80

DATE	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)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 01...	2.3	5.5	200	0	69	130	.6	17	482
JUN 06...	2.8	5.4	220	0	78	160	.5	14	573
JUL 18...	2.3	5.5	200	0	69	130	.6	16	475

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

AVERAGE DISCHARGE.--39 years, 8.67 ft³/s (0.246 m³/s), 6,280 acre-ft/yr (7.74 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1891, that of July 6, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 359 ft³/s (10.2 m³/s) June 2, gage height, 7.82 ft (2.384 m), no other 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.17	.48	.67	.46	.15	.52	.00	.00	.00
2	.00	.00	.00	.18	.53	.69	.40	14	31	.00	.00	.00
3	.00	.00	.00	.24	.52	.60	.44	10	55	.00	.00	.00
4	.00	.00	.00	.26	.40	.57	.39	2.4	7.0	.00	.00	.00
5	.00	.00	.00	.27	.41	.60	.33	1.1	2.3	.00	.00	.00
6	.00	.00	.00	.29	.59	.58	.66	.88	1.3	.00	.00	.00
7	.00	.00	.00	.27	.74	.53	.76	.77	1.0	.00	.00	.00
8	.00	.00	.00	.27	.98	.49	.53	.63	.79	.00	.00	.00
9	.00	.00	.00	.35	1.6	.62	1.4	.57	.60	.00	.00	.00
10	.00	.00	.00	.25	1.4	.53	1.3	.53	.52	.00	.00	.00
11	.00	.00	.00	.22	.84	.54	.50	.57	.46	.00	.00	.00
12	.00	.00	.00	.27	.99	1.1	.39	.51	.43	.00	.00	.00
13	.00	.00	.00	.28	1.5	.67	.36	.37	.38	.00	.00	.00
14	.00	.00	.00	.26	.95	.49	.33	.37	.34	.00	.00	.00
15	.00	.00	.00	.25	.57	.51	.30	.37	.25	.00	.00	.00
16	.00	.00	.00	.31	.55	.54	.30	.35	.23	.00	.00	.00
17	.00	.00	.09	.28	.56	.61	.33	.29	.22	.00	.00	.00
18	.00	.00	.00	.29	.61	.40	.26	.18	.17	.00	.00	.00
19	.00	.00	.00	.31	.62	.36	.25	.16	.14	.00	.00	.00
20	.00	.00	.00	.30	.51	.40	.23	10	.13	.00	.00	.00
21	.00	.00	.00	.37	.58	.44	.27	6.3	.11	.00	.00	.00
22	.00	.00	.00	.42	.89	.40	.27	1.7	.08	.00	.00	.00
23	.00	.00	.00	.40	.57	.44	.25	.99	.05	.00	.00	.00
24	.00	.00	.13	.45	.52	.63	.21	.76	.04	.00	.00	.00
25	.00	.00	.09	.42	.65	.43	.21	.62	.03	.00	.00	.00
26	.00	.00	.06	.36	1.1	.40	.18	.57	.02	.00	.00	.00
27	.00	.00	.08	.37	.78	.39	.20	.57	.00	.00	.00	.00
28	.00	.00	.10	.35	.69	.40	.18	6.2	.00	.00	.00	.00
29	.00	.00	.22	.37	---	.43	.17	2.7	.00	.00	.00	.00
30	.00	.00	.22	.41	---	.38	.16	.86	.00	.00	.00	.00
31	.00	---	.19	.57	---	.40	---	.63	---	.00	.00	---
TOTAL	.00	.00	1.18	9.81	21.13	16.24	12.02	66.10	103.11	.00	.00	.00
MEAN	.000	.000	.038	.32	.75	.52	.40	2.13	3.44	.000	.000	.000
MAX	.00	.00	.22	.57	1.6	1.1	1.4	14	55	.00	.00	.00
MIN	.00	.00	.00	.17	.40	.36	.16	.15	.00	.00	.00	.00
AC-FT	.00	.00	2.3	19	42	32	24	131	205	.00	.00	.00

CAL YR 1977 TOTAL 921.27 MEAN 2.52 MAX 657 MIN .00 AC-FT 1830
WTR YR 1978 TOTAL 229.59 MEAN .63 MAX 55 MIN .00 AC-FT 455

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, 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. Diversions by pumping above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--54 years, 36.0 ft³/s (1.020 m³/s), 26,080 acre-ft/yr (32.2 hm³/yr).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1853, that of Sept. 26, 1936. Stage unknown for major flood in June 1853.

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)
May 29	0900	3,790	107	11.47	3.496	Aug. 3	0600	*6,030	171	13.80	4.206

Minimum discharge, no flow for many days.

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	.00	.00	.00	2.4	3.5	1.3	.64	15	.08	.00	.08
2	.00	.00	.00	.00	2.4	3.2	1.2	3.4	12	.08	.00	.10
3	.00	.00	.00	.00	2.6	3.5	1.3	5.7	55	.03	2010	.08
4	.00	.00	.00	.00	2.6	3.2	2.1	18	39	.02	543	.06
5	.00	.00	.00	.00	2.6	3.2	2.1	8.9	18	.00	53	.06
6	.00	.00	.00	.00	2.6	3.2	1.9	4.8	12	.00	36	.04
7	.00	.00	.00	.00	2.4	3.2	1.9	3.8	9.4	.00	23	.03
8	.00	.00	.00	.00	2.4	2.9	100	6.4	7.2	.00	17	.08
9	.00	.00	.00	.00	2.6	2.9	22	4.8	5.6	.00	14	.06
10	.00	.00	.00	.00	2.6	2.9	8.0	2.6	4.5	.00	12	.04
11	.00	.00	.00	.00	2.4	2.9	5.5	1.9	4.1	.00	9.4	.03
12	.00	.00	.00	.04	3.2	2.6	5.2	1.7	3.5	.00	7.6	.03
13	.00	.00	.00	.64	2.9	2.6	4.1	1.2	3.2	.00	5.6	.02
14	.00	.00	.00	.64	2.6	2.4	2.9	.75	2.9	.00	4.1	.01
15	.00	.00	.00	.87	2.6	1.9	2.4	.54	3.2	.00	3.8	.00
16	.00	.00	.00	1.0	2.4	1.7	2.1	.30	2.6	.00	2.6	.00
17	.00	.00	.00	1.0	2.4	1.3	1.9	.18	2.4	.00	1.7	.00
18	.00	.00	.00	.87	2.4	1.2	1.7	.14	2.1	.00	1.5	.00
19	.00	.00	.00	1.0	2.4	1.3	1.3	.08	1.7	.00	.87	.00
20	.00	.00	.00	1.2	2.4	1.5	1.2	13	1.5	.00	.75	.00
21	.00	.00	.00	1.5	2.1	1.7	1.0	4.5	1.3	.00	.64	.00
22	.00	.00	.00	1.9	1.9	1.7	1.0	5.2	1.0	.00	.30	.00
23	.00	.00	.00	1.7	2.1	1.5	1.0	6.4	.87	.00	.10	.00
24	.00	.00	.00	1.9	2.4	1.5	1.0	4.1	.75	.00	.06	.00
25	.00	.00	.00	2.1	2.9	1.5	.87	2.6	.54	.00	.04	.00
26	.00	.00	.00	2.1	2.9	1.5	.75	3.7	.37	.00	.04	.00
27	.00	.00	.00	1.9	3.2	1.5	.54	2.1	.24	.00	.04	.00
28	.00	.00	.00	2.1	3.5	1.5	.45	144	.14	.00	.04	.00
29	.00	.00	.00	2.1	---	1.5	.45	1250	.10	.00	.04	.00
30	.00	.00	.00	2.4	---	1.5	.45	60	.08	.00	.06	.00
31	.00	---	.00	2.4	---	1.5	---	23	---	.00	.06	---
TOTAL	.00	.00	.00	29.36	71.9	68.0	177.61	1584.43	210.29	.21	2747.34	.72
MEAN	.000	.000	.000	.95	2.57	2.19	5.92	51.1	7.01	.007	88.6	.024
MAX	.00	.00	.00	2.4	3.5	3.5	100	1250	55	.08	2010	.10
MIN	.00	.00	.00	.00	1.9	1.2	.45	.08	.08	.00	.00	.00
AC-FT	.00	.00	.00	58	143	135	352	3140	417	.4	5450	1.4

CAL YR 1977 TOTAL 1717.06 MEAN 4.70 MAX 509 MIN .00 AC-FT 3410
WTR YR 1978 TOTAL 4889.86 MEAN 13.4 MAX 2010 MIN .00 AC-FT 9700

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 San Angelo 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 ft (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, 27,110 acre-ft (33.4 hm³) Aug. 6, elevation, 1,881.82 ft (573.579 m); minimum, 20,180 acre-ft (24.9 hm³) May 2, elevation, 1,878.06 ft (572.433 m).

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

1,878.0	20,080	1,881.0	25,480
1,880.0	23,570	1,882.0	27,480

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23990	23150	22490	21890	21540	21490	20870	20190	23490	22530	20850	26070
2	23920	23060	22440	21860	21540	21490	20850	20930	23510	22490	20820	26050
3	23880	23000	22420	21840	21530	21470	20820	20920	23600	22440	25730	26010
4	23860	22990	22400	21840	21510	21420	20780	20880	23650	22370	26950	25990
5	23800	22970	22390	21820	21530	21410	20780	20870	23670	22320	27090	25970
6	23790	22930	22370	21820	21530	21440	20770	20870	23840	22240	27030	25910
7	23770	22970	22350	21800	21540	21440	20720	20850	23840	22170	27010	25930
8	23710	22950	22320	21770	21540	21410	20780	20800	23800	22120	26990	25910
9	23690	22910	22260	21730	21540	21390	20950	20770	23770	22050	26950	25890
10	23650	22880	22230	21720	21530	21390	20930	20780	23750	22000	26950	25850
11	23580	22840	22230	21680	21530	21350	20920	20780	23770	21930	26930	25810
12	23520	22820	22240	21680	21680	21340	20880	20730	23650	21890	26930	25770
13	23490	22800	22230	21660	21650	21340	20850	20680	23600	21820	26890	25730
14	23430	22800	22210	21660	21650	21300	20820	20650	23560	21790	26870	25710
15	23410	22780	22210	21680	21630	21270	20800	20630	23510	21730	26830	25650
16	23340	22770	22160	21660	21630	21220	20780	20570	23430	21650	26790	25610
17	23300	22750	22100	21630	21630	21200	20750	20550	23360	21600	26690	25530
18	23280	22730	22080	21630	21610	21180	20700	20500	23320	21530	26620	25450
19	23260	22730	22070	21600	21600	21170	20650	20470	23280	21460	26560	25420
20	23230	22690	22050	21600	21580	21150	20600	20680	23230	21410	26520	25380
21	23230	22680	22010	21600	21560	21120	20570	20750	23150	21350	26460	25280
22	23280	22640	22000	21610	21540	21120	20530	20730	23080	21290	26380	25240
23	23260	22620	21980	21610	21530	21100	20520	20680	23020	21250	26320	25220
24	23260	22600	21960	21650	21530	21070	20470	20680	22970	21200	26260	25220
25	23260	22580	21930	21610	21510	21030	20400	20650	22910	21170	26200	25200
26	23230	22550	21930	21600	21490	21020	20370	20620	22800	21130	26300	25220
27	23240	22530	21890	21580	21510	21000	20320	20600	22750	21100	26280	25280
28	23240	22490	21910	21560	21490	20930	20320	20600	22690	21020	26240	25260
29	23230	22530	21890	21540	---	20920	20320	23150	22620	20980	26170	25220
30	23210	22510	21890	21540	---	20920	20260	23430	22600	20950	26130	25200
31	23190	---	21890	21540	---	20880	---	23470	---	20870	26090	---
MAX	23990	23150	22490	21890	21680	21490	20950	23470	23840	22530	27090	26070
MIN	23190	22490	21890	21540	21490	20880	20260	20190	22600	20870	20820	25200
(†)	1879.80	1879.43	1879.08	1878.88	1878.85	1878.49	1878.08	1879.95	1879.48	1878.48	1881.31	1880.86
(‡)	-860	-680	-620	-350	-50	-610	-670	+3260	-870	-1730	+5220	-890

CAL YR 1977 MAX 28740 MIN 21890 ‡ -6820
WTR YR 1978 MAX 27090 MIN 20190 ‡ +1150

† 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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
FEB 28...	1335	667	7.8	12.5	220	76	50	24	43

DATE	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)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
FEB 28...	1.3	16	180	0	45	110	.3	6.0	383

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/s); 27 years (water years 1952-78) regulated, 8.95 ft³/s (0.253 m³/s), 6,480 acre-ft/yr (7.99 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, 425 ft³/s (12.0 m³/s) May 2, gage height, 2.78 ft (0.847 m); minimum daily, 0.07 ft³/s (0.002 m³/s) July 21, 22.

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	.10	.10	1.2	.72	1.1	.55	.53	.15	1.0	.38	.09	.75
2	.10	.10	1.0	.93	1.1	.62	.51	58	.98	.37	.09	.69
3	.10	.10	.92	.94	.90	.64	.59	5.9	1.5	.30	45	.71
4	.10	.48	1.2	.75	1.1	1.0	.53	1.4	.96	.29	3.9	5.0
5	.15	.76	1.4	.72	1.1	1.7	.46	1.0	.80	.13	1.3	2.1
6	.15	.70	1.1	.67	1.2	1.6	.44	.70	23	.12	1.0	1.0
7	.20	.93	.81	.61	1.5	1.6	.44	.71	3.0	.12	.77	2.0
8	.20	5.5	.92	.74	1.5	.82	.46	.59	1.0	.12	.72	2.8
9	.20	3.0	.92	.90	1.6	.68	2.9	.64	.80	.11	.65	1.3
10	.20	2.4	.85	.90	1.4	.79	7.4	1.1	.61	.10	.65	.93
11	.20	2.4	.83	.97	1.2	1.0	1.6	.73	.58	.10	.65	.83
12	.20	2.0	.77	.88	23	1.1	.50	.52	.58	.10	.65	.76
13	.20	2.0	.89	.64	4.5	1.1	.46	.52	.57	.10	.65	.70
14	.10	2.2	.65	.60	1.6	.76	.42	.53	.49	.10	.65	.70
15	.10	2.1	.63	.83	2.0	.60	.39	.44	.37	.10	.65	.69
16	.10	1.9	.64	.90	.78	.54	.37	.43	.32	.10	.65	.68
17	.10	1.9	.85	.69	.73	.55	.41	.36	.39	.09	.65	.67
18	.10	1.7	.83	.68	.73	.58	.36	.29	.28	.08	.66	.67
19	.10	1.0	.68	.65	.68	.63	.34	.27	.36	.08	.65	.71
20	.10	.99	.62	.74	.65	.65	.29	16	.24	.08	.81	.63
21	.23	.95	.61	.82	.59	.55	.27	6.6	.14	.07	.67	.58
22	8.3	.63	.62	1.5	.59	.47	.24	1.6	.39	.07	.65	.61
23	2.2	.74	.62	1.1	.60	.55	.22	.96	.28	.08	.65	.62
24	1.0	.73	.63	.82	.64	.60	.20	.92	.17	.09	.65	.62
25	1.5	.76	.61	.75	.56	.52	.18	.73	.14	.08	.66	.74
26	.50	.70	.67	.75	.60	.63	.16	.62	.12	.08	2.6	.70
27	.30	.66	.70	.72	.75	.64	.14	.59	.21	.08	2.6	4.2
28	.20	1.5	.71	.77	.65	.55	.11	2.4	.33	.08	.84	1.2
29	.20	1.5	.75	.90	---	.48	.18	7.2	.38	.09	.65	.78
30	.20	1.3	.71	.96	---	.53	.15	3.6	.33	.10	.65	.67
31	.20	---	.63	1.0	---	.53	---	2.9	---	.09	.65	---
TOTAL	17.63	41.73	24.97	25.55	53.35	23.56	21.25	118.40	40.32	3.88	72.11	35.04
MEAN	.57	1.39	.81	.82	1.91	.76	.71	3.82	1.34	.13	2.33	1.17
MAX	8.3	5.5	1.4	1.5	23	1.7	7.4	58	23	.38	45	5.0
MIN	.10	.10	.61	.60	.56	.47	.11	.15	.12	.07	.09	.58
AC-FT	35	83	50	51	106	47	42	235	80	7.7	143	70

CAL YR 1977 TOTAL 533.39 MEAN 1.46 MAX 39 MIN .10 AC-FT 1060
WTR YR 1978 TOTAL 477.79 MEAN 1.31 MAX 58 MNI .07 AC-FT 948

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.--Septembe 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. Many diversions upstream from station for irrigation, industrial, and municipal supply. Records furnished by the city of San Angelo show that they diverted 16,140 acre-ft (19.9 hm³), of which 152 acre-ft (187,000 m³) was diverted from E. V. Spence Reservoir during the year. All of the 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); 16 years (water years 1963-78) regulated, 23.4 ft³/s (0.663 m³/s), 16,950 acre-ft/yr (20.9 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, 1,520 ft³/s (43.0 m³/s) Aug. 3, gage height, 5.19 ft (1.582 m); minimum, 2.3 ft³/s (0.065 m³/s) Feb. 24.

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	16	6.3	10	8.5	8.1	3.1	19	28	34	33	36	7.7
2	22	5.7	9.0	8.6	5.9	3.2	19	220	28	34	38	12
3	31	4.8	8.0	8.6	4.9	3.4	20	90	31	32	262	12
4	29	4.1	9.0	8.6	3.9	4.0	19	41	29	26	87	13
5	26	4.9	10	8.0	3.2	4.5	19	27	24	26	32	22
6	32	7.7	10	8.0	3.2	5.7	22	27	226	33	17	16
7	32	10	9.0	8.0	3.5	13	18	25	84	37	11	15
8	23	25	8.0	8.0	3.5	11	19	26	42	35	8.7	38
9	15	15	8.0	8.0	3.7	9.5	27	33	18	42	5.9	31
10	20	11	8.0	9.0	3.3	7.1	46	38	13	48	3.7	23
11	15	10	8.0	10	3.2	6.6	24	46	11	50	3.1	18
12	11	11	8.0	10	22	4.8	14	32	14	50	3.0	15
13	9.4	10	9.7	9.0	20	4.1	12	24	28	44	2.7	13
14	8.0	8.9	7.4	8.0	10	4.0	12	22	31	45	2.7	11
15	7.7	8.5	6.5	9.0	6.4	3.6	14	20	29	45	2.7	9.6
16	9.5	9.7	7.2	9.0	4.4	3.3	15	22	29	47	2.7	9.6
17	11	10	7.8	8.0	3.9	2.9	15	22	30	43	2.7	12
18	9.4	10	8.3	8.0	3.2	3.8	13	19	27	38	2.7	9.7
19	7.6	9.9	7.8	7.7	3.0	8.4	10	21	29	35	2.7	8.6
20	4.6	9.0	6.8	8.2	2.9	12	10	72	32	37	3.0	8.5
21	3.4	8.4	8.0	10	3.4	11	10	63	34	39	3.0	6.7
22	37	8.2	9.8	13	2.7	9.9	11	38	33	43	2.7	5.4
23	22	9.0	9.9	13	2.8	12	9.7	25	34	51	2.7	5.9
24	12	8.1	8.3	11	3.0	13	7.7	20	36	45	2.7	4.3
25	7.3	7.3	8.4	11	3.6	16	10	18	29	20	2.7	3.2
26	5.2	8.9	9.2	11	3.7	20	13	22	25	20	10	3.0
27	5.3	10	9.5	9.1	3.3	20	16	26	24	23	10	11
28	8.2	10	10	8.6	3.4	20	17	31	25	25	9.0	17
29	7.1	12	10	8.4	---	19	25	53	26	32	8.0	10
30	6.9	10	8.7	8.7	---	19	26	39	31	37	7.8	6.3
31	7.7	---	7.8	8.7	---	19	---	46	---	39	7.4	---
TOTAL	461.3	283.4	266.1	282.7	148.1	296.9	512.4	1236	1086	1154	595.3	377.5
MEAN	14.9	9.45	8.58	9.12	5.29	9.58	17.1	39.9	36.2	37.2	19.2	12.6
MAX	37	25	10	13	22	20	46	220	226	51	262	38
MIN	3.4	4.1	6.5	7.7	2.7	2.9	7.7	18	11	20	2.7	3.0
AC-FT	915	562	528	561	294	589	1020	2450	2150	2290	1180	749

CAL YR 1977 TOTAL 35344.1 MEAN 96.8 MAX 2560 MIN 2.6 AC-FT 70110
WTR YR 1978 TOTAL 6699.7 MEAN 18.4 MAX 262 MIN 2.7 AC-FT 13290

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.

DISCHARGE AND WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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										
18...	0945	19	1910	8.1	18.0	8.4	92	1.7	560	310
DEC										
13...	0815	22	2340	8.1	10.5	10.5	98	1.0	680	400
MAR										
02...	1715	29	2480	8.5	15.0	16.2	167	11	690	430
APR										
14...	1150	19	2200	8.2	21.5	10.0	116	3.9	600	370
JUN										
15...	1600	16	1640	8.3	30.0	12.4	165	12	440	280
AUG										
17...	1740	17	1700	8.2	30.5	12.2	165	11	520	340

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										
18...	120	62	190	3.5	5.1	300	0	180	360	.7
DEC										
13...	150	73	240	4.0	5.2	340	0	220	460	.7
MAR										
02...	150	76	270	4.5	6.4	290	10	290	500	.8
APR										
14...	130	67	240	4.3	5.3	280	0	210	450	.7
JUN										
15...	91	52	180	3.7	5.8	200	0	170	330	.6
AUG										
17...	110	60	190	3.6	5.9	220	0	210	370	.6

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT									
18...	23	1090	4.6	.04	4.6	.05	.92	.97	.05
DEC									
13...	21	1340	9.4	.03	9.4	.08	.81	.89	.03
MAR									
02...	19	1470	2.9	.04	2.9	.02	2.5	2.5	.75
APR									
14...	13	1250	1.7	.06	1.8	.01	1.2	1.2	.06
JUN									
15...	20	948	.67	.01	.68	.01	2.5	2.5	.13
AUG									
17...	20	1080	2.5	.15	2.6	.04	1.7	1.7	.10

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); 16 years (water years 1963-78) regulated, 55.2 ft³/s (1.563 m³/s), 39,990 acre-ft/yr (49.3 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1853, that of Sept. 17, 1936. 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, 12,700 ft³/s (360 m³/s) Aug. 3, gage height, 19.11 ft (5.825 m); minimum, 0.39 ft³/s (0.011 m³/s) July 10.

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	20	36	44	41	43	31	19	5.0	199	7.4	22	48
2	18	28	43	43	43	31	16	66	107	6.9	28	35
3	21	29	42	46	43	29	15	666	229	5.1	4350	28
4	36	30	40	49	41	30	18	227	145	5.4	1750	27
5	48	29	39	49	40	31	18	98	79	12	306	37
6	48	31	41	49	36	29	15	65	62	13	143	44
7	47	29	42	43	35	29	14	905	178	11	82	44
8	47	38	38	41	36	31	11	192	216	7.5	58	50
9	49	36	42	41	43	33	11	62	101	3.4	46	46
10	48	44	43	41	41	36	27	42	70	1.0	39	58
11	39	47	43	41	41	32	49	48	57	4.9	35	58
12	37	43	45	43	54	27	58	52	48	16	53	51
13	40	39	45	43	55	30	44	57	37	15	39	40
14	36	36	43	43	55	28	33	47	31	21	35	38
15	35	35	41	43	60	24	26	37	28	24	31	43
16	32	42	42	43	52	20	19	36	21	23	28	36
17	32	43	38	41	49	18	17	29	17	20	27	30
18	35	44	41	41	44	14	16	24	22	23	25	25
19	31	43	41	41	42	12	19	26	22	18	23	29
20	35	42	36	42	42	11	19	25	19	15	24	31
21	33	41	31	47	38	10	18	34	16	12	23	29
22	55	43	31	49	36	9.9	16	145	13	12	24	27
23	43	43	31	47	36	10	13	93	9.2	14	21	27
24	55	43	36	49	36	9.1	11	63	6.9	16	18	29
25	53	45	38	49	32	8.4	10	46	6.5	29	26	31
26	44	43	41	47	30	8.4	11	36	7.8	30	27	31
27	41	42	41	45	36	10	10	35	12	17	34	36
28	41	46	38	44	35	19	8.3	42	14	10	36	36
29	39	43	41	42	---	17	6.1	1600	9.8	6.6	62	35
30	40	45	43	41	---	15	4.6	333	7.8	6.6	52	39
31	41	---	46	41	---	19	---	540	---	8.7	42	---
TOTAL	1219	1178	1246	1365	1174	661.8	572.0	5676.0	1791.0	414.5	7509	1118
MEAN	39.3	39.3	40.2	44.0	41.9	21.3	19.1	183	59.7	13.4	242	37.3
MAX	55	47	46	49	60	36	58	1600	229	30	4350	58
MIN	18	28	31	41	30	8.4	4.6	5.0	6.5	1.0	18	25
AC-FT	2420	2340	2470	2710	2330	1310	1130	11260	3550	822	14890	2220

CAL YR 1977 TOTAL 55361.0 MEAN 152 MAX 2940 MIN 18 AC-FT 109800
WTR YR 1978 TOTAL 23924.3 MEAN 65.5 MAX 4350 MIN 1.0 AC-FT 47450

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 to current year.
SUSPENDED SEDIMENT DISCHARGE: February to September 1978.

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, 1975-78): Maximum daily, 35.0°C Aug. 11, 1969 and July 18, 1978; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,690 micromhos Apr. 7, 10; minimum daily, 321 micromhos Aug. 4.
WATER TEMPERATURES: Maximum daily, 35.0°C July 18; minimum daily, 3.0°C Jan. 19, 20.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,930 mg/L Aug. 3; minimum daily mean, 8 mg/L Feb. 22.
SEDIMENT LOADS: Maximum daily, 68,200 tons Aug. 3; minimum daily, 0.12 tons July 10.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	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												
18...	1200	35	2190	8.0	19.0	1	15	8.8	98	1.2	680	480
DEC												
13...	1000	46	2320	8.1	11.5	3	15	10.7	102	1.0	770	540
JAN												
18...	1010	41	2460	7.6	5.5	--	--	--	--	--	770	570
MAR												
02...	1510	30	2470	7.9	15.0	5	15	9.9	102	.6	790	590
APR												
14...	0945	19	2600	8.1	19.0	10	40	7.6	86	1.4	870	660
MAY												
30...	1000	187	440	--	22.5	--	--	--	--	--	140	58
JUN												
15...	1420	33	1540	7.9	29.0	20	45	10.3	136	5.6	420	240
AUG												
04...	1020	1490	344	--	23.0	--	--	--	--	--	130	20
17...	1615	27	1200	8.3	29.5	15	20	9.4	124	13	380	290

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
18...	140	80	210	3.5	4.6	240	0	290	430	.7	22
DEC											
13...	170	84	220	3.5	4.9	280	0	290	480	.6	21
JAN											
18...	170	85	220	3.4	4.1	250	0	290	500	.6	18
MAR											
02...	180	83	220	3.4	4.6	250	0	270	500	.7	15
APR											
14...	190	96	220	3.2	5.1	250	0	350	510	.7	15
MAY											
30...	42	8.2	31	1.1	5.4	98	0	34	60	.4	11
JUN											
15...	91	46	150	3.2	6.1	210	0	140	310	.6	17
AUG											
04...	42	5.4	13	.5	5.8	130	0	21	25	.4	12
17...	78	46	120	2.7	6.7	120	0	150	270	.4	17

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
18...	1300	16	3	9.9	.04	9.9	.06	1.5	1.6	.03	2.9
DEC											
13...	1410	17	3	15	.03	15	.07	1.5	1.6	.02	3.1
JAN											
18...	1410	--	--	--	--	--	--	--	--	--	--
MAR											
02...	1400	25	5	4.5	.02	4.5	.01	.79	.80	.07	3.7
APR											
14...	1510	60	13	9.3	.12	9.4	.01	1.3	1.3	.06	--
MAY											
30...	240	--	--	--	--	--	--	--	--	--	--
JUN											
15...	865	65	6	.76	.06	.82	.05	2.0	2.0	.08	6.9
AUG											
04...	189	--	--	--	--	--	--	--	--	--	--
17...	748	36	18	.53	.04	.57	.04	1.7	1.7	.10	12

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT							
18...	1200	3	200	0	0	3	10
MAR							
02...	1510	2	100	1	0	5	0
JUN							
15...	1420	10	200	0	0	0	30
AUG							
17...	1615	7	300	2	0	2	20

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT						
18...	0	20	.0	6	0	20
MAR						
02...	3	0	.0	6	0	10
JUN						
15...	3	20	.0	0	0	20
AUG						
17...	3	20	.1	2	0	10

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
MAR										
02...	1510	.0	0	.00	.00	.0	.0	0	.00	1.1
AUG										
17...	1615	.0	--	.00	.00	--	.0	--	.00	--

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)
MAR										
02...	.00	9.9	.00	.7	.00	.00	.2	.00	.00	.0
AUG										
17...	.00	--	.00	--	.01	.00	--	.00	.00	--

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)
MAR									
02...	.00	.00	.0	.00	.0	.00	.0	.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)
MAR									
02...	.00	--	.00	0	0	.00	.00	.00	.00
AUG									
17...	.00	.00	.00	0	--	.00	.01	.01	.00

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	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
MAY							
24...	1000	64	26.0	1250	218	64	80
30...	1005	186	22.5	251	126	54	59
31...	0800	246	22.0	475	315	84	87
31...	1355	974	25.5	1270	3340	69	71
AUG							
03...	2110	9400	23.0	3040	77200	46	63
04...	1030	1350	23.0	1880	6850	68	85
04...	1400	1100	25.0	1450	4310	88	89

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
MAY							
24...	87	94	95	96	97	98	100
30...	64	83	87	99	100	--	--
31...	87	92	96	98	99	100	--
31...	79	83	84	98	99	100	--
AUG							
03...	75	86	92	98	99	100	--
04...	93	94	96	97	100	--	--
04...	93	94	98	99	100	--	--

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	1219	2070	1190	3910	420	1390	250	830	630
NOV. 1977.....	1178	2280	1310	4170	470	1500	280	900	710
DEC. 1977.....	1246	2400	1340	4640	500	1670	300	1010	760
JAN. 1978.....	1365	2410	1380	5100	500	1850	300	1110	760
FEB. 1978.....	1174	2420	1390	4410	500	1590	300	959	760
MAR. 1978.....	661.8	2470	1420	2530	510	916	310	555	780
APR. 1978.....	571	2590	1490	2300	540	835	330	506	830
MAY 1978.....	5676	798	460	7020	140	2150	76	1160	250
JUNE 1978.....	1790	1190	680	3310	230	1100	130	624	360
JULY 1978.....	414.5	2230	1280	1430	460	514	280	308	690
AUG. 1978.....	7509	591	340	6900	94	1910	50	1020	190
SEPT 1978.....	1118	2060	1180	3570	420	1280	250	759	630
TOTAL	23924.28	**	**	49300	**	16700	**	9740	**
WTD.AVG.	65.55	1330	760	**	260	**	150	**	400

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1640	2170	2370	2480	2440	2470	2550	2490	430	1910	2250	2100
2	1670	2220	2380	2460	2400	2460	2550	2250	592	1940	2230	2080
3	1690	2210	2360	2450	2440	2470	2570	1240	733	1950	500	2040
4	1720	2220	2370	2450	2410	2480	2550	926	1110	1940	321	2100
5	1800	2230	2390	2440	2440	2480	2620	903	1320	1990	581	2140
6	1910	2220	2400	2370	2420	2470	2680	1130	1290	2010	729	2160
7	1960	2210	2380	2100	2440	2460	2690	450	1260	2060	861	2200
8	2020	2220	2360	2460	2420	2450	2680	550	1480	2100	961	2100
9	2050	2200	2340	2420	2360	2460	2670	718	1510	2140	996	2160
10	2120	2230	2390	2460	2420	2450	2690	918	1590	2170	1120	2140
11	2100	2240	2350	2390	2410	2440	2680	1060	1580	2190	1140	2080
12	2110	2220	2380	2410	2380	2450	2600	1160	1580	2220	1210	2020
13	2130	2230	2380	2490	2380	2470	2620	1190	1530	2270	1270	1980
14	2150	2240	2410	2490	2390	2460	2600	1130	1540	2300	1340	2010
15	2250	2250	2380	2220	2400	2460	2650	1070	1550	2310	1310	1990
16	2270	2300	2390	2360	2420	2450	2620	1030	1560	2340	1310	2000
17	2290	2330	2410	2480	2430	2440	2580	1060	1590	2360	1360	2010
18	2150	2310	2380	2300	2360	2430	2570	1130	1610	2400	1380	2030
19	2130	2330	2370	2340	2400	2440	2560	1170	1640	2390	1390	2010
20	2110	2340	2400	2380	2430	2430	2530	1310	1680	2370	1410	2000
21	2120	2310	2420	2400	2380	2450	2510	1400	1710	2380	1490	2040
22	2110	2320	2430	2430	2410	2460	2470	1870	1720	2370	1530	2010
23	2090	2340	2420	2440	2450	2450	2480	2000	1750	2370	1600	2020
24	2150	2350	2440	2440	2470	2460	2470	1960	1770	2300	1640	2010
25	2110	2340	2440	2410	2480	2470	2500	1910	1790	2250	1720	2030
26	2070	2350	2460	2420	2490	2480	2510	1930	1800	2000	1740	2010
27	2110	2330	2440	2430	2510	2490	2520	1940	1840	2100	1440	2010
28	2120	2320	2450	2440	2480	2510	2530	1960	1890	2160	1920	2030
29	2140	2330	2430	2440	---	2530	2550	421	1910	2210	1990	2080
30	2160	2350	2450	2450	---	2540	2560	650	1920	2230	2100	2090
31	2150	---	2460	2450	---	2550	---	595	---	2240	2140	---
MEAN	2050	2280	2400	2410	2420	2470	2580	1270	1510	2190	1400	2060

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	21.0	13.0	7.0	5.0	15.0	25.0	27.0	23.0	30.0	30.0	28.0
2	26.0	18.0	13.0	5.0	5.0	14.0	24.0	20.0	25.0	30.0	27.0	25.0
3	26.0	18.0	14.0	9.0	5.0	10.0	25.0	18.0	23.0	32.0	23.0	30.0
4	24.0	19.0	13.0	11.0	5.0	10.0	25.0	21.0	25.0	32.0	25.0	28.0
5	26.0	19.0	13.0	13.0	8.0	11.0	25.0	25.0	29.0	31.0	24.0	28.0
6	24.0	18.0	11.0	14.0	8.0	16.0	25.0	25.0	27.0	33.0	25.0	30.0
7	24.0	19.0	12.0	12.0	7.0	11.0	25.0	21.0	24.0	33.0	28.0	26.0
8	24.0	17.0	12.0	10.0	6.0	11.0	24.0	26.0	30.0	30.0	32.0	26.0
9	22.0	14.0	10.0	10.0	6.0	15.0	17.0	29.0	29.0	32.0	32.0	25.0
10	23.0	14.0	7.0	4.0	6.0	16.0	20.0	26.0	26.0	33.0	33.0	29.0
11	23.0	14.0	6.0	7.0	5.0	17.0	24.0	26.0	33.0	33.0	30.0	30.0
12	21.0	15.0	13.0	5.0	7.0	15.0	25.0	29.0	30.0	33.0	30.0	34.0
13	20.0	16.0	13.0	7.0	7.0	16.0	22.0	29.0	33.0	30.0	32.0	33.0
14	20.0	14.0	14.0	8.0	8.0	18.0	24.0	27.0	32.0	33.0	32.0	32.0
15	19.0	14.0	14.0	9.0	7.0	17.0	27.0	32.0	32.0	30.0	31.0	32.0
16	19.0	17.0	14.0	7.0	8.0	17.0	25.0	31.0	---	34.0	---	29.0
17	19.0	17.0	12.0	6.0	5.0	18.0	26.0	33.0	32.0	34.0	29.0	31.0
18	23.0	16.0	14.0	5.0	6.0	19.0	26.0	30.0	32.0	35.0	29.0	30.0
19	23.0	20.0	12.0	3.0	7.0	19.0	23.0	27.0	32.0	32.0	32.0	30.0
20	23.0	19.0	10.0	3.0	6.0	23.0	21.0	26.0	34.0	30.0	34.0	---
21	23.0	15.0	9.0	---	6.0	22.0	23.0	26.0	32.0	31.0	30.0	26.0
22	21.0	17.0	6.0	4.0	7.0	22.0	25.0	27.0	28.0	30.0	28.0	25.0
23	20.0	17.0	10.0	7.0	14.0	21.0	27.0	29.0	34.0	27.5	32.0	24.0
24	19.0	15.0	10.0	6.0	14.0	20.0	27.0	26.0	28.0	31.5	29.0	24.0
25	22.0	15.0	7.0	7.0	14.0	18.0	25.0	27.0	33.0	32.0	32.0	29.0
26	24.0	13.0	7.0	7.0	12.0	19.0	24.0	27.0	31.0	30.0	31.0	22.0
27	20.0	14.0	7.0	5.0	14.0	17.0	25.0	27.0	32.0	33.0	29.0	23.0
28	22.0	14.0	7.0	4.0	15.0	20.0	28.0	30.0	29.0	30.0	33.0	27.0
29	20.0	11.0	10.0	5.0	---	18.0	29.0	20.0	28.0	30.0	30.0	28.0
30	23.0	12.0	11.0	5.0	---	20.0	28.0	26.0	28.0	32.0	29.0	31.0
31	24.0	---	13.0	5.0	---	24.0	---	22.0	---	30.0	28.0	---
MEAN	22.5	16.0	11.0	7.0	8.0	17.0	24.5	26.5	29.5	31.5	29.5	28.0

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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	41			43	27	3.1	31	23	1.9
2	43			43	27	3.1	31	61	5.1
3	46			43	27	3.1	29	72	5.6
4	49			41	19	2.1	30	29	2.3
5	49			40	28	3.0	31	29	2.4
6	49			36	15	1.5	29	18	1.4
7	43			35	14	1.3	29	23	1.8
8	41			36	22	2.1	31	36	3.0
9	41			43	12	1.4	33	19	1.7
10	41			41	11	1.2	36	27	2.6
11	41			41	30	3.3	32	49	4.2
12	43			54	37	5.4	27	34	2.5
13	43			55	16	2.4	30	32	2.6
14	43			55	14	2.1	28	28	2.1
15	43			60	50	8.1	24	51	3.3
16	43			52	34	4.8	20	99	5.3
17	41			49	17	2.2	18	159	7.7
18	41			44	12	1.4	14	61	2.3
19	41			42	14	1.6	12	62	2.0
20	42			42	15	1.7	11	65	1.9
21	47			38	9	.92	10	85	2.3
22	49			36	8	.78	9.9	159	4.3
23	47			36	34	3.3	10	117	3.2
24	49			36	35	3.4	9.1	128	3.1
25	49			32	15	1.3	8.4	98	2.2
26	47			30	12	.97	8.4	118	2.7
27	45			36	55	5.3	10	124	3.3
28	44			35	32	3.0	19	146	7.5
29	42			---	---	---	17	186	8.5
30	41			---	---	---	15	191	7.7
31	41			---	---	---	19	216	11

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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	19	115	5.9	5.0	19	.26	199	200	107
2	16	105	4.5	66	50	8.9	107	140	40
3	15	70	2.8	666	359	664	229	160	99
4	18	260	13	227	142	87	145	113	44
5	18	107	5.2	98	48	13	79	107	23
6	15	48	1.9	65	53	9.3	62	98	16
7	14	118	4.5	905	1770	6480	178	57	27
8	11	31	.92	192	800	415	216	33	19
9	11	62	1.8	62	220	37	101	54	15
10	27	106	7.7	42	55	6.2	70	50	9.5
11	49	46	6.1	48	84	11	57	42	6.5
12	58	66	10	52	82	12	48	60	7.8
13	44	46	5.5	57	85	13	37	54	5.4
14	33	61	5.4	47	80	10	31	86	7.2
15	26	68	4.8	37	74	7.4	28	41	3.1
16	19	78	4.0	36	110	11	21	81	4.6
17	17	66	3.0	29	125	9.8	17	50	2.3
18	16	66	2.9	24	115	7.5	22	83	4.9
19	19	46	2.4	26	125	8.8	22	77	4.6
20	19	73	3.7	25	449	30	19	90	4.6
21	18	88	4.3	34	713	65	16	64	2.8
22	16	52	2.2	145	1280	501	13	60	2.1
23	13	48	1.7	93	419	105	9.2	88	2.2
24	11	34	1.0	63	1250	213	6.9	35	.65
25	10	49	1.3	46	234	29	6.5	86	1.5
26	11	84	2.5	36	167	16	7.8	90	1.9
27	10	52	1.4	35	78	7.4	12	102	3.3
28	8.3	64	1.4	42	56	6.4	14	67	2.5
29	6.1	32	.53	1600	2710	12900	9.8	59	1.6
30	4.6	37	.46	333	575	555	7.8	70	1.5
31	---	---	---	540	495	845	---	---	---

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	7.4	41	.82	22	85	5.0	48	35	4.5
2	6.9	42	.78	28	94	7.1	35	26	2.5
3	5.1	43	.59	4350	2930	68200	28	24	1.8
4	5.4	50	.73	1750	1590	9240	27	31	2.3
5	12	48	1.6	306	380	314	37	34	3.4
6	13	67	2.4	143	100	39	44	40	4.8
7	11	60	1.8	82	79	17	44	28	3.3
8	7.5	42	.85	58	34	5.3	50	43	5.8
9	3.4	50	.46	46	28	3.5	46	14	1.7
10	1.0	45	.12	39	30	3.2	58	64	10
11	4.9	46	.61	35	14	1.3	58	62	9.7
12	16	62	2.7	53	25	3.6	51	56	7.7
13	15	53	2.1	39	27	2.8	40	12	1.3
14	21	42	2.4	35	49	4.6	38	23	2.4
15	24	38	2.5	31	28	2.3	43	31	3.6
16	23	42	2.6	28	40	3.0	34	14	1.4
17	20	38	2.1	27	32	2.3	30	25	2.0
18	23	76	4.7	25	23	1.6	25	78	5.3
19	18	79	3.8	23	14	.87	29	40	3.1
20	15	108	4.4	24	20	1.3	31	64	5.4
21	12	84	2.7	23	20	1.2	29	48	3.8
22	12	98	3.2	24	25	1.6	27	44	3.2
23	14	92	3.5	21	62	3.5	27	20	1.5
24	16	88	3.8	18	25	1.2	29	31	2.4
25	29	78	6.1	26	78	5.5	31	25	2.1
26	30	58	4.7	27	28	2.0	31	25	2.1
27	17	66	3.0	34	29	2.7	36	59	5.7
28	10	86	2.3	36	36	3.5	36	25	2.4
29	6.6	95	1.7	62	28	4.7	35	27	2.6
30	6.6	109	1.9	52	54	7.6	39	27	2.8
31	8.7	38	.89	42	50	5.7	---	---	---
YEAR	23924.3		10193A.11						

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

LOCATION.--Lat 31°29'37", long 99°34'25", Coleman County (revised), 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 (Texas 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 a combined detention capacity of 54,040 acre-ft (66.6 hm³). These structures control runoff from 260 mi² (673 km²).

AVERAGE DISCHARGE.--10 years (water years 1969-78), 225 ft³/s (6.372 m³/s), 163,000 acre-ft/yr (201 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 (10,1000 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, 35,700 ft³/s (1,010 m³/s) Aug. 4, gage height, 22.50 ft (6.858 m); minimum, 1.6 ft³/s (0.045 m³/s) July 17.

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	23	75	68	61	73	57	28	12	482	8.5	14	100
2	21	68	68	64	73	58	28	12	258	13	34	93
3	21	68	69	64	74	57	28	351	1980	16	6250	100
4	23	67	66	64	74	57	31	828	499	12	28000	85
5	24	74	62	64	74	55	29	350	245	10	7540	77
6	26	78	66	66	72	54	26	203	182	8.3	1460	68
7	48	84	64	68	73	56	25	550	142	6.2	625	77
8	59	88	63	68	74	56	29	1730	131	5.1	406	97
9	57	72	64	67	93	54	29	449	279	4.5	300	90
10	55	66	64	66	86	54	38	210	165	4.0	239	96
11	58	71	64	64	82	54	32	142	119	9.5	196	83
12	60	76	60	64	109	61	27	110	96	8.9	172	93
13	56	83	59	61	106	58	59	95	83	6.8	155	91
14	50	81	63	61	109	54	100	87	72	5.0	162	81
15	51	71	64	61	128	48	82	82	59	3.8	138	72
16	53	68	60	63	122	47	62	78	50	2.6	120	65
17	50	67	57	64	127	45	49	65	46	2.8	106	62
18	50	67	56	64	115	41	40	58	40	16	98	56
19	46	71	56	64	103	35	31	51	33	21	90	48
20	48	70	56	64	89	33	25	53	27	21	86	42
21	50	71	54	64	83	30	23	67	30	20	82	41
22	93	66	55	65	82	27	23	66	32	20	78	43
23	144	63	52	72	78	22	26	88	30	18	76	43
24	150	63	49	76	73	21	25	137	26	18	72	42
25	152	64	46	74	70	20	23	137	23	15	69	41
26	142	64	46	75	69	19	19	114	20	13	64	40
27	122	63	47	74	64	20	16	90	16	12	58	44
28	105	63	51	74	59	20	13	76	14	24	62	48
29	94	63	59	74	---	18	12	2830	12	35	75	49
30	88	64	59	74	---	18	11	776	11	26	81	51
31	83	---	59	74	---	19	---	373	---	19	97	---
TOTAL	2102	2109	1826	2078	2434	1268	989	10270	5202	405.0	47005	2018
MEAN	67.8	70.3	58.9	67.0	86.9	40.9	33.0	331	173	13.1	1516	67.3
MAX	152	88	69	76	128	61	100	2830	1980	35	28000	100
MIN	21	63	46	61	59	18	11	12	11	2.6	14	40
AC-FT	4170	4180	3620	4120	4830	2520	1960	20370	10320	803	93230	4000

CAL YR 1977 TOTAL 83712.0 MEAN 229 MAX 3050 MIN 21 AC-FT 166000
WTR YR 1978 TOTAL 77706.0 MEAN 213 MAX 28000 MIN 2.6 AC-FT 154100

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 current year.

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

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, 2,910 micromhos May 2; minimum daily, 291 micromhos Aug. 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
17...	1520	50	1580	8.2	20.0	15	9.2	105	1.1	180	84	6300
NOV												
09...	1350	72	2000	7.5	15.5	--	--	--	--	--	--	--
DEC												
22...	1430	56	2340	8.0	8.0	--	--	--	--	--	--	--
MAR												
30...	1200	50	2560	8.0	20.0	--	--	--	--	--	--	--
APR												
30...	1100	29	2860	--	20.0	--	--	--	--	--	--	--
MAY												
31...	1100	260	692	--	25.0	--	--	--	--	--	--	--
JUN												
01...	0830	530	552	--	24.5	--	--	--	--	--	--	--
JUL												
12...	1045	9.2	1690	--	28.0	--	--	--	--	--	--	--
AUG												
04...	1350	32100	276	--	23.0	--	--	--	--	--	--	--

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT												
17...	500	350	110	55	140	2.7	4.9	190	0	220	290	.6
NOV												
09...	650	540	140	73	170	2.9	5.2	140	0	350	370	.6
DEC												
22...	750	580	170	80	210	3.3	4.9	210	0	350	490	.5
MAR												
30...	820	680	180	89	230	3.5	6.0	160	0	480	480	.6
APR												
30...	950	830	200	110	270	3.8	8.1	150	0	510	590	.6
MAY												
31...	200	100	58	14	55	1.7	5.1	120	0	78	100	.4
JUN												
01...	170	77	49	11	36	1.2	4.8	110	0	68	72	.3
JUL												
12...	470	350	110	47	170	3.4	7.2	150	0	240	330	.5
AUG												
04...	110	14	36	5.4	9.3	.4	4.3	120	0	17	15	.3

08136700 COLORADO RIVER NEAR STACY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, 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 17...	20	1010	935	1.6	.02	1.6	1.1	.03	3.6	81	11	93
NOV 09...	14	--	1190	--	--	--	--	--	--	--	--	--
DEC 22...	12	--	1420	--	--	--	--	--	--	--	--	--
MAR 30...	3.8	--	1550	--	--	--	--	--	--	--	--	--
APR 30...	9.0	--	1770	--	--	--	--	--	--	--	--	--
MAY 31...	11	--	381	--	--	--	--	--	--	--	--	--
JUN 01...	11	--	306	--	--	--	--	--	--	--	--	--
JUL 12...	1.9	--	981	--	--	--	--	--	--	--	--	--
AUG 04...	8.2	--	155	--	--	--	--	--	--	--	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT 17...	1520	3	0	3	300	100	200	<10	<10	0

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
OCT 17...	10	10	0	<50	<50	0	20	7	13	270

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...	130	<100	<99	1	10	6	4	.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 17...	3	0	3	<10	<10	0	10	0	30

08136700 COLORADO RIVER NEAR STACY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	2102	1690	990	5610	310	1740	230	1310	480
NOV. 1977.....	2109	2030	1200	6850	380	2170	300	1710	620
DEC. 1977.....	1826	2260	1350	6640	430	2110	370	1810	700
JAN. 1978.....	2078	2280	1360	7620	430	2430	370	2100	710
FEB. 1978.....	2434	2340	1400	9180	450	2930	390	2570	730
MAR. 1978.....	1268	2400	1440	4920	460	1570	410	1410	760
APR. 1978.....	989	2450	1470	3920	470	1250	430	1140	780
MAY 1978.....	10270	1070	620	17100	180	4850	140	3930	240
JUNE 1978.....	5202	566	320	4460	68	958	53	742	190
JULY 1978.....	404	1790	1050	1150	330	359	250	269	520
AUG. 1978.....	47005	407	230	28800	39	4990	33	4220	140
SEPT 1978.....	2018	1640	950	5190	300	1610	220	1200	460
TOTAL	77705.93	**	**	101000	**	27000	**	22400	**
WTD.AVG.	212.89	836	490	**	130	**	110	**	150

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1490	2080	2170	2230	2270	2450	2500	2900	526	1520	1920	1250
2	1500	1970	2180	2220	2370	2400	2490	2910	771	1540	1870	1290
3	1510	1930	2190	2220	2370	2410	2480	2750	362	1550	850	1320
4	1510	1900	2200	2210	2320	2390	2420	2500	355	1560	291	1360
5	1520	1960	2210	2230	2310	2370	2430	2090	358	1580	320	1380
6	1510	1980	2200	2210	2320	2380	2450	1880	370	1590	370	1390
7	1520	2000	2210	2250	2300	2360	2440	1550	432	1530	416	1400
8	1530	2020	2240	2260	2280	2350	2430	1230	518	1630	489	1420
9	1530	2000	2250	2250	2200	2370	2400	842	660	1640	540	1440
10	1540	2020	2150	2260	2270	2380	2380	727	857	1660	588	1500
11	1520	2000	2200	2280	2300	2370	2360	726	940	1670	630	1560
12	1530	1980	2230	2270	2190	2350	2340	738	1110	1690	664	1600
13	1550	1970	2250	2280	2200	2360	2320	750	1140	1630	700	1700
14	1570	1980	2240	2290	2220	2370	2370	758	1150	1590	729	1800
15	1560	1970	2250	2300	2200	2380	2300	765	1160	1730	772	1840
16	1580	2010	2270	2280	2240	2390	2340	768	1180	1760	802	1880
17	1600	2020	2290	2290	2290	2400	2380	750	1100	1790	842	1870
18	1640	2030	2310	2290	2340	2410	2390	755	1150	1680	875	1860
19	1670	2060	2330	2310	2400	2440	2420	760	1210	1650	907	1890
20	1690	2060	2350	2320	2550	2450	2470	750	1230	1750	935	1880
21	1710	2070	2300	2300	2490	2460	2530	735	1250	1880	961	1890
22	1500	2080	2360	2290	2510	2470	2590	731	1310	1900	987	1930
23	1210	2090	2330	2260	2520	2460	2650	773	1350	1920	1000	1950
24	1770	2100	2350	2240	2490	2470	2720	904	1380	1950	1020	1940
25	1850	2110	2330	2290	2470	2480	2700	1040	1410	1940	1050	1950
26	1820	2110	2320	2300	2460	2480	2800	1030	1440	1960	1070	1980
27	2190	2140	2320	2320	2450	2470	2810	1120	1460	1950	1100	1990
28	1860	2160	2310	2340	2450	2480	2820	1150	1470	1960	1120	2000
29	1800	2150	2290	2320	---	2470	2820	363	1490	1910	1150	1980
30	1950	2150	2280	2310	---	2460	2860	755	1520	1930	1160	1970
31	2140	---	2220	2290	---	2490	---	699	---	1940	1170	---
MEAN	1640	2040	2260	2270	2350	2420	2510	1170	1020	1740	881	1710

08136700 COLORADO RIVER NEAR STACY, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	20.0	10.0	---	8.0	8.0	15.0	---	25.0	25.0	28.0	25.0
2	---	15.0	10.0	5.0	---	15.0	---	15.0	26.0	---	24.0	25.0
3	20.0	20.0	10.0	5.0	8.0	---	15.0	10.0	24.0	32.0	20.5	---
4	20.0	15.0	---	6.0	10.0	5.0	20.0	15.0	---	---	23.0	30.0
5	26.5	20.0	10.0	10.0	---	---	20.0	20.0	20.0	30.0	---	28.0
6	21.0	---	10.0	10.0	---	8.0	20.0	20.0	20.0	28.0	22.0	26.0
7	21.0	18.0	15.0	8.0	---	---	20.0	---	20.0	32.0	24.0	26.0
8	20.0	18.0	15.0	---	---	---	25.0	20.0	25.0	25.0	20.0	24.0
9	---	15.0	10.0	5.0	---	10.0	---	15.0	25.0	---	28.0	25.0
10	21.0	10.0	15.0	---	8.0	10.0	20.0	20.0	20.0	22.0	30.0	25.0
11	20.0	10.0	---	---	---	12.0	18.0	20.0	---	---	20.0	26.0
12	20.0	15.0	15.0	---	---	---	20.0	25.0	25.0	---	22.0	28.0
13	19.0	---	15.0	10.0	8.0	10.0	18.0	25.0	30.0	---	---	28.0
14	20.0	15.0	15.0	8.0	7.0	15.0	20.0	---	30.0	30.0	30.0	25.0
15	20.0	20.0	12.0	---	---	8.0	20.0	25.0	30.0	28.0	32.0	30.0
16	---	20.0	---	---	---	15.0	---	15.0	28.0	---	30.0	29.0
17	20.0	15.0	10.0	8.0	---	15.0	20.0	20.0	25.0	---	28.0	28.0
18	30.5	15.0	---	---	8.0	10.0	22.0	25.0	---	---	28.0	26.0
19	30.0	20.0	10.0	---	---	---	20.0	25.0	30.0	---	26.0	28.0
20	---	---	10.0	---	8.0	20.0	20.0	22.0	30.0	---	---	---
21	20.0	15.0	8.0	---	8.0	10.0	18.0	---	28.0	30.0	28.0	20.0
22	20.0	15.0	8.0	---	8.0	20.0	20.0	27.0	30.0	---	30.0	22.0
23	---	20.0	10.0	---	10.0	20.0	---	25.0	25.0	---	28.0	23.0
24	30.0	---	10.0	---	10.0	15.0	25.0	28.0	30.0	30.0	25.0	---
25	30.0	15.0	---	8.0	12.0	---	20.0	28.0	---	---	28.0	28.0
26	30.0	20.0	10.0	8.0	---	20.0	18.0	20.0	---	32.0	28.0	20.0
27	25.0	---	6.0	---	12.0	20.0	15.0	25.0	28.0	---	---	18.0
28	20.0	10.0	8.0	5.0	10.0	10.0	20.0	---	24.0	34.0	28.0	22.0
29	20.0	---	10.0	---	---	8.0	15.0	20.0	28.0	---	30.0	18.0
30	---	10.0	10.0	---	---	20.0	20.0	25.0	28.0	---	26.0	18.0
31	25.0	---	10.0	---	---	15.0	---	25.0	---	32.0	28.0	---
MEAN	23.0	16.0	11.0	7.5	9.0	13.5	19.5	21.5	26.0	29.5	26.5	25.0

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, municipal supply, and oilfield operation. Flow is affected by reservoirs upstream (see stations 08126500 and 08136000) and at times by discharge from flood-detention pools of 85 floodwater-retarding structures with combined detention 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); 10 years (water years 1969-78) partially regulated, 266 ft³/s (7.533 m³/s), 192,700 acre-ft/yr (238 hm³/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,600 ft³/s (838 m³/s) Aug. 5, gage height, 31.88 ft (9.717 m), no other peak above base of 12,000 ft³/s (340 m³/s); no flow part of each day Aug. 1, 2.

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	30	65	56	51	62	50	15	14	411	9.3	.01	54
2	28	58	57	49	61	47	15	13	532	7.9	16	167
3	22	54	57	53	59	44	14	10	2120	7.0	1060	133
4	21	52	58	55	59	46	16	344	1530	6.0	18100	75
5	18	52	56	53	59	45	21	627	472	5.1	19500	66
6	18	49	54	54	59	44	22	337	263	4.0	2770	56
7	19	47	54	55	63	46	23	196	190	3.1	1020	53
8	21	61	54	55	62	45	22	1220	154	2.2	621	299
9	27	59	50	55	70	45	21	911	111	1.3	422	202
10	45	57	49	54	77	46	28	424	255	.59	389	110
11	45	52	51	54	76	44	35	216	170	.38	336	83
12	44	51	51	52	81	42	30	141	113	.35	163	78
13	46	52	51	51	90	43	28	101	86	.30	131	67
14	48	60	51	50	95	46	24	77	71	.20	108	72
15	45	67	51	51	90	47	28	69	61	.10	105	68
16	41	63	53	53	104	42	70	62	53	.07	94	61
17	41	59	52	53	108	40	58	62	45	.04	77	54
18	42	56	51	55	109	38	47	55	38	.04	63	49
19	40	54	48	54	100	37	39	45	34	.03	55	48
20	40	55	46	54	84	35	33	68	31	.02	49	46
21	38	57	46	55	75	33	28	50	27	.04	45	41
22	46	58	46	57	67	30	24	48	23	.03	42	38
23	81	56	45	60	63	28	22	49	20	.03	39	37
24	103	55	46	62	61	26	21	48	18	.03	36	38
25	148	54	45	64	57	23	19	87	17	.03	33	41
26	126	55	45	65	55	20	20	106	17	.03	32	41
27	131	54	41	63	53	19	20	103	16	.02	31	41
28	109	54	40	63	52	18	19	111	14	.02	31	42
29	90	58	41	64	---	17	17	1040	12	.01	93	43
30	78	58	46	61	---	16	16	2060	10	.01	77	46
31	71	---	53	61	---	16	---	644	---	.01	60	---
TOTAL	1702	1682	1544	1736	2051	1118	795	9338	6914	48.28	45598.01	2249
MEAN	54.9	56.1	49.8	56.0	73.3	36.1	26.5	301	230	1.56	1471	75.0
MAX	148	67	58	65	109	50	70	2060	2120	9.3	19500	299
MIN	18	47	40	49	52	16	14	10	10	.01	.01	37
AC-FT	3380	3340	3060	3440	4070	2220	1580	18520	13710	96	90440	4460

CAL YR 1977 TOTAL 111409.00 MEAN 305 MAX 6190 MIN 18 AC-FT 221000
WTR YR 1978 TOTAL 74775.29 MEAN 205 MAX 19500 MIN .01 AC-FT 148300

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 1977 TO SEPTEMBER 1978

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 24...	1530	111	1490	7.7	22.0	440	310	88	54	150
DEC 05...	1230	57	2040	7.9	14.5	630	480	130	74	180
JAN 09...	1245	55	2370	7.7	9.0	770	610	170	83	220
FEB 21...	1415	74	2190	7.7	8.0	730	580	170	75	190
MAR 27...	1240	19	2450	--	19.0	810	690	170	94	220
MAY 08...	1710	2190	2010	--	25.0	610	450	140	63	170
JUN 12...	1210	114	434	--	29.0	140	44	43	8.6	23
JUL 24...	1300	.03	953	--	32.5	280	170	74	24	78
SEP 05...	1430	68	836	--	29.0	260	150	70	21	73

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 24...	3.1	5.8	160	0	210	290	.6	18	895
DEC 05...	3.1	5.4	180	0	330	390	.6	13	1210
JAN 09...	3.5	5.1	190	0	350	490	.5	8.1	1420
FEB 21...	3.1	4.3	190	0	350	420	.5	7.8	1310
MAR 27...	3.4	5.2	150	0	430	480	.5	1.9	1480
MAY 08...	3.0	7.5	200	0	300	360	.6	12	1150
JUN 12...	.8	4.0	120	0	41	44	.2	9.8	233
JUL 24...	2.0	7.0	140	0	130	160	.5	15	558
SEP 05...	2.0	5.8	130	0	130	130	.3	12	506

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 in (1,067 mm) concrete outlet pipe. A 14 in (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 in (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, 7,420 acre-ft (9.15 hm³) Aug. 4, elevation, 1,875.5 ft (571.65 m); minimum, 1,460 acre-ft (1.80 hm³) Aug. 1, 2,, elevation, 1,858.8 ft (566.56 m).

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

1,858.0	1,310	1,870.0	4,860
1,864.0	2,740	1,876.0	7,690

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2770	2620	2480	2370	2290	2290	2190	2040	1920	1710	1460	5720
2	2740	2590	2480	2370	2290	2290	2190	2040	1920	1710	1460	5670
3	2740	2590	2480	2340	2290	2290	2190	2040	1920	1690	2740	5670
4	2740	2590	2480	2340	2290	2290	2160	2010	1920	1690	7420	5670
5	2710	2590	2480	2340	2270	2290	2160	2010	1900	1690	6660	5630
6	2710	2590	2480	2340	2270	2290	2160	2010	1900	1670	6320	5630
7	2710	2560	2450	2340	2290	2290	2140	2010	1900	1670	6230	5720
8	2710	2560	2450	2340	2290	2290	2140	1990	1900	1670	5990	5720
9	2680	2560	2450	2340	2320	2270	2140	1990	1870	1650	5900	5670
10	2680	2560	2450	2340	2340	2270	2160	1990	1870	1650	5860	5670
11	2680	2560	2450	2340	2320	2270	2160	1990	1870	1650	5810	5670
12	2680	2560	2450	2340	2320	2270	2160	1990	1870	1630	5760	5670
13	2650	2560	2450	2320	2320	2270	2140	1970	1850	1630	5720	5670
14	2650	2540	2430	2320	2320	2270	2140	1970	1850	1610	5720	5670
15	2650	2540	2430	2320	2320	2270	2140	1970	1850	1610	5720	5670
16	2620	2540	2430	2320	2320	2270	2140	1970	1850	1590	5720	5670
17	2620	2540	2430	2320	2320	2240	2110	1970	1830	1590	5670	5670
18	2620	2540	2430	2320	2340	2240	2110	1940	1830	1590	5670	5630
19	2620	2540	2400	2320	2320	2240	2110	1940	1800	1570	5670	5630
20	2620	2510	2400	2320	2320	2240	2110	1940	1800	1570	5670	5630
21	2590	2510	2400	2320	2320	2240	2090	1940	1800	1540	5670	5630
22	2680	2510	2400	2290	2320	2240	2090	1940	1780	1540	5760	5630
23	2650	2510	2400	2290	2320	2240	2090	1920	1780	1540	5760	5590
24	2650	2510	2400	2290	2320	2240	2090	1920	1780	1520	5760	5590
25	2620	2510	2400	2290	2320	2210	2060	1920	1760	1520	5760	5590
26	2620	2510	2400	2290	2320	2210	2060	1900	1760	1520	5760	5540
27	2620	2510	2370	2290	2320	2210	2060	1900	1740	1500	5720	5540
28	2620	2510	2370	2290	2290	2210	2060	1900	1740	1500	5720	5540
29	2620	2510	2370	2290	---	2210	2040	1940	1740	1480	5720	5540
30	2620	2510	2370	2290	---	2210	2040	1940	1710	1480	5720	5500
31	2620	---	2370	2290	---	2190	---	1940	---	1480	5720	---
MAX	2770	2620	2480	2370	2340	2290	2190	2040	1920	1710	7420	5720
MIN	2590	2510	2370	2290	2270	2190	2040	1900	1710	1480	1460	5500
(†)	1863.6	1863.2	1862.7	1862.4	1862.4	1862.0	1861.4	1861.0	1860.0	1858.9	1872.0	1871.5
(‡)	-150	-110	-140	-80	0	-100	-150	-100	-230	-230	+4240	-220
(††)	29	22	18	25	21	27	36	39	43	48	31	30

CAL YR 1977 MAX 3580 MIN 2370 ‡ -830 †† 356
WTR YR 1978 MAX 7420 MIN 1460 ‡ +2730 †† 369

† 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 1977 TO SEPTEMBER 1978

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
MAY 22...	1240	1490	25.0	280	170	68	27	200	5.2

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)
MAY 22...	13	140	0	140	320	.5	2.4	840

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 current year.

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.--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)
Aug. 3	2100	7,480	212	20.37	6.209	Sept. 4	2200	1,100	31.2	5.29	1.612
Aug. 4	2330	*16,200	459	24.90	7.590						

Minimum discharge, no flow for many days.

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	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.3
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	79	2.4
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3840	2.7
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	5700	129
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6160	114
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1620	26
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1210	124
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1020	184
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	899	45
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	822	23
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	741	19
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	626	14
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	390	11
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	190	8.1
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	134	6.2
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	101	5.0
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	45	4.4
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	27	3.1
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	21	2.7
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	18	1.9
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	14	1.4
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	14	1.3
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	12	.81
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	8.6	.44
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.3	.24
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.6	.24
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.6	.37
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.0	.35
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	18	.24
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	5.0	.22
31	.00	---	.00	.00	---	.00	---	.00	---	.00	2.7	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	23738.80	733.41
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	766	24.4
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6160	184
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.22
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	47090	1450

CAL YR 1977 TOTAL 4305.16 MEAN 11.8 MAX 771 MIN .00 AC-FT 8540
WTR YR 1978 TOTAL 24472.21 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 970 acre-ft (1.20 hm³) from Lake Coleman for municipal use. Two observations of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years, 23.9 ft³/s (0.677 m³/s), 17,310 acre-ft/yr (21.3 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, 1,830 ft³/s (51.8 m³/s) Aug. 4, gage height, 5.77 ft (1.759 m); no flow for many days.

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	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.2
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.64
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	31	.26
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	967	.13
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1770	.46
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1740	.31
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1730	.44
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1540	3.8
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	994	3.4
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	719	2.4
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	577	3.9
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	469	3.1
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	364	2.2
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	278	1.3
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	220	.95
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	176	.79
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	144	.51
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	109	.16
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	82	.07
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	64	.06
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	49	.06
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	39	.04
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	31	.03
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	23	.19
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	17	.58
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	12	.54
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	8.4	1.3
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.6	1.5
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	6.8	1.5
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	6.1	.98
31	.00	---	.00	.00	---	.00	---	.00	---	.00	2.7	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	12174.60	32.80
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	393	1.09
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1770	3.9
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	24150	65

CAL YR 1977 TOTAL 312.65 MEAN .86 MAX 72 MIN .00 AC-FT 620
WTR YR 1978 TOTAL 12207.40 MEAN 33.4 MAX 1770 MIN .00 AC-FT 24210

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 1968. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	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 the 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, 3,860 acre-ft (4.76 hm³) Oct. 1, elevation, 1,888.96 ft (575.755 m); minimum, 2,340 acre-ft (2.89 hm³) Aug. 2, elevation, 1,882.52 ft (573.792 m).

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

1,882.0	2,240	1,888.0	3,600
1,884.0	2,630	1,890.0	4,160
1,886.0	3,090		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3850	3710	3550	3380	3280	3240	3110	2940	2820	2590	2540	3350
2	3840	3700	3540	3380	3280	3240	3100	2950	2820	2590	2550	3360
3	3820	3690	3530	3370	3280	3240	3100	2940	2820	2580	3490	3340
4	3810	3680	3530	3370	3270	3240	3100	2930	2810	2570	3550	3350
5	3800	3680	3530	3370	3270	3230	3090	2940	2810	2560	3570	3340
6	3790	3670	3520	3360	3270	3220	3090	2940	2800	2550	3550	3330
7	3780	3670	3510	3360	3280	3220	3080	2930	2800	2540	3550	3340
8	3780	3660	3500	3350	3280	3220	3080	2920	2800	2530	3540	3340
9	3760	3660	3500	3340	3280	3220	3080	2920	2790	2520	3530	3330
10	3750	3650	3490	3340	3280	3210	3080	2910	2780	2510	3520	3330
11	3740	3650	3490	3340	3280	3210	3080	2910	2770	2500	3520	3320
12	3730	3640	3480	3330	3290	3210	3070	2910	2770	2490	3510	3320
13	3730	3640	3480	3330	3290	3200	3070	2900	2760	2480	3500	3310
14	3720	3630	3470	3320	3280	3200	3060	2900	2750	2470	3490	3310
15	3710	3630	3470	3320	3280	3190	3060	2890	2750	2470	3480	3300
16	3710	3620	3460	3320	3280	3180	3050	2880	2730	2460	3470	3300
17	3700	3620	3450	3320	3280	3180	3050	2870	2720	2450	3460	3290
18	3690	3610	3450	3320	3270	3170	3040	2860	2720	2440	3460	3280
19	3690	3610	3440	3310	3270	3170	3040	2860	2710	2420	3450	3270
20	3680	3600	3430	3310	3270	3170	3030	2860	2700	2410	3440	3260
21	3720	3600	3420	3310	3260	3160	3030	2870	2690	2390	3430	3250
22	3740	3590	3420	3300	3260	3160	3000	2870	2680	2390	3420	3250
23	3740	3580	3410	3310	3260	3150	3000	2860	2690	2390	3410	3250
24	3730	3580	3410	3300	3260	3150	3000	2850	2660	2390	3410	3250
25	3730	3580	3400	3300	3250	3140	2990	2850	2650	2380	3400	3240
26	3720	3570	3400	3300	3250	3140	2980	2840	2640	2370	3390	3250
27	3730	3570	3390	3290	3250	3140	2970	2840	2630	2370	3390	3250
28	3720	3570	3390	3290	3250	3130	2960	2840	2620	2370	3380	3240
29	3720	3560	3390	3290	---	3120	2960	2840	2610	2360	3380	3240
30	3720	3550	3390	3280	---	3120	2950	2840	2600	2350	3370	3230
31	3710	---	3390	3280	---	3120	---	2830	---	2340	3360	---
MAX	3850	3710	3550	3380	3290	3240	3110	2950	2820	2590	3570	3360
MIN	3680	3550	3390	3280	3250	3120	2950	2830	2600	2340	2540	3230
(†)	1888.44	1887.85	1887.20	1886.79	1886.65	1886.12	1885.42	1884.89	1883.85	1882.57	1887.09	1886.60
(‡)	-150	-160	-160	-110	-30	-130	-170	-120	-230	-260	+1020	-130
(††)	27	37	55	39	38	48	36	34	39	67	43	54

CAL YR 1977 MAX 5120 MIN 3390 ‡ -1180 †† 397
WTR YR 1978 MAX 3850 MIN 2340 ‡ -630 †† 517

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use by 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 1977 TO SEPTEMBER 1978

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
MAY 30...	0945	1520	26.0	390	260	83	45	150	3.3

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)
MAY 30...	7.5	160	0	76	350	.2	4.1	795

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 good. Flow regulated by Hords Creek Lake (station 08141000). One observation of water temperature was made during the year.

AVERAGE DISCHARGE.--31 years, 1.75 ft³/s (0.0496 m³/s), 1,270 acre-ft/yr (1.57 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 loca residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,900 ft³/s (53.8 m³/s) Aug. 3, gage height, 11.06 ft (3.371 m); no flow for many days.

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	.00	.12	.02	.02	.04	.03	.00	.00	.00	.00	.00
2	.00	.00	.12	.02	.02	.02	.03	.00	.00	.00	.00	.00
3	.00	.00	.15	.02	.02	.02	.02	.01	.00	.00	189	.00
4	.00	.00	.18	.02	.02	.02	.03	.00	.00	.00	.36	.00
5	.00	.00	.03	.02	.02	.02	.02	.00	.00	.00	.20	.00
6	.00	.00	.02	.02	.02	.03	.02	.00	.00	.00	.20	.00
7	.00	.00	.03	.02	.04	.04	.02	.00	.00	.00	.20	.00
8	.00	.00	.05	.02	.04	.04	.02	.00	.00	.00	.20	.00
9	.00	.00	.04	.02	.17	.03	.03	.00	.00	.00	.10	.00
10	.00	.00	.04	.02	.08	.03	.04	.00	.00	.00	.10	.00
11	.00	.02	.04	.02	.05	.03	.02	.00	.00	.00	.10	.00
12	.00	.05	.05	.02	.39	.03	.02	.00	.00	.00	.10	.00
13	.00	.07	.04	.02	.11	.03	.02	.00	.00	.00	.10	.00
14	.00	.09	.04	.02	.06	.03	.01	.00	.00	.00	.00	.00
15	.00	.09	.03	.02	.06	.03	.01	.00	.00	.00	.00	.00
16	.00	.09	.03	.03	.06	.02	.01	.00	.00	.00	.00	.00
17	.00	.09	.02	.02	.06	.02	.01	.00	.00	.00	.00	.00
18	.00	.12	.02	.02	.06	.02	.01	.00	.00	.00	.00	.00
19	.00	.13	.03	.07	.05	.02	.01	.00	.00	.00	.00	.00
20	.00	.06	.03	.03	.03	.03	.01	.00	.00	.00	.00	.00
21	.00	.08	.03	.03	.03	.03	.01	.06	.00	.00	.00	.00
22	.04	.06	.03	.04	.03	.02	.00	.01	.00	.00	.00	.00
23	.00	.06	.02	.07	.02	.03	.00	.00	.00	.00	.00	.00
24	.00	.06	.02	.06	.03	.03	.00	.00	.00	.00	.00	.00
25	.00	.06	.02	.04	.02	.03	.00	.00	.00	.00	.00	.00
26	.00	.06	.02	.03	.04	.03	.00	.00	.00	.00	.00	.00
27	.00	.09	.02	.03	.03	.03	.00	.00	.00	.00	.00	.00
28	.00	.15	.02	.04	.03	.03	.00	.00	.00	.00	.00	.00
29	.00	.13	.03	.03	---	.03	.00	.00	.00	.00	.00	.00
30	.00	.12	.02	.02	---	.03	.00	.00	.00	.00	.00	.00
31	.00	---	.03	.02	---	.03	---	.00	---	.00	.00	---
TOTAL	.04	1.68	1.37	.88	1.61	.87	.40	.08	.00	.00	190.66	.00
MEAN	.001	.056	.044	.028	.058	.028	.013	.003	.000	.000	6.15	.000
MAX	.04	.15	.18	.07	.39	.04	.04	.06	.00	.00	189	.00
MIN	.00	.00	.02	.02	.02	.02	.00	.00	.00	.00	.00	.00
AC-FT	.08	3.3	2.7	1.7	3.2	1.7	.8	.2	.00	.00	378	.00

CAL YR 1977 TOTAL 86.09 MEAN .24 MAX 7.3 MIN .00 AC-FT 171
WTR YR 1978 TOTAL 197.59 MEAN .54 MAX 189 MIN .00 AC-FT 392

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 479 acre-ft (591,000 m^3) was diverted from canal above gage for irrigation, and of the total flow of canal passing gage, 7,130 acre-ft (8.79 hm^3) was used for municipal and industrial supply and 2,180 acre-ft (2.69 hm^3) was used for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--28 years, 26.5 ft^3/s (0.750 m^3/s), 19,200 acre-ft/yr (23.7 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	37	29	18	11	13	18	34	27	45	61	46
2	29	37	29	17	11	13	18	33	26	47	56	43
3	29	37	29	16	12	14	21	34	27	49	41	34
4	29	37	29	15	12	14	23	33	27	48	34	37
5	30	35	28	15	12	14	23	32	27	49	51	41
6	31	36	27	16	12	14	22	32	28	48	47	9.3
7	31	35	29	18	12	14	22	32	28	49	50	23
8	30	32	35	17	12	14	22	29	28	52	56	44
9	30	57	32	17	13	14	21	3.7	28	52	23	36
10	31	59	23	17	12	14	17	21	28	52	12	34
11	30	59	23	17	12	14	14	41	25	52	37	38
12	30	59	23	16	13	14	17	40	32	49	34	45
13	30	56	26	16	13	14	20	40	40	50	33	44
14	30	12	31	16	14	14	20	40	35	51	35	42
15	28	5.6	30	16	14	14	19	39	31	55	36	37
16	29	8.4	25	15	13	13	21	39	33	56	41	36
17	30	34	25	13	14	12	27	40	34	56	38	33
18	30	33	24	13	14	13	33	39	35	56	38	40
19	31	32	24	13	14	12	34	39	41	56	39	48
20	21	31	15	13	14	18	35	40	43	57	41	49
21	29	30	4.8	12	13	27	38	43	43	57	42	50
22	30	30	17	13	13	27	37	43	43	58	41	51
23	30	27	17	12	13	27	37	43	43	59	40	52
24	33	21	17	12	13	27	36	43	43	60	38	53
25	36	21	15	12	13	25	36	42	44	60	38	52
26	35	21	14	12	13	21	34	41	44	60	39	48
27	33	20	14	11	13	20	34	41	45	57	39	46
28	34	6.2	14	11	13	21	34	40	45	57	40	41
29	35	15	14	11	---	26	35	32	46	57	41	34
30	36	25	16	11	---	26	34	27	47	58	44	30
31	36	---	19	11	---	21	---	26	---	60	45	---
TOTAL	955	948.2	697.8	442	358	544	802	1101.7	1066	1672	1250	1216.3
MEAN	30.8	31.6	22.5	14.3	12.8	17.5	26.7	35.5	35.5	53.9	40.3	40.5
MAX	36	59	35	18	14	27	38	43	47	60	61	53
MIN	21	5.6	4.8	11	11	12	14	3.7	25	45	12	9.3
AC-FT	1890	1880	1380	877	710	1080	1590	2190	2110	3320	2480	2410

CAL YR 1977 TOTAL 8730.62 MEAN 23.9 MAX 59 MIN .00 AC-FT 17320
WTR YR 1978 TOTAL 11053.00 MEAN 30.3 MAX 61 MIN 3.7 AC-FT 21920

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 a on 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 and for municipal and industrial supply by the city of Brownwood (see station 08142500). Flow is affected at times by discharge from the flood-detention pools of 59 floodwater-retarding structures with a combined capacity of 73,310 acre-ft (90.4 hm³). These structures control runoff from 353 mi² (914 km²) in the Jim Ned Creek and Pecan Bayou drainage basins. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam	1,450.0	-
Crest of spillway	1,425.1	143,400
Lowest gated outlet to irrigation canal (invert)	1,406.0	46,510
Lowest gated outlet (invert)	1,330.0	-

COOPERATION.--Record of daily gage heights were furnished by Brown County Water Improvement District No. 1. Capacity table was furnished by the Corps of Engineers and by the Soil Conservation Service.

EXTREMES (at 1800) FOR PERIOD OF RECORD.--Maximum contents, 192,300 acre-ft (237 hm³) May 2, 1956, gage height, 1,431.4 ft (436.29 m); minimum, 11,900 acre-ft (14.7 hm³) July 15, 1934, gage height, 1,389.5 ft (423.52 m).

EXTREMES (at 1800) FOR CURRENT YEAR.--Maximum contents observed, 141,300 acre-ft (174 hm³) Sept. 9-14, gage height, 1,424.8 ft (434.28 m); minimum, 59,120 acre-ft (72.9 hm³) Aug. 2, gage height, 1,409.6 ft (429.65 m).

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

1,409.0	56,870
1,417.0	92,430
1,425.0	142,700

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 1800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85730	81790	79880	77530	76170	75270	74370	71280	68280	63780	59500	138500
2	85230	81790	79880	77530	75720	75270	73920	71280	67860	63780	59120	138500
3	85230	81790	79880	77070	75720	75270	73920	70850	67860	63380	62980	138500
4	84730	81790	79880	77070	75720	75270	73920	70850	67860	63380	79880	138500
5	84730	81310	79410	77070	75720	75270	73920	70850	67860	63380	100700	139200
6	84730	81310	79410	77070	75720	75270	73920	70420	67450	62980	110300	139200
7	84230	81310	79410	77070	75720	75270	73920	70420	67450	62980	116300	139200
8	84230	81790	79410	77070	75720	75270	73470	69990	67450	62590	121700	140600
9	84230	81790	78940	77070	75720	75270	73470	69990	67040	62590	126600	141300
10	84230	81790	78940	76620	75720	75270	73470	69560	67040	62200	130800	141300
11	83740	81310	78940	76620	75720	75270	73920	69560	67040	62200	132900	141300
12	83740	81310	78940	76620	76170	75270	73920	69560	67040	62200	135000	141300
13	83740	81310	78940	76620	76170	75270	73470	69130	66630	62200	137100	141300
14	83250	80830	78940	76620	76170	74820	73470	69130	66630	61810	137800	141300
15	83250	80830	78940	76620	76170	74820	73470	69130	66630	61810	137800	140600
16	83250	80830	78940	76620	76170	74820	73020	69130	66220	61810	138500	140600
17	82760	80830	78940	76620	76170	74820	73020	68700	66220	61420	138500	139900
18	82760	80830	78940	76620	76170	74820	73020	68700	66220	61420	138500	139900
19	82760	80830	78470	76170	75720	74370	72580	68700	65810	61030	138500	139900
20	82270	80830	78470	76170	75720	74370	72580	68700	65810	61030	138500	139900
21	82270	80350	78470	76170	75720	74370	72580	68700	65400	60640	138500	139200
22	82760	80350	78000	76170	75720	74370	72140	68700	65400	60260	138500	139200
23	82760	80350	78000	76170	75720	74370	72140	68700	64990	60260	138500	139200
24	82760	80350	78000	76170	75720	74820	71710	68280	64990	60260	138500	138500
25	82760	80350	77530	76170	75720	74820	71710	68280	64580	60260	137800	138500
26	82760	80350	77530	76170	75720	74820	71710	68280	64580	59880	137800	138500
27	82760	79880	77530	76170	75720	74370	71710	67860	64580	59880	137800	138500
28	82270	79880	77530	76170	75720	74370	71280	67860	64180	59880	137800	138500
29	82270	79880	77530	76170	---	74370	71280	68280	64180	59880	138500	138500
30	82270	79880	77530	76170	---	74370	71280	68280	64180	59500	138500	137800
31	82270	---	77530	76170	---	74370	---	68280	---	59500	138500	---
MAX	85730	81790	79880	77530	76170	75270	74370	71280	68280	63780	138500	141300
MIN	82270	79880	77530	76170	75720	74370	71280	67860	64180	59500	59120	137800
(†)	1415.0	1414.5	1414.0	1413.7	1413.6	1413.3	1412.6	1411.9	1410.9	1409.7	1424.4	1424.3
(‡)	-3960	-2390	-2350	-1360	-450	-1350	-3090	-3000	-4100	-4680	+79000	-700

CAL YR 1977 MAX 112100 MIN 77530 ‡ -11260
WTR YR 1978 MAX 141300 MIN 59120 ‡ +51570

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

08143000 LAKE BROWNWOOD NEAR BROWNWOOD, TX--Continued

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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
MAY 31...	1430	859	27.0	260	130	68	21	75	2.0

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)
MAY 31...	7.0	150	0	63	160	.2	4.6	473

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 deten- tion 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); 46 years (water years 1933-78) partially regulated, 123 ft³/s (3.483 m³/s), 89,110 acre-ft/yr (110 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.

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. 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 of contents in lake; data furnished by engineers of Brownwood County Water Improvement District No. 1).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 130 ft³/s (3.68 m³/s) May 11, gage height, 1.29 ft (0.393 m); no flow at times.

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	.45	1.5	3.6	4.0	3.0	2.4	.44	6.9	.00	.00	.00
2	.00	.48	2.3	3.0	3.6	2.9	2.3	1.1	7.5	.00	.00	.00
3	.00	.49	3.1	2.8	3.4	3.2	1.6	1.9	4.4	.00	.00	.00
4	.00	.44	3.2	2.9	3.2	2.8	.78	1.9	3.0	.00	21	.00
5	.00	.36	3.2	3.3	3.1	2.4	.46	1.6	1.9	.00	6.0	.00
6	.00	.42	3.7	3.7	2.9	2.6	.51	1.4	1.7	.00	3.3	.00
7	.00	.66	5.1	3.9	3.9	4.7	.48	1.5	2.0	.00	2.2	.01
8	.00	9.3	6.1	3.7	3.9	4.0	.32	1.5	4.2	.00	1.6	2.0
9	.00	9.2	5.3	2.9	4.4	3.2	.25	1.2	4.8	.00	1.2	4.2
10	.00	6.0	3.4	1.7	4.0	3.0	.68	.60	2.5	.00	1.2	3.1
11	.00	4.4	2.4	2.2	3.5	2.9	.55	13	1.5	.00	1.1	1.9
12	.00	3.6	1.3	3.1	5.6	2.7	.37	40	1.1	.00	.93	1.7
13	.00	3.3	.84	3.5	7.0	2.5	.25	6.8	1.3	.00	.82	1.5
14	.00	3.2	.68	3.3	4.8	2.5	.19	3.7	2.2	.00	.77	1.3
15	.00	3.2	1.1	3.3	4.0	2.4	.18	1.9	2.1	.00	.63	1.1
16	.00	3.1	1.0	3.8	3.9	2.2	.17	1.3	1.3	.00	.54	1.1
17	.00	2.4	.69	3.8	4.5	1.9	.14	1.0	.82	.00	.31	.91
18	.00	2.1	.96	3.4	4.3	1.8	.10	.95	.40	.00	.19	.60
19	.00	2.4	1.9	3.5	3.5	1.9	.09	.78	.20	.00	.16	.48
20	.00	3.1	2.5	3.1	3.2	2.2	.06	2.8	.09	.00	.10	.48
21	.00	2.7	2.7	3.3	2.7	3.0	.04	11	.03	.00	.06	.51
22	.00	1.8	2.4	3.9	2.3	3.2	.03	7.4	.01	.00	.06	.51
23	.00	1.7	2.5	3.9	2.3	3.8	.03	4.0	.00	.00	.01	.43
24	.00	2.2	2.9	3.9	2.3	7.8	.02	2.0	.00	.00	.00	.43
25	.00	2.4	3.0	4.0	2.8	4.6	.01	1.3	.00	.00	.00	.28
26	.00	2.7	2.8	3.6	2.5	3.0	.01	1.0	.00	.00	.00	.35
27	.01	4.9	2.7	3.5	2.4	2.7	.00	.94	.00	.00	.00	1.2
28	.05	5.0	2.8	3.5	2.8	2.6	.00	1.7	.00	.00	.00	1.9
29	.11	2.5	3.3	3.5	---	2.5	.01	12	.00	.00	.00	1.8
30	.20	1.4	3.5	3.5	---	2.5	.12	6.6	.00	.00	.00	1.4
31	.34	---	3.5	3.8	---	2.5	---	3.2	---	.00	.00	---
TOTAL	.71	85.90	82.37	104.9	100.8	93.0	12.15	136.51	49.95	.00	42.18	29.19
MEAN	.023	2.86	2.66	3.38	3.60	3.00	.41	4.40	1.67	.000	1.36	.97
MAX	.34	9.3	6.1	4.0	7.0	7.8	2.4	40	7.5	.00	21	4.2
MIN	.00	.36	.68	1.7	2.3	1.8	.00	.44	.00	.00	.00	.00
AC-FT	1.4	170	163	208	200	184	24	271	99	.00	84	58

CAL YR 1977 TOTAL 1576.92 MEAN 4.32 MAX 106 MIN .00 AC-FT 3130
WTR YR 1978 TOTAL 737.66 MEAN 2.02 MAX 40 MIN .00 AC-FT 1460

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 mi¶ (5,268 km¶).

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 mi¶ (370 km¶) 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.--11 years, 140 ft³/s (3.965 m³/s), 101,400 acre-ft/yr (125 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, 1,690 ft³/s (47.9 m³/s) Aug. 3, gage height, 6.50 ft (1.981 m); no flow July 7 to Aug. 2.

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	.45	2.6	14	10	8.8	12	7.3	2.9	26	.07	.00	4.3
2	.45	2.3	13	9.0	9.4	12	5.1	4.7	20	.23	.00	4.0
3	.45	1.5	9.9	8.9	12	12	7.7	4.1	30	3.1	958	2.8
4	.45	1.7	7.9	8.6	12	11	8.7	2.5	23	.10	225	3.9
5	.33	1.8	6.8	10	11	11	5.3	2.2	14	.04	72	5.9
6	.17	1.3	6.2	11	11	10	5.3	4.0	9.7	.01	32	4.2
7	.10	.90	7.2	9.8	11	12	3.9	5.1	8.7	.00	14	6.9
8	.19	2.8	9.4	7.6	12	18	3.0	5.9	9.8	.00	7.4	13
9	.55	32	8.6	8.8	23	19	6.2	4.1	11	.00	5.4	23
10	.87	30	7.7	8.8	23	15	8.3	3.0	10	.00	4.0	30
11	1.6	16	8.1	7.7	25	13	12	1.6	10	.00	3.7	16
12	2.7	9.9	8.3	9.4	21	12	20	1.3	9.2	.00	3.0	9.1
13	1.9	7.7	8.3	11	35	11	15	23	7.5	.00	2.1	9.1
14	1.1	6.5	6.9	12	35	11	14	24	11	.00	1.6	12
15	.70	6.2	6.7	12	23	11	13	11	2.8	.00	1.4	9.3
16	1.2	5.8	6.3	12	17	11	11	6.3	2.9	.00	1.4	7.3
17	2.2	4.1	5.5	12	17	11	7.7	3.6	3.1	.00	1.2	6.8
18	2.9	5.1	4.1	12	18	10	6.9	2.4	2.3	.00	1.1	5.8
19	3.0	7.3	5.9	12	20	10	4.2	.93	1.4	.00	1.1	5.5
20	3.0	7.4	6.5	12	17	9.4	2.6	.61	1.0	.00	1.2	4.9
21	2.1	6.7	6.1	12	16	9.1	2.0	.78	1.0	.00	1.3	4.9
22	1.7	5.8	5.5	12	14	7.0	2.2	8.1	1.0	.00	22	5.3
23	1.7	5.8	6.5	12	14	8.2	2.0	19	.81	.00	6.0	6.9
24	2.4	6.9	8.2	12	13	8.8	1.9	11	.61	.00	8.5	4.9
25	5.6	9.3	8.3	14	12	10	3.8	5.5	.46	.00	7.0	4.9
26	3.8	9.1	8.3	12	12	12	4.3	4.4	.35	.00	5.3	4.9
27	2.6	8.6	7.3	11	11	12	1.3	2.7	.31	.00	4.5	4.9
28	1.9	8.4	5.7	11	11	12	.74	2.6	.25	.00	3.8	5.4
29	1.7	9.2	6.0	10	---	14	.64	120	.20	.00	26	9.7
30	1.8	11	8.5	9.4	---	12	.70	132	.16	.00	23	13
31	2.4	---	9.3	8.8	---	10	---	45	---	.00	4.8	---
TOTAL	52.01	233.70	237.0	328.8	464.2	356.5	187.28	464.32	218.55	3.55	1447.80	248.6
MEAN	1.68	7.79	7.65	10.6	16.6	11.5	6.24	15.0	7.29	.11	46.7	8.29
MAX	5.6	32	14	14	35	19	20	132	30	3.1	958	30
MIN	.10	.90	4.1	7.6	8.8	7.0	.64	.61	.16	.00	.00	2.8
AC-FT	103	464	470	652	921	707	371	921	433	7.0	2870	493

CAL YR 1977 TOTAL 23808.49 MEAN 65.2 MAX 4520 MIN .10 AC-FT 47220
WTR YR 1978 TOTAL 4242.31 MEAN 11.6 MAX 958 MIN .00 AC-FT 8410

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (1967-70, 1972-78): 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, 2,230 micromhos May 14; minimum daily, 287 micromhos Aug. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
NOV										
02...	1545	2.6	1970	8.6	15.0	410	170	110	33	260
DEC										
05...	1500	6.2	1340	7.7	13.5	280	110	79	20	160
JAN										
09...	1530	8.8	1920	7.9	7.0	400	180	110	30	260
MAR										
27...	1605	13	1650	--	19.0	350	150	99	25	200
APR										
01...	1020	7.6	1600	--	19.0	350	150	99	26	200
MAY										
09...	0820	4.5	1810	--	22.0	370	130	100	28	230
JUN										
01...	2100	23	454	--	27.0	120	29	37	6.6	38
JUL										
03...	2030	.60	974	--	29.5	240	72	73	15	93
AUG										
03...	1100	1640	280	--	23.0	120	8	40	5.6	6.5

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV									
02...	5.6	14	260	14	130	420	.5	7.7	1120
DEC									
05...	4.2	11	210	0	89	260	.4	1.5	724
JAN									
09...	5.7	13	270	0	150	410	1.2	6.4	1110
MAR									
27...	4.7	11	240	0	120	340	.5	.6	914
APR									
01...	4.6	12	250	0	120	330	.5	1.1	912
MAY									
09...	5.2	13	290	0	100	360	.5	7.3	982
JUN									
01...	1.5	8.3	110	0	27	64	.2	7.1	242
JUL									
03...	2.6	10	210	0	71	160	.4	7.5	533
AUG									
03...	.3	4.1	140	0	15	7.4	.1	12	160

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	52	1710	960	134	360	50	120	17	360
NOV. 1977.....	233.7	1970	1100	696	440	276	140	89	390
DEC. 1977.....	236	1780	1000	638	380	242	130	81	370
JAN. 1978.....	328.8	1850	1040	919	400	356	130	118	380
FEB. 1978.....	464.2	1590	890	1110	320	400	110	139	340
MAR. 1978.....	356.5	1540	860	824	300	293	110	104	340
APR. 1978.....	187.28	1700	950	481	350	179	120	61	360
MAY 1978.....	464.32	1280	710	891	250	312	87	110	300
JUNE 1978.....	218.55	605	330	195	81	48	36	21	160
JULY 1978.....	3.55	991	550	5.2	160	1.5	66	0.6	240
AUG. 1978.....	1447.8	323	190	730	24	95	14	54	110
SEPT 1978.....	248.6	1250	700	467	240	160	85	57	290
TOTAL	4242.3	**	**	7090	**	2410	**	852	**
WTD.AVG.	11.62	1110	620	**	210	**	74	**	260

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1830	1900	1800	1870	1790	1150	1600	1740	470	1180	---	661
2	1850	1980	1780	1890	1780	1190	1610	1720	460	1130	---	710
3	1860	1970	1540	1900	1710	1230	1620	1730	450	978	287	750
4	1860	1990	1450	1910	1660	1320	1650	1760	475	962	300	820
5	1860	1980	1340	1880	1630	1380	1660	1760	500	975	333	851
6	1860	1970	1390	1700	1610	1430	1660	1760	525	985	350	841
7	1870	1970	1420	1900	1590	1470	1670	1790	575	---	369	750
8	1870	1890	1530	1920	1600	1450	1670	1820	582	---	400	634
9	1870	1750	1640	1930	1610	1470	1680	1810	636	---	415	750
10	1860	1850	1740	1950	1660	1490	1690	1820	705	---	428	550
11	1830	2210	1800	1970	1680	1530	1670	1820	760	---	442	900
12	1720	2200	1850	1940	1700	1580	1700	1850	809	---	466	1500
13	1710	2170	1920	1920	1730	1640	1740	1990	850	---	463	2000
14	1680	2110	1940	1910	1740	1670	1780	2230	880	---	474	1930
15	1700	2090	1940	1920	1660	1640	1780	1970	900	---	480	1800
16	1670	2070	1950	1920	1650	1650	1750	1810	922	---	490	1780
17	1620	2080	1970	1940	1610	1630	1720	1840	970	---	500	1750
18	1580	2100	2000	1930	1590	1640	1700	1870	1000	---	507	1720
19	1570	2110	1890	1910	1540	1660	1700	1900	1030	---	538	1710
20	1570	2070	1870	1900	1500	1670	1680	1910	1040	---	542	1680
21	1580	2050	1880	1880	1470	1680	1710	1900	1060	---	540	1640
22	1570	2020	1890	1810	1450	1680	1720	1990	1070	---	450	1620
23	1590	2000	1920	1740	1400	1680	1700	2100	1070	---	550	1600
24	1620	1990	1850	1700	1370	1670	1710	2170	1080	---	600	1590
25	1680	1860	1830	1710	1330	1670	1700	2160	1080	---	685	1590
26	1740	1870	1840	1730	1270	1660	1710	2170	1090	---	720	1640
27	1800	1900	1870	1740	1190	1650	1700	2170	1100	---	771	1710
28	1870	1950	1850	1750	1160	1600	1700	2180	1110	---	775	1790
29	1900	1980	1870	1770	---	1580	1710	1250	1100	---	650	1650
30	1890	1900	1920	1780	---	1590	1730	650	1100	---	678	1500
31	1850	---	1950	1770	---	1600	---	500	---	---	612	---
MEAN	1750	2000	1790	1850	1560	1550	1690	1810	847	1040	511	1350

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	---	---	---	---	12.0	19.0	26.0	27.0	---	---	27.0
2	---	15.0	12.0	6.0	5.0	---	---	---	30.0	---	---	---
3	24.0	17.0	12.0	---	6.0	10.0	21.0	---	---	29.5	23.0	---
4	24.0	18.0	---	---	7.0	10.0	23.0	25.0	---	31.0	25.0	---
5	23.0	---	---	10.0	---	---	22.5	25.0	---	---	23.0	28.0
6	22.0	---	---	11.0	6.5	---	21.0	28.0	27.5	---	---	---
7	---	16.0	10.5	11.0	6.0	10.0	24.0	---	---	---	27.0	25.0
8	23.0	16.0	7.0	---	---	---	23.0	25.0	29.0	---	---	25.0
9	21.0	---	11.0	9.0	6.0	11.0	---	24.0	25.5	---	27.0	26.0
10	23.0	14.0	10.5	5.0	4.0	13.0	---	---	25.0	---	28.5	---
11	18.0	11.0	8.0	---	---	---	19.5	24.5	---	---	29.5	---
12	16.0	---	11.5	---	---	---	20.5	---	30.0	---	30.0	---
13	16.5	---	13.5	7.0	---	---	22.5	24.0	---	---	27.5	27.0
14	17.0	14.5	11.0	6.0	8.0	16.5	27.0	25.0	---	---	28.0	29.0
15	18.0	20.0	13.0	---	7.0	15.5	24.0	27.0	29.0	---	---	28.5
16	---	17.0	---	6.0	8.0	---	---	27.0	31.0	---	---	28.5
17	---	---	---	2.0	6.0	---	25.0	26.5	30.0	---	---	---
18	---	---	---	---	6.5	16.5	21.5	---	---	---	29.0	---
19	16.0	16.0	9.0	3.0	---	---	21.0	---	27.0	---	32.0	26.0
20	20.0	17.0	7.0	---	---	20.0	21.0	---	29.0	---	---	---
21	20.0	14.0	---	1.5	6.5	17.0	20.0	---	---	---	29.0	25.0
22	20.0	15.0	9.0	---	9.0	20.0	---	---	29.0	---	29.0	---
23	21.0	13.0	11.5	6.0	---	20.0	---	27.0	29.0	---	---	---
24	21.5	---	---	8.0	---	18.0	25.0	27.5	29.0	---	---	25.0
25	20.0	---	---	17.0	12.0	18.0	20.0	---	---	---	30.0	24.5
26	21.0	---	---	5.0	---	---	---	28.0	30.0	---	---	23.0
27	---	---	5.0	---	12.0	---	22.5	30.0	27.5	---	30.0	23.0
28	20.0	12.5	6.0	---	15.0	---	25.0	---	---	---	---	24.5
29	22.0	10.0	12.0	---	---	17.0	---	28.0	30.0	---	28.0	---
30	---	---	10.0	6.5	---	---	---	---	32.0	---	28.0	---
31	---	---	10.0	---	---	21.0	---	---	---	---	27.0	---
MEAN	20.5	15.0	10.0	7.0	7.5	15.5	22.5	26.5	29.0	30.5	28.0	26.0

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.--54 years (water-years 1925-78), 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	.00	24	25	25	21	20	21	24	21	15	22
2	23	.00	25	25	25	21	19	21	21	21	24	21
3	23	.00	25	25	25	21	19	21	21	21	20	21
4	24	.00	25	25	25	21	20	21	20	21	2.8	21
5	24	.00	24	25	25	21	20	22	20	21	.55	21
6	24	.00	24	25	25	21	20	21	20	21	.46	23
7	24	.00	25	25	25	21	20	19	19	21	.42	23
8	24	.00	25	25	25	21	20	18	19	21	.36	23
9	23	.00	25	25	25	21	21	21	18	20	.38	22
10	24	.00	25	25	25	21	21	21	18	21	.34	21
11	23	.00	25	25	25	20	21	21	16	20	.31	21
12	23	.00	26	25	24	20	20	21	14	20	.62	21
13	23	.00	26	25	23	20	21	20	12	20	.96	20
14	24	.00	25	25	22	20	20	19	12	20	.56	20
15	24	.00	25	25	22	19	20	18	12	16	8.5	20
16	23	9.4	25	25	22	19	21	19	16	20	21	20
17	23	10	24	25	23	19	21	19	21	20	21	20
18	24	14	24	25	22	20	21	18	21	20	22	20
19	23	17	24	25	22	20	21	19	21	19	23	20
20	24	17	24	25	22	21	21	19	21	19	23	21
21	24	17	25	25	22	21	15	20	21	19	23	21
22	26	17	25	26	22	21	21	20	21	19	23	20
23	24	18	25	25	22	21	21	20	21	20	23	20
24	23	18	25	25	22	20	21	20	21	20	23	20
25	23	18	25	25	22	20	21	15	22	20	22	19
26	23	18	25	25	22	20	21	20	21	19	23	19
27	15	18	25	25	22	20	21	20	21	19	23	19
28	.01	21	25	25	22	20	21	21	16	19	22	19
29	.00	24	25	25	---	20	21	22	21	20	19	19
30	.00	25	25	25	---	20	21	22	21	20	22	19
31	.00	---	25	25	---	20	---	23	---	20	22	---
TOTAL	622.01	261.40	770	776	653	631	611	622	572	618	430.26	616
MEAN	20.1	8.71	24.8	25.0	23.3	20.4	20.4	20.1	19.1	19.9	13.9	20.5
MAX	26	25	26	26	25	21	21	23	24	21	24	23
MIN	.00	.00	24	25	22	19	15	15	12	16	.31	19
AC-FT	1230	518	1530	1540	1300	1250	1210	1230	1130	1230	853	1220

CAL YR 1977 TOTAL 3780.09 MEAN 10.4 MAX 26 MIN .00 AC-FT 7500
WTR YR 1978 TOTAL 7182.67 MEAN 19.7 MAX 26 MIN .00 AC-FT 14250

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 2.00 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 Water Commission show 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.--63 years, 65.2 ft³/s (1.846 m³/s), 47,240 acre-ft/yr (58.2 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.--Peak discharges above base of 670 ft³/s (19.0 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)
Aug. 2	2300	*35,400	1,000	17.36	5.291	Aug. 12	1915	680	19.3	6.23	1.899

Minimum discharge, 5.6 ft³/s (0.16 m³/s) July 14.

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	37	76	51	51	54	55	44	42	88	28	25	52
2	35	74	50	53	54	56	44	42	77	28	5240	52
3	35	74	49	54	54	51	47	43	62	28	5460	47
4	37	75	49	53	53	54	47	42	55	29	315	45
5	38	75	48	52	53	58	46	42	49	28	151	51
6	38	75	48	52	52	62	47	41	44	27	113	134
7	38	76	48	52	54	66	46	41	48	26	103	76
8	38	81	50	50	54	63	44	41	48	25	97	72
9	37	79	48	50	54	60	45	39	45	22	97	63
10	37	76	47	50	54	59	71	38	43	23	87	55
11	37	76	49	51	53	58	59	38	44	23	82	51
12	36	75	50	54	67	58	51	40	44	22	210	50
13	37	75	51	52	67	58	48	38	46	18	250	49
14	38	75	49	53	58	59	47	39	47	6.4	111	48
15	38	75	49	51	56	59	46	39	47	9.1	76	47
16	39	63	50	53	57	61	46	39	44	13	54	47
17	40	61	50	52	59	61	47	38	34	17	49	45
18	40	59	50	51	57	60	45	35	33	20	46	43
19	40	54	51	51	55	60	44	35	33	18	42	42
20	41	54	50	51	57	58	44	38	33	17	40	42
21	41	53	50	53	55	58	45	44	26	17	39	44
22	66	52	50	55	54	59	45	46	27	18	41	48
23	71	52	50	54	54	53	45	43	28	21	36	47
24	56	52	51	54	54	51	45	40	29	24	33	47
25	52	53	50	53	54	51	44	38	29	25	38	48
26	49	54	52	52	54	51	42	38	29	23	38	46
27	54	55	50	51	54	50	42	35	28	22	40	53
28	76	54	51	52	56	48	41	35	28	23	44	55
29	77	51	52	51	---	47	41	45	28	24	51	51
30	76	53	52	52	---	47	41	60	29	25	47	48
31	76	---	52	53	---	46	---	87	---	26	45	---
TOTAL	1450	1957	1547	1616	1557	1737	1389	1301	1245	675.5	13100	1598
MEAN	46.8	65.2	49.9	52.1	55.6	56.0	46.3	42.0	41.5	21.8	423	53.3
MAX	77	81	52	55	67	66	71	87	88	29	5460	134
MIN	35	51	47	50	52	46	41	35	26	6.4	25	42
AC-FT	2880	3880	3070	3210	3090	3450	2760	2580	2470	1340	25980	3170

CAL YR 1977 TOTAL 35474.0 MEAN 97.2 MAX 3840 MIN 33 AC-FT 70360
WTR YR 1978 TOTAL 29172.5 MEAN 79.9 MAX 5460 MIN 6.4 AC-FT 57860

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 mi² (251 km²).

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 hm³). These structures control runoff from 65.0 mi² (168.4 km²) above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years, 1.14 ft³/s (0.0323 m³/s), 826 acre-ft/yr (1.02 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,110 ft³/s (145 m³/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, 38 ft³/s (1.08 m³/s) May 28, gage height, 1.84 ft (0.561 m); no flow July 20, as result of construction pumping, from gage pool.

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	.88	1.1	1.5	.97	1.1	.84	.71	.74	.65	.27	.16	.21
2	.93	1.0	1.4	.97	.97	.92	.79	.98	.52	.39	.73	.29
3	1.5	.93	1.3	.97	.97	.92	.67	1.4	1.4	.57	1.7	.25
4	1.7	.97	1.3	1.0	.97	.97	.60	1.1	1.1	.39	1.0	.21
5	1.3	1.0	1.3	1.0	.97	.97	.58	.93	.58	.13	.71	.21
6	1.3	1.1	1.3	.79	.89	.96	.70	.97	.40	.09	.98	.22
7	1.3	1.2	1.2	.91	1.1	1.2	.67	1.1	.51	.16	.93	.25
8	1.2	2.6	1.2	.88	1.1	1.1	.80	.56	.44	.10	.71	1.1
9	1.2	1.4	.97	.88	1.1	.90	.88	.49	.40	.13	.57	1.5
10	1.3	1.2	.82	.88	1.0	.86	1.5	.35	.43	.09	.53	.72
11	1.3	1.2	.94	.97	.97	1.1	.84	.32	.46	.08	.42	.51
12	1.2	1.2	1.0	1.1	2.2	1.1	.61	.40	.35	.10	.47	.34
13	1.3	1.2	1.1	.97	1.2	.96	.57	.29	.73	.04	.51	.28
14	1.2	1.3	1.1	.93	1.0	.68	.45	.38	.64	.04	.36	.25
15	1.1	1.3	1.1	.88	.86	.72	.61	.13	.30	.06	.35	.20
16	1.1	1.2	.99	.98	.88	.74	.79	.08	.23	.13	.19	.18
17	1.0	1.2	.88	.97	1.2	.69	.54	.06	.24	.05	.15	.13
18	1.1	1.2	.88	.97	1.1	.69	.42	.06	.28	.01	.19	.13
19	1.1	1.2	.94	.93	.94	.81	.39	.21	.17	.01	.19	.14
20	1.1	1.2	1.0	.88	.98	.86	.68	.32	.25	.00	.23	.11
21	1.1	1.2	.89	.96	.91	.83	.72	.49	.25	.03	.18	.08
22	2.4	1.2	.87	1.1	.82	.67	.79	.49	.31	.04	.16	.10
23	1.7	1.2	.83	1.1	.89	.79	.83	.40	.23	.10	.17	.11
24	1.3	1.2	.88	.97	.87	.88	.74	.23	.30	.15	.18	.15
25	1.1	1.2	.85	.95	.89	1.1	.67	.18	.32	.09	.17	.15
26	1.1	1.2	.97	.90	.97	.92	.72	.20	.12	.10	.21	.15
27	1.1	1.2	1.2	.89	.97	.80	.69	.22	.09	.12	.22	.21
28	1.2	1.3	.90	.89	.92	.76	.74	1.7	.58	.15	.22	.20
29	1.2	1.5	.98	.88	---	.89	.79	9.6	.87	.13	.22	.20
30	1.1	1.5	1.1	.88	---	.82	.79	.97	.28	.15	.17	.17
31	1.1	---	1.1	.90	---	.69	---	.50	---	.17	.13	---
TOTAL	38.51	37.40	32.79	29.25	28.74	27.14	21.28	25.85	13.43	4.07	13.11	8.75
MEAN	1.24	1.25	1.06	.94	1.03	.88	.71	.83	.45	.13	.42	.29
MAX	2.4	2.6	1.5	1.1	2.2	1.2	1.5	9.6	1.4	.57	1.7	1.5
MIN	.88	.93	.82	.79	.82	.67	.39	.06	.09	.00	.13	.08
AC-FT	76	74	65	58	57	54	42	51	27	8.1	26	17

CAL YR 1977 TOTAL 1017.28 MEAN 2.79 MAX 485 MIN .64 AC-FT 2020
WTR YR 1978 TOTAL 280.32 MEAN .77 MAX 9.6 MIN .00 AC-FT 556

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 water was diverted 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, 24,590 acre-ft (30.3 hm³) Oct. 1, elevation, 1,739.91 ft (530.325 m); minimum, 19,920 acre-ft (24.6 hm³) Aug. 1, elevation, 1,737.07 ft (529.459 m).

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

1,737.0	19,810
1,739.0	23,020
1,740.0	24,740

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24550	23950	23760	23360	23380	23690	23350	22890	22260	21210	19970	20890
2	24460	23860	23760	23360	23360	23710	23350	22890	22230	21180	21180	20870
3	24460	23830	23740	23360	23380	23670	23350	22820	22310	21140	21570	20860
4	24430	23810	23730	23360	23400	23660	23330	22790	22290	21090	21570	20840
5	24380	23810	23670	23360	23380	23660	23310	22760	22260	21040	21540	20810
6	24360	23780	23640	23380	23420	23730	23300	22760	22280	20980	21550	20780
7	24330	23830	23600	23380	23430	23710	23280	22720	22260	20930	21540	20900
8	24290	24000	23620	23330	23450	23690	23260	22710	22230	20890	21500	23590
9	24240	23900	23570	23310	23450	23690	23450	22660	22180	20840	21490	23690
10	24280	23880	23550	23300	23450	23690	23500	22610	22130	20790	21450	23780
11	24140	23880	23550	23330	23480	23690	23480	22620	22100	20750	21440	23830
12	24100	23860	23590	23350	23620	23670	23470	22570	22060	20700	21400	23860
13	24050	23860	23570	23350	23600	23660	23450	22530	22030	20650	21350	23860
14	24020	23860	23570	23330	23600	23660	23420	22490	22000	20620	21320	23860
15	23980	23860	23550	23350	23640	23620	23400	22460	21950	20590	21280	23850
16	23970	23860	23540	23360	23660	23600	23380	22440	21900	20540	21230	23810
17	23930	23850	23500	23330	23710	23590	23360	22390	21850	20500	21180	23760
18	23930	23850	23480	23350	23690	23570	23310	22360	21820	20420	21150	23710
19	23910	23850	23470	23330	23710	23570	23280	22330	21780	20370	21120	23670
20	23900	23850	23450	23300	23710	23550	23230	22430	21730	20340	21090	23660
21	23900	23810	23420	23350	23690	23550	23190	22410	21680	20290	21040	23640
22	24020	23790	23380	23350	23690	23540	23170	22390	21630	20230	21010	23600
23	24000	23790	23380	23360	23690	23540	23160	22360	21580	20250	20980	23590
24	24000	23780	23380	23380	23690	23520	23120	22330	21540	20220	20950	23570
25	24000	23780	23350	23360	23690	23480	23070	22290	21470	20180	20920	23550
26	23980	23740	23350	23350	23690	23470	23040	22260	21400	20150	20870	23520
27	24000	23730	23330	23350	23710	23450	22990	22240	21350	20090	20840	23520
28	24000	23710	23330	23350	23710	23420	22950	22330	21320	20060	20780	23500
29	24000	23780	23350	23350	---	23400	22940	22310	21280	20030	20810	23480
30	23980	23780	23350	23350	---	23400	22940	22310	21230	20000	20790	23470
31	23980	---	23350	23360	---	23380	---	22260	---	19950	20760	---
MAX	24550	24000	23760	23380	23710	23730	23500	22890	22310	21210	21570	23860
MIN	23900	23710	23330	23300	23360	23380	22940	22240	21230	19950	19970	20780
(†)	1739.56	1739.44	1739.19	1739.20	1739.40	1739.21	1738.95	1738.54	1737.91	1737.09	1737.61	1739.26
(‡)	-610	-200	-430	+10	+350	-330	-440	-680	-1030	-1280	+810	+2710

CAL YR 1977 MAX 29120 MIN 23330 ‡ -3070
WTR YR 1978 MAX 24550 MIN 19950 ‡ -1120

† 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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
JAN 09...	0835	1380	7.8	8.0	300	160	62	36	160

DATE	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)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
JAN 09...	4.0	9.6	180	0	110	270	.3	8.4	745

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 369 acre-ft (455,000 m³) of sewage effluent was returned to Brady Creek downstream from the gage during the current year. Flow largely controlled since May 22, 1962, 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); 16 years (water years 1963-78) regulated, 12.2 ft³/s (0.346 m³/s), 8,840 acre-ft/yr (10.9 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, 3,710 ft³/s (105 m³/s) Sept. 8, gage height, 11.15 ft (3.399 m); no flow for many days.

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	.04	.10	.14	.00	.00	.17	.00	.00	.00	.00	.00	2.2
2	.04	.07	.07	.00	.00	.21	.00	.00	.00	.00	153	2.7
3	.04	.07	.04	.00	.00	.19	.00	.00	.07	.00	261	.39
4	.04	.07	.05	.00	.00	.19	.00	.02	.00	.00	36	.17
5	.04	.07	.04	.00	.00	.20	.00	.02	.00	.00	16	.10
6	.04	.07	.03	.00	.00	.19	.00	.01	.00	.00	5.8	.08
7	.04	.09	.03	.00	.15	.37	.00	.01	.02	.00	2.8	4.8
8	.04	5.4	.03	.05	.04	.14	.00	.01	.02	.00	1.2	706
9	.04	1.2	.02	.12	.04	.11	.62	.00	.01	.00	.53	58
10	.04	.55	.02	.24	.08	.08	5.7	.00	.01	.00	.29	38
11	.03	.39	.05	.40	.06	.09	.61	.00	.05	.00	.18	34
12	.03	.31	.06	.05	2.5	.10	.24	.00	.04	.00	.13	26
13	.03	.25	.07	.04	.63	.09	.05	.00	.01	.00	.10	14
14	.03	.20	.06	.04	.54	.08	.01	.00	.00	.00	.07	12
15	.03	.19	.07	.04	.66	.06	.00	.00	.00	.00	.05	9.8
16	.02	.21	.07	.08	.31	.05	.00	.00	.00	.00	.04	6.8
17	.02	.21	.07	.06	.84	.05	.00	.00	.00	.00	.03	4.0
18	.02	.25	.12	.06	.34	.07	.00	.00	.00	.00	.02	2.3
19	.02	.30	.00	.07	.29	.06	.00	.00	.00	.00	.02	1.5
20	.02	.36	.00	.07	.28	.06	.00	.17	.00	.00	.02	1.0
21	.02	.40	.00	.06	.26	.07	.00	.01	.00	.00	.02	1.2
22	.15	.39	.00	.00	.36	.06	.00	.00	.00	.00	.02	.51
23	.15	.45	.00	.00	.32	.06	.00	.00	.00	.00	.02	.33
24	.07	.49	.00	.01	.28	.06	.00	.00	.00	.00	.02	.48
25	.05	.54	.00	.01	.24	.05	.00	.00	.00	.00	.02	.29
26	.05	.55	.00	.02	.38	.05	.00	.00	.00	.00	.02	.29
27	.06	.43	.00	.04	.32	.04	.00	.00	.00	.00	.01	.21
28	.09	.05	.00	.30	.23	.01	.00	.88	.00	.00	.34	.18
29	.10	.26	.00	.32	---	.02	.00	2.0	.00	.00	2.5	.10
30	.10	.30	.00	.00	---	.00	.00	.01	.00	.00	.35	.03
31	.10	---	.00	.00	---	.00	---	.00	---	.00	.12	---
TOTAL	1.59	14.22	1.04	2.08	9.15	2.98	7.23	3.14	.23	.00	480.72	927.46
MEAN	.051	.47	.034	.067	.33	.096	.24	.10	.008	.000	15.5	30.9
MAX	.15	5.4	.14	.40	2.5	.37	5.7	2.0	.07	.00	261	706
MIN	.02	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
AC-FT	3.2	28	2.1	4.1	18	5.9	14	6.2	.5	.00	954	1840

CAL YR 1977 TOTAL 3911.94 MEAN 10.7 MAX 264 MIN .00 AC-FT 7760
WTR YR 1978 TOTAL 1449.84 MEAN 3.97 MAX 706 MIN .00 AC-FT 2880

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.--63 years, 241 ft³/s (6.825 m³/s), 174,600 acre-ft/yr (215 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1899, that of July 23, 1938. 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.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Aug. 3	2130	*27,000	765	28.38	8.650	Sept. 9	0100	6,710	190	19.84	6.047

Minimum discharge, 5.4 ft³/s (0.15 m³/s) July 21.

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	67	123	125	112	124	128	91	64	99	37	21	145
2	68	122	123	117	124	128	90	88	104	41	34	159
3	64	119	121	121	125	127	90	109	156	39	8620	154
4	69	118	121	122	125	127	94	92	458	32	8520	154
5	71	119	118	121	125	125	92	84	200	30	1020	152
6	73	120	114	121	125	125	92	82	138	27	601	123
7	72	121	115	118	130	136	92	86	121	29	470	103
8	74	153	117	114	132	143	92	80	121	28	376	1170
9	73	171	115	112	137	140	93	70	119	26	298	2680
10	78	161	114	113	133	134	107	69	104	27	256	462
11	84	143	114	115	130	135	114	71	100	26	242	306
12	77	137	115	118	145	136	115	74	97	22	261	246
13	75	134	118	121	162	134	106	67	115	19	212	208
14	76	131	119	120	157	131	113	59	95	16	295	191
15	80	130	119	123	148	126	109	59	88	11	367	172
16	81	129	118	125	154	122	105	56	82	13	264	159
17	81	127	115	122	152	121	96	56	79	16	213	144
18	86	126	114	121	153	122	87	58	71	16	183	135
19	86	124	114	121	150	122	82	52	67	14	160	127
20	86	118	107	121	141	122	84	52	61	10	148	124
21	89	113	105	121	137	117	82	74	54	8.2	142	123
22	100	112	102	125	133	111	80	123	48	8.8	140	124
23	110	112	104	125	132	108	82	89	43	12	141	144
24	113	111	99	127	131	113	81	95	42	14	136	134
25	147	111	101	127	129	117	73	82	41	13	127	129
26	141	113	105	126	127	106	68	72	37	16	124	126
27	122	114	110	121	128	104	67	73	34	15	124	123
28	117	113	107	122	130	103	67	71	36	12	117	126
29	117	118	115	120	---	95	67	139	35	13	126	132
30	115	128	117	119	---	91	66	120	40	20	148	127
31	116	---	114	121	---	92	---	198	---	22	134	---
TOTAL	2808	3771	3515	3732	3819	3741	2677	2564	2885	633.0	24020	8402
MEAN	90.6	126	113	120	136	121	89.2	82.7	96.2	20.4	775	280
MAX	147	171	125	127	162	143	115	198	458	41	8620	2680
MIN	64	111	99	112	124	91	66	52	34	8.2	21	103
AC-FT	5570	7480	6970	7400	7570	7420	5310	5090	5720	1260	47640	16670

CAL YR 1977 TOTAL 78582.0 MEAN 215 MAX 5720 MIN 64 AC-FT 155900
WTR YR 1978 TOTAL 62567.0 MEAN 171 MAX 8620 MIN 8.2 AC-FT 124100

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 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). National Weather Service gage-height telemeter at 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); 10 years (water years 1969-78) partially regulated, 722 ft³/s (20.45 m³/s), 523,100 acre-ft/yr (645 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, 28,100 ft³/s (796 m³/s) Aug. 4, gage height, 22.59 ft (6.885 m); minimum, 11 ft³/s (0.31 m³/s) July 23, 24.

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	110	217	212	176	212	204	131	84	1080	44	30	198
2	103	206	214	177	212	201	122	82	616	43	41	182
3	96	194	215	189	215	195	122	115	723	46	3020	186
4	94	188	212	199	211	194	122	126	2650	46	19700	223
5	94	188	206	198	211	192	124	113	2140	39	11400	291
6	92	186	198	198	212	190	123	120	927	37	17700	209
7	96	187	200	202	217	194	121	147	578	32	9060	201
8	91	225	199	192	222	208	119	181	414	32	1820	247
9	91	248	194	188	240	214	117	633	342	29	1160	3640
10	93	255	194	190	240	208	136	1280	289	30	836	1260
11	96	258	194	190	241	206	137	683	240	30	635	731
12	101	245	194	197	291	202	140	409	324	30	547	506
13	93	226	199	204	315	201	140	275	281	29	439	393
14	90	215	202	205	309	194	140	207	304	26	357	334
15	111	208	200	204	298	186	140	178	217	22	520	291
16	123	206	199	205	290	178	140	163	179	18	393	261
17	131	205	195	203	301	175	140	135	154	14	307	251
18	131	212	191	200	290	180	127	119	131	16	266	233
19	133	211	190	199	300	182	115	113	114	16	224	215
20	129	203	188	199	290	178	124	100	106	18	198	202
21	129	194	179	209	283	169	137	109	94	16	178	207
22	154	190	177	210	264	162	126	135	81	14	167	198
23	162	187	172	213	249	158	117	153	71	12	156	198
24	173	188	171	215	242	149	115	151	62	12	150	207
25	187	189	167	215	229	146	112	146	57	16	143	194
26	229	195	173	214	220	145	104	135	54	18	130	186
27	270	193	176	212	215	140	96	121	46	18	127	182
28	257	193	181	207	209	137	91	122	41	21	124	182
29	259	201	184	210	---	138	87	215	41	20	121	186
30	248	205	189	208	---	134	86	958	39	18	127	186
31	227	---	186	208	---	131	---	2440	---	18	162	---
TOTAL	4393	6218	5951	6236	7028	5491	3651	9948	12395	780	70238	11980
MEAN	142	207	192	201	251	177	122	321	413	25.2	2266	399
MAX	270	258	215	215	315	214	140	2440	2650	46	19700	3640
MIN	90	186	167	176	209	131	86	82	39	12	30	182
AC-FT	8710	12330	11800	12370	13940	10890	7240	19730	24590	1550	139300	23760

CAL YR 1977 TOTAL 266158 MEAN 729 MAX 15600 MIN 90 AC-FT 527900
WTR YR 1978 TOTAL 144309 MEAN 395 MAX 19700 MIN 12 AC-FT 286200

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.

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, 2,650 micromhos May 10; minimum daily, 253 micromhos Aug. 4.
WATER TEMPERATURES: Maximum daily, 33.0°C June 24, July 14-16, 21; minimum daily, 4.0°C Jan. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
17...	1220	133	891	8.2	18.0	--	8.7	95	1.2	--	--
31...	1200	228	1070	8.3	23.0	15	8.2	98	1.7	420	48
NOV											
30...	1810	207	852	8.3	15.0	--	--	--	--	--	--
DEC											
12...	1544	194	1110	8.0	12.5	10	10.5	102	1.1	32	16
JAN											
09...	1100	186	1050	8.2	8.0	9	11.4	100	1.1	350	12
MAR											
10...	0920	210	1030	8.1	10.0	10	13.2	121	2.7	140	20
APR											
26...	1010	630	904	8.4	20.0	30	6.8	79	2.5	140	30
MAY											
16...	1200	155	1210	8.2	26.0	50	8.6	113	3.3	K3000	100
JUN											
26...	1015	56	540	8.1	27.0	40	6.4	81	1.5	360	40
JUL											
28...	1215	18	599	8.2	30.5	--	7.2	97	--	--	--
AUG											
23...	1300	156	550	8.2	30.0	25	6.8	93	1.4	270	140
SEP											
26...	1015	182	615	8.0	24.0	35	6.8	83	1.1	390	100

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...	--	330	110	65	41	62	1.5	3.6	270	0	78
31...	92	370	170	77	43	78	1.8	4.1	240	0	120
NOV											
30...	--	290	120	54	37	63	1.6	3.6	200	0	78
DEC											
12...	20	380	160	83	42	79	1.8	3.9	270	0	120
JAN											
09...	80	390	170	84	44	77	1.7	3.2	270	0	130
MAR											
10...	60	360	180	80	40	78	1.8	3.2	230	0	100
APR											
26...	76	330	100	66	39	57	1.4	3.4	270	0	73
MAY											
16...	190	390	210	85	42	100	2.2	5.3	210	0	140
JUN											
26...	100	220	25	46	26	26	.8	3.2	240	0	24
JUL											
28...	--	240	27	42	33	37	1.0	3.5	260	0	25
AUG											
23...	1500	230	45	62	19	23	.7	4.1	230	0	33
SEP											
26...	220	240	31	60	21	28	.8	3.3	250	0	35

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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...	120	.3	16	--	519	.30	.01	.31	.02	.80
31...	160	.4	16	621	617	.15	.03	.18	.01	.29
NOV										
30...	120	.3	12	--	467	--	--	--	--	--
DEC										
12...	150	.3	11	616	622	.75	.01	.76	.08	1.5
JAN										
09...	140	.3	8.9	644	621	1.2	.01	1.2	.07	.43
MAR										
10...	150	.3	6.3	614	571	.66	.01	.67	.01	.69
APR										
26...	100	.3	11	504	483	.31	.01	.32	.04	.66
MAY										
16...	190	.4	11	711	677	.74	.03	.77	.00	.61
JUN										
26...	43	.2	13	286	300	.10	.00	.10	.01	.59
JUL										
28...	62	.2	18	339	349	.00	.01	.00	.00	.70
AUG										
23...	40	.2	14	307	309	.15	.01	.16	.01	.59
SEP										
26...	52	.2	14	355	337	.33	.00	.33	.02	.58

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...	.82	--	.05	--	--	--	--	--	--	--
31...	.30	.33	.04	.02	5.1	--	--	23	14	98
NOV										
30...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	1.6	.95	.02	.00	--	--	--	39	20	62
JAN										
09...	.50	.48	.03	.03	2.6	--	--	27	14	95
MAR										
10...	.70	.26	.10	.07	--	3.0	1.0	16	9.1	89
APR										
26...	.70	.60	.08	.00	4.0	--	--	94	160	94
MAY										
16...	.61	.44	.06	.01	4.0	--	--	56	23	91
JUN										
26...	.60	.52	.06	.03	--	2.9	1.4	57	8.6	98
JUL										
28...	.70	.39	.07	.00	3.2	--	--	29	1.4	99
AUG										
23...	.60	.37	.07	.07	--	6.0	1.0	41	17	92
SEP										
26...	.60	.64	.07	.25	5.3	--	--	61	30	92

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
MAR										
10...	0920	1	0	1	200	100	100	0	0	2
JUN										
26...	1015	2	0	3	300	0	300	1	1	0
AUG										
23...	1300	6	3	3	200	0	--	0	0	0

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
MAR										
10...	0	0	10	1	1	0	5	3	2	210
JUN										
26...	0	0	0	1	1	0	8	6	2	820
AUG										
23...	0	0	10	0	0	0	7	4	3	640

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)
MAR										
10...	--	10	14	14	0	40	40	0	.0	.0
JUN										
26...	810	10	4	4	0	40	40	5	.0	.0
AUG										
23...	620	20	3	3	0	50	50	0	.1	.1

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)
MAR										
10...	.0	2	0	2	0	0	0	10	0	10
JUN										
26...	.0	0	0	1	0	0	0	30	20	10
AUG										
23...	.0	1	1	0	0	0	0	10	0	10

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ATRAZINE, TOTAL (UG/L)	ATRAZINE, 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											
31...	1200	ND	--	ND	ND	ND	ND	ND	ND	ND	ND
JUN											
26...	1015	.0	.00	.00	--	--	--	.0	--	.00	--
AUG											
23...	1300	.0	.00	.00	--	--	--	.0	--	.00	--
SEP											
26...	1015	.0	.00	.00	--	--	--	.0	--	.00	--

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)	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)
OCT											
31...	ND	1.4	ND	ND	ND	ND	ND	ND	--	ND	ND
JUN											
26...	.00	--	.00	--	.00	--	.00	--	.00	.00	--
AUG											
23...	.00	--	.00	--	.00	--	.00	--	.00	.00	--
SEP											
26...	.00	--	.00	--	.00	--	.00	--	.00	.00	--

DATE	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)
OCT											
31...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN											
26...	.00	--	.00	--	.00	--	.00	--	.00	--	--
AUG											
23...	.00	--	.00	--	.00	--	.00	--	.00	--	--
SEP											
26...	.00	--	.00	--	.00	--	.00	--	.00	--	--

DATE	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)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	SIMAZINE TOTAL COULSON COND. (UG/L)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS)
OCT										
31...	ND	ND	ND	ND	ND	--	ND	ND	ND	ND
JUN										
26...	--	.00	--	.00	--	.00	.00	--	--	--
AUG										
23...	--	.00	--	.00	--	.00	.00	--	--	--
SEP										
26...	--	.00	--	.00	--	.00	.00	--	--	--

DATE	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-D, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT										
31...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN										
26...	0	--	.00	--	.00	--	.00	--	.00	--
AUG										
23...	0	--	.00	--	.00	--	.00	--	.00	--
SEP										
26...	0	--	.00	--	.00	--	.00	--	.00	--

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

DATE	LENGTH OF EXPOSURE (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)	SAMPLING METHOD
DEC 12...	42	108	118	6.23	.620	POLYETHYLENE STRIP
JUL 28...	32	5.04	6.22	8.35	.280	POLYETHYLENE STRIP

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	OCT 31,77		MAR 10,78		MAY 16,78		JUN 26,78		JUL 28,78		AUG 23,78	
TIME	1200		0920		1200		1015		1215		1300	
TOTAL CELLS/ML	12000		3900		160000		20000		75000		13000	
DIVERSITY: DIVISION	0.4		1.3		1.1		1.3		0.6		1.7	
.CLASS	0.4		1.3		1.1		1.3		0.6		1.7	
..ORDER	0.4		1.4		1.4		1.4		0.9		2.4	
...FAMILY	0.4		1.5		1.9		2.0		1.0		2.8	
....GENUS	0.5		1.5		2.5		2.4		1.7		3.5	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-	150	1
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	2800	2	2200	11	--	-	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	3200	2	270	1	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	*	0
....MICRACTINIUM	--	-	--	-	4800	3	--	-	--	-	250	2
...OOCYSTACEAE												
....ANKISTRODESMUS	*	0	--	-	*	0	230	1	490	1	150	1
....DICTYOSPHAERIUM	*	0	--	-	4000	2	--	-	--	-	690	5
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	*	0	98	1
....OOCYSTIS	--	-	--	-	1600	1	--	-	--	-	200	2
....SELENASTRUM	--	-	--	-	*	0	--	-	--	-	250	2
....TETRAEDRON	86	1	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	--	-	98	1
...SCENEDESMACEAE												
....CRUCIGENIA	--	-	--	-	4800	3	2700	13	*	0	200	2
....SCENEDESMUS	300	2	320	8	18000	11	6200#	30	4000	5	690	5
....TETRASTRUM	*	0	--	-	1600	1	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	--	-	440	3
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	--	-	--	-	1200	1	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	130	3	*	0	--	-	1600	2	98	1
...PHACOTACEAE												
....PHACOTUS	--	-	--	-	--	-	--	-	--	-	98	1
...VOLVOCACEAE												
....GONIUM	--	-	--	-	--	-	--	-	1100	1	--	-
....PANDORINA	--	-	--	-	--	-	--	-	1300	2	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....COSMARIUM	*	0	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												

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 1977 TO AUGUST 1978 (CONTINUED)

DATE / TIME	OCT 31,77 1200		MAR 10,78 0920		MAY 16,78 1200		JUN 26,78 1015		JUL 28,78 1215		AUG 23,78 1300	
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
...COSCINODISCACEAE												
....CYCLOTELLA	99	1	--	-	3600	2	920	4	*	0	2300#	17
....MELOSIRA	--	-	--	-	--	-	--	-	--	-	1100	8
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	230	1	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	32	1	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	32	1	--	-	230	1	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	230	1	--	-	--	-
....SYNEDRA	*	0	--	-	--	-	--	-	--	-	*	0
...NAVICULACEAE												
....DIPLONEIS	--	-	--	-	--	-	--	-	*	0	--	-
...NITZSCHIACEAE												
....NITZSCHIA	*	0	130	3	990	1	--	-	--	-	340	3
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	*	0	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	*	0	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCOCCALES												
...CHROCOCCACEAE												
....AGMENELLUM	--	-	--	-	13000	8	7100#	35	51000#	68	--	-
....ANACYSTIS	11000#	94	540	14	94000#	58	--	-	11000	15	3800#	30
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	2400	1	--	-	--	-	590	5
....OSCILLATORIA	--	-	--	-	2000	1	--	-	1600	2	980	8
..CHROCOCCALES												
...CHROCOCCACEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	1100	2	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	*	0	2700#	70	*	0	--	-	*	0	--	-
....PHACUS	--	-	--	-	*	0	--	-	--	-	--	-
....TRACHELOMONAS	*	0	--	-	*	0	--	-	--	-	340	3
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	*	0	--	-	*	0	--	-

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

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	4393	921	530	6230	120	1480	89	1050	330
NOV. 1977.....	6218	909	520	8670	120	2050	87	1460	330
DEC. 1977.....	5951	1040	600	9590	150	2370	110	1720	360
JAN. 1978.....	6236	1110	640	10800	170	2810	120	2020	390
FEB. 1978.....	7028	1210	700	13300	190	3630	130	2560	420
MAR. 1978.....	5491	1000	570	8500	140	2080	100	1500	350
APR. 1978.....	3651	840	470	4680	110	1060	76	753	310
MAY 1978.....	9948	1450	850	22900	270	7180	170	4690	490
JUNE 1978.....	12395	546	310	10200	49	1640	33	1120	220
JULY 1978.....	780	584	330	687	56	118	33	70	230
AUG. 1978.....	70238	368	210	39000	21	4020	17	3300	170
SEPT 1978.....	11980	499	280	9010	41	1330	27	875	200
TOTAL	144309	**	**	144000	**	29800	**	21100	**
WTD.AVG.	395.37	647	370	**	76	**	53	**	250

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	930	969	897	934	1200	1080	854	785	650	555	577	579
2	926	941	977	975	1210	1070	871	776	592	567	601	580
3	930	918	1000	1010	1200	1080	825	716	496	558	400	581
4	859	899	1030	983	1200	1090	836	640	729	584	253	589
5	866	910	982	1040	1190	1080	847	689	365	580	550	595
6	770	918	991	1020	1170	1070	787	716	422	536	321	622
7	666	892	1020	1020	1180	1010	777	2040	484	579	399	614
8	775	875	1010	1100	1170	1060	768	2150	575	579	367	550
9	796	858	1020	1050	1180	1050	750	2570	580	572	372	345
10	705	914	1010	1080	1200	1060	748	2650	587	566	378	484
11	718	900	977	1110	1260	1060	719	2410	587	565	405	528
12	668	890	1070	1090	1190	1070	820	1860	593	567	432	533
13	675	881	1060	1100	1270	1050	858	1610	533	580	452	537
14	682	937	1060	1120	1260	1030	868	1480	486	575	466	527
15	664	885	1050	1120	1240	1020	872	1360	450	578	480	536
16	847	864	1040	1040	1240	1000	875	1240	422	590	69	544
17	915	890	1060	1140	1220	991	864	1160	453	589	473	569
18	966	910	1070	1120	1210	978	791	1050	496	590	485	603
19	950	925	1090	1110	1240	1000	777	966	491	598	497	619
20	942	914	1100	1130	1210	1000	753	945	493	591	507	629
21	935	910	1100	1160	1270	965	895	926	498	601	526	628
22	908	905	1080	1190	1220	953	1030	989	510	605	546	635
23	919	903	995	1180	1190	965	987	905	521	607	558	643
24	940	885	1050	1180	1200	914	829	922	525	596	564	628
25	962	921	1070	1190	1190	885	896	830	531	605	565	623
26	894	935	1080	1210	1140	851	914	833	542	613	558	616
27	1010	945	1060	1210	1140	845	900	836	540	623	565	615
28	1120	925	1070	1200	1120	835	885	789	538	630	554	614
29	1140	921	1080	1200	---	851	840	872	542	637	540	622
30	1110	937	1070	1220	---	875	796	1220	549	640	555	623
31	1030	---	1050	1200	---	899	---	758	---	660	571	---
MEAN	878	909	1040	1110	1200	990	841	1220	526	591	483	580

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	21.0	14.0	8.0	6.0	15.0	25.0	---	---	31.0	31.0	29.0
2	---	17.0	15.0	---	---	---	23.0	20.0	27.0	32.0	26.0	---
3	---	19.0	17.0	10.0	8.0	9.0	23.0	20.0	28.0	31.0	26.0	32.0
4	---	20.0	19.0	12.0	9.0	11.0	---	24.0	27.0	29.0	25.0	---
5	25.0	---	15.0	16.0	10.0	13.0	23.0	25.0	28.0	30.0	25.0	30.0
6	---	21.0	12.0	15.0	8.0	16.0	24.0	23.0	27.0	31.0	25.0	29.0
7	25.0	20.0	10.0	16.0	5.0	10.0	---	26.0	29.0	31.0	26.0	26.0
8	25.0	19.0	8.0	10.0	5.0	8.0	22.0	26.0	29.0	32.0	26.0	27.0
9	22.0	15.0	---	8.0	5.0	13.0	25.0	26.0	---	30.0	---	---
10	25.0	17.0	9.0	---	6.0	9.0	20.0	25.0	30.0	32.0	28.0	---
11	22.0	---	9.0	7.0	6.0	---	23.0	25.0	29.0	---	---	---
12	20.0	---	14.0	5.0	8.0	15.0	23.0	28.0	30.0	31.0	30.0	---
13	---	17.0	13.0	---	9.0	15.0	24.0	28.0	29.0	32.0	30.0	---
14	20.0	17.0	13.0	6.0	9.0	18.0	25.0	28.0	30.0	33.0	---	---
15	22.0	18.0	15.0	5.0	8.0	17.0	---	---	---	33.0	30.0	---
16	21.0	18.0	17.0	7.0	9.0	17.0	25.0	29.0	31.0	33.0	30.0	---
17	22.0	---	15.0	6.0	---	19.0	25.0	29.0	30.0	---	31.0	---
18	23.0	19.0	17.0	---	9.0	19.0	25.0	---	31.0	32.0	---	---
19	23.0	19.0	15.0	5.0	9.0	18.0	24.0	30.0	30.0	32.0	32.0	---
20	23.0	20.0	---	4.0	11.0	20.0	23.0	26.0	31.0	32.0	32.0	---
21	23.0	---	10.0	5.0	10.0	22.0	---	26.0	32.0	33.0	---	---
22	22.0	17.0	10.0	7.0	12.0	22.0	25.0	29.0	---	30.0	30.0	---
23	21.0	19.0	11.0	6.0	13.0	21.0	27.0	---	31.0	30.0	30.0	25.0
24	---	16.0	11.0	8.0	13.0	20.0	27.0	28.0	33.0	30.0	32.0	27.0
25	24.0	17.0	10.0	9.0	15.0	---	25.0	28.0	31.0	---	32.0	---
26	24.0	---	11.0	9.0	13.0	19.0	25.0	30.0	30.0	31.0	32.0	24.0
27	---	18.0	9.0	---	15.0	27.0	25.0	28.0	30.0	28.0	29.0	23.0
28	22.0	15.0	10.0	8.0	18.0	21.0	24.0	30.0	30.0	---	30.0	23.0
29	24.0	12.0	11.0	5.0	---	20.0	---	28.0	32.0	31.0	28.0	25.0
30	22.0	15.0	12.0	5.0	---	---	26.0	28.0	32.0	32.0	---	27.0
31	24.0	---	15.0	6.0	---	18.0	---	27.0	---	28.0	28.0	---
MEAN	23.0	18.0	12.5	8.0	9.5	16.5	24.0	26.5	30.0	31.0	29.0	26.5

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) above 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 Colorado River near San Saba (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, 882,200 acre-ft (1.09 km³) May 11-16, gage height, 1,015.1 ft (309.40 m); minimum, 698,900 acre-ft (0.862 km³) July 31, Aug. 1; gage height, 1,006.1 ft (306.66 m).

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

1,006.0	697,000	1,012.0	816,000
1,009.0	755,000	1,016.0	902,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	851700	849600	849600	849600	851700	864600	871200	875600	873400	811800	698900	751000
2	849600	849600	849600	849600	851700	866800	871200	877800	873400	807600	700800	751000
3	849600	849600	849600	849600	851700	866800	871200	877800	873400	803400	700800	751000
4	849600	849600	849600	849600	853800	864600	873400	875600	875600	799200	733100	751000
5	849600	849600	851700	849600	853800	864600	873400	875600	877800	795000	755000	751000
6	847500	849600	847500	849600	853800	864600	873400	877800	880000	791000	787000	751000
7	847500	849600	847500	849600	853800	864600	873400	877800	880000	789000	811800	755000
8	847500	851700	849600	849600	853800	866800	873400	877800	880000	785000	813900	757000
9	847500	851700	847500	849600	855900	864600	873400	877800	877800	781000	813900	759000
10	847500	851700	847500	849600	853800	864600	875600	880000	875600	777000	813900	763000
11	845400	851700	847500	849600	853800	866800	875600	882200	873400	773000	811800	765000
12	845400	851700	847500	849600	855900	866800	875600	882200	871200	769000	807600	767000
13	845400	851700	847500	849600	858000	866800	875600	882200	869000	765000	801300	767000
14	845400	851700	847500	849600	858000	866800	875600	882200	866800	763000	799200	767000
15	845400	851700	847500	849600	858000	866800	875600	882200	866800	757000	795000	767000
16	843300	851700	847500	851700	858000	866800	875600	882200	862400	755000	791000	767000
17	843300	851700	847500	851700	860200	866800	875600	880000	860200	751000	787000	767000
18	843300	851700	847500	851700	860200	866800	875600	877800	858000	747000	783000	767000
19	843300	851700	847500	851700	860200	866800	877800	875600	853800	743000	779000	767000
20	843300	853800	847500	851700	862400	869000	875600	877800	851700	739000	775000	769000
21	843300	853800	847500	851700	862400	869000	875600	877800	849600	735000	773000	769000
22	847500	853800	847500	851700	862400	869000	875600	877800	845400	731200	769000	769000
23	847500	853800	847500	851700	862400	871200	875600	877800	841200	729300	765000	769000
24	847500	853800	847500	853800	862400	871200	875600	875600	837000	723600	761000	769000
25	847500	853800	847500	853800	862400	871200	875600	875600	832800	719800	757000	769000
26	847500	853800	847500	853800	862400	871200	875600	873400	828600	716000	757000	769000
27	847500	853800	847500	853800	864600	871200	873400	871200	826500	716000	755000	769000
28	847500	853800	847500	853800	864600	871200	873400	871200	824400	710300	751000	769000
29	849600	855900	849600	853800	---	871200	873400	871200	818100	706500	751000	769000
30	849600	849600	849600	851700	---	871200	875600	871200	816000	700800	751000	769000
31	849600	---	849600	851700	---	871200	---	871200	---	698900	751000	---
MAX	851700	855900	851700	853800	864600	871200	877800	882200	880000	811800	813900	769000
MIN	843300	849600	847500	849600	851700	864600	871200	871200	816000	698900	698900	751000
(†)	1013.6	1013.6	1013.6	1013.7	1013.2	1014.6	1014.8	1014.6	1012.0	1006.1	1008.8	1009.7
(‡)	-2100	0	0	+2100	+12900	+6600	+4400	-4400	-55200	-117100	-52100	+18000

CAL YR 1977 MAX 985100 MIN 843300 ‡ -96400
WTR YR 1978 MAX 882200 MIN 698900 ‡ -82700

† 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, gage and Aug. 14, 1925, to May 17, 1940, water-stage recorder at present site gage 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.--63 years, 194 ft³/s (5.494 m³/s), 1.40 in/yr (36 mm/yr), 140,600 acre-ft/yr (173 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 319,000 ft³/s (9,030 m³/s) June 14, 1935, gage height, 43.3 ft (13.20 m) at regular gage, 41.4 ft (12.62 m) at supplementary gage, from floodmarks, from rating curve extended above 54,000 ft³/s (1,530 m³/s) on basis of slope-area measurements of 154,000 and 319,000 ft³/s (4,360 and 9,030 m³/s); minimum, 3.1 ft³/s (0.088 m³/s) Aug. 16, 17, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, that of June 14, 1935. 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 3	1200	1,930	54.7	3.60	1.097	Aug. 2	1630	*76,700	2,170	22.14	6.748
				a3.75	1.143					a26.24	7.998
June 7	0900	4,570	129	5.19	1.582						
				a5.75	1.753						

a From supplementary gage.

Minimum discharge, 68 ft³/s (1.93 m³/s) July 21-23.

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	133	150	156	152	148	142	126	112	108	94	93	161
2	156	146	154	152	145	141	124	116	117	92	14800	156
3	148	145	154	155	145	139	126	117	926	90	6030	131
4	145	146	152	156	144	135	125	114	634	88	610	124
5	144	148	151	155	142	137	124	112	275	87	338	375
6	142	148	150	155	142	139	123	110	204	86	258	229
7	141	148	151	153	145	145	121	109	1530	85	226	174
8	140	178	151	151	145	141	120	105	591	84	200	219
9	138	169	149	152	145	138	123	102	311	83	173	286
10	139	157	150	152	143	138	144	98	232	81	160	195
11	137	154	153	151	143	137	141	98	192	79	177	174
12	137	154	155	151	158	135	141	100	174	82	172	163
13	138	154	154	150	154	136	134	95	161	81	151	155
14	139	154	151	148	147	134	131	93	151	79	143	151
15	139	154	151	149	148	133	129	94	142	80	138	148
16	139	153	153	153	147	132	128	91	135	77	134	146
17	140	152	152	149	151	132	124	89	129	76	131	142
18	140	152	152	148	147	132	123	87	125	75	128	137
19	141	154	152	148	145	131	120	88	122	74	124	134
20	140	154	151	148	145	132	118	94	121	74	123	134
21	138	151	151	148	142	129	118	109	118	72	120	158
22	177	151	151	148	141	127	118	117	114	70	116	164
23	172	152	152	148	142	127	117	113	110	72	113	151
24	159	152	152	148	143	125	116	108	108	78	112	147
25	153	152	152	147	143	124	112	105	103	77	111	142
26	151	152	152	145	142	126	111	102	100	93	109	138
27	151	152	152	146	144	125	110	98	99	91	108	145
28	155	152	154	145	144	125	110	97	99	100	107	147
29	154	158	157	145	---	123	111	106	97	100	113	142
30	153	160	155	148	---	125	112	101	96	92	115	138
31	152	---	155	148	---	125	---	96	---	93	118	---
TOTAL	4531	4602	4725	4644	4070	4110	3680	3176	7424	2585	25551	5006
MEAN	146	153	152	150	145	133	123	102	247	83.4	824	167
MAX	177	178	157	156	158	145	144	117	1530	100	14800	375
MIN	133	145	149	145	141	123	110	87	96	70	93	124
CFSM	.08	.08	.08	.08	.08	.07	.07	.05	.13	.05	.44	.09
IN.	.09	.09	.09	.09	.08	.08	.07	.06	.15	.05	.51	.10
AC-FT	8990	9130	9370	9210	8070	8150	7300	6300	14730	5130	50680	9930

CAL YR 1977 TOTAL 119358 MEAN 327 MAX 15400 MIN 133 CFSM .17 IN 2.37 AC-FT 236700
WTR YR 1978 TOTAL 74104 MEAN 203 MAX 14800 MIN 70 CFSM .11 IN 1.47 AC-FT 147000

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 fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--10 years (water years 1969-78), 362 ft³/s (10.25 m³/s), 1.48 in/yr (38 mm/yr), 262,300 acre-ft/yr (323 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.--Maximum discharge, 92,500 ft³/s (2,620 m³/s) Aug. 3, gage height, 21.35 ft (6.507 m), no other peak above base of 3,000 ft³/s (85.0 m³/s); minimum daily, 60 ft³/s (1.70 m³/s) July 16-22.

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	134	168	186	175	170	159	136	100	111	75	95	76
2	148	162	178	177	172	158	131	120	120	75	4430	79
3	154	157	175	178	172	154	132	140	442	75	30300	111
4	168	156	173	176	172	151	136	135	769	75	2240	117
5	158	157	172	174	172	149	136	130	844	75	947	104
6	153	159	171	172	172	155	134	125	416	70	647	146
7	153	163	166	173	177	216	135	120	372	70	526	281
8	153	227	169	172	186	183	133	115	1500	70	362	288
9	153	237	165	169	186	174	131	110	787	70	295	318
10	149	211	164	172	183	168	211	106	467	70	255	307
11	150	190	166	170	176	161	216	103	296	65	221	313
12	146	179	170	175	186	156	179	99	249	65	201	242
13	146	175	174	179	216	148	169	96	206	65	188	192
14	146	172	176	179	205	145	162	92	183	65	177	168
15	148	173	175	179	195	143	152	89	170	65	155	155
16	146	172	170	182	188	142	144	91	160	60	138	147
17	148	171	164	188	196	140	140	89	150	60	128	140
18	149	169	168	186	196	139	135	81	140	60	120	135
19	149	170	169	183	189	137	130	80	130	60	115	130
20	150	171	169	179	182	137	125	82	120	60	110	127
21	149	174	169	179	176	138	120	88	110	60	106	126
22	187	170	167	172	170	137	120	126	100	60	105	147
23	220	168	166	172	169	138	120	158	95	65	101	165
24	205	169	168	172	167	142	115	134	90	70	95	166
25	185	170	169	173	166	134	110	112	85	70	90	151
26	172	169	169	172	164	133	110	104	80	71	86	129
27	169	169	169	169	162	131	105	100	80	72	85	129
28	170	169	169	169	162	131	105	96	80	84	82	126
29	170	193	171	169	---	131	100	158	80	103	77	126
30	170	189	177	169	---	135	100	153	75	94	75	126
31	170	---	178	169	---	137	---	116	---	96	73	---
TOTAL	4968	5279	5292	5423	5027	4602	4072	3448	8507	2195	42625	4967
MEAN	160	176	171	175	180	148	136	111	284	70.8	1375	166
MAX	220	237	186	188	216	216	216	158	1500	103	30300	318
MIN	134	156	164	169	162	131	100	80	75	60	73	76
CFSM	.05	.05	.05	.05	.06	.05	.04	.03	.09	.02	.42	.05
IN.	.06	.06	.06	.06	.06	.05	.05	.04	.10	.02	.48	.06
AC-FT	9850	10470	10500	10760	9970	9130	8080	6840	16870	4350	84550	9850

CAL YR 1977 TOTAL 161565 MEAN 443 MAX 25300 MIN 134 CFSM .14 IN 1.83 AC-FT 320500
WTR YR 1978 TOTAL 96405 MEAN 264 MAX 30300 MIN 60 CFSM .08 IN 1.09 AC-FT 191200

NOTE.--No gage-height record June 14 to July 25.

08150800 BEAVER CREEK NEAR MASON, TX

LOCATION (revised).--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. Prior to Aug. 3, 1978, at site 300 ft (91 m) upstream.

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. No known regulation or diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years, 19.8 ft³/s (0.561 m³/s), 1.23 in/yr (31 mm/yr), 14,350 acre-ft/yr (17.7 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, 66,900 ft³/s (1,890 m³/s) Aug. 3, gage height, 24.0 ft (7.315 m), from floodmarks, no other peak above base of 1,000 ft³/s (28.3 m³/s); no flow at times.

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	.02	1.8	5.8	3.5	3.1	2.6	1.9	.41	4.8	.06	.89	3.1
2	.63	2.0	4.2	3.5	3.2	2.6	1.3	4.3	3.5	.06	616	2.9
3	.14	2.0	3.3	3.1	3.2	2.6	1.5	53	9.2	.06	12800	3.1
4	.10	1.4	2.9	2.4	2.9	2.6	1.6	21	6.8	.04	73	1.9
5	.08	1.4	2.6	2.5	2.7	2.6	1.7	9.0	6.2	.03	35	4.5
6	.07	1.3	2.4	2.6	3.1	2.4	1.8	4.6	9.2	.02	29	9.0
7	.07	1.3	2.0	2.6	3.9	2.4	1.5	3.3	69	.02	25	4.4
8	.07	7.3	2.0	2.5	4.4	2.4	1.4	2.1	30	.02	22	45
9	.09	13	2.1	1.6	4.0	2.4	1.4	1.8	13	.02	18	27
10	.08	6.7	2.1	1.9	3.7	2.4	5.4	1.3	6.3	.01	16	15
11	.05	4.1	1.9	1.8	5.1	2.4	17	1.0	3.7	.00	14	11
12	.04	3.2	1.9	1.9	9.9	2.4	8.7	.75	2.4	.00	13	9.6
13	.03	2.6	2.2	2.4	8.1	2.4	4.9	.61	1.6	.00	11	6.8
14	.03	2.6	2.4	2.4	4.9	2.4	3.3	.47	1.2	.00	9.7	9.0
15	.13	2.6	2.4	2.4	4.1	2.4	2.5	.37	.96	.00	7.1	6.6
16	.14	2.5	2.2	2.4	5.0	2.4	1.9	.48	.68	.01	5.0	4.8
17	.14	2.4	2.1	2.6	6.2	2.4	1.6	.47	.40	.00	3.4	3.8
18	.14	2.4	1.7	2.6	4.8	2.4	1.3	.27	.32	.00	2.7	2.5
19	.14	2.2	1.7	2.2	4.6	2.1	1.2	.23	.27	.00	2.5	1.9
20	.13	2.4	1.7	2.5	3.8	2.1	.94	.26	.20	.00	2.2	1.6
21	.22	2.6	1.7	2.0	3.3	2.1	.82	.48	.19	.00	2.1	64
22	2.3	2.4	1.7	2.4	3.2	2.1	.68	7.6	.16	.00	1.9	35
23	5.5	2.1	1.7	2.4	2.9	2.1	.63	4.5	.11	.01	1.5	22
24	3.7	2.1	1.8	2.6	2.9	2.1	.66	2.3	.08	.01	1.4	19
25	2.1	2.2	1.9	2.1	2.9	2.1	.60	1.5	.08	.01	1.3	16
26	1.9	2.5	1.9	2.4	2.9	1.9	.50	.98	.08	.00	1.2	14
27	1.8	2.3	1.9	2.1	2.6	1.9	.48	.64	.08	.00	1.1	14
28	1.8	2.1	1.9	2.1	2.6	1.9	.37	.40	.07	.01	1.0	16
29	2.0	3.3	2.2	2.1	---	1.9	.37	52	.06	68	1.4	14
30	2.1	5.9	2.8	2.1	---	2.0	.35	34	.06	14	3.8	12
31	2.1	---	3.2	2.7	---	1.9	---	8.2	---	2.2	3.4	---
TOTAL	27.84	92.7	72.3	74.4	114.0	70.4	68.30	218.32	170.70	84.59	13725.59	399.5
MEAN	.90	3.09	2.33	2.40	4.07	2.27	2.28	7.04	5.69	2.73	443	13.3
MAX	5.5	13	5.8	3.5	9.9	2.6	17	53	69	68	12800	64
MIN	.02	1.3	1.7	1.6	2.6	1.9	.35	.23	.06	.00	.89	1.6
CFSM	.004	.01	.01	.01	.02	.01	.01	.03	.03	.01	2.03	.06
IN.	.00	.02	.01	.01	.02	.01	.01	.04	.03	.01	2.34	.07
AC-FT	55	184	143	148	226	140	135	433	339	168	27220	792

CAL YR 1977 TOTAL 5277.12 MEAN 14.5 MAX 2370 MIN .00 CFSM .07 IN .90 AC-FT 10470
WTR YR 1978 TOTAL 15118.64 MEAN 41.4 MAX 12800 MIN .00 CFSM .19 IN 2.58 AC-FT 29990

NOTE.--No gage-height record Aug. 3-15.

08151500 LLANO RIVER AT LLANO, TX

LOCATION.--Lat 30°45'10", 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).

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

AVERAGE DISCHARGE.--39 years, 359 ft³/s (10.17 m³/s), 260,100 acre-ft/yr (321 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.--Maximum discharge, 139,000 ft³/s (3,940 m³/s) Aug. 3, gage height, 25.61 ft (7.806 m), from floodmark, no other peak above base of 7,500 ft³/s (212 m³/s); minimum, 32 ft³/s (0.91 m³/s) July 19.

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	117	191	206	184	175	175	146	109	175	74	107	105
2	126	176	202	184	175	175	145	136	172	72	233	115
3	130	169	195	184	175	169	142	207	255	69	54300	120
4	132	166	189	183	175	166	142	167	576	66	6000	149
5	161	164	182	181	173	162	142	157	893	63	2090	178
6	158	162	179	179	173	168	143	144	688	60	1760	151
7	156	165	177	178	173	179	142	139	711	57	949	217
8	148	237	177	173	173	212	138	128	888	55	618	694
9	141	279	173	167	170	214	137	118	1170	52	399	1120
10	157	274	173	167	170	194	211	113	637	49	314	752
11	184	244	173	172	168	186	201	122	432	49	268	587
12	130	217	177	173	184	174	237	107	323	50	225	484
13	133	200	184	179	237	169	197	101	262	48	210	422
14	194	193	186	181	227	164	181	98	226	45	215	381
15	129	190	187	182	219	160	174	97	197	42	217	364
16	123	188	184	190	210	159	164	97	179	42	189	358
17	178	184	175	183	214	157	156	99	165	41	175	353
18	131	182	173	185	210	155	145	105	153	40	161	347
19	171	182	173	185	208	154	140	85	142	37	147	347
20	141	182	171	182	200	152	136	88	133	39	141	342
21	134	179	167	179	191	149	130	157	124	40	141	389
22	213	178	170	177	187	150	126	153	115	38	132	636
23	215	180	170	177	184	159	127	130	108	42	117	471
24	247	179	170	181	182	175	126	173	100	47	115	404
25	228	177	168	181	178	169	116	169	94	47	105	353
26	205	174	168	177	176	158	117	140	88	47	104	308
27	190	173	170	174	175	151	113	124	84	49	101	290
28	188	173	171	172	175	150	110	113	81	51	101	279
29	182	206	176	173	---	150	108	148	81	54	106	262
30	182	208	178	173	---	150	108	659	76	85	101	246
31	183	---	183	175	---	149	---	257	---	112	95	---
TOTAL	5107	5772	5527	5531	5257	5154	4400	4640	9328	1662	69936	11224
MEAN	165	192	178	178	188	166	147	150	311	53.6	2256	374
MAX	247	279	206	190	237	214	237	659	1170	112	54300	1120
MIN	117	162	167	167	168	149	108	85	76	37	95	105
AC-FT	10130	11450	10960	10970	10430	10220	8730	9200	18500	3300	138700	22260

CAL YR 1977 TOTAL 204573 MEAN 560 MAX 41100 MIN 117 AC-FT 405800
WTR YR 1978 TOTAL 133538 MEAN 366 MAX 54300 MIN 37 AC-FT 264900

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.--12 years, 63.4 ft³/s (1.795 m³/s), 2.63 in/yr (67 mm/yr), 45,930 acre-ft/yr (56.6 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 year.

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), discharage 163,000 ft³/s (4,620 m³s), from slope-area measurement at gage site.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 3	1000	1,230	34.8	7.31	2.228	Aug. 2	1430	3,610	102	8.89	2.710
July 27	2130	1,470	41.6	7.49	2.283	Sept. 8	1000	*27,000	765	17.20	5.243

Minimum discharge, no flow at times.

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	5.0	14	7.9	8.8	7.9	5.3	2.0	14	.00	22	1.3
2	.07	6.1	14	7.4	7.9	8.3	5.0	8.8	12	.00	1140	1.6
3	.00	5.4	14	7.4	7.3	7.4	5.1	39	487	.01	498	.59
4	.00	4.4	13	7.0	7.0	7.4	5.0	19	230	.01	212	.31
5	.18	4.0	11	7.0	6.5	7.4	4.5	9.7	63	.00	55	.32
6	.24	3.7	8.3	6.5	6.4	8.7	4.3	6.8	35	.00	30	.32
7	.28	3.7	7.9	6.1	13	13	4.1	6.3	140	.01	17	.85
8	.27	17	7.9	5.7	13	11	4.0	4.9	94	.00	9.3	3610
9	.28	20	7.0	5.4	12	9.3	4.3	3.2	45	.00	7.4	490
10	.41	13	6.5	4.7	11	8.8	18	2.8	27	.00	5.9	81
11	.46	13	6.5	7.9	10	8.1	16	8.9	18	.00	5.0	48
12	.41	12	8.3	8.8	30	7.0	15	5.1	13	.00	4.0	36
13	.57	12	8.8	7.4	37	7.5	12	2.2	9.8	.01	3.2	24
14	.59	12	7.9	6.5	22	6.9	9.5	1.2	7.9	.01	2.5	18
15	.64	10	7.4	5.7	20	6.3	7.6	.52	6.5	.01	1.8	18
16	.63	9.8	6.5	11	18	5.7	6.3	.25	4.9	.01	1.3	14
17	.64	8.8	5.7	13	22	5.9	5.3	.03	3.7	.00	1.1	11
18	.82	8.3	5.0	12	18	5.7	4.5	.00	2.8	.01	.66	8.1
19	1.2	9.3	5.4	9.3	14	5.4	3.4	.00	2.2	.01	.46	6.5
20	1.2	10	5.4	9.3	14	5.3	2.9	5.2	1.8	.01	.46	5.7
21	1.2	10	4.7	8.8	12	5.6	2.6	16	1.4	.00	.60	11
22	1.2	10	4.7	8.3	11	5.6	2.5	14	1.1	.00	.71	18
23	1.2	9.8	5.0	7.9	10	6.7	2.3	12	.72	.00	.63	13
24	1.2	10	5.7	7.4	9.6	18	2.7	9.5	.38	.01	.63	12
25	1.2	10	5.7	6.5	9.1	11	10	6.7	.17	.05	.63	9.5
26	1.2	10	5.7	5.3	8.3	12	7.6	4.5	.06	.06	.63	7.4
27	1.2	9.3	5.7	5.4	8.7	10	4.7	2.7	.03	129	.55	8.0
28	1.2	9.3	5.7	5.4	9.2	8.0	3.2	1.7	.01	113	.61	10
29	1.2	15	7.9	5.4	---	6.8	2.7	5.7	.01	29	.34	8.8
30	2.3	17	8.3	5.7	---	6.1	2.3	5.6	.01	14	.32	7.6
31	4.0	---	8.3	7.0	---	5.6	---	16	---	8.8	.32	---
TOTAL	25.99	297.9	237.9	229.1	375.8	248.4	182.7	220.30	1221.49	294.02	2023.05	4480.89
MEAN	.84	9.93	7.67	7.39	13.4	8.01	6.09	7.11	40.7	9.48	65.3	149
MAX	4.0	20	14	13	37	18	18	39	487	129	1140	3610
MIN	.00	3.7	4.7	4.7	6.4	5.3	2.3	.00	.01	.00	.32	.31
CFSM	.003	.03	.02	.02	.04	.02	.02	.02	.12	.03	.20	.46
IN.	.00	.03	.03	.03	.04	.03	.02	.03	.14	.03	.23	.51
AC-FT	52	591	472	454	745	493	362	437	2420	583	4010	8890

CAL YR 1977 TOTAL 22324.33 MEAN 61.2 MAX 6670 MIN .00 CFSM .19 IN 2.54 AC-FT 44280
WTR YR 1978 TOTAL 9837.54 MEAN 27.0 MAX 3610 MIN .00 CFSM .08 IN 1.12 AC-FT 19510

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 (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 646 acre-ft (797,000 m³) of sewage effluent into the river. Records furnished by the city of Johnson City show that 176 acre-ft (217,000 m³) was diverted from pool at gage and 86.6 acre-ft (107,000 m³) of treated sewage effluent was returned to the river below gage.

AVERAGE DISCHARGE.--39 years (water years 1940-78), 176 ft³/s (4.984 m³/s), 127,500 acre-ft/yr (157 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, 42.5 ft (12.95 m) Sept. 11, 1952; 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)
Aug. 2	1515	69,500	1,970	20.21	6.160	Sept. 8	1200	52,900	1,500	18.73	5.709
Aug. 3	1315	*127,000	3,600	24.90	7.590						

Minimum daily discharge, 0.50 ft³/s (0.014 m³/s) July 22.

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	26	57	57	40	44	41	34	27	45	4.5	123	490
2	27	64	60	40	44	40	34	28	37	4.8	22400	266
3	35	70	55	41	45	40	35	56	739	4.1	30100	119
4	29	46	49	40	45	40	35	133	381	3.5	2580	86
5	29	43	40	41	44	39	34	69	134	3.1	743	88
6	28	41	40	42	44	51	34	52	105	2.3	451	66
7	27	40	42	40	49	45	34	50	618	1.9	1230	69
8	26	83	44	40	51	45	33	43	262	1.8	455	10000
9	27	75	36	39	45	45	34	37	114	1.9	277	1590
10	27	76	40	36	47	47	64	33	77	1.6	220	591
11	27	66	40	39	46	45	84	42	59	1.5	191	380
12	24	79	42	40	57	40	87	37	47	1.3	166	296
13	22	56	40	37	127	40	63	44	42	1.1	148	245
14	24	51	43	40	110	35	51	41	38	1.1	133	203
15	24	50	42	40	86	35	44	37	35	1.0	123	159
16	24	47	41	46	74	35	40	28	32	1.1	113	325
17	24	45	40	50	64	35	38	24	29	.92	102	159
18	24	45	40	57	64	35	33	27	27	.76	96	127
19	24	45	37	45	64	35	30	27	27	.62	88	112
20	24	45	35	45	57	35	31	28	26	.59	87	105
21	24	40	35	45	51	35	31	26	23	.64	83	335
22	278	43	36	45	54	35	30	22	20	.50	76	246
23	211	45	37	45	45	36	30	21	17	.65	72	218
24	123	42	35	45	45	35	32	29	13	1.5	70	176
25	78	40	36	45	43	35	43	27	12	2.0	64	143
26	59	41	37	42	45	35	33	24	8.9	1.9	64	127
27	51	39	37	40	44	35	41	22	7.3	1.8	57	122
28	51	40	40	40	45	35	30	20	7.0	2.5	57	124
29	45	40	43	40	---	35	26	22	6.8	42	54	119
30	45	44	45	40	---	35	27	31	5.2	51	51	110
31	43	---	45	40	---	35	---	57	---	54	54	---
TOTAL	1530	1538	1289	1305	1579	1189	1195	1164	2994.2	197.98	60528	17196
MEAN	49.4	51.3	41.6	42.1	56.4	38.4	39.8	37.5	99.8	6.39	1953	573
MAX	278	83	60	57	127	51	87	133	739	54	30100	10000
MIN	22	39	35	36	43	35	26	20	5.2	.50	51	66
AC-FT	3030	3050	2560	2590	3130	2360	2370	2310	5940	393	120100	34110

CAL YR 1977 TOTAL 110737.00 MEAN 303 MAX 36400 MIN 21 AC-FT 219600
WTR YR 1978 TOTAL 91705.18 MEAN 251 MAX 30100 MIN .50 AC-FT 181900

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 1977 TO SEPTEMBER 1978

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 05...	0826	31	786	7.9	22.5	270	61	34	46	54
NOV 11...	0920	64	650	8.1	12.0	250	40	42	36	39
DEC 23...	0850	35	821	8.0	8.5	310	64	45	48	53
FEB 01...	0945	45	830	8.0	5.5	330	66	54	47	53
MAR 15...	0855	35	776	8.1	16.0	300	62	46	45	49
APR 26...	0825	35	724	--	22.5	270	36	34	44	51
JUN 07...	0945	105	337	--	26.0	130	11	29	15	13
JUL 19...	0955	.72	648	--	28.0	240	35	35	37	40
AUG 30...	0925	51	669	--	27.0	230	46	33	37	43

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...	1.4	3.5	260	0	45	98	.4	15	424
NOV 11...	1.1	3.1	260	0	37	64	.4	7.7	357
DEC 23...	1.3	3.4	300	0	44	89	.4	3.0	434
FEB 01...	1.3	2.9	320	0	43	110	.4	4.0	472
MAR 15...	1.2	2.9	290	0	41	83	.4	.8	411
APR 26...	1.4	3.7	280	0	37	86	.4	4.3	398
JUN 07...	.5	3.2	150	0	12	21	.2	9.6	177
JUL 19...	1.1	4.1	250	0	27	68	.4	23	358
AUG 30...	1.2	3.9	230	0	40	78	.4	9.3	358

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 (0.37 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 at National Geodetic Vertial Datum, unadjusted. Dec. 26, 1940, to February 1942, mercury manometer in powerhouse, datum at National Geodetic Vertical Datum, unadjusted.

REMARKS.--The lake is formed by a concrete gravity, earth, and rockfill dam, 7,098 ft (2,163 m) long. Storage began Sept. 9, 1940, and dam was completed in early 1942. Capacity curve is based on an October 1939 survey. The 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 were furnished by the 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, 916,000 acre-ft (1.13 km³) Mar. 13, gage height, 666.07 ft (203.018 m); minimun, 640,900 acre-ft (0.790 km³) July 21, gage height, 645.78 ft (196.834 m).

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

645.0	631,700	660.0	824,700
650.0	690,700	665.0	899,700
655.0	754,500	667.0	930,400

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	896300	903500	899900	884000	892000	908800	891500	809900	707400	664200	652500	824300
2	895600	903700	899900	883700	891400	909700	888300	809700	706000	661400	682400	820600
3	898200	903100	899900	883400	890500	911900	887300	812900	708800	659900	814600	816500
4	897900	903100	899900	883200	890600	912700	883800	809300	707200	657500	868200	812600
5	897300	903100	899900	885300	890300	912700	880800	805400	706000	655700	863900	808400
6	897000	903100	898100	885500	890800	913900	877500	801400	711300	654800	861900	804100
7	896600	902900	898800	885500	892600	914000	875000	797700	717200	653800	860900	801200
8	896900	905500	899100	886500	892300	914900	873500	793400	723300	653300	862200	840600
9	896600	905200	898800	885900	894900	915100	870200	788900	720400	652500	864000	843800
10	896100	904900	898100	888500	897000	915400	870000	784900	717700	651900	865200	844700
11	895600	904900	897800	888200	897000	900700	869000	781200	722000	652400	866600	845600
12	896600	904900	897300	887700	899900	915200	866100	778300	715900	650600	867500	846200
13	894600	904700	897800	887400	899900	916000	863900	773900	712800	648500	865500	849300
14	894100	907100	895200	887100	899600	915700	861200	769600	709200	647000	865800	849300
15	894100	909700	893200	887100	902200	914200	857400	765400	706200	647700	866000	847800
16	893700	910400	892800	892300	902000	914200	853500	762900	702900	646700	866700	845900
17	892800	910300	890900	891100	904700	913000	853800	758600	701900	645000	865800	843600
18	892800	910100	889600	891500	905000	911500	850700	754900	697500	643900	865800	841500
19	892500	910100	888500	891700	905000	910700	847200	750900	693800	642600	864600	838200
20	892900	911300	886700	891700	905200	909500	844200	747400	691300	641500	862800	829100
21	894100	912700	885900	891200	905500	908900	840800	744000	689800	640900	862100	836700
22	895900	912400	885800	890800	905500	908000	836700	740100	688000	641100	861000	834300
23	896400	912800	885200	891200	905600	910000	832800	737100	685600	641800	858500	831500
24	899000	912800	884300	892000	905500	908000	829500	733100	684300	641500	857400	828600
25	899100	912500	883800	891700	905500	906700	827100	729800	681100	643000	855000	827400
26	899100	912200	882900	890900	906400	905600	824000	728100	679800	644900	852200	825300
27	899400	912200	882000	890900	908000	904400	821000	724600	677700	646100	848000	823400
28	900400	909800	881900	890200	908200	901900	817900	720800	671500	646600	846200	821000
29	900200	907400	883200	889300	---	899100	815100	717100	668500	648000	840000	819800
30	900700	901600	883400	892300	---	896600	811900	713500	666200	648000	834200	818400
31	901000	---	883500	891200	---	893800	---	709900	---	647700	828900	---
MAX	901000	912800	899900	892300	908200	916000	891500	812900	723300	664200	868200	849300
MIN	892500	901600	881900	883200	890300	893800	811900	709900	666200	640900	652500	801200
(†)	665.07	665.11	663.92	664.43	665.55	664.60	659.13	651.55	647.92	646.36	660.28	659.57
(‡)	+2300	+600	-18100	+7700	+17000	-14400	-81900	-102000	-43700	-18500	+181200	-10500

CAL YR 1977 MAX 1404000 MIN 881900 ‡ -271500
WTR YR 1978 MAX 916000 MIN 640900 ‡ -80300

† 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, 3,830 ft³/s (108 m³/s) June 28; no flow at times.

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	964	.00	681	.00	281	.00	1310	1470	2360	2510	.00	2220
2	994	.00	.00	.00	280	.00	1290	1690	2170	2670	.00	2140
3	857	.00	.00	.00	280	.00	1340	1610	2380	2600	1100	2180
4	616	.00	.00	.00	281	.00	2100	1830	2350	2450	1280	2180
5	518	.00	151	459	281	.00	1640	1920	2280	2420	1620	2020
6	.00	.00	2080	.00	281	.00	1590	1980	2270	1730	1610	2060
7	.00	.00	.00	.00	150	.00	1700	1930	.00	1890	2110	2030
8	262	.00	.00	.00	.00	.00	1720	1940	.00	1930	1880	1680
9	.00	.00	.00	453	12	.00	1710	2100	2250	2040	2030	1610
10	463	.00	.00	283	48	.00	1250	2100	2280	1980	2020	1460
11	.00	.00	.00	228	.00	.00	559	2100	2190	1690	1800	1120
12	.00	.00	592	.00	.00	.00	1370	2110	2190	1660	2140	.00
13	131	.00	928	.00	.00	38	1260	2160	2400	1720	1850	.00
14	.00	.00	981	.00	.00	.00	1720	2120	2750	1870	2060	.00
15	.00	.00	949	.00	.00	636	1750	2210	2680	1710	2090	1150
16	.00	.00	340	.00	.00	634	1740	2220	2950	1720	2090	979
17	328	.00	655	.00	.00	568	1770	2220	1520	1730	2270	1010
18	.00	.00	661	.00	.00	523	1730	2280	3460	1740	2040	964
19	.00	.00	561	157	.00	534	1670	2400	2700	1720	2600	1510
20	.00	.00	527	.00	.00	607	1260	2000	2750	1750	2190	1430
21	178	.00	316	173	.00	552	1580	1800	2700	1680	2650	1460
22	.00	.00	411	.00	30	537	1740	1910	2680	1490	2460	1440
23	.00	.00	411	.00	.00	537	1760	2200	2680	1520	2710	1470
24	.00	.00	416	139	.00	773	1830	2340	2640	1500	1820	1620
25	.00	.00	406	276	.00	774	1590	2130	2460	1120	3400	1470
26	.00	.00	411	279	.00	824	1470	2250	2100	1590	2410	1060
27	.00	.00	411	287	.00	777	1380	2320	3010	807	2880	980
28	.00	1290	.00	281	.00	1350	1420	2400	3830	1180	2410	1040
29	.00	3030	.00	383	---	1320	1420	2350	2730	1180	3110	690
30	.00	3240	.00	446	---	1300	1500	2480	2840	1240	2480	779
31	35	---	.00	281	---	1320	---	2410	---	1160	2420	---
TOTAL	5346.00	7560.00	11888.00	4125.00	1924.00	13604.00	46169	64980	71600.00	53997	63530.00	39752.00
MEAN	172	252	383	133	68.7	439	1539	2096	2387	1742	2049	1325
MAX	994	3240	2080	459	281	1350	2100	2480	3830	2670	3400	2220
MIN	.00	.00	.00	.00	.00	.00	559	1470	.00	807	.00	.00
AC-FT	10600	15000	23580	8180	3820	26980	91580	128900	142000	107100	126000	78850

CAL YR 1977 TOTAL 834111.00 MEAN 2285 MAX 25300 MIN .00 AC-FT 1654000
WTR YR 1978 TOTAL 384475.00 MEAN 1053 MAX 3830 MIN .00 AC-FT 762600

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 to September 1978.

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.--Maximum discharge during period July to September, 60 ft³/s (1.70 m³/s) Sept. 15, gage height, 3.37 ft (1.027 m), no peak above base of 800 ft³/s (22.7 m³/s); minimum, 0.02 ft³/s (0.001 m³/s) July 30, 31.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: April to September 1968.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
APR										
11...	0825	6.0	617	7.8	15.0	20	30	9.0	92	2.0
JUN										
07...	0830	45	594	7.7	23.0	30	75	8.3	99	1.2
JUL										
25...	0900	.14	564	7.2	26.0	5	3	2.5	31	1.4
AUG										
01...	1235	6.7	316	7.2	23.5	30	140	8.1	98	2.1
SEP										
08...	0855	4.2	508	7.1	24.0	20	35	5.2	63	1.3
25...	0930	.46	756	7.6	23.0	0	1	6.0	71	.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
APR									
11...	160000	3000	5800	260	66	74	19	31	.8
JUN									
07...	45000	11000	19000	230	36	65	17	33	.9
JUL									
25...	14000	500	240	250	92	68	19	23	.6
AUG									
01...	160000	84000	20000	130	27	40	8.2	10	.4
SEP									
08...	35000	7000	7500	210	66	59	14	21	.6
25...	2800	110	320	280	93	70	26	38	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)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
APR									
11...	2.3	240	0	65	45	.2	8.0	363	33
JUN									
07...	2.3	240	0	48	38	.2	7.0	329	114
JUL									
25...	3.4	190	0	67	46	.2	10	331	2
AUG									
01...	2.4	130	0	29	17	.1	6.5	177	176
SEP									
08...	2.9	170	0	64	36	.2	8.1	289	27
25...	3.0	230	0	100	55	.4	10	416	1

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)
APR									
11...	8	.10	.01	.11	.01	.31	.32	.03	6.7
JUN									
07...	15	.34	.02	.36	.09	.43	.52	.05	5.4
JUL									
25...	2	.04	.00	.04	.00	.30	.30	.01	5.0
AUG									
01...	48	.42	.02	.44	.00	.60	.60	.06	6.9
SEP									
08...	6	.14	.03	.17	.01	.59	.60	.02	5.8
25...	0	.00	.00	.00	.00	.26	.26	.01	3.6

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JUN							
07...	0830	1	100	0	10	1	10
JUL							
25...	0900	1	200	0	0	13	50
AUG							
01...	1235	1	30	<1	0	1	20
SEP							
08...	0855	2	0	0	10	1	20
25...	0930	1	60	<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)
JUN						
07...	2	10	.0	1	0	10
JUL						
25...	0	30	.0	0	0	10
AUG						
01...	2	<1	.0	0	0	<3
SEP						
08...	0	10	.0	0	0	20
25...	0	6	.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)
JUN									
07...	0830	.0	.00	.00	.0	.00	.00	.00	.01
JUL									
25...	0900	.0	.00	.00	.0	.00	.00	.00	.37
SEP									
08...	0855	.0	.00	.00	.0	.00	.00	.00	.05
25...	0930	.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)
JUN									
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL									
25...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP									
08...	.00	.00	.00	.00	.00	.00	.00	.00	.00
25...	.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)
JUN								
07...	.00	--	.00	0	.00	.00	.00	.00
JUL								
25...	.00	.00	.00	0	.00	.00	.00	.00
SEP								
08...	.00	.00	.00	0	.00	.01	.01	.00
25...	.00	.00	.00	0	.00	.00	.00	.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 mi² (17.53 km²).

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
APR 11...	0752	64	628	7.8	14.5	5	1	9.7	98	.8
JUN 07...	0933	2.8	472	8.0	23.0	20	10	8.3	99	.6
AUG 01...	1300	.24	658	8.0	25.0	20	8	8.2	101	1.8
SEP 08...	0945	.01	1000	7.4	23.5	5	4	8.2	99	.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
APR 11...	11000	72	440	340	120	90	27	8.9	.2
JUN 07...	25000	2100	6000	240	60	65	19	7.7	.2
AUG 01...	>70000	70000	5400	340	210	94	25	5.0	.1
SEP 08...	29000	7400	1800	580	400	160	43	11	.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)
APR 11...	1.3	260	0	100	22	.2	9.7	387	1
JUN 07...	1.3	220	0	44	16	.1	12	274	15
AUG 01...	4.9	150	0	210	8.8	.2	9.6	432	4
SEP 08...	4.5	210	0	390	12	.2	11	735	1

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)
APR 11...	1	.06	.01	.07	.01	.28	.29	.00	2.0
JUN 07...	3	.14	.01	.15	.06	.25	.31	.02	3.9
AUG 01...	1	.15	.01	--	.00	.80	--	.03	7.5
SEP 08...	1	.24	.01	.25	.01	.49	.50	.01	6.4

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JUN 07...	0933	1	200	0	0	0	20
AUG 01...	1300	1	40	<1	0	2	10
SEP 08...	0945	1	0	1	0	4	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)
JUN 07...	4	0	.0	0	0	10
AUG 01...	3	10	.0	0	0	4
SEP 08...	4	10	.0	1	0	20

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)
JUN 07...	0933	.0	.00	.00	.0	.00	.00	.00	.00
SEP 08...	0945	.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)
JUN 07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP 08...	.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)
JUN 07...	.00	--	.00	0	.00	.00	.00	.00
SEP 08...	.00	.00	.00	0	.00	.00	.00	.00

08154760 BULL CREEK AT FARM ROAD 2222 NEAR AUSTIN, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 30°21'33", long 97°47'16", Travis County, Hydrologic Unit 12090205, low-water crossing at Farm Road 2222, 50 ft (15 m) west of Lakewood Drive, and 6.5 mi (10.5 km) northwest of State Capitol in Austin.

DRAINAGE AREA.--30.42 mi² (78.79 km²).

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: January 1975 to April 1978 (discontinued).

DISCHARGE AND WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
JAN 11...	0930	8.0	759	8.1	4.0	5	6	12.0	94	.8
FEB 21...	0900	18	636	8.0	6.5	5	6	12.9	108	.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 11...	6000	80	36	290	130	74	26	45	1.1
FEB 21...	900	15	17	--	--	--	--	--	--

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 11...	2.4	200	0	150	55	.2	5.3	457	6
FEB 21...	--	--	--	--	--	--	--	--	5

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)
JAN 11...	0	.21	.01	.22	.08	.32	.40	.02	3.4
FEB 21...	5	.05	.00	.05	.01	.15	.16	.02	3.9

08154760 BULL CREEK AT FARM ROAD 2222 NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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...	0930	0	0	0	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)
JAN 11...	0	0	.0	0	0	0

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)
JAN 11...	0930	.0	.00	.00	.0	.00	.00	.00

DATE	DI-AZINON, TOTAL (UG/L)	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)
JAN 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)
JAN 11...	.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 km²), 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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
NOV 15...	1345	596	8.1	18.0	220	41	54	21	32
FEB 15...	1330	570	--	8.0	210	51	45	23	35
MAR 20...	1320	584	--	16.0	220	61	49	23	34
APR 17...	1335	587	--	18.0	220	63	48	24	37
MAY 16...	1330	600	--	19.0	220	56	47	25	36
JUL 14...	1330	600	--	25.0	210	45	44	24	37
AUG 15...	1320	585	--	28.5	210	58	46	24	41
SEP 15...	1400	504	--	28.0	180	45	41	18	30

DATE	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)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 15...	.9	3.6	220	0	37	62	.3	12	330
FEB 15...	1.1	3.7	180	5	42	65	.3	8.7	316
MAR 20...	1.0	3.9	190	0	42	57	.2	7.8	311
APR 17...	1.1	3.6	190	0	41	67	.2	6.7	321
MAY 16...	1.1	3.8	200	0	42	66	.3	8.4	327
JUL 14...	1.1	3.9	200	0	43	68	.3	8.5	327
AUG 15...	1.2	3.9	190	0	42	70	.2	9.7	330
SEP 15...	1.0	4.2	160	0	35	58	.2	8.9	274

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	548	---	604	574	---	---	---	596	531	---	---	509
2	---	556	---	---	564	567	---	595	---	550	---	---
3	549	561	591	574	---	---	---	593	558	527	584	---
4	553	558	550	577	574	561	598	582	521	598	---	---
5	---	560	594	577	574	577	598	565	548	532	585	---
6	553	565	---	---	577	574	---	---	563	584	585	---
7	550	578	---	---	---	567	598	---	548	---	589	---
8	---	578	---	---	571	579	---	554	569	---	585	---
9	---	565	586	---	582	576	---	595	537	550	---	---
10	---	---	586	574	---	---	---	592	---	584	565	---
11	---	---	579	577	579	---	595	599	---	---	---	---
12	---	---	584	---	574	580	---	593	---	---	589	---
13	552	571	---	577	567	577	595	594	582	598	589	---
14	554	578	---	---	573	569	587	594	572	595	---	509
15	---	582	578	---	574	550	587	595	---	532	585	---
16	---	564	---	---	570	577	585	---	---	589	574	---
17	---	581	578	574	575	555	585	---	---	569	571	---
18	---	586	---	577	573	563	598	598	---	---	565	509
19	---	---	568	576	571	---	---	598	576	---	---	---
20	557	---	---	---	573	563	598	598	554	602	555	---
21	565	589	---	579	576	581	598	594	601	597	---	---
22	559	589	568	574	---	581	572	594	540	---	---	---
23	559	557	572	---	573	580	593	591	---	---	538	---
24	559	573	574	571	573	581	548	591	---	579	523	---
25	---	580	---	573	574	578	598	594	---	---	---	523
26	---	597	---	570	574	578	598	---	---	---	528	---
27	559	587	565	563	575	---	596	---	599	592	523	---
28	---	---	---	567	---	587	595	589	592	---	514	---
29	---	605	570	574	---	581	---	589	601	573	514	---
30	565	559	---	---	---	587	582	---	595	597	518	---
31	565	---	---	573	---	565	---	---	---	---	514	---
MEAN	556	575	578	574	573	573	590	591	566	575	557	513

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31.0	---	16.5	9.5	---	---	---	18.5	19.0	---	---	25.5
2	---	23.0	---	---	9.0	14.5	---	18.0	---	21.5	---	---
3	27.0	21.0	16.5	11.0	---	---	---	16.5	18.5	22.0	25.5	---
4	25.5	20.5	16.5	11.0	7.0	13.5	19.0	16.5	---	22.0	---	---
5	---	20.5	15.5	11.5	9.0	14.5	19.0	16.5	18.0	23.5	---	---
6	25.0	20.5	---	---	12.0	13.5	---	---	18.0	23.5	25.5	---
7	25.0	21.0	---	---	---	11.0	18.5	---	19.5	---	26.0	---
8	---	20.5	---	---	7.0	10.5	---	16.5	18.5	---	25.5	---
9	---	20.0	15.5	---	8.0	10.0	---	18.5	18.0	24.5	---	---
10	---	---	16.0	11.0	---	---	---	19.0	---	24.5	25.5	---
11	---	---	15.0	10.5	7.0	---	18.0	17.0	---	---	---	---
12	---	---	16.0	---	8.0	13.0	---	18.0	---	---	22.0	---
13	22.0	18.0	---	10.0	8.0	11.0	16.5	18.5	21.0	24.5	24.5	---
14	23.0	17.0	---	---	8.0	13.5	18.5	19.0	21.5	24.5	---	25.5
15	---	18.0	14.5	---	8.0	14.0	18.0	18.0	---	24.5	26.5	---
16	---	18.0	---	---	8.0	14.5	18.0	---	---	25.0	26.0	---
17	---	18.0	15.0	9.5	8.5	13.5	18.0	---	---	25.0	25.5	---
18	---	18.5	---	9.5	8.0	14.5	18.0	16.5	---	---	25.5	26.5
19	---	---	---	9.5	8.0	---	---	19.0	20.5	---	---	---
20	23.0	---	---	---	8.0	15.0	16.5	19.0	20.5	25.0	24.5	---
21	22.0	19.0	---	8.5	8.0	15.5	17.0	18.5	20.5	25.5	---	---
22	22.0	18.5	13.5	8.0	---	15.5	17.0	18.5	21.0	---	---	---
23	22.0	18.0	13.5	---	8.0	15.5	16.0	18.5	---	---	25.5	---
24	22.0	18.0	13.5	9.5	8.0	17.0	16.0	18.5	---	25.5	23.5	---
25	---	18.0	---	9.0	13.0	16.0	16.5	18.5	---	---	---	25.0
26	---	18.0	---	9.0	10.0	16.5	17.0	---	---	---	23.5	---
27	22.0	18.0	12.0	10.0	13.0	---	16.0	---	23.5	25.5	23.0	---
28	---	---	---	9.0	---	17.0	16.5	19.0	22.0	---	24.5	---
29	---	16.5	12.0	9.0	---	17.0	---	18.5	21.0	25.5	25.5	---
30	22.0	16.0	---	---	---	16.5	18.5	---	20.5	25.5	25.5	---
31	22.0	---	---	9.5	---	16.5	---	---	---	---	25.5	---
MEAN	23.5	19.0	15.0	9.5	8.5	14.5	17.5	18.0	20.0	24.5	25.0	25.5

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 to September 1978.

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.--Maximum discharge, 124 ft³/s (3.51 m³/s) June 7, gage height, 3.74 ft (1.140 m), no peak above base of 1,000 ft³/s (28.3 m³/s); no flow for several days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	.00	.43	.36	.00	.00	6.8	.00
2					---	.00	.43	.43	.00	.00	2.4	.00
3					---	.00	.47	.78	.00	.00	.64	.00
4					---	.00	.51	.51	.00	.00	7.6	.26
5					---	.00	.51	.43	.00	.00	5.1	.36
6					---	.12	.51	.33	2.6	.00	3.2	.01
7					.00	.17	.51	.36	48	.00	2.1	.01
8					.00	.10	.51	.26	13	.00	1.4	.17
9					.00	.00	.51	.17	6.6	.00	1.1	.17
10					.00	.00	9.8	.15	2.8	.00	1.0	.83
11					.00	.00	1.5	.12	2.2	.00	.85	2.3
12					.00	.00	.94	.10	2.1	.00	.59	.76
13					.00	.00	.94	.03	1.9	.00	.43	1.3
14					.00	.00	.94	.00	1.7	.00	.35	1.7
15					.00	.00	.94	.00	1.6	.00	.31	1.3
16					.00	.00	.94	.00	1.4	.00	.25	.90
17					.00	.00	.94	.00	1.2	.00	.21	.16
18					.00	.00	1.2	.00	.94	.00	.13	.16
19					.00	.30	1.2	.00	.74	.00	.10	.16
20					.00	.36	1.2	.10	.51	.00	.08	.16
21					.00	.36	1.1	.10	.26	.00	.08	.16
22					.00	.30	.94	.03	.10	.00	.08	.16
23					.00	.30	.94	.00	.00	.00	.03	.16
24					.00	.40	.94	.00	.00	.00	.00	.16
25					.00	.40	.83	.00	.00	.00	.00	.16
26					.00	.40	.64	.05	.00	.00	.00	.16
27					.00	.40	.56	.17	.00	.00	.00	.16
28					.00	.40	.47	.08	.00	.00	.00	.16
29					---	.40	.47	.00	.00	.00	.00	.16
30					---	.40	.40	.00	.00	.00	.00	.16
31					---	.43	---	.00	---	.00	.00	---
TOTAL					---	5.24	32.22	4.56	87.65	.00	34.83	12.31
MEAN					---	.17	1.07	.15	2.92	.000	1.12	.41
MAX					---	.43	9.8	.78	48	.00	7.6	2.3
MIN					---	.00	.40	.00	.00	.00	.00	.00
CFSM					---	.002	.01	.002	.03	.000	.01	.005
IN.					---	.00	.01	.00	.04	.00	.01	.01
AC-FT					---	10	64	9.0	174	.00	69	24
(††)					1.83	1.37	1.99	2.13	3.37	1.05	4.21	2.36

WTR YR 1978 TOTAL - MEAN - MAX - MIN - CFSM - IN. - AC-FT - †† -

†† 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 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
APR										
10...	1000	8.1	202	8.6	20.0	60	320	6.1	69	4.4
JUN										
07...	1100	59	269	8.0	22.0	40	70	--	--	1.2
SEP										
05...	1230	.11	381	7.8	28.0	5	5	8.8	113	.9
27...	0850	.43	421	7.5	23.5	1	0	4.5	54	.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
APR									
10...	32000	19000	15000	98	16	29	6.2	2.9	.1
JUN									
07...	43000	9600	17000	130	11	35	9.3	4.6	.2
SEP									
05...	17000	480	830	190	23	50	15	7.1	.2
27...	660	26	180	210	28	57	16	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)
APR									
10...	2.2	100	0	17	5.6	.2	4.6	117	520
JUN									
07...	1.7	140	0	17	8.7	.1	7.9	153	98
SEP									
05...	1.3	200	0	19	17	.2	11	219	5
27...	1.1	220	0	19	12	.2	11	232	1

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)
APR									
10...	90	.14	.01	.15	.08	1.2	1.3	.12	32
JUN									
07...	12	.19	.01	.20	.08	.50	.58	.04	4.7
SEP									
05...	3	.15	.00	.15	.01	.39	.40	.02	2.8
27...	0	.02	.00	.02	.00	.15	.15	.00	1.3

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JUN							
07...	1100	1	100	0	0	0	40
SEP							
05...	1230	3	--	0	0	0	40
27...	0850	0	0	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)
JUN						
07...	4	0	.0	0	0	0
SEP						
05...	0	20	.0	0	0	0
27...	0	0	.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)
JUN									
07...	1100	.0	.00	.00	.0	.00	.00	.00	.00
SEP									
05...	1230	.0	.00	.00	.0	.00	.00	.00	.00
27...	0850	.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)
JUN									
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP									
05...	.00	--	.00	.00	.00	.00	.00	.00	.00
27...	.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)
JUN								
07...	.00	--	.00	0	.00	.00	.00	.00
SEP								
05...	.00	.00	.00	0	.00	.00	.00	.00
27...	.00	.00	.00	0	.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 mi^2 (300 km^2).

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 (Texas Department of Highways and Public Transportation bench mark).

REMARKS.--Records good. No known regulation or diversions. There are two recording rain gages in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,270 ft^3/s (92.6 m^3/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 ft^3/s (1,120 m^3/s), based on a slope-area measurement of peak flow at a site about 2 mi (3 km) upstream.

EXTREMES FOR CURRENT YEAR.--No flow during year.

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.

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 to September 1978.

GAGE.--Water-stage recorder. Datum of gage, at ground-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 poor. Entire flow published is springflow from the Edwards and associated 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, 42 ft^3/s (1.19 m^3/s) Mar. 10, 12, 14, 1978; minimum daily, 12 ft^3/s (0.34 m^3/s) Feb. 25, 1918.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge during period March to September, 42 ft^3/s (1.19 m^3/s) Mar. 10, 12, 14; minimum daily, 19 ft^3/s (0.54 m^3/s) July 25, 27-29, and Aug. 1.

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.

DISCHARGE AND WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
JAN										
16...	1340	39	659	7.4	21.0	0	0	8.0	92	.2
FEB										
28...	1030	42	702	7.0	21.5	0	0	7.8	91	.4
MAR										
28...	1535	34	679	7.1	22.0	--	--	7.6	89	--
APR										
11...	1010	32	666	7.2	21.0	0	0	8.1	93	.7
JUN										
08...	1600	35	677	7.0	23.5	0	4	8.2	99	.2
AUG										
08...	1600	26	716	7.0	23.5	0	1	8.0	96	.3
SEP										
27...	1200	26	681	7.2	21.5	0	0	6.6	77	.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
JAN									
16...	2500	38	140	310	45	82	25	21	.5
FEB									
28...	11000	10	17	--	--	--	--	--	--
MAR									
28...	--	--	--	--	--	--	--	--	--
APR									
11...	2200	69	80	320	55	86	25	21	.5
JUN									
08...	11000	500	190	300	42	84	23	27	.7
AUG									
08...	300	190	140	300	35	78	25	28	.7
SEP									
27...	4300	23	1200	300	34	81	23	25	.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)
JAN									
16...	1.4	320	0	40	35	.3	11	373	0
FEB									
28...	--	--	--	--	--	--	--	--	0
MAR									
28...	--	--	--	--	--	--	--	--	--
APR									
11...	1.4	320	0	28	34	.3	10	363	1
JUN									
08...	1.8	320	0	36	41	.3	12	383	8
AUG									
08...	1.8	320	0	38	46	.3	11	386	1
SEP									
27...	1.6	320	0	35	42	.3	11	377	0

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN									
16...	0	1.7	.01	1.7	.06	.24	.30	.01	.5
FEB									
28...	0	.47	.01	.48	.00	.02	.02	.01	.0
MAR									
28...	--	1.7	.02	1.7	.01	.24	.25	.02	--
APR									
11...	0	.57	.00	.57	.01	.43	.44	.00	2.5
JUN									
08...	1	.31	.02	.33	.09	.58	.67	.13	5.9
AUG									
08...	1	1.5	.01	1.5	.00	.20	.20	.01	.5
SEP									
27...	0	1.4	.00	1.4	.01	.35	.36	.01	1.0

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							
16...	1340	0	0	0	0	1	0
JUN							
08...	1600	1	200	0	5	0	30
AUG							
08...	1600	1	60	<1	0	3	<10
SEP							
27...	1200	1	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)
JAN						
16...	0	0	.0	0	0	10
JUN						
08...	3	5	.0	0	0	10
AUG						
08...	4	1	.0	6	0	6
SEP						
27...	0	0	.0	0	0	10

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 16...	1340	--	--	--	--	--	--	--	--
JUN 08...	1600	.0	.00	.00	.0	.00	.00	.00	.05
AUG 08...	1600	.0	.00	.00	.0	.00	.00	.00	.00
SEP 27...	1200	.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)
JAN 16...	--	--	--	--	--	--	--	--	--
JUN 08...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 08...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP 27...	.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)
JAN 16...	--	--	--	--	--	.00	.00	.00
JUN 08...	.00	--	.00	0	.00	.00	.00	.00
AUG 08...	.00	.00	.00	0	.00	.03	.00	.00
SEP 27...	.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 good. 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, 1,620 ft³/s (45.9 m³/s) Apr. 28, 1976, gage height, 7.50 ft (2.286 m); no flow for many 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)
Oct. 22	0930	561	15.9	5.33	1.625	May 2	2015	800	22.7	5.90	1.798
Feb. 12	1200	627	17.8	5.50	1.676	May 11	0100	*978	27.7	6.29	1.917
Apr. 10	0345	615	17.4	5.47	1.667	June 6	2330	736	20.8	5.76	1.756

Minimum discharge, no flow for several days.

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	21	.02	.03	.25	.11	.05	.14	1.0	.03	39	5.4
2	2.9	.10	.02	.04	.13	.13	.04	37	.51	.03	1.2	.15
3	.08	.02	.02	.03	1.8	.21	.05	4.7	.45	.02	.12	.06
4	.06	.01	.02	.03	.13	.11	.13	.31	.40	.03	.77	.17
5	.04	.01	.02	.03	.11	.11	.13	.27	.35	.02	.18	.11
6	.02	.01	.02	.03	.16	3.6	.05	.29	104	.02	.05	.04
7	.01	.02	.02	.03	7.6	.75	.04	.23	26	.01	.04	18
8	.00	23	.03	.03	.46	.11	.04	.20	.20	.02	.05	10
9	.00	.06	.03	.02	.67	.09	.05	.15	.17	.02	.04	.43
10	.01	.04	.03	.02	.18	.08	57	.12	.16	.00	1.6	5.7
11	.07	.03	.03	1.8	.47	.07	.87	42	.16	.02	.11	16
12	.03	.02	.07	.25	45	.06	.51	5.1	.15	.02	.04	3.7
13	.02	.02	.21	.16	.78	.06	.42	2.1	.14	.00	.11	7.8
14	.02	.02	.05	.13	.22	.06	.33	.46	.13	.00	.03	.39
15	.01	.02	.04	.12	1.4	.06	.34	.40	.08	.00	.04	2.3
16	.00	.02	.04	10	.22	.05	.30	.39	.07	.00	.02	.14
17	.00	.02	.04	.30	8.3	.05	.61	.30	.07	.00	.02	.10
18	.00	.02	.05	.16	.33	.06	.49	.29	.06	.00	.01	.10
19	.00	.02	.06	.17	.18	.06	.29	.31	.06	.02	.01	.10
20	.00	.02	.06	.12	.16	.07	.39	5.3	.07	.01	.03	.10
21	9.6	.35	.06	.12	.14	.07	.37	3.4	.06	.00	.07	.10
22	36	.02	.07	.12	.13	.06	.17	.56	.04	.00	.08	.98
23	.06	.02	.08	.12	.13	4.4	.18	.23	.05	10	.05	.69
24	.43	.02	.08	.14	.11	1.4	.13	.19	.04	.12	.03	.26
25	.02	.02	.07	.13	.11	.09	.12	3.6	.03	.09	.07	.10
26	.02	.01	.07	.11	.11	.07	.08	14	.03	.06	.04	.18
27	.01	.01	.07	.11	.11	.06	.10	2.1	.04	.03	.03	.25
28	.00	.00	.26	.19	.11	.12	.10	.34	.03	.04	.03	.13
29	.00	.12	.37	.13	---	.07	.10	.35	.04	.04	1.6	.10
30	.01	.18	.03	.22	---	.14	.11	.40	.03	.03	.25	.10
31	.01	---	.03	.34	---	.09	---	.40	---	4.5	.06	---
TOTAL	49.43	45.23	2.07	15.23	69.50	12.47	63.59	125.63	134.62	15.18	45.78	73.68
MEAN	1.59	1.51	.067	.49	2.48	.40	2.12	4.05	4.49	.49	1.48	2.46
MAX	36	23	.37	10	45	4.4	57	42	104	10	39	18
MIN	.00	.00	.02	.02	.11	.05	.04	.12	.03	.00	.01	.04
CFSM	.23	.22	.01	.07	.35	.06	.30	.58	.64	.07	.21	.35
IN.	.26	.24	.01	.08	.37	.07	.34	.66	.71	.08	.24	.39
AC-FT	98	90	4.1	30	138	25	126	249	267	30	91	146
(††)	3.18	2.62	.25	1.07	3.09	.96	2.33	5.17	2.98	1.48	2.31	4.14

CAL YR 1977 TOTAL 555.11 MEAN 1.52 MAX 72 MIN .00 CFSM .22 IN 2.94 AC-FT 1100 †† 24.36
WTR YR 1978 TOTAL 652.41 MEAN 1.79 MAX 104 MIN .00 CFSM .26 IN 3.45 AC-FT 1290 †† 29.58

†† Weighted-mean rainfall, in inches, based on one rain gage.
NOTE.--No gage-height record May 29 to June 14.

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, 1978."

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,800 ft³/s (136 m³/s) Nov. 23, 1974, gage height, 15.0 ft (4.57 m) from slope-area measurement of peak flow.

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)
Feb. 12	unknown	1,090	30.9	8.74	2.664	May 2	2130	*1,470	41.6	*9.66	2.944
Apr. 11	0415	1,270	36.0	9.20	2.804	May 11	0515	*1,470	41.6	9.64	2.941

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
APR 11...	0900	1.5	480	7.5	16.0	10	6	8.4	88	1.3
MAY 03...	1045	9.5	325	7.9	16.0	50	75	8.6	90	5.2
JUN 07...	1025	35	273	7.6	22.5	50	80	8.2	96	1.4
AUG 01...	1015	169	156	7.5	23.5	50	300	8.1	98	4.2
SEP 08...	1045	9.9	270	7.4	24.5	30	50	7.1	87	2.2

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
APR 11...	190000	30000	12000	200	65	70	5.3	18	.6
MAY 03...	230000	26000	30000	130	43	47	3.8	10	.4
JUN 07...	320000	49000	48000	120	37	43	2.8	6.7	.3
AUG 01...	590000	270000	130000	59	7	21	1.6	5.5	.3
SEP 08...	98000	46000	71000	110	23	41	2.7	9.0	.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)
APR 11...	3.6	160	0	65	28	.2	5.4	274	6
MAY 03...	3.5	110	0	46	17	.2	4.9	187	92
JUN 07...	3.1	100	0	36	9.2	.2	6.3	157	102
AUG 01...	1.9	64	0	13	8.1	.1	2.6	85	442
SEP 08...	2.5	110	0	29	12	.2	5.1	156	51

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
APR 11...	3	.31	.01	.32	.03	.36	.39	.09	3.5
MAY 03...	16	.92	.05	.97	.20	.60	.80	.19	9.7
JUN 07...	14	.64	.02	.66	.09	.46	.55	.15	6.2
AUG 01...	110	.22	.02	.24	.00	.89	.89	.30	--
SEP 08...	8	.36	.01	.37	.01	.49	.50	.10	7.0

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)
MAY 03...	1045	24	200	0	0	2	0
JUN 07...	1025	7	200	0	0	1	20
AUG 01...	1015	13	20	<1	0	1	40
SEP 08...	1045	39	0	0	10	3	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)
MAY 03...	3	0	.0	0	0	10
JUN 07...	4	5	.0	0	0	5
AUG 01...	5	<1	.0	0	0	<3
SEP 08...	2	0	.0	1	0	0

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)
MAY 03...	1045	.0	.00	.00	.0	.00	.00	.01	.45
JUN 07...	1025	.0	.00	.00	.0	.00	.00	.01	.36
SEP 08...	1045	.0	.00	.00	.0	.00	.00	.01	.20

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)
MAY 03...	.02	.00	.00	.00	.00	.00	.00	.14	.00
JUN 07...	.01	.00	.00	.00	.00	.01	.00	.02	.00
SEP 08...	.01	.00	.00	.00	.00	.00	.00	.05	.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)
MAY 03...	.00	--	.00	0	.00	.24	.06	.03
JUN 07...	.00	--	.00	0	.00	.06	.08	.00
SEP 08...	.00	.00	.00	0	.00	.02	.04	.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 Holy Cross High School (formerly St. Mary's Academy) 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.--23 years, 1.67 ft³/s (0.0473 m³/s), 9.82 in/yr (249 mm/yr), 1,210 acre-ft/yr (1.49 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)
Feb. 12	1230	363	10.3	5.07	1.545	June 6	2000	357	10.1	5.05	1.539
May 2	2045	*531	15.0	5.54	1.689	June 6	2400	363	10.3	5.07	1.545
May 11	0115	458	13.0	5.35	1.631						

Minimum daily discharge, 0.07 ft³/s (0.002 m³/s) Sept. 6.

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	.11	11	.19	.14	.17	.17	.17	.14	.40	.37	24	8.1
2	2.2	.16	.14	.17	.14	.19	.17	23	.64	.33	.71	.41
3	.14	.13	.14	.15	.16	.17	.17	1.7	.89	.15	.43	.35
4	.11	.12	.14	.15	.15	.17	.18	.20	.41	.37	.40	.48
5	.10	.12	.13	.15	.16	.17	.25	.19	.16	.44	.37	.10
6	.10	.12	.13	.16	.17	2.4	.26	.17	25	.38	.36	.07
7	.09	.11	.14	.15	5.0	.69	.28	.16	20	.35	.12	9.2
8	.10	14	.15	.14	.29	.18	.25	.14	.53	.36	.37	9.0
9	.10	.26	.14	.15	.27	.18	.24	.13	.45	.34	.40	.43
10	.09	.16	.13	.14	.20	.18	24	.13	.45	.13	.36	3.3
11	.09	.14	.13	1.5	.25	.18	.24	22	.40	.28	.35	11
12	.09	.14	.15	.20	24	.17	.20	1.5	.16	.35	.37	6.1
13	.09	.13	1.1	.16	.34	.17	.18	.94	.48	.34	.35	3.9
14	.10	.13	.14	.15	.20	.18	.17	.14	.41	.32	.13	.18
15	.14	.13	.12	.16	.88	.19	.19	.14	.41	.35	.28	.14
16	.19	.13	.12	4.8	.24	.22	.19	.14	.43	.33	.35	.36
17	.18	.13	.12	.19	6.3	.18	.20	.13	.36	.12	.36	.37
18	.17	.13	.12	.26	.27	.17	.17	.15	.37	.28	.37	.14
19	.16	.13	.12	.19	.19	.16	.15	.13	.13	.37	.35	.10
20	.14	.13	.11	.21	.18	.17	.16	3.3	.42	.32	.32	.10
21	3.1	.47	.12	.17	.17	.17	.15	1.2	.36	.39	.38	.11
22	16	.14	.12	.17	.17	.17	.19	.19	.42	.13	.31	.08
23	.15	.14	.12	.18	.17	2.6	.17	.14	.39	3.0	.31	.31
24	.17	.14	.12	.17	.18	.98	.17	.18	.37	.14	.29	.37
25	.12	.13	.13	.15	.17	.16	.17	2.9	.36	.33	.30	.15
26	.12	.13	.13	.19	.17	.16	.39	16	.14	.33	.31	.08
27	.11	.13	.13	.15	.22	.17	.18	.91	.36	.33	.29	.10
28	.11	.14	.21	.16	.18	.18	.16	.18	.39	.35	.14	.11
29	.11	.13	.37	.15	---	.16	.15	.18	.39	.36	.12	.10
30	.12	.19	.15	.17	---	.16	.15	.18	.42	.36	.12	.30
31	.13	---	.15	.21	---	.17	---	.16	---	2.2	.16	---
TOTAL	24.73	29.24	5.41	11.19	40.99	11.37	29.70	76.75	56.10	14.20	33.48	55.54
MEAN	.80	.97	.17	.36	1.46	.37	.99	2.48	1.87	.46	1.08	1.85
MAX	16	14	1.1	4.8	24	2.6	24	23	25	3.0	24	11
MIN	.09	.11	.11	.14	.14	.16	.15	.13	.13	.12	.12	.07
CFSM	.35	.42	.07	.16	.63	.16	.43	1.07	.81	.20	.47	.80
IN.	.40	.47	.09	.18	.66	.18	.48	1.24	.90	.23	.54	.89
AC-FT	49	58	11	22	81	23	59	152	111	28	66	110
(††)	2.10	2.23	.39	.62	2.63	.51	1.84	5.19	2.94	1.15	2.24	6.26

CAL YR 1977 TOTAL 430.68 MEAN 1.18 MAX 41 MIN .08 CFSM .51 IN 6.93 AC-FT 854 †† 22.12
WTR YR 1978 TOTAL 388.70 MEAN 1.06 MAX 25 MIN .07 CFSM .46 IN 6.26 AC-FT 771 †† 28.10

†† 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.--23 years, 3.51 ft³/s (0.099 m³/s), 11.54 in/yr (293 mm/yr), 2,540 acre-ft/yr (3.13 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.--Maximum discharge, 1,280 ft³/s (36.2 m³/s) May 2, gage height, 5.65 ft (1.722 m), no other peak above base of 800 ft³/s (22.7 m³/s); minimum daily, 0.27 ft³/s (0.008 m³/s) Dec. 25.

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	.39	18	.45	.32	.40	.66	.50	.48	1.6	.54	46	14
2	3.5	.53	.44	.41	.34	.63	.47	63	1.0	.53	1.8	.75
3	.38	.41	.40	.36	.33	.61	.48	3.7	4.0	.55	.77	.57
4	.35	.39	.31	.36	.34	.60	.51	.57	.71	.36	.75	2.0
5	.38	.38	.31	.34	.33	.61	.57	.51	.55	.61	.65	.50
6	.41	.38	.30	.40	.36	5.3	.59	.52	50	.57	.63	.35
7	.36	.39	.33	.39	9.3	1.6	.56	.51	24	.59	.54	18
8	.32	25	.36	.35	.60	.68	.52	.45	.98	.54	.51	16
9	.44	.49	.28	.32	.65	.64	.49	.44	.76	.55	.66	.88
10	.39	.44	.30	.30	.49	.64	41	.42	.71	.54	.68	6.7
11	.32	.42	.31	3.9	1.2	.61	.65	38	.70	.38	.59	15
12	.32	.39	.42	.48	44	.60	.56	1.7	.56	.60	.56	13
13	.29	.39	1.6	.37	.98	.60	.53	2.0	.64	.57	.54	8.0
14	.35	.45	.35	.35	.76	.59	.50	.44	.66	.63	.62	.68
15	.32	.39	.34	.33	2.4	.55	.47	.45	.68	.49	.45	.55
16	.38	.41	.36	8.6	.88	.57	.45	.46	.69	.52	.65	.64
17	.51	.34	.31	.41	12	.55	.74	.44	.61	.54	.57	.67
18	.40	.35	.31	.51	.92	.52	.54	.46	.57	.39	.56	.51
19	.39	.35	.35	.53	.77	.56	.45	.48	.49	.61	.74	.42
20	.41	.39	.30	.43	.78	.53	.47	6.1	.51	.61	.48	.44
21	7.5	1.3	.28	.33	.70	.58	.46	3.0	.60	.60	2.6	.46
22	32	.35	.30	.34	.72	.54	.52	.64	.62	.63	.52	.43
23	.77	.35	.30	.35	.71	3.9	.48	.49	.77	10	.47	.51
24	.69	.35	.28	.35	.73	2.1	.56	.46	.60	.57	.52	.65
25	.46	.32	.27	.31	.74	.55	.46	3.1	.56	.45	.61	.53
26	.43	.35	.30	.34	.70	.54	.55	26	.59	.62	.48	.36
27	.41	.39	.30	.32	.73	.55	.51	1.9	.46	.65	.46	.44
28	.41	.41	.98	.32	.72	.54	.47	.50	.60	.67	.44	.47
29	.40	.44	1.3	.32	---	.53	.48	.46	.64	.63	.46	.43
30	.40	.59	.36	.38	---	.54	.49	.54	.62	.59	.37	.49
31	.40	---	.33	.55	---	.54	---	.57	---	6.5	.33	---
TOTAL	54.48	55.14	13.13	23.37	83.58	28.56	56.03	158.79	96.48	32.63	66.01	104.43
MEAN	1.76	1.84	.42	.75	2.99	.92	1.87	5.12	3.22	1.05	2.13	3.48
MAX	32	25	1.6	8.6	44	5.3	41	63	50	10	46	18
MIN	.29	.32	.27	.30	.33	.52	.45	.42	.46	.36	.33	.35
CFSM	.43	.45	.10	.18	.72	.22	.45	1.24	.78	.25	.52	.84
IN.	.49	.50	.12	.21	.75	.26	.50	1.43	.87	.29	.59	.94
AC-FT	108	109	26	46	166	57	111	315	191	65	131	207
(††)	2.14	2.20	.38	.77	2.68	.53	1.77	5.21	2.80	1.35	2.31	5.77

CAL YR 1977 TOTAL 818.65 MEAN 2.24 MAX 72 MIN .27 CFSM .54 IN 7.37 AC-FT 1620 †† 22.21
WTR YR 1978 TOTAL 772.63 MEAN 2.12 MAX 63 MIN .27 CFSM .51 IN 6.96 AC-FT 1530 †† 27.91

†† 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 AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC							
29...	1053	1.0	585	8.0	14.5	9.0	91
29...	1056	10	585	8.0	14.0	9.0	90
29...	1059	20	585	8.0	14.0	8.8	88
29...	1102	24	585	7.9	13.5	8.8	87

301500097424801 - TOWN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC										
29...	1108	1.0	587	8.0	15.0	2.70	1	2	8.9	91
29...	1112	10	585	8.0	14.0	--	--	--	8.9	89
29...	1116	20	585	7.9	13.5	--	--	--	8.8	87
29...	1120	28	585	7.9	13.5	--	5	55	8.8	87

DATE	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./ 100 ML)	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO
DEC										
29...	.4	1600	52	140	220	50	51	23	34	1.0
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	.8	--	--	--	220	42	51	23	34	1.0

DATE	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NONFILTRABLE RESIDUE (MG/L)	VOL. NONFILTRABLE RESIDUE (MG/L)
DEC										
29...	3.6	210	0	43	56	.3	9.6	324	2	1
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	3.6	220	0	43	56	.2	9.6	329	96	16

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC									
29...	.28	.28	.28	.06	.74	.01	2.5	10	0
29...	.28	.00	.28	.06	.34	.02	--	10	0
29...	--	--	--	--	--	--	--	--	--
29...	.28	.00	.28	.06	.60	.05	3.2	10	10

TOWN LAKE AT AUSTIN, TX--Continued

301503097424701 - TOWN LAKE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC							
29...	1130	1.0	585	8.0	15.5	8.8	91
29...	1133	10	585	8.0	14.0	8.9	89
29...	1135	16	585	8.0	13.5	8.9	88

301500097440801 - TOWN LAKE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC							
29...	1158	1.0	585	7.8	14.0	9.2	92
29...	1200	14	585	7.8	13.0	9.2	90

301504097440901 - TOWN LAKE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC							
29...	1203	1.0	585	7.9	14.0	9.0	90
29...	1205	10	585	7.8	13.5	9.1	90
29...	1207	20	585	7.8	13.0	9.0	88
29...	1209	27	585	7.8	13.0	8.9	87

301544097445201 - TOWN LAKE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC							
29...	1228	1.0	585	7.7	15.0	8.9	91
29...	1230	10	585	7.8	13.0	9.4	92

301546097445101 - TOWN LAKE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC							
29...	1234	1.0	585	7.7	15.0	8.8	90
29...	1236	10	585	7.8	13.0	8.8	86
29...	1240	18	585	7.7	12.5	8.6	83

TOWN LAKE AT AUSTIN, TX--Continued

301556097452301 - TOWN LAKE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC							
29...	1320	1.0	619	7.4	14.5	7.9	80
29...	1325	11	580	7.7	12.5	8.6	83

301558097452201 - TOWN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC										
29...	1253	1.0	619	7.6	15.0	3.2	0	2	8.0	82
29...	1259	10	580	7.8	12.0	--	--	--	9.0	87
29...	1306	18	580	7.8	12.0	--	4	20	9.1	88

DATE	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./ 100 ML)	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO
DEC										
29...	.2	9800	540	940	260	48	65	24	28	.8
29...	--	--	--	--	--	--	--	--	--	--
29...	.2	--	--	--	220	51	48	23	33	1.0

DATE	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NONFILTRABLE RESIDUE (MG/L)	VOL. NONFILTRABLE RESIDUE (MG/L)
DEC										
29...	2.6	260	0	37	47	.2	10	342	2	1
29...	--	--	--	--	--	--	--	--	--	--
29...	3.7	200	0	42	56	.2	9.3	314	30	0

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC									
29...	.95	.00	.95	.02	.35	.01	1.5	10	0
29...	.22	.00	.22	.04	.73	.01	--	10	0
29...	.21	.00	.21	.06	.57	.04	3.1	10	0

TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 - TOWN LAKE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC										
29...	1350	1.0	578	7.7	13.0	2.70	1	2	8.4	82
29...	1358	13	578	7.9	12.5	--	1	3	8.4	82

DATE	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO
DEC										
29...	.2	2000	9	160	220	50	51	23	31	.9
29...	.2	--	--	--	210	48	47	23	34	1.0

DATE	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NONFILTRABLE RESIDUE (MG/L)	VOL. NONFILTRABLE RESIDUE (MG/L)
DEC										
29...	3.5	210	0	41	53	.2	9.3	315	2	0
29...	3.9	200	0	41	58	.4	9.2	315	4	0

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC									
29...	.25	.00	.25	.06	.39	.01	2.6	10	0
29...	.15	.00	.15	.04	.49	.01	2.6	10	0

301601097454001 - TOWN LAKE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
DEC							
29...	1337	1.0	660	7.2	20.0	8.3	94
29...	1339	4.0	660	7.2	20.0	8.2	93

TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 - TOWN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMP-LING DEPTH (FT)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
DEC							
29...	1108	1.0	1	0	0	10	5
29...	1112	10	--	--	--	--	--
29...	1120	28	1	0	0	0	1

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
DEC							
29...	10	1	0	.0	0	0	10
29...	10	--	0	--	--	--	--
29...	10	1	10	.0	0	0	10

301558097452201 - TOWN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMP-LING DEPTH (FT)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
DEC							
29...	1253	1.0	1	0	0	0	1
29...	1259	10	--	--	--	--	--
29...	1306	18	1	0	0	0	1

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
DEC							
29...	10	1	0	.0	0	0	10
29...	10	--	0	--	--	--	--
29...	10	1	0	.0	0	0	10

301712097470701 - TOWN LAKE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMP-LING DEPTH (FT)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
DEC							
29...	1350	1.0	1	0	0	0	0
29...	1358	13	1	0	0	0	0

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
DEC							
29...	10	1	0	.0	0	0	10
29...	10	0	0	.0	0	0	10

TOWN LAKE AT AUSTIN, TX--Continued

301559097424801 - TOWN LAKE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR							
10...	1345	1.0	570	8.1	20.5	8.8	100
10...	1347	10	574	8.1	19.5	8.7	98
10...	1350	23	578	8.0	18.0	8.6	93

301500097424801 - TOWN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR										
10...	1318	1.0	563	8.1	21.0	.60	5	15	8.9	102
10...	1323	10	570	8.1	19.5	--	--	--	9.0	101
10...	1328	20	570	8.0	18.0	--	--	--	9.0	98
10...	1333	25	570	8.0	18.0	--	10	55	8.7	95

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
APR										
10...	1.7	>3800	3800	2600	210	59	48	23	36	1.1
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	1.3	--	--	--	210	56	47	23	35	1.0

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)	SOLIDS, VOLATILE, SUSPENDED (MG/L)
APR										
10...	3.7	190	0	43	59	.2	6.5	313	16	3
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	3.7	190	0	36	60	.2	8.4	307	101	9

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
APR									
10...	.10	.01	.11	.04	.45	.03	3.5	10	10
10...	--	--	--	--	--	--	--	--	--
10...	.14	.01	.15	.06	.29	.03	--	10	10
10...	.09	.01	.10	.05	.33	.05	5.0	0	20

301503097424701 - TOWN LAKE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR							
10...	1353	1.0	563	8.1	21.5	8.7	101
10...	1355	10	570	8.1	19.0	8.9	99
10...	1358	19	570	8.0	18.5	8.8	97

TOWN LAKE AT AUSTIN, TX--Continued

301500097440801 - TOWN LAKE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR							
10...	1415	1.0	460	8.1	18.5	8.6	95
10...	1418	13	520	8.1	17.5	8.6	92

301504097440901 - TOWN LAKE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR							
10...	1409	1.0	470	8.0	18.5	8.8	97
10...	1411	10	480	8.0	18.0	8.8	96
10...	1413	19	550	8.0	17.5	9.3	100

301544097445201 - TOWN LAKE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR							
10...	1435	1.0	550	8.1	18.5	8.8	97
10...	1437	6.0	550	8.1	18.0	8.8	96

301546097445101 - TOWN LAKE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR							
10...	1425	1.0	530	8.0	19.0	8.8	98
10...	1427	10	550	8.1	17.5	8.8	95
10...	1429	17	560	8.1	17.0	8.8	94

301556097452301 - TOWN LAKE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR							
10...	1508	1.0	570	8.0	17.5	9.2	99
10...	1510	12	570	8.0	17.5	8.9	96

TOWN LAKE AT AUSTIN, TX--Continued

301558097452201 - TOWN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR										
10...	1442	1.0	570	8.0	17.5	1.00	5	5	9.0	97
10...	1446	10	570	8.0	17.5	--	--	--	9.2	99
10...	1452	20	570	8.1	17.0	--	5	6	9.0	96

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
APR										
10...	1.6	9400	2800	K1600	220	56	50	23	33	1.0
10...	--	--	--	--	--	--	--	--	--	--
10...	1.2	--	--	--	210	59	48	23	35	1.0

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)	SOLIDS, VOLATILE, SUSPENDED (MG/L)
APR										
10...	3.6	200	0	35	58	.2	7.1	309	7	2
10...	--	--	--	--	--	--	--	--	--	--
10...	3.7	190	0	36	61	.2	7.0	308	8	3

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
APR									
10...	.07	.00	.07	.05	.39	.01	2.9	0	0
10...	.18	.01	.19	.05	.30	.02	--	30	10
10...	.08	.00	.08	.04	.28	.01	2.9	0	10

TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 - TOWN LAKE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR										
10...	1542	1.0	577	8.2	18.0	1.30	5	4	9.5	103
10...	1547	10	577	8.2	18.0	--	--	--	9.5	103
10...	1552	15	577	8.1	18.0	--	5	4	9.5	103

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
APR										
10...	1.5	5500	280	330	210	51	45	23	36	1.1
10...	--	--	--	--	--	--	--	--	--	--
10...	1.5	--	--	--	210	51	45	23	35	1.1

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)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)
APR										
10...	3.8	190	0	42	62	.2	8.0	314	5	3
10...	--	--	--	--	--	--	--	--	--	--
10...	3.8	190	0	42	62	.2	7.9	313	6	1

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
APR									
10...	.07	.01	.08	.01	.34	.00	3.1	30	0
10...	--	--	--	--	--	--	--	--	--
10...	.06	.00	.06	.19	.13	.00	5.0	10	10

301601097454001 - TOWN LAKE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
APR							
10...	1515	1.0	577	8.3	18.0	9.9	108

TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 - TOWN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
APR								
10...	1318	.0	.00	.00	.0	.00	.00	.00
10...	1333	.0	.00	.00	.0	.01	.01	.02

DATE	DIAZINON, TOTAL (UG/L)	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)
APR									
10...	.04	.00	.00	.00	.00	.00	.00	.00	.00
10...	.03	.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)
APR								
10...	.00	.00	.00	0	.00	.03	.00	.00
10...	.00	.00	.00	0	.00	.02	.01	.00

301558097452201 - TOWN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
APR								
10...	1442	.0	.00	.00	.0	.00	.00	.00
10...	1452	.0	.00	.00	.0	.00	.00	.00

DATE	DIAZINON, TOTAL (UG/L)	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)
APR									
10...	.01	.00	.00	.00	.00	.00	.00	.00	.00
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)
APR								
10...	.00	.00	.00	0	.00	.02	.00	.00
10...	.00	.00	.00	0	.00	.02	.00	.00

TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 - TOWN LAKE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
APR 10...	1542	.0	.00	.00	.0	.00	.00	.00

DATE	DIAZINON, TOTAL (UG/L)	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)
APR 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)
APR 10...	.00	.00	.00	0	.00	.03	.00	.00

TOWN LAKE AT AUSTIN, TX--Continued

301559097424801 - TOWN LAKE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL							
18...	1145	1.0	601	7.9	31.0	6.6	90
18...	1147	10	601	7.8	27.0	7.2	94
18...	1150	19	601	7.6	26.5	5.7	74

301500097424801 - TOWN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL										
18...	1112	1.0	601	7.8	29.5	2.10	6	3	6.5	88
18...	1114	10	601	7.8	27.0	--	--	--	6.9	90
18...	1116	20	601	7.7	26.0	--	--	--	6.1	78
18...	1120	27	603	7.5	26.0	--	6	5	5.0	64

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
JUL										
18...	.6	8400	84	5	220	52	47	24	37	1.1
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	.6	--	--	--	220	52	47	24	37	1.1

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)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)
JUL										
18...	3.8	200	0	42	70	.2	8.7	331	2	0
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	3.8	200	0	42	68	.2	9.0	330	4	0

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL									
18...	.09	.00	.09	.00	.81	.00	--	0	10
18...	--	--	--	--	--	--	--	--	--
18...	.09	.00	.09	.00	.26	.00	--	50	20
18...	.10	.00	.10	.00	.32	.00	2.8	40	20

301503097424701 - TOWN LAKE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL							
18...	1138	1.0	601	7.8	30.0	6.6	89
18...	1140	12	601	7.8	26.5	6.5	84

TOWN LAKE AT AUSTIN, TX--Continued

301500097440801 - TOWN LAKE BB

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL							
18...	1213	1.0	601	7.8	26.5	6.8	88
18...	1215	13	601	7.7	25.5	5.9	76

301504097440901 - TOWN LAKE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL							
18...	1158	1.0	601	7.8	26.5	6.8	88
18...	1200	10	601	7.7	25.5	6.1	78
18...	1202	20	601	7.7	25.5	5.8	74
18...	1205	25	601	7.7	25.5	5.8	74

301544097445201 - TOWN LAKE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL							
18...	1232	1.0	601	7.7	25.5	6.4	82
18...	1235	9.0	601	7.7	25.5	6.3	81

301546097445101 - TOWN LAKE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL							
18...	1224	1.0	601	7.8	27.5	6.5	86
18...	1226	10	601	7.7	25.5	6.3	81
18...	1228	15	601	7.7	25.5	6.3	81

301556097452301 - TOWN LAKE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL							
18...	1301	1.0	603	7.6	25.5	6.2	79
18...	1303	10	603	7.7	25.5	6.1	78
18...	1305	19	603	7.7	25.5	6.4	82

TOWN LAKE AT AUSTIN, TX--Continued

30155097452201 - TOWN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL										
18...	1244	1.0	603	7.7	25.5	1.90	5	2	6.3	81
18...	1246	10	603	7.7	25.0	--	--	--	5.8	73
18...	1249	21	601	7.7	25.0	--	5	5	5.6	71

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
JUL										
18...	.5	3200	38	4	230	64	50	25	37	1.1
18...	--	--	--	--	--	--	--	--	--	--
18...	.6	--	--	--	220	65	49	24	37	1.1

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)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)
JUL										
18...	3.7	200	0	42	68	.2	8.8	333	2	0
18...	--	--	--	--	--	--	--	--	--	--
18...	3.8	190	0	42	70	.2	8.7	328	7	1

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL									
18...	.12	.01	.13	.00	.35	.00	2.4	10	20
18...	.09	.00	.09	.00	.33	.00	--	10	20
18...	.09	.00	.09	.00	.29	.00	2.4	10	20

TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 - TOWN LAKE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL										
18...	1330	1.0	599	7.7	25.0	1.20	5	4	5.9	75
18...	1333	13	599	7.7	25.0	--	7	4	5.9	75

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
JUL										
18...	.5	960	4	4	220	64	47	25	37	1.1
18...	.5	--	--	--	220	63	48	24	37	1.1

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)	SOL DS, RES DUE AT 05 DEG C, SUS PEN ED (M /L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)
JUL										
18...	3.9	190	0	43	70	.2	8.7	328	5	1
18...	3.9	190	0	42	70	.2	8.7	327	5	2

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL									
18...	.09	.00	.09	.00	.43	.00	2.8	10	10
18...	.08	.00	.08	.00	1.2	.00	2.7	10	0

301601097454001 - TOWN LAKE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUL							
18...	1311	1.0	653	7.4	26.0	7.3	94
18...	1314	6.0	705	7.2	24.5	9.8	122

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) downsream 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. 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 75,700 acre-ft (93.3 hm³) was diverted for municipal use above station and 37,520 acre-ft (46.3 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); 42 years (water years 1937-78) regulated, 2,049 ft³/s (58.03 m³/s), 1,485,000 acre-ft/yr (1.83 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, 6,880 ft³/s (195 m³/s) June 7, gage height, 9.23 ft (2.813 m); minimum daily, 21 ft³/s (0.59 m³/s) Mar. 12.

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	1250	2640	72	80	405	74	1510	1750	2700	2900	785	2650
2	1240	4110	102	82	397	60	1520	2250	2650	2950	82	2460
3	1020	1830	98	67	324	59	1550	1960	2740	2970	1100	2470
4	879	154	100	67	332	43	1920	1860	2710	2790	1440	2560
5	809	120	236	318	407	33	1930	2050	2640	2330	2170	2300
6	102	122	1740	79	381	113	1880	2070	2820	2270	1920	2160
7	85	122	165	54	375	63	1970	2070	1310	2120	2140	2430
8	310	394	79	332	56	71	2060	2060	77	2080	2130	2120
9	78	144	116	314	46	48	2010	2220	2060	2140	2220	1830
10	82	94	55	323	74	26	2050	2480	2380	1990	2150	1860
11	79	102	91	231	58	88	934	2600	2340	2040	2220	1380
12	74	102	696	83	379	21	1610	2480	2280	1890	2220	216
13	99	102	1150	56	52	67	1630	2260	2570	1900	2110	122
14	53	109	1150	56	61	27	2040	2400	3020	1920	2210	70
15	77	88	1130	52	75	710	2080	2430	2890	1880	2420	1080
16	58	98	353	144	65	699	2130	2540	2950	1820	2400	1130
17	36	112	780	66	182	734	2110	2300	1910	1900	2320	1150
18	106	114	738	71	46	696	2080	2410	3520	1870	2340	1120
19	62	86	667	183	53	724	2070	2530	3270	1870	2960	1250
20	60	106	769	65	79	698	1390	2730	2680	1890	2780	1780
21	56	99	525	238	47	688	2000	2240	2820	1750	2900	1600
22	322	96	532	62	95	734	2210	2040	2880	1490	2730	1550
23	57	99	544	60	63	675	2120	2220	2880	1830	3040	1550
24	84	65	533	160	74	906	2090	2380	2880	1800	2700	1600
25	73	104	522	390	66	988	2170	2470	2880	1480	3440	1500
26	72	89	536	332	64	911	1750	2750	3360	1140	2940	1140
27	60	96	523	336	58	922	1590	2660	2950	1400	3040	1060
28	55	98	438	413	83	1540	1740	2590	3230	1240	3080	1100
29	64	105	110	419	---	1550	1780	2650	3050	1280	3040	750
30	67	79	72	401	---	1550	1750	2640	2910	1280	3000	725
31	52	---	67	386	---	1530	---	2690	---	1330	2870	---
TOTAL	7521	11679	14689	5920	4397	17048	55674	72780	79357	59540	72897	44713
MEAN	243	389	474	191	157	550	1856	2348	2645	1921	2352	1490
MAX	1250	4110	1740	419	407	1550	2210	2750	3520	2970	3440	2650
MIN	36	65	55	52	46	21	934	1750	77	1140	82	70
AC-FT	14920	23170	29140	11740	8720	33810	110400	144400	157400	118100	144600	88690

CAL YR 1977 TOTAL 950607 MEAN 2604 MAX 31500 MIN 36 AC-FT 1886000
WTR YR 1978 TOTAL 446215 MEAN 1223 MAX 4110 MIN 21 AC-FT 885100

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 737 micromhos Jan. 12, 1964; minimum daily, 243 micromhos Dec. 2, 1953.
WATER TEMPERATURES (1947-76): Maximum daily, 31.0°C on several days during summer months; minimum daily, 6.0°C Jan. 28, 1948, Feb. 4, 1949.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 647 micromhos June 6; minimum daily, 416 micromhos Nov. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	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												
13...	0858	64	579	7.5	22.0	1	1	6.3	74	.4	14000	32
NOV												
07...	1235	99	561	8.4	23.0	5	1	11.8	140	.3	60000	8800
DEC												
14...	1330	1110	598	7.8	18.0	1	2	11.1	121	1.2	3800	80
JAN												
23...	1410	9.3	602	7.9	14.5	1	1	12.0	121	.3	790	21
FEB												
21...	1400	42	536	8.5	15.0	0	1	19.2	196	.6	220	10
MAR												
31...	1042	3050	598	8.2	21.0	1	3	9.9	114	.4	2200	29
APR												
17...	1145	3230	596	8.1	20.5	0	7	9.8	114	1.6	780	160
MAY												
19...	1400	3=20	610	8.2	21.5	0	3	9.9	115	.7	3100	71
JUN												
27...	0830	3130	610	7.8	23.5	5	3	8.4	101	.1	270	47
JUL												
28...	1010	39	609	7.3	27.5	--	--	4.6	61	--	--	--
AUG												
25...	1000	3520	560	6.9	27.0	5	4	19.6	251	.7	1100	230
SEP												
25...	0900	83	550	7.8	27.0	2	1	5.1	65	.6	580	130

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											
13...	420	220	47	53	21	32	.9	3.4	210	0	41
NOV											
07...	300	210	46	48	22	34	1.0	3.5	200	0	39
DEC											
14...	1200	240	48	60	23	32	.9	3.3	240	0	44
JAN											
23...	100	240	53	59	23	31	.9	3.5	230	0	40
FEB											
21...	10	220	60	54	21	31	.9	3.5	180	8	41
MAR											
31...	7	210	47	45	24	34	1.0	4.2	200	0	42
APR											
17...	110	210	52	47	22	34	1.0	3.9	190	0	40
MAY											
19...	26	210	47	45	24	40	1.2	4.0	200	0	43
JUN											
27...	660	220	52	47	24	36	1.1	3.8	200	0	43
JUL											
28...	--	230	64	50	25	37	1.1	3.9	200	0	43
AUG											
25...	63	200	56	47	21	31	.9	3.7	180	0	36
SEP											
25...	410	190	36	47	18	32	1.0	3.5	190	0	35

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 13...	55	.2	11	307	320	4	1	.03	.00	.03	.01
NOV 07...	59	.2	11	308	315	2	0	.05	.02	.07	.04
DEC 14...	55	.3	11	342	347	4	1	.54	.01	.55	.08
JAN 23...	57	.3	8.7	337	336	2	1	.24	.01	.25	.03
FEB 21...	53	.3	4.8	--	305	2	0	.16	.01	.17	.01
MAR 31...	62	.3	7.9	308	318	6	3	.04	.01	.05	.01
APR 17...	68	.2	7.9	321	317	16	2	.15	.01	.16	.03
MAY 19...	63	.3	7.7	312	326	5	2	.35	.01	.36	.01
JUN 27...	65	.3	7.1	318	325	1	0	.15	.00	.15	.00
JUL 28...	66	.3	9.6	341	333	--	--	.07	.01	.08	.00
AUG 25...	55	.2	8.7	297	291	5	1	.07	.05	.12	.22
SEP 25...	58	.2	10	303	297	1	1	.30	.01	.31	.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 13...	.29	.30	.20	.01	.02	3.0	--	--	5	.86	55
NOV 07...	.26	.30	.30	.03	.02	2.8	--	--	6	1.6	79
DEC 14...	.46	.54	.54	.02	.00	3.1	--	--	--	--	--
JAN 23...	.37	.40	.37	.03	.02	2.4	--	--	7	.18	38
FEB 21...	.19	.20	.14	.01	.02	--	2.9	.2	2	.23	8
MAR 31...	.43	.44	.43	.00	.00	2.9	--	--	5	41	67
APR 17...	1.6	1.6	.61	.01	.00	2.4	--	--	6	52	69
MAY 19...	.62	.63	.50	.02	.03	3.8	--	--	5	48	83
JUN 27...	.35	.35	.36	.01	.00	--	2.8	.2	6	51	76
JUL 28...	.35	.35	.29	.02	.00	4.4	--	--	3	.32	73
AUG 25...	.48	.70	.45	.02	.02	--	6.3	.3	3	29	86
SEP 25...	.47	.50	.49	.02	.11	2.7	--	--	2	.45	100

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT 13...	0858	2	1	1	400	200	200	<10	<7	3
FEB 21...	1400	4	3	1	100	0	100	0	0	1
JUN 27...	0830	2	0	2	300	100	200	1	1	0
AUG 25...	1000	1	0	2	100	0	--	0	0	0

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
OCT 13...	0	0	0	<50	<50	0	<10	<6	4	40
FEB 21...	10	10	0	0	0	0	13	8	5	20
JUN 27...	0	0	0	0	0	0	5	4	1	110
AUG 25...	0	0	0	0	0	0	5	3	2	20

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 13...	--	20	<100	<100	0	30	10	20	.0	.0
FEB 21...	--	10	0	0	0	10	10	0	.0	.0
JUN 27...	90	20	3	1	2	10	5	5	.0	.0
AUG 25...	10	10	3	3	0	20	10	10	.1	.1

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 13...	.0	0	0	0	<10	<10	0	8	0	10
FEB 21...	.0	2	1	1	0	0	1	30	30	0
JUN 27...	.0	0	0	0	0	0	0	10	10	0
AUG 25...	.0	0	0	0	0	0	0	10	0	10

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

DATE	LENGTH OF EXPOSURE (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)	SAMPLING METHOD
NOV 07...	25	.945	1.50	5.46	2.40	POLYETHYLENE STRIP
FEB 21...	29	49.3	55.9	74.1	4.31	POLYETHYLENE STRIP

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	NOV 7,77		MAR 31,78		MAY 19,78		JUN 27,78		JUL 28,78		AUG 25,78	
TIME	1235		1042		1400		0830		1010		1000	
TOTAL CELLS/ML	3200		14		9		88		230		1900	
DIVERSITY: DIVISION	1.1		0.0		0.0		0.9		0.3		1.4	
.CLASS	1.2		0.0		0.0		0.9		0.3		1.4	
..ORDER	1.8		0.0		0.0		0.9		0.3		2.0	
...FAMILY	2.7		0.0		0.0		1.5		0.3		2.5	
....GENUS	2.9		0.0		0.0		1.5		0.3		3.1	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...COELASTRACEAE												
....COELASTRUM	84	3	--	-	--	-	--	-	220#	94	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	84	3	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	14	1
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-	28	1
...OOCYSTACEAE												
....ANKISTRODESMUS	150	5	--	-	--	-	--	-	--	-	--	-
....FRANCEIA	*	0	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-	56	3
....OOCYSTIS	28	1	--	-	--	-	--	-	--	-	110	6
....SELENASTRUM	--	-	--	-	9#	100	--	-	--	-	--	-
....TETRAEDRON	21	1	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	110	4	--	-	--	-	--	-	--	-	56	3
....SCENEDESMUS	180	6	--	-	--	-	--	-	--	-	220	11
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	*	0	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	56	2	--	-	--	-	--	-	--	-	14	1
...VOLVOCACEAE												
....EUDORINA	--	-	--	-	--	-	29#	33	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	130	4	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	14	1
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	14	1
...FRAGILARIACEAE												
....SYNEDRA	--	-	--	-	--	-	--	-	14	6	28	1
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	14	1
...NAVICULACEAE												
....NAVICULA	*	0	--	-	--	-	15#	17	--	-	28	1
...NITZSCHIACEAE												
....NITZSCHIA	*	0	14#	100	--	-	--	-	--	-	69	4
...TABELLARIACEAE												
....TABELLARIA	--	-	--	-	--	-	44#	50	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....DINOBRYON	56	2	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCCOCCALES												
...CHROCCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	360#	19
....ANACYSTIS	370	12	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....CYLINDROSPERMUM	750#	24	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	420#	21
....OSCILLATORIA	1100#	35	--	-	--	-	--	-	--	-	440#	23
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....TRACHELOMONAS	--	-	--	-	--	-	--	-	--	-	56	3

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 1977 TO SEPTEMBER 1978

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. 1977.....	7521	551	300	6150	55	1120	37	761	200
NOV. 1977.....	11679	507	280	8730	49	1560	33	1050	190
DEC. 1977.....	14689	555	310	12200	56	2200	38	1490	200
JAN. 1978.....	5920	563	310	4990	57	909	38	614	210
FEB. 1978.....	4397	549	300	3610	55	653	37	439	200
MAR. 1978.....	17048	574	320	14600	58	2680	39	1810	210
APR. 1978.....	55674	579	320	48300	59	8870	40	6000	210
MAY 1978.....	72780	573	320	62500	58	11400	39	7740	210
JUNE 1978.....	79357	579	320	68800	59	12600	40	8560	210
JULY 1978.....	59540	591	330	52900	61	9730	41	6580	220
AUG. 1978.....	72897	549	300	59800	55	10800	37	7310	200
SEPT 1978.....	44713	512	280	34000	50	6040	34	4080	190
TOTAL	446215	**	**	377000	**	68600	**	46400	**
WTD.AVG.	1222.51	564	310	**	57	**	38	**	210

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	545	416	422	561	560	581	587	562	557	602	584	518
2	533	548	465	523	539	529	590	568	567	620	533	518
3	532	561	428	527	548	584	595	512	589	539	533	517
4	601	517	446	595	552	520	563	588	566	547	549	518
5	585	489	447	546	541	493	617	573	571	547	549	517
6	556	489	460	575	528	513	569	582	647	544	583	521
7	560	474	561	601	596	508	612	552	543	594	562	506
8	509	470	559	519	579	489	584	605	531	587	578	495
9	528	443	550	606	584	494	584	591	508	603	562	495
10	484	488	474	519	539	609	546	562	561	600	570	492
11	593	504	498	570	548	550	596	539	533	617	574	501
12	599	496	544	586	527	497	577	541	560	608	550	506
13	597	506	605	599	527	485	564	555	586	598	554	514
14	487	537	597	507	574	500	547	555	597	578	566	499
15	581	545	581	548	574	508	540	541	596	603	580	509
16	480	540	558	516	592	522	579	610	580	595	573	510
17	598	537	564	501	519	541	559	610	575	607	578	512
18	618	486	568	524	533	594	581	565	570	626	558	517
19	608	475	558	519	509	569	590	580	569	607	574	515
20	593	489	590	510	514	541	577	545	565	592	538	514
21	540	531	589	614	599	600	577	580	562	580	538	507
22	478	465	572	556	626	600	593	589	599	580	543	511
23	451	441	545	546	560	584	582	597	615	592	544	510
24	475	492	552	573	533	584	579	600	589	604	537	514
25	592	485	572	601	487	563	587	594	566	602	527	515
26	589	508	577	570	469	545	579	550	605	623	533	523
27	627	500	583	580	599	587	599	571	589	590	533	528
28	600	441	561	548	586	600	589	550	566	596	525	521
29	577	625	564	580	---	594	573	597	599	620	531	523
30	452	634	583	564	---	594	590	608	591	591	518	528
31	589	---	585	590	---	590	---	600	---	595	518	---
MEAN	553	504	541	557	552	551	580	573	575	593	551	512

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	23.0	---	---	6.5	13.5	14.5	15.5	---	19.5	24.0	---
2	---	20.0	---	---	6.0	---	---	15.5	---	19.5	24.5	---
3	25.0	19.5	---	11.0	---	---	15.0	15.5	---	19.5	24.5	---
4	23.5	---	---	11.0	6.0	---	---	15.0	---	20.0	24.0	---
5	23.5	---	---	12.0	---	---	16.5	15.5	---	21.0	24.5	24.5
6	24.0	20.0	15.5	---	6.5	---	15.5	15.5	17.0	20.5	---	24.5
7	---	19.0	13.5	---	6.5	15.5	16.5	---	17.0	21.0	---	24.5
8	24.0	18.5	---	---	6.5	16.5	16.0	16.0	---	---	25.0	24.5
9	24.0	19.5	---	---	6.5	---	---	16.5	---	22.0	25.0	24.5
10	23.5	17.0	---	10.0	6.5	---	15.5	16.5	---	23.5	---	24.5
11	21.0	16.0	---	9.0	6.5	---	16.0	16.0	---	23.5	---	24.5
12	21.0	16.0	---	10.0	7.0	---	16.5	---	---	23.0	---	24.5
13	---	---	15.0	11.5	8.5	---	15.5	---	19.0	---	---	24.5
14	23.0	---	14.5	---	9.0	17.0	16.0	---	19.0	23.0	---	24.5
15	21.0	16.5	---	---	9.0	18.5	15.5	---	---	23.5	25.0	24.5
16	---	---	---	---	9.0	---	---	16.0	---	24.0	25.0	---
17	20.5	18.0	---	9.5	7.0	---	---	16.0	---	---	---	24.5
18	20.0	19.0	---	9.0	9.0	13.5	16.0	---	---	23.5	---	24.5
19	20.0	18.5	---	10.0	---	13.0	16.0	---	19.5	23.5	---	25.0
20	20.5	19.0	12.0	9.0	---	13.5	16.0	---	19.0	24.0	---	25.0
21	---	---	12.0	8.5	8.0	14.0	15.5	---	18.5	24.0	---	24.5
22	21.0	18.0	---	---	9.0	14.5	---	---	19.0	24.0	25.0	---
23	---	18.0	---	---	---	15.5	14.5	16.0	19.0	24.0	25.0	24.5
24	21.0	18.0	---	8.0	---	15.5	15.0	16.0	19.0	23.5	---	25.5
25	20.5	---	12.0	7.0	---	15.5	15.5	16.0	19.5	23.5	---	25.5
26	20.5	---	---	7.0	---	14.5	16.0	---	19.5	24.0	---	25.0
27	21.5	---	12.0	---	---	15.5	16.0	---	19.5	24.0	---	25.0
28	---	---	10.0	---	13.5	15.5	14.5	---	20.0	24.0	---	25.5
29	21.0	17.0	10.5	---	---	14.5	15.0	---	20.0	24.0	24.5	24.5
30	20.5	16.0	12.0	7.0	---	15.0	15.5	20.5	20.0	24.0	25.0	24.5
31	21.0	---	11.5	6.0	---	---	---	21.0	---	24.5	---	---
MEAN	22.0	18.5	12.5	9.0	7.5	15.0	15.5	16.5	19.0	23.0	24.5	24.5

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX

LOCATION.--Lat 30°15'47", long 97°40'20", Travis County, Hydrologic Unit 12090205, on U.S. Highway 183, 1.6 mi (2.6 km) south of the intersection of Webberville Road and U.S. Highway 183, and 4.1 mi (6.6 km) east of the State Capitol Building in Austin.

DRAINAGE AREA.--13.1 mi² (33.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January to July 1975 (periodic discharge measurements only), August 1975 to June 1977 (operated as a flood-hydrograph partial-record station only), June 1977 to current year.

GAGE.--Water-stage recorder. 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 flood-mark, from rating curve extended above 500 ft³/s (14.2 m³/s) on basis of slope-area measurement of peak flow; minimum discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 750 ft³/s (21.2 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. 12	1345	1,210	34.3	10.02	3.054	May 11	0230	1,110	31.4	9.82	2.993
Apr. 10	0515	869	24.6	9.27	2.825	May 26	1730	752	21.3	8.98	2.737
May 2	2145	*1,920	54.4	11.34	3.456	June 7	0045	1,090	30.9	9.78	2.981

Minimum discharge, no flow for several days.

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	.04	32	.03	.03	.04	.02	.03	.02	1.2	.05	26	51
2	.04	.03	.03	.03	.04	.02	.03	126	.11	.05	.07	.50
3	.04	.03	.03	.03	.04	.02	.02	20	39	.05	.01	.00
4	.04	.03	.03	.03	.04	.02	.02	5.7	.84	.05	.00	.30
5	.04	.03	.03	.03	.04	.02	.01	.05	.12	.04	.00	.20
6	.04	.03	.03	.03	.04	33	.01	.04	19	.04	.00	.00
7	.04	.03	.03	.03	73	27	.01	.04	100	.04	.00	32
8	.04	24	.03	.03	11	1.1	.01	.03	.24	.04	.00	33
9	.04	.03	.03	.03	.32	.09	.01	.03	.12	.03	.00	.68
10	.04	.03	.03	.03	.07	.07	77	.02	.16	.03	.40	11
11	.04	.03	.03	35	.05	.06	.03	57	.16	.02	.10	53
12	.04	.03	.03	6.1	141	.06	.03	.57	.16	.01	.02	50
13	.04	.03	.03	.09	19	.06	.03	4.0	.15	.00	.00	15
14	.04	.03	.03	.05	1.3	.06	.02	.04	.15	.00	.00	.35
15	.04	.03	.03	.04	12	.06	.02	.04	.15	.00	.00	.39
16	.04	.03	.03	65	2.7	.06	.02	.04	.14	.00	.00	.39
17	.03	.03	.02	6.3	69	.06	.01	.04	.13	.00	.00	.06
18	.04	.03	.02	.11	5.1	.06	.01	.04	.12	.00	.00	.02
19	.03	.03	.02	.07	.09	.06	.01	.03	.11	.00	.00	.01
20	.03	.03	.02	.05	.08	.06	.01	.16	.10	.00	.00	.03
21	.66	.03	.02	.04	.06	.06	.01	1.7	.10	.00	.00	.01
22	41	.03	.01	.04	.04	.06	.05	.05	.10	.00	.00	.00
23	.03	.03	.01	.04	.02	.06	.02	.04	.09	33	.00	.00
24	.03	.03	.01	.04	.02	17	.01	.04	.08	.10	.00	.00
25	.03	.03	.01	.04	.02	.08	.01	.68	.07	.00	.00	.00
26	.03	.03	.01	.03	.02	.06	.01	80	.06	.00	.00	.00
27	.03	.03	.02	.03	.02	.04	.01	3.3	.06	.00	.20	.00
28	.03	.03	.05	.03	.02	.04	.01	.07	.06	.00	.20	.01
29	.03	.03	.04	.04	---	.04	.01	.04	.06	.00	.20	.01
30	.03	.03	.05	.04	---	.04	.02	.04	.06	.00	.00	.00
31	.03	---	.04	.04	---	.03	---	.04	---	1.4	.00	---
TOTAL	42.70	56.84	.83	113.52	335.17	79.47	77.50	299.89	162.90	34.95	27.20	247.96
MEAN	1.38	1.89	.027	3.66	12.0	2.56	2.58	9.67	5.43	1.13	.88	8.27
MAX	41	32	.05	65	141	33	77	126	100	33	26	53
MIN	.03	.03	.01	.03	.02	.02	.01	.02	.06	.00	.00	.00
CFSM	.11	.14	.002	.28	.92	.20	.20	.74	.42	.09	.07	.63
IN.	.12	.16	.00	.32	.95	.23	.22	.85	.46	.10	.08	.70
AC-FT	85	113	1.6	225	665	158	154	595	323	69	54	492
(††)	1.24	1.73	.36	.94	2.00	.85	1.71	5.58	2.98	1.15	1.55	4.62

CAL YR 1977	TOTAL	-	MEAN	-	MAX	-	MIN	-	CFSM	-	IN	-	AC-FT	-	††	-
WTR YR 1978	TOTAL	1478.93	MEAN	4.05	MAX	141	MIN	.00	CFSM	.31	IN	4.20	AC-FT	2930	††	24.71

†† Rainfall, in inches, based on one rain gage.

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.

DISCHARGE AND WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)
JAN 10...	1335	.03	738	8.1	5.0	0	1	15.4	124	.4
FEB 21...	1105	.04	757	8.0	7.5	0	3	12.9	111	.2
APR 10...	1415	5.9	250	7.5	22.0	50	80	7.8	92	5.4
JUN 07...	1600	35	321	7.8	26.5	40	30	7.2	91	1.5
SEP 08...	1245	1.9	289	7.4	25.5	20	45	7.6	95	2.4

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
JAN 10...	26000	1800	8800	300	49	100	13	39	1.0
FEB 21...	140	25	32	--	--	--	--	--	--
APR 10...	450000	56000	16000	100	19	36	2.8	8.3	.4
JUN 07...	230000	10000	1400	130	20	48	3.6	11	.4
SEP 08...	61000	22000	6900	120	18	40	4.0	12	.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)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
JAN 10...	2.2	310	0	57	56	.4	16	436	1
FEB 21...	--	--	--	--	--	--	--	--	2
APR 10...	3.4	100	0	18	10	.1	4.9	133	145
JUN 07...	3.8	140	0	27	15	.2	11	189	48
SEP 08...	3.0	120	0	21	15	.2	7.2	162	64

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)
JAN 10...	1	.72	.01	.73	.04	.36	.40	.01	1.6
FEB 21...	1	.87	.01	.88	.02	.13	.15	.03	1.8
APR 10...	17	.31	.02	.33	.16	.66	.82	.24	9.4
JUN 07...	5	1.6	.01	1.6	.06	.21	.27	.02	.6
SEP 08...	13	.24	.01	.25	.01	1.5	1.5	.12	7.7

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 10...	1335	2	0	0	10	1	10
JUN 07...	1600	8	200	0	0	1	40
SEP 08...	1245	11	0	0	0	3	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)
JAN 10...	0	0	.0	1	0	10
JUN 07...	7	0	.0	0	0	5
SEP 08...	0	10	.0	0	0	0

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 10...	1335	.0	.00	.00	.0	.00	.00	.00	.00
JUN 07...	1600	.0	.00	.00	.0	.02	.02	.03	.18
SEP 08...	1245	.0	.00	.00	.0	.03	.01	.03	.13

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 10...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN 07...	.00	.00	.00	.00	.00	.00	.00	.02	.00
SEP 08...	.00	.00	.00	.00	.00	.00	.00	.04	.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 10...	.00	--	.00	0	.00	.00	.00	.00
JUN 07...	.00	--	.00	0	.00	.02	.05	.00
SEP 08...	.00	.00	.00	0	.00	.00	.00	.00

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX

LOCATION.--Lat 30°16'59", long 97°39'17", Travis County, Hydrologic Unit 12090205, on left bank 190 ft (58 m) downstream from bridge on Farm Road 969, 0.8 mi (1.3 km) downstream from Little Walnut Creek, 2.8 mi (4.5 km) upstream from Colorado River, and 5.2 mi (8.4 km) east of the State Capitol Building in Austin.

DRAINAGE AREA.--51.3 mi² (132.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 425.96 ft (129.833 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. No known regulation or diversion. Station is part of hydrologic research project to study rainfall-runoff relation for urban areas. Six recording rain gages are located in the watershed. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years, 22.2 ft³/s (0.629 m³/s), 5.88 in/yr (149 mm/yr), 16,080 acre-ft/yr (19.8 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--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). 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 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. 12	1415	1,240	35.1	10.67	3.252	May 11	0245	1,560	44.2	11.60	3.536
Apr. 10	0530	1,260	35.7	10.72	3.682	June 7	0215	*1,760	49.8	12.16	3.706
May 2	2200	1,730	49.0	12.08	3.682						

Minimum discharge, 0.08 ft³/s (0.002 m³/s) Oct. 15.

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	.24	47	2.2	2.3	2.9	6.3	3.5	3.5	15	1.8	88	6.0
2	7.0	8.2	2.0	2.0	2.9	6.1	3.5	176	7.1	1.8	6.0	1.8
3	1.1	2.3	2.0	2.0	2.9	6.1	3.3	86	15	1.7	2.4	.67
4	.72	1.7	2.0	2.0	3.1	5.7	3.1	9.8	5.3	1.6	1.9	.55
5	.72	1.5	2.0	2.0	3.1	5.4	2.8	6.6	4.2	1.4	1.7	1.0
6	.64	1.5	1.8	2.0	3.1	25	3.7	5.2	150	1.4	1.7	.55
7	.63	1.5	1.7	2.1	22	22	3.3	5.4	342	1.3	1.5	38
8	.78	45	1.7	2.1	7.0	8.7	3.0	4.7	19	1.2	1.3	21
9	.55	6.0	1.7	2.1	4.8	7.3	2.9	3.8	17	.93	1.3	3.0
10	.47	2.7	1.7	2.4	3.9	6.6	253	3.4	9.8	.93	4.0	7.6
11	.22	2.3	1.7	8.6	3.9	6.3	17	260	7.6	.85	3.7	45
12	.63	2.1	1.8	5.0	226	5.7	11	17	6.7	.89	1.5	24
13	.38	2.1	3.0	3.3	32	5.7	8.7	22	5.9	.93	1.4	14
14	.24	2.1	2.2	2.8	16	5.4	7.3	7.1	5.4	.93	1.4	3.4
15	.08	2.1	2.1	2.6	16	5.2	6.5	5.8	5.0	.73	1.4	2.6
16	.12	2.1	2.1	28	12	4.7	5.8	4.9	4.7	.72	1.4	2.3
17	.14	2.1	2.1	7.6	52	4.5	5.7	4.7	4.3	.72	1.4	2.0
18	.17	2.1	2.1	3.9	17	4.3	5.9	4.1	4.1	.64	1.5	1.9
19	.24	2.0	2.1	3.9	13	4.3	4.7	4.0	3.7	.78	1.5	1.6
20	.31	2.0	2.0	3.0	12	4.1	4.3	19	3.5	.89	1.6	1.5
21	20	3.3	2.0	2.9	9.9	4.1	4.3	13	3.5	.93	1.4	1.7
22	92	2.5	2.0	3.1	9.1	4.1	4.2	5.8	3.3	.69	1.3	1.7
23	5.6	2.4	1.8	3.1	9.0	7.9	4.5	5.0	3.1	11	1.2	2.9
24	1.7	2.4	1.8	3.1	8.2	30	4.2	4.2	2.6	1.5	1.2	1.8
25	1.3	2.6	1.8	2.7	7.9	6.0	4.8	6.6	2.3	1.1	1.0	1.5
26	1.2	2.6	1.7	2.3	7.1	4.6	4.0	52	2.1	.93	.89	1.3
27	.99	2.4	1.7	2.4	6.6	4.1	3.6	19	2.1	.72	.87	1.3
28	.93	2.3	2.5	2.4	6.9	4.1	3.3	5.4	2.1	1.1	.63	1.5
29	.93	2.3	4.4	2.4	---	3.9	3.5	4.3	2.1	.92	.82	1.4
30	.93	2.9	3.0	2.4	---	3.9	3.5	4.0	2.1	.50	.84	1.2
31	.93	---	2.6	2.6	---	3.7	---	3.7	---	4.6	.64	---
TOTAL	141.89	164.1	65.3	119.1	520.3	225.8	398.9	776.0	660.6	46.13	137.39	194.77
MEAN	4.58	5.47	2.11	3.84	18.6	7.28	13.3	25.0	22.0	1.49	4.43	6.49
MAX	92	47	4.4	28	226	30	253	260	342	11	88	45
MIN	.08	1.5	1.7	2.0	2.9	3.7	2.8	3.4	2.1	.50	.63	.55
CFSM	.09	.11	.04	.08	.36	.14	.26	.49	.43	.03	.09	.13
IN.	.10	.12	.05	.09	.38	.16	.29	.56	.48	.03	.10	.14
AC-FT	281	325	130	236	1030	448	791	1540	1310	91	273	386
(††)	2.98	2.52	.33	1.33	2.86	1.13	2.39	5.53	3.10	1.10	2.05	3.99

CAL YR 1977 TOTAL 7641.55 MEAN 20.9 MAX 755 MIN .08 CFSM .41 IN 5.54 AC-FT 15160 †† 27.04
WTR YR 1978 TOTAL 3450.28 MEAN 9.45 MAX 342 MIN .08 CFSM .18 IN 2.50 AC-FT 6840 †† 29.31

†† 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 September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
JAN										
10...	1000	2.4	639	7.8	5.0	5	1	12.0	97	1.1
FEB										
21...	1000	9.9	791	7.9	5.5	5	2	12.2	100	4.1
MAR										
21...	0835	4.0	565	--	12.0	--	--	--	--	--
APR										
10...	1240	168	276	7.2	20.0	40	570	8.0	91	8.1
MAY										
01...	0920	3.6	570	--	17.0	--	--	--	--	--
JUN										
08...	0930	20	498	7.8	24.0	20	15	7.2	88	1.0
08...	1410	22	467	--	24.0	--	--	--	--	--
JUL										
25...	1030	1.1	452	7.5	27.0	20	6	4.6	58	1.7
SEP										
05...	1135	1.2	436	7.6	25.0	10	4	6.2	77	.8
06...	0745	.52	365	--	18.0	--	--	--	--	--
25...	1050	1.5	512	7.7	23.0	1	--	6.9	82	.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)
JAN										
10...	540	29	74	270	77	94	7.6	28	.7	2.6
FEB										
21...	1100	60	380	--	--	--	--	--	--	--
MAR										
21...	--	--	--	--	--	--	--	--	--	--
APR										
10...	68000	23000	55000	110	15	41	2.8	9.4	.4	3.2
MAY										
01...	--	--	--	--	--	--	--	--	--	--
JUN										
08...	35000	3100	4400	220	54	80	4.3	18	.5	3.9
08...	--	--	--	--	--	--	--	--	--	--
JUL										
25...	14000	2700	1900	180	48	63	5.2	21	.7	3.3
SEP										
05...	3800	600	2300	170	40	60	5.1	20	.7	2.7
06...	--	--	--	--	--	--	--	--	--	--
25...	2200	220	3000	180	43	65	4.9	27	.9	2.6

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)
JAN										
10...	230	0	76	47	.4	2.3	371	1	1	.05
FEB										
21...	--	--	--	--	--	--	--	2	2	.75
MAR										
21...	--	--	--	--	--	--	--	--	--	--
APR										
10...	120	0	26	10	.3	5.9	158	1030	92	.42
MAY										
01...	--	--	--	--	--	--	--	--	--	--
JUN										
08...	200	0	46	29	.4	9.8	290	19	3	.60
08...	--	--	--	--	--	--	--	--	--	--
JUL										
25...	160	0	38	39	.4	7.7	257	2	1	.03
SEP										
05...	160	0	33	40	.4	5.7	246	4	2	.02
06...	--	--	--	--	--	--	--	--	--	--
25...	170	0	41	53	.5	2.8	281	0	0	.02

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN									
10...	.01	.06	.06	.34	.40	.02	2.0	3	.02
FEB									
21...	.01	.76	.01	.29	.30	.01	2.7	--	--
MAR									
21...	--	--	--	--	--	--	--	46	.50
APR									
10...	.02	.44	.21	1.4	1.6	.66	21	--	--
MAY									
01...	--	--	--	--	--	--	--	34	.33
JUN									
08...	.02	.62	.09	.50	.59	.05	3.7	--	--
08...	--	--	--	--	--	--	--	40	2.4
JUL									
25...	.00	.03	.00	.30	.30	.01	10	--	--
SEP									
05...	.00	.02	.01	.39	.40	.02	5.1	--	--
06...	--	--	--	--	--	--	--	6	.01
25...	.00	.02	.01	.22	.23	.02	3.6	--	--

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)
JAN							
10...	1000	1	0	0	10	1	20
JUN							
08...	0930	2	200	0	0	2	20
JUL							
25...	1030	4	200	0	0	0	30
SEP							
25...	1050	2	70	<1	0	2	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)
JAN						
10...	0	0	.0	0	0	10
JUN						
08...	6	0	.0	0	0	5
JUL						
25...	0	30	.0	0	0	0
SEP						
25...	0	10	.0	0	0	<3

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 10...	1000	.0	.00	.00	.0	.00	.00	.00	.02
JUN 08...	0930	.0	.00	.00	.0	.00	.00	.00	.11
JUL 25...	1030	.0	.00	.00	.0	.00	.00	.00	.18
SEP 25...	1050	.0	.00	.00	.0	.00	.00	.00	.02

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
JAN 10...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN 08...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL 25...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP 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)
JAN 10...	.00	--	.00	0	.00	.09	.00	.00
JUN 08...	.00	--	.00	0	.00	.03	.05	.00
JUL 25...	.00	.00	.00	0	.00	.16	.08	.00
SEP 25...	.00	.00	.00	0	.00	.08	.00	.00

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
JAN 10...	1000	2.4	5.0	3	.02
MAR 21...	0835	4.0	12.0	46	.50
MAY 01...	0920	3.6	17.0	34	.33
JUN 08...	1410	22	24.0	40	2.4
SEP 06...	0745	.52	18.0	6	.01

08158640 WALNUT CREEK AT SOUTHERN PACIFIC RAILROAD BRIDGE, AUSTIN, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 30°15'58", long 97°39'24", Travis County, Hydrologic Unit 12090205, at Southern Pacific Railroad bridge, 1.2 mi (1.9 km) south of Webberville Road, and 5.0 mi (8.0 km) east of the State Capitol in Austin.

DRAINAGE AREA.--53.5 mi² (138.6 km²).

PERIOD OF RECORD.--Periodic chemical, biochemical, and pesticide analyses: January 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
JAN										
10...	1140	6.5	868	7.0	11.5	10	6	6.8	64	15
FEB										
21...	1035	26	856	7.3	12.0	10	7	10.0	96	7.8
APR										
10...	1330	115	314	7.8	20.0	30	700	7.6	86	10
JUN										
08...	1130	44	601	7.4	25.5	20	15	7.2	90	1.0
JUL										
25...	1100	15	810	7.2	29.5	0	6	5.6	74	3.4
SEP										
05...	1110	30	723	6.9	29.0	5	8	5.8	76	8.7
25...	1205	25	786	6.8	28.5	4	2	5.8	75	4.8

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
JAN									
10...	5000	16	76	170	81	42	16	100	3.3
FEB									
21...	8	<1	4	--	--	--	--	--	--
APR									
10...	88000	25000	26000	120	17	40	3.7	15	.6
JUN									
08...	23000	1900	2200	200	64	68	8.1	43	1.3
JUL									
25...	66000	16000	740	180	85	42	19	85	2.7
SEP									
05...	33000	750	700	130	58	32	13	75	2.8
25...	2300	71	180	130	52	34	12	90	3.4

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									
10...	11	110	0	110	110	2.1	11	456	9
FEB									
21...	--	--	--	--	--	--	--	--	9
APR									
10...	3.7	120	0	31	17	.5	6.1	176	1140
JUN									
08...	5.8	170	0	71	52	1.6	10	344	23
JUL									
25...	11	120	0	100	110	1.8	12	440	9
SEP									
05...	11	92	0	67	96	1.0	11	351	11
25...	11	100	0	85	110	2.1	11	405	4

08158640 WALNUT CREEK AT SOUTHERN PACIFIC RAILROAD BRIDGE, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN									
10...	8	15	1.4	16	1.2	2.0	3.2	8.1	8.0
FEB									
21...	6	7.8	.14	7.9	3.5	1.5	5.0	4.7	8.8
APR									
10...	114	.88	.02	.90	.17	1.7	1.9	1.3	24
JUN									
08...	6	4.8	.02	4.8	.10	.71	.81	1.7	5.4
JUL									
25...	5	12	.06	12	.23	2.0	2.2	5.6	7.8
SEP									
05...	8	4.8	.19	5.0	1.8	2.9	4.7	9.0	9.7
25...	2	12	.48	12	2.4	2.6	5.0	7.9	9.3

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							
10...	1140	2	0	0	10	12	40
JUN							
08...	1130	2	200	0	0	4	30
JUL							
25...	1100	3	100	0	0	0	30
SEP							
25...	1205	3	0	0	0	13	50

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						
10...	1	10	.0	0	0	50
JUN						
08...	6	5	.0	0	0	20
JUL						
25...	0	10	.0	0	0	10
SEP						
25...	0	20	.0	0	0	40

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									
10...	1140	.0	.00	.00	.0	.00	.00	.00	.00
JUN									
08...	1130	.0	.00	.00	.1	.00	.00	.00	.07
JUL									
25...	1100	.0	.00	.00	.0	.00	.00	.00	.15
SEP									
25...	1205	.0	.00	.00	.0	.00	.00	.00	.49

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									
10...	.01	.00	.00	.00	.00	.00	.00	.00	.00
JUN									
08...	.00	.00	.00	.00	.00	.01	.01	.00	.00
JUL									
25...	.01	.00	.00	.00	.00	.01	.06	.02	.00
SEP									
25...	.01	.00	.00	.00	.00	.00	.00	.04	.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								
10...	.00	--	.00	0	.00	.00	.00	.00
JUN								
08...	.00	--	.00	0	.00	.03	.04	.00
JUL								
25...	.00	.00	.00	0	.00	.08	.00	.00
SEP								
25...	.00	.00	.00	0	.00	.00	.00	.00

08158650 COLORADO RIVER BELOW AUSTIN, TX
(Low-flow partial-record station)

LOCATION.--Lat 30°12'28", long 97°38'15", Travis County, Hydrologic Unit 12090205, at bridge on Farm Road 973, 0.3 mi (0.5 km) northeast of intersection of State Highway 71 and Farm Road 973, 8.8 mi (14.2 km) downstream from Govalle Sewage Treatment Plant outfall, and 9.6 mi (15.4 km) downstream from gaging station at Austin.

PERIOD OF RECORD.--Periodic chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: October 1974 to current year.

DISCHARGE AND WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
OCT										
11...	1028	136	623	7.4	22.0	2	4	5.9	69	--
NOV										
08...	1112	380	647	7.4	20.5	10	15	4.9	56	7.4
DEC										
15...	1540	870	620	7.8	17.0	2	5	8.8	94	2.6
JAN										
24...	1415	128	674	7.6	10.0	12	3	9.2	84	7.8
FEB										
27...	0915	145	690	7.3	16.5	12	10	6.4	67	12
MAR										
30...	1330	1430	618	8.1	21.0	5	25	8.4	97	1.7
APR										
18...	0758	610	602	7.7	20.0	5	8	9.0	105	2.2
MAY										
18...	1800	70	605	7.8	24.5	0	15	9.8	122	2.0
JUN										
27...	1045	3000	620	7.9	24.5	5	4	8.0	98	.5
JUL										
31...	0800	3000	578	7.5	28.0	--	4	5.6	74	1.2
SEP										
05...	0918	1220	522	7.6	27.0	5	5	6.3	81	.7
25...	1015	200	531	7.8	26.5	2	4	6.5	82	.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
OCT									
11...	17000	22	280	220	52	52	21	41	1.2
NOV									
08...	19000	2800	2200	--	--	--	--	--	--
DEC									
15...	6600	39	26	240	43	58	23	34	1.0
JAN									
24...	18000	840	87	--	--	--	--	--	--
FEB									
27...	29000	17	200	220	39	55	20	50	1.5
MAR									
30...	14000	27	27	--	--	--	--	--	--
APR									
18...	2000	76	200	200	47	45	22	36	1.1
MAY									
18...	2400	720	63	210	51	45	23	40	1.2
JUN									
27...	1300	77	89	210	51	48	23	38	1.1
JUL									
31...	320	77	--	210	58	46	24	38	1.1
SEP									
05...	800	250	130	180	50	43	18	29	.9
25...	180	38	42	--	--	--	--	--	--

08158650 COLORADO RIVER BELOW AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
OCT 11...	4.6	200	0	48	66	.5	11	343	5
NOV 08...	--	--	--	--	--	--	--	--	22
DEC 15...	3.8	240	0	46	56	.4	11	351	8
JAN 24...	--	--	--	--	--	--	--	--	12
FEB 27...	6.4	220	0	54	68	.8	6.0	369	16
MAR 30...	--	--	--	--	--	--	--	--	47
APR 18...	4.0	190	0	40	70	.3	8.4	319	11
MAY 18...	3.9	190	0	42	63	.3	7.7	319	25
JUN 27...	3.9	200	0	46	68	.3	7.3	333	6
JUL 31...	4.0	190	0	42	68	.3	9.4	325	6
SEP 05...	3.8	160	0	37	59	.3	8.7	278	23
25...	--	--	--	--	--	--	--	--	10

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)
OCT 11...	2	.12	.05	.17	.30	1.2	1.5	.86	4.4
NOV 08...	5	.54	.20	.74	3.7	.40	4.1	3.8	9.2
DEC 15...	4	.66	.06	.72	.55	.38	.93	.34	3.8
JAN 24...	4	.37	.05	.42	1.0	2.5	3.5	2.1	5.9
FEB 27...	6	.46	.14	.60	3.0	3.3	6.3	2.6	8.1
MAR 30...	10	.12	.02	.14	.19	1.8	2.0	.09	4.8
APR 18...	1	.29	.04	.33	.27	.33	.60	.19	2.9
MAY 18...	4	.08	.01	.09	.06	1.4	1.5	.10	--
JUN 27...	1	.36	.02	.38	.03	.47	.50	.15	3.3
JUL 31...	5	.25	.03	.28	.00	.40	.40	.14	4.1
SEP 05...	19	.28	.03	.31	.08	.62	.70	.18	4.1
25...	0	.67	.07	.74	.15	.50	.65	.28	4.6

08158650 COLORADO RIVER BELOW AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 11...	1028	2	200	0	0	2	20
FEB 27...	0915	2	100	0	10	3	20
JUN 27...	1045	1	300	0	0	2	10
SEP 05...	0918	4	100	0	0	1	40

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 11...	0	40	.0	0	0	10
FEB 27...	5	90	.0	0	0	20
JUN 27...	0	10	.0	0	0	10
SEP 05...	0	0	.0	0	0	0

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
OCT 11...	1028	.0	.00	.00	.0	.00	.00	.00	.00
FEB 27...	0915	.0	.00	.00	.0	.00	.00	.00	.32
JUN 27...	1045	.0	.00	.00	.0	.00	.00	.00	.00
SEP 05...	0918	.0	.00	.00	.0	.00	.00	.00	.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
OCT 11...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB 27...	.00	.00	.00	.00	.00	.00	.00	.01	.00
JUN 27...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP 05...	.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)
OCT 11...	.00	--	.00	0	.00	.03	.00	.00
FEB 27...	.00	--	.00	0	.00	.01	.00	.00
JUN 27...	.00	.00	.00	0	.00	.13	.00	.00
SEP 05...	.00	.00	.00	0	.00	.03	.00	.00

08158700 ONION CREEK NEAR DRIFTWOOD, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 30°05'00", long 98°00'20", Hays County, Hydrologic Unit 12090205, at bridge at lower crossing on Farm Road 150, 3.2 mi (5.1 km) southeast of Driftwood, and 10 mi (16 km) west of Buda.

PERIOD OF RECORD.--Occasional discharge measurements: April 1958, November 1961 to current year. Occasional water-quality data: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
JAN										
12...	1005	1.0	519	7.8	6.0	0	1	10.6	88	.8
FEB										
28...	0808	1.1	517	7.8	13.0	0	1	8.7	85	1.0
APR										
10...	1150	5.4	434	7.5	21.0	5	6	8.1	93	3.2
JUN										
07...	1520	60	223	7.7	23.5	70	180	8.5	102	2.2
AUG										
01...	1426	8.0	351	7.6	25.0	5	5	8.0	99	1.3
SEP										
08...	1025	2.1	394	7.2	24.0	0	2	7.3	89	1.0
26...	1230	4.5	432	7.8	24.0	0	1	8.2	100	.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
JAN									
12...	1000	72	290	260	51	71	21	9.1	.2
FEB									
28...	920	12	72	--	--	--	--	--	--
APR									
10...	16000	10000	8300	210	58	56	18	8.6	.3
JUN									
07...	49000	6100	10000	100	2	32	5.0	2.8	.1
AUG									
01...	28000	1300	1900	170	27	42	15	6.8	.2
SEP									
08...	21000	130	120	190	36	52	15	7.8	.2
26...	6200	96	130	210	28	57	16	7.4	.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)
JAN									
12...	3.7	260	0	42	18	.2	8.9	302	1
FEB									
28...	--	--	--	--	--	--	--	--	0
APR									
10...	1.6	190	0	47	13	.2	8.7	247	11
JUN									
07...	2.4	120	0	15	4.8	.1	8.1	130	250
AUG									
01...	1.6	170	0	28	13	.2	8.9	199	6
SEP									
08...	1.4	190	0	33	11	.2	9.5	224	2
26...	1.4	220	0	31	11	.2	9.4	242	5

08158700 ONION CREEK NEAR DRIFTWOOD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN									
12...	0	.03	.01	.04	.06	.64	.70	.02	1.5
FEB									
28...	0	.00	.01	.00	.02	.10	.12	.01	1.8
APR									
10...	7	.01	.01	.02	.01	.29	.30	.02	5.4
JUN									
07...	46	.38	.02	.40	.10	.64	.74	.07	9.7
AUG									
01...	2	.04	.01	.05	.00	.30	.30	.02	3.7
SEP									
08...	1	.01	.00	.01	.01	.29	.30	.00	2.6
26...	2	.00	.00	.00	.01	.23	.24	.01	2.1

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)	IRON, DISSOLVED (UG/L AS FE)
JAN							
12...	1005	1	0	0	10	0	20
JUN							
07...	1520	1	200	0	0	1	50
AUG							
01...	1426	1	20	<1	0	0	<10
SEP							
08...	1025	2	0	0	0	0	50
26...	1230	1	0	0	0	1	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						
12...	0	20	.0	0	0	0
JUN						
07...	7	0	.0	0	0	10
AUG						
01...	1	<1	.0	0	0	<3
SEP						
08...	0	10	.0	0	0	0
26...	0	0	.0	0	0	10

08158700 ONION CREEK NEAR DRIFTWOOD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 12...	1005	.0	.00	.00	.0	.00	.00	.00	.00
JUN 07...	1520	.0	.00	.00	.0	.00	.00	.00	.00
SEP 26...	1230	.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)
JAN 12...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN 07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP 26...	.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)
JAN 12...	.00	--	.00	0	.00	.00	.00	.00
JUN 07...	.00	--	.00	0	.00	.02	.01	.00
SEP 26...	.00	.00	.00	0	.00	.00	.00	.00

08158800 ONION CREEK AT BUDA, TX
(Reconnaisance partial-record station)

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 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
JAN										
12...	1220	.41	448	7.9	6.0	0	1	11.2	93	1.3
FEB										
28...	0905	.13	458	7.5	13.0	0	1	9.2	90	1.0
APR										
10...	1030	.15	414	7.1	21.0	10	3	5.6	64	3.1
JUN										
07...	1400	140	211	7.9	24.0	90	310	8.1	99	3.8
AUG										
01...	1312	1.5	397	7.6	25.0	5	3	8.6	106	1.4
SEP										
08...	1130	3.4	419	6.8	25.5	0	3	7.5	94	.5
26...	1121	.87	478	7.5	24.5	0	1	8.6	105	.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
JAN									
12...	3600	80	34	230	38	71	12	6.8	.2
FEB									
28...	4000	7	14	--	--	--	--	--	--
APR									
10...	41000	440	780	210	35	65	11	7.1	.2
JUN									
07...	130000	8000	29000	95	21	28	6.1	3.0	.1
AUG									
01...	28000	2200	3100	170	33	56	7.8	9.8	.3
SEP									
08...	9200	36	220	200	22	70	6.7	8.5	.3
26...	7400	48	150	230	41	78	8.4	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)
JAN									
12...	1.9	230	0	29	16	.2	8.6	259	1
FEB									
28...	--	--	--	--	--	--	--	--	1
APR									
10...	2.3	210	0	26	12	.2	9.5	237	3
JUN									
07...	2.4	91	0	16	5.6	.1	7.5	114	510
AUG									
01...	2.6	170	0	33	18	.1	10	221	1
SEP									
08...	1.7	220	0	24	12	.2	9.8	241	6
26...	2.0	230	0	42	11	.1	9.2	271	1

08158800 ONION CREEK AT BUDA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN									
12...	1	.78	.01	--	.06	.24	--	.01	1.3
FEB									
28...	0	.03	.01	--	.02	.07	--	.01	1.7
APR									
10...	3	.01	.00	.01	.01	.25	.26	.01	5.4
JUN									
07...	74	.24	.02	.26	.12	.72	.84	.12	18
AUG									
01...	1	.20	.02	.22	.00	.40	.40	.02	3.6
SEP									
08...	2	.05	.00	.05	.01	.39	.40	.02	2.0
26...	0	.49	.01	.50	.02	.73	.75	.02	2.8

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)
JAN							
12...	1220	1	0	0	10	5	20
JUN							
07...	1400	1	200	0	0	0	50
AUG							
01...	1312	1	30	<1	0	0	20
SEP							
08...	1130	3	0	0	0	1	20
26...	1121	1	0	0	0	1	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)
JAN						
12...	0	20	.0	0	0	10
JUN						
07...	3	0	.0	0	0	5
AUG						
01...	0	2	.0	0	0	<3
SEP						
08...	0	80	.0	0	0	0
26...	0	40	.0	0	0	10

08158800 ONION CREEK AT BUDA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 12...	1220	--	--	--	--	--	--	--	--
JUN 07...	1400	.0	.00	.00	.0	.00	.00	.00	.10
SEP 26...	1121	.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)
JAN 12...	--	--	--	--	--	--	--	--	--
JUN 07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP 26...	.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)
JAN 12...	--	--	--	--	--	.00	.00	--
JUN 07...	.00	--	.00	0	.00	.01	.01	.00
SEP 26...	.00	.00	.00	0	.00	.00	.00	.00

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued
(Reconnaisance partial-record station)

LOCATION.--Lat 30°09'19", long 97°56'23", Hays County, Hydrologic Unit 12090205, 1.0 mi (1.6 km) downstream from Farm Road 1826, and 6.1 km (9.8 km) east of Driftwood.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
MAR										
01...	1143	.06	544	7.5	12.0	5	0	9.8	94	.8
APR										
10...	1255	.66	456	7.8	21.5	5	6	9.8	114	2.1
JUN										
07...	1630	2.2	204	7.8	28.5	80	50	7.3	95	1.8
SEP										
08...	0930	.01	413	7.1	24.0	10	30	5.6	68	1.4
27...	1000	.35	489	7.5	22.0	0	1	5.4	64	.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
MAR									
01...	4100	41	33	270	65	75	20	9.8	.3
APR									
10...	11000	7600	2900	220	47	58	18	9.0	.3
JUN									
07...	39000	3700	5400	96	5	29	5.6	3.0	.1
SEP									
08...	14000	1900	480	190	28	49	17	9.7	.3
27...	7600	160	150	240	35	68	17	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)
MAR									
01...	1.5	250	0	46	20	.2	6.6	302	0
APR									
10...	1.6	210	0	39	22	.2	10	261	8
JUN									
07...	2.3	110	0	12	5.1	.1	9.0	121	70
SEP									
08...	1.7	200	0	20	18	.2	11	225	45
27...	1.6	250	0	30	15	.2	10	273	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)
MAR									
01...	0	.00	.01	--	.00	.00	--	.01	1.5
APR									
10...	3	.02	.00	.02	.01	.27	.28	.00	5.5
JUN									
07...	10	.16	.02	.18	.08	.50	.58	.05	8.9
SEP									
08...	8	.01	.00	.01	.01	.39	.40	.01	3.7
27...	0	.02	.00	.02	.01	.49	.50	.02	2.4

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JUN							
07...	1630	1	100	0	0	0	100
SEP							
08...	0930	2	0	0	0	1	20
27...	1000	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)
JUN						
07...	6	0	.0	0	0	10
SEP						
08...	0	0	.0	1	0	0
27...	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)
JUN									
07...	1630	.0	.00	.00	.0	.00	.00	.00	.00
SEP									
27...	1000	.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)
JUN									
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP									
27...	.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)
JUN								
07...	.00	--	.00	0	.00	.00	.00	.00
SEP								
27...	.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 to September 1978.

GAGE.--Water-stage recorder. Datum of gage is 876.14 ft (267.047 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair above 3 ft³/s (0.085 m³/s) and poor below. No known regulation or diversion. There is a recording rain gage in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 197 ft³/s (5.58 m³/s) June 6, 1978, gage height, 5.02 ft (1.530 m), no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period January to September, 197 ft³/s (5.58 m³/s) June 6, gage height, 5.02 ft (1.530 m), no peak above base of 500 ft³/s (14.2 m³/s); no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	.00	.01	.00	.02	.02	.03	3.5	.01
2				---	.00	.01	.01	.03	.02	.03	.43	.00
3				---	.00	.01	.01	.03	.05	.03	.24	.00
4				---	.00	.01	.01	.03	.04	.02	.23	.00
5				---	.00	.01	.01	.02	.04	.02	.16	.00
6				---	.00	.02	.01	.03	6.9	.01	.09	.00
7				---	.01	.02	.01	.03	9.3	.01	.11	.00
8				---	.01	.02	.01	.03	.41	.00	.08	.07
9				---	.01	.02	.02	.02	.26	.00	.04	.01
10				---	.01	.02	.09	.02	.20	.00	.02	.16
11				---	.01	.02	.03	.02	.18	.00	.01	.05
12				---	.05	.01	.03	.02	.14	.00	.00	.01
13				---	.02	.01	.03	.02	.12	.00	.00	.23
14				---	.02	.00	.03	.02	.10	.00	.00	.27
15				---	.02	.00	.02	.01	.09	.00	.00	.28
16				.01	.02	.00	.02	.01	.07	.00	.00	.30
17				.01	.04	.00	.02	.01	.06	.00	.00	.30
18				.01	.02	.00	.01	.01	.06	.00	.00	.30
19				.01	.02	.00	.01	.01	.05	.00	.00	.30
20				.01	.02	.00	.02	.06	.05	.00	.00	.30
21				.01	.01	.00	.02	.04	.05	.00	.00	.26
22				.01	.01	.00	.02	.04	.04	.00	.00	.24
23				.01	.01	.01	.02	.03	.04	1.1	.00	.27
24				.01	.01	.03	.02	.03	.04	.03	.00	.27
25				.01	.01	.02	.02	.02	.04	.02	.00	.27
26				.00	.01	.02	.02	.03	.04	.01	.00	.27
27				.00	.01	.02	.02	.04	.04	.01	.00	.27
28				.00	.01	.02	.02	.03	.03	.00	.00	.27
29				.00	---	.02	.02	.02	.03	.00	.00	.27
30				.00	---	.01	.02	.02	.03	.00	.00	.27
31				.00	---	.00	---	.02	---	.01	.00	---
TOTAL				---	.36	.34	.60	.77	18.54	1.33	4.91	5.25
MEAN				---	.013	.011	.020	.025	.62	.043	.16	.18
MAX				---	.05	.03	.09	.06	9.3	1.1	3.5	.30
MIN				---	.00	.00	.00	.01	.02	.00	.00	.00
CFSM				---	.002	.001	.002	.003	.08	.005	.02	.02
IN.				---	.00	.00	.00	.00	.08	.01	.02	.02
AC-FT				---	.7	.7	1.2	1.5	37	2.6	9.7	10
(††)							1.80	2.56	4.42	2.86	3.67	6.28

WTR YR 1978 TOTAL - MEAN - MAX - MIN - CFSM - IN. - AC-FT - †† -

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

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 to September 1978.

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 poor. 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 gage height, 4.61 ft (1.405 m) June 6, 1978, discharge unknown; no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum gage height during period January to September, 4.61 ft (1.405 m) June 6, discharge unknown; no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	.00	.00	.00	.00	.00	.00	14	.00
2				---	.00	.00	.00	.26	.00	.00	1.5	.00
3				---	.00	.00	.00	.33	.00	.00	.00	.00
4				---	.00	.00	.00	.00	.01	.00	.00	.13
5				---	.00	.00	.00	.00	.00	.00	.00	.00
6				---	.00	.01	.00	.00	28	.00	.00	.00
7				---	.00	.00	.00	.00	28	.00	.00	.02
8				---	.00	.00	.00	.00	5.4	.00	.00	3.2
9				---	.00	.00	.00	.00	2.6	.00	.00	.19
10				.00	.00	.00	3.8	.00	2.1	.00	.00	3.7
11				.00	.00	.00	.00	.00	1.5	.00	.00	1.3
12				.00	.24	.00	.00	.00	1.7	.00	.00	.21
13				.00	.00	.00	.00	.00	1.7	.00	.00	3.2
14				.00	.00	.00	.00	.00	1.2	.00	.00	.98
15				.00	.00	.00	.00	.00	.24	.00	.00	.20
16				.00	.00	.00	.00	.00	.18	.00	.00	.13
17				.00	.41	.00	.00	.00	.20	.00	.00	.15
18				.00	.00	.00	.00	.00	.21	.00	.00	.13
19				.00	.00	.00	.00	.00	.21	.00	.00	.10
20				.00	.00	.00	.00	1.7	.20	.00	.00	.02
21				.00	.00	.00	.00	.14	.10	.00	.00	.00
22				.00	.00	.00	.00	.00	.00	.00	.00	.00
23				.00	.00	.00	.00	.00	.00	.33	.00	.00
24				.00	.00	.00	.00	.00	.00	.00	.00	.00
25				.00	.00	.00	.00	.00	.00	.00	.00	.00
26				.00	.00	.00	.00	.00	.00	.00	.00	.00
27				.00	.00	.00	.00	.23	.00	.00	.00	.00
28				.00	.00	.00	.00	.00	.00	.00	.00	.06
29				.00	---	.00	.00	.00	.00	.00	.00	.03
30				.00	---	.00	.00	.00	.00	.00	.00	.00
31				.00	---	.00	---	.00	---	.00	.00	---
TOTAL				---	.65	.01	3.80	2.66	73.55	.33	15.50	13.75
MEAN				---	.023	.000	.13	.086	2.45	.011	.50	.46
MAX				---	.41	.01	3.8	1.7	28	.33	14	3.7
MIN				---	.00	.00	.00	.00	.00	.00	.00	.00
CFSM				---	.004	.000	.02	.01	.39	.002	.08	.07
IN.				---	.00	.00	.02	.02	.43	.00	.09	.08
AC-FT				---	1.3	.02	7.5	5.3	146	.7	31	27
(††)					2.25	.74	1.89	2.73	3.93	2.07	3.80	4.93

WTR YR 1978 TOTAL - MEAN - MAX - MIN - CFSM - IN. - AC-FT - †† -

†† Weighted-mean rainfall, in inches, based on one rain gage prior to April and two rain gages thereafter.

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.

DISCHARGE AND WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	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)	HARD-NESS (MG/L AS CACO3)
APR												
10...	1100	1.6	287	8.2	20.0	40	260	6.6	75	6.4	48000	130
JUN												
07...	1230	5.0	324	7.9	22.5	50	70	--	--	2.4	130000	150

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
APR												
10...	13	37	8.6	6.5	.3	3.0	140	0	19	13	.1	5.8
JUN												
07...	17	43	9.9	7.6	.3	2.6	160	0	21	16	.2	7.2

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
APR											
10...	162	342	76	.31	.04	.35	.27	.93	1.2	.39	10
JUN											
07...	187	108	46	.48	.05	.53	.27	.43	.70	.19	9.4

08158920 WILLIAMSON CREEK AT OAK HILL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JUN 07...	1230	1	100	0	5	0	40

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JUN 07...	7	0	.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)
JUN 07...	1230	.0	.00	.00	.0	.00	.00	.00

DATE	DI-AZINON, TOTAL (UG/L)	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)
JUN 07...	.05	.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)
JUN 07...	.00	.00	.00	0	.00	.00	.00	.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 good above 50 ft³/s (1.42 m³/s) and fair below. 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 not determined.

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.--Maximum discharge, 428 ft³/s (12.1 m³/s) Feb. 12, gage height, 4.89 ft (1.490 m), no peak above base of 500 ft³/s (14.2 m³/s), revised; minimum, 0.38 ft³/s (0.011 m³/s) July 25.

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	.62	20	2.2	.93	1.0	.72	.82	.77	1.6	1.0	35	6.1
2	.73	7.9	2.2	.93	1.0	.63	.82	34	1.1	1.0	7.5	1.0
3	.82	1.3	2.2	.88	1.0	.54	.82	33	27	.97	1.1	2.0
4	.82	.66	2.2	.82	.93	.54	.82	2.5	5.0	.93	.59	30
5	.72	.63	2.0	.93	.93	.50	.80	1.4	1.1	.75	.63	15
6	.86	.57	1.7	1.2	.97	1.2	.76	1.7	.98	.69	.72	1.9
7	1.0	.63	1.7	1.3	3.9	2.3	.82	1.2	64	.81	.93	3.1
8	1.2	33	1.7	1.4	3.3	1.2	.82	1.0	3.6	.74	1.0	15
9	1.7	1.4	1.5	1.6	2.1	.85	.81	.82	1.2	.78	.93	8.2
10	1.9	1.3	1.4	1.7	1.6	.82	45	.80	.69	.66	1.2	4.0
11	2.2	.72	1.6	2.3	1.6	.82	2.9	1.1	.63	.48	1.0	26
12	2.4	.63	1.6	3.1	50	.82	1.3	.96	.63	.45	1.3	32
13	2.5	.54	1.8	2.9	5.8	.98	1.1	1.0	.64	.43	1.3	7.7
14	2.4	.46	1.6	2.3	2.3	.95	.85	1.0	.72	.43	1.2	5.0
15	2.5	.63	1.6	2.5	2.3	.93	.82	1.4	.96	.40	1.0	1.4
16	2.7	.79	1.6	5.8	2.2	.93	.82	1.6	1.1	.43	1.0	.78
17	3.1	.74	1.4	3.6	16	.83	.82	1.7	1.2	.43	.93	.59
18	3.3	1.2	1.2	2.4	3.7	.82	.82	1.7	1.3	.43	.93	.52
19	3.5	2.4	1.3	1.9	1.8	.88	.72	1.9	1.4	.45	.93	.60
20	3.7	3.7	1.3	1.5	1.4	.93	.72	2.5	1.3	.43	.93	.71
21	4.2	4.3	1.3	1.3	1.3	.93	.72	3.9	1.3	.43	.93	.72
22	9.3	4.0	1.4	1.3	.82	.93	2.4	2.8	1.3	.43	.93	.67
23	13	3.3	1.4	1.0	.82	.88	1.3	1.5	1.2	.51	.93	1.2
24	9.0	2.7	1.3	1.0	.75	1.7	.82	1.4	1.1	.43	.82	1.4
25	1.6	2.7	1.2	1.0	.82	.98	.68	1.3	1.0	.39	.82	1.4
26	1.6	2.4	.96	1.0	.74	.74	.63	1.3	.99	.41	.93	1.1
27	1.3	2.4	.93	1.0	.72	.68	.63	1.2	.94	.44	.93	1.1
28	1.3	2.4	.93	1.0	.72	.72	.63	1.1	1.0	.44	1.0	1.2
29	1.4	2.2	.98	1.0	---	.72	.63	1.1	1.0	.49	1.2	1.1
30	1.6	2.2	1.1	1.0	---	.77	.69	1.2	1.1	.48	1.4	.89
31	2.0	---	.98	1.0	---	.82	---	1.2	---	.65	4.4	---
TOTAL	84.97	107.80	46.28	51.59	110.52	28.06	72.29	110.05	127.08	17.79	74.41	172.38
MEAN	2.74	3.59	1.49	1.66	3.95	.91	2.41	3.55	4.24	.57	2.40	5.75
MAX	13	33	2.2	5.8	50	2.3	45	34	64	1.0	35	32
MIN	.62	.46	.93	.82	.72	.50	.63	.77	.63	.39	.59	.52
CFSM	.10	.13	.05	.06	.14	.03	.09	.13	.15	.02	.09	.21
IN.	.11	.15	.06	.07	.15	.04	.10	.15	.17	.02	.10	.23
AC-FT	169	214	92	102	219	56	143	218	252	35	148	342
(††)	2.52	2.46	.40	1.26	2.74	.76	1.92	2.74	3.65	1.43	3.44	5.18

CAL YR 1977 TOTAL 2225.75 MEAN 6.10 MAX 254 MIN .03 CFSM .22 IN 3.00 AC-FT 4410 †† 26.77
WTR YR 1978 TOTAL 1003.22 MEAN 2.75 MAX 64 MIN .39 CFSM .10 IN 1.35 AC-FT 1990 †† 28.50

†† Weighted-mean rainfall, in inches, based on two rain gages prior to April and three rain gages thereafter.

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
JAN 11...	1120	2.9	806	7.6	9.0	5	7	7.4	66	5.7
FEB 21...	1215	1.3	589	7.5	10.0	5	15	11.0	101	1.6
APR 10...	1140	48	277	7.6	20.0	60	310	7.6	86	12
JUN 07...	1400	22	220	7.8	24.0	60	100	7.4	90	2.4
JUL 25...	1325	.38	951	7.6	27.5	5	1	4.9	63	1.7
SEP 08...	0755	9.9	414	7.1	25.0	20	20	6.6	81	3.3
25...	1342	1.4	948	7.5	23.0	6	1	6.4	76	3.6

DATE	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO
JAN 11...	19000	56	220	330	58	110	13	45	1.1
FEB 21...	1600	66	76	--	--	--	--	--	--
APR 10...	140000	140000	160000	110	17	38	3.0	6.4	.3
JUN 07...	190000	33000	37000	91	9	33	2.1	5.3	.2
JUL 25...	33000	210	700	340	50	110	17	74	1.7
SEP 08...	70000	16000	9200	170	24	60	5.3	18	.6
25...	2800	76	300	330	17	110	13	68	1.6

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)
JAN 11...	3.8	330	0	63	60	.4	12	470	9
FEB 21...	--	--	--	--	--	--	--	--	13
APR 10...	3.2	110	0	22	10	.2	5.2	142	524
JUN 07...	2.6	100	0	21	6.7	.2	5.9	126	160
JUL 25...	4.4	360	0	66	96	.5	15	561	17
SEP 08...	3.1	180	0	32	21	.3	9.6	238	26
25...	3.9	380	0	48	87	.5	16	534	8

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
JAN									
11...	2	.81	.03	.84	1.6	.40	2.0	.03	3.1
FEB									
21...	2	.31	.02	.33	.52	.36	.88	.05	3.5
APR									
10...	78	.32	.02	.34	.20	1.6	1.8	.47	18
JUN									
07...	30	.22	.03	.25	.18	2.5	2.7	.16	6.7
JUL									
25...	6	1.5	.20	1.7	.10	.80	.90	.01	4.9
SEP									
08...	8	.10	.02	.12	.15	.65	.80	.04	6.0
25...	4	.92	.28	1.2	1.3	.60	1.9	.01	5.5

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)
JAN							
11...	1120	2	200	0	0	0	30
JUN							
07...	1400	2	200	0	0	1	50
JUL							
25...	1325	3	200	0	0	0	20
SEP							
08...	0755	5	0	0	10	2	20
25...	1342	6	0	0	0	1	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	130	.0	0	0	0
JUN						
07...	6	0	.0	0	0	0
JUL						
25...	0	50	.0	0	0	0
SEP						
08...	0	90	.0	0	0	0
25...	0	540	.0	0	0	20

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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...	1120	.0	.00	.00	.0	.00	.00	.00	.01
JUN 07...	1400	.0	.00	.00	.0	.00	.00	.00	.41
JUL 25...	1325	.0	.00	.00	.0	.00	.00	.00	.01
SEP 25...	1342	.0	.00	.00	.0	.00	.00	.00	.01

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
JAN 11...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN 07...	.00	.00	.00	.00	.00	.00	.00	.04	.00
JUL 25...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP 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)
JAN 11...	.00	--	.00	0	.00	.00	.00	.00
JUN 07...	.00	--	.00	0	.00	.03	.04	.00
JUL 25...	.00	.00	.00	0	.00	.00	.00	.00
SEP 25...	.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 120902065, 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. Discharge records for the period 1924-30 were published as monthly and annual figures in WSP 1312 as Onion Creek near Del Valle.

GAGE.--Water-stage recorder. Datum of gage is 442.85 ft (134.981 m) Texas 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 ft (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.--7 years (water years 1925-29, 1977-78), 73.1 ft³/s (2.070 m³/s), 3.09 in/yr (78 mm/yr), 52,960 acre-ft/yr (65.3 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.--Maximum discharge, 323 ft³/s (9.15 m³/s) Nov. 1, gage height, 7.77 ft (2.368 m), no peak above base of 2,500 ft³/s (70.8 m³/s); minimum daily, 0.45 ft³/s (0.013 m³/s) July 28-31.

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	4.0	96	6.6	6.2	7.4	6.2	5.0	4.0	4.0	1.2	29	12
2	3.9	28	6.6	6.2	7.4	6.2	5.0	17	4.4	1.2	21	6.4
3	3.6	11	6.6	6.2	7.4	6.2	5.0	72	26	1.2	4.8	3.1
4	4.0	8.5	6.6	6.2	7.4	5.9	4.9	11	22	1.2	2.0	13
5	4.0	7.4	6.6	6.2	7.4	5.8	4.6	7.0	8.5	.90	1.4	43
6	4.0	7.0	6.6	6.2	7.4	5.8	4.6	5.0	6.3	.90	1.4	6.9
7	4.0	6.6	6.6	6.2	8.2	7.4	4.6	5.2	133	.90	1.4	4.3
8	4.0	23	6.6	6.2	9.6	7.4	4.6	4.6	76	.90	.90	10
9	4.0	17	6.6	6.2	9.0	7.4	4.3	4.0	23	.90	1.4	20
10	4.0	9.5	6.6	6.2	8.2	7.4	40	3.9	13	.90	1.4	7.4
11	4.0	8.1	6.2	6.3	7.4	6.9	9.5	3.3	9.2	.90	1.4	34
12	4.0	7.0	6.2	6.6	53	5.4	5.8	3.3	8.1	.90	1.4	47
13	3.8	7.0	6.2	6.6	33	5.4	5.0	3.3	6.7	.90	1.4	39
14	3.6	7.0	6.2	6.6	14	5.1	4.4	3.3	5.8	.66	.91	75
15	3.6	6.7	6.2	6.6	11	5.0	4.0	2.8	4.8	.66	.90	20
16	3.6	6.6	6.2	7.7	10	5.0	4.0	2.7	4.6	.66	.90	12
17	3.6	6.6	6.2	9.1	18	5.0	4.0	2.7	4.0	.66	.90	9.0
18	3.6	6.6	6.2	8.8	15	5.0	3.9	2.7	4.0	.66	.90	8.0
19	3.6	6.6	6.2	8.2	11	5.0	3.5	2.7	3.4	.66	.90	6.2
20	3.6	6.6	6.2	7.9	8.7	5.0	3.3	3.0	3.0	.66	.90	5.4
21	3.6	6.6	6.2	7.8	7.7	5.0	3.3	3.0	3.0	.66	.66	5.3
22	4.5	6.6	6.2	7.8	7.1	4.8	3.4	4.2	3.0	.66	.66	4.6
23	5.8	6.6	6.2	7.8	7.0	4.6	4.6	4.3	2.5	.66	.66	4.6
24	5.8	6.6	6.2	7.8	6.3	5.1	4.6	4.3	2.4	.66	.66	5.5
25	5.3	6.6	6.2	7.6	6.2	5.4	4.5	4.3	2.4	.66	.66	7.9
26	5.4	6.6	6.2	7.4	6.2	5.4	4.3	5.3	1.9	.66	.66	8.1
27	5.4	6.6	6.2	7.4	6.2	5.4	4.0	5.4	1.6	.66	.66	6.7
28	5.3	6.6	6.2	7.4	6.2	5.4	4.0	4.0	1.6	.45	.66	6.6
29	4.3	6.6	6.2	7.4	---	5.4	4.0	3.4	1.2	.45	.66	6.6
30	4.3	6.6	6.2	7.4	---	5.4	4.0	3.3	1.2	.45	.66	6.5
31	4.3	---	6.2	7.4	---	5.0	---	3.3	---	.45	3.2	---
TOTAL	130.5	348.8	196.2	219.6	313.4	175.4	170.7	208.3	390.6	23.94	85.01	444.1
MEAN	4.21	11.6	6.33	7.08	11.2	5.66	5.69	6.72	13.0	.77	2.74	14.8
MAX	5.8	96	6.6	9.1	53	7.4	40	72	133	1.2	29	75
MIN	3.6	6.6	6.2	6.2	6.2	4.6	3.3	2.7	1.2	.45	.66	3.1
CFSM	.01	.04	.02	.02	.04	.02	.02	.02	.04	.002	.009	.05
IN.	.02	.04	.02	.03	.04	.02	.02	.02	.05	.00	.01	.05
AC-FT	259	692	389	436	622	348	339	413	775	47	169	881

CAL YR 1977 TOTAL 28270.67 MEAN 77.5 MAX 2880 MIN .87 CFSM .24 IN 3.28 AC-FT 56070
WTR YR 1978 TOTAL 2706.55 MEAN 7.42 MAX 133 MIN .45 CFSM .02 IN .31 AC-FT 5370

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
OCT										
13...	1205	3.6	786	8.1	19.0	2	3	9.3	103	.3
NOV										
08...	1200	81	539	7.9	19.0	10	50	7.2	80	1.0
DEC										
14...	1500	6.2	738	7.6	15.0	2	5	11.2	114	.4
JAN										
24...	1045	6.2	718	7.9	6.5	2	3	12.0	101	.4
FEB										
27...	1115	5.4	668	7.8	14.5	2	4	9.9	100	1.0
MAR										
27...	1405	5.0	676	8.1	21.5	3	3	12.0	140	.7
APR										
19...	0750	4.0	600	7.6	20.5	0	4	7.5	87	.6
25...	1305	4.6	544	--	25.5	--	--	--	--	--
MAY										
17...	1135	2.7	610	7.7	26.0	5	3	7.8	100	1.1
JUN										
08...	1345	63	461	--	28.0	--	--	--	--	--
08...	1445	61	396	--	--	--	--	--	--	--
27...	1315	.76	590	8.0	31.0	0	2	9.8	132	.7
JUL										
18...	1230	.70	597	--	32.5	--	--	--	--	--
28...	1115	.09	682	7.7	28.0	--	--	6.4	84	--
AUG										
24...	1400	119	670	8.0	32.0	0	7	6.8	94	.6
30...	1413	.76	613	--	27.5	--	--	--	--	--
SEP										
17...	1135	2.9	--	--	--	--	--	--	--	--
25...	1115	10	650	7.9	25.5	2	4	9.9	124	.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)
OCT										
13...	5600	8	47	270	27	78	19	60	1.6	3.1
NOV										
08...	8200	480	1000	210	25	64	11	32	1.0	3.2
DEC										
14...	580	31	75	290	35	88	17	47	1.2	3.0
JAN										
24...	350	16	28	240	0	69	16	55	1.6	2.5
FEB										
27...	880	9	58	260	44	80	14	41	1.1	2.5
MAR										
27...	2800	11	21	240	40	70	15	48	1.4	2.7
APR										
19...	91	24	300	230	36	72	11	34	1.0	3.0
25...	--	--	--	--	--	--	--	--	--	--
MAY										
17...	3400	500	190	200	23	60	13	45	1.4	3.1
JUN										
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
27...	180	140	15	190	28	52	15	50	1.6	3.2
JUL										
18...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	170	1	43	16	76	2.5	3.5
AUG										
24...	3800	160	K10	150	7	37	15	73	2.6	3.0
30...	--	--	--	--	--	--	--	--	--	--
SEP										
17...	--	--	--	--	--	--	--	--	--	--
25...	350	28	48	220	16	67	13	48	1.4	3.1

08159000 ONION CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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										
13...	300	0	47	78	.4	13	447	4	1	.06
NOV										
08...	220	0	42	35	.3	11	307	70	8	.46
DEC										
14...	310	0	58	58	.4	7.8	432	4	0	.63
JAN										
24...	300	0	50	54	.3	7.6	402	3	1	.27
FEB										
27...	260	0	52	55	.3	4.1	377	6	1	.50
MAR										
27...	240	0	48	61	.4	4.8	368	4	2	.07
APR										
19...	230	0	40	44	.3	6.7	324	5	2	.08
25...	--	--	--	--	--	--	--	--	--	--
MAY										
17...	220	0	36	53	.3	3.6	322	6	2	.05
JUN										
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
27...	200	0	32	66	.4	12	330	2	0	.01
JUL										
18...	--	--	--	--	--	--	--	--	--	--
28...	210	0	25	99	.4	16	382	--	--	.00
AUG										
24...	180	0	22	93	.4	15	347	10	1	.00
30...	--	--	--	--	--	--	--	--	--	--
SEP										
17...	--	--	--	--	--	--	--	--	--	--
25...	250	0	39	61	.3	12	367	5	0	.30

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									
13...	.01	.07	.01	.59	.60	.00	6.0	--	--
NOV									
08...	.04	.50	.10	.60	.70	.06	4.3	--	--
DEC									
14...	.02	.65	.11	.31	.42	.01	3.0	--	--
JAN									
24...	.01	.28	.18	.22	.40	.02	3.2	--	--
FEB									
27...	.03	.53	.10	.20	.30	.02	3.1	--	--
MAR									
27...	.01	.08	.04	.24	.28	.00	--	--	--
APR									
19...	.01	.09	.03	.27	.30	.00	2.9	--	--
25...	--	--	--	--	--	--	--	35	.43
MAY									
17...	.00	.05	.00	.54	.54	.01	--	--	--
JUN									
08...	--	--	--	--	--	--	--	13	2.2
08...	--	--	--	--	--	--	--	53	8.7
27...	.00	.01	.00	.40	.40	.01	3.7	--	--
JUL									
18...	--	--	--	--	--	--	--	14	.03
28...	.00	.00	.00	.60	.60	.02	5.7	--	--
AUG									
24...	.01	.01	.01	.59	.60	.02	5.3	--	--
30...	--	--	--	--	--	--	--	8	.02
SEP									
17...	--	--	--	--	--	--	--	--	--
25...	.01	.31	.01	.63	.64	.02	6.1	--	--

08159000 ONION CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 13...	1205	1	200	1	10	1	20
FEB 27...	1115	2	100	1	0	1	10
JUN 27...	1315	3	300	0	0	0	20
AUG 24...	1400	5	--	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)
OCT 13...	0	10	.0	0	0	10
FEB 27...	0	10	.0	0	0	0
JUN 27...	0	10	.0	0	0	10
AUG 24...	0	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)
OCT 13...	1025	.0	.00	.00	.0	.00	.00	.00	.00
FEB 27...	1115	.0	.00	.00	.0	.00	.00	.00	.01
JUN 27...	1315	.0	.00	.00	.0	.00	.00	.00	.00
AUG 24...	1400	.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)
OCT 13...	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB 27...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUN 27...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 24...	.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)
OCT 13...	.00	--	.00	0	.00	.00	.01	.00
FEB 27...	.00	--	.00	0	.00	.00	.01	.00
JUN 27...	.00	.00	.00	0	.00	.00	.00	.00
AUG 24...	.00	.00	.00	0	.00	.00	.00	.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.--15 years, 1.85 ft³/s (0.052 m³/s), 5.45 in/yr (138 mm/yr), 1,340 acre-ft/yr (1.65 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, occured 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, 97 ft³/s (2.75 m³/s) May 11, gage height, 2.25 ft (0.686 m), no 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.01	.00	.00	.13	.07	.08	.02	.00	.00	.00
2	.00	.00	.00	.00	.00	.13	.06	2.6	.02	.00	.00	.00
3	.00	.00	.00	.00	.00	.13	.06	.93	.07	.00	.00	.00
4	.00	.00	.00	.00	.00	.09	.05	.17	.04	.00	.00	.00
5	.00	.00	.00	.00	.00	.07	.06	.12	.01	.00	.00	.00
6	.00	.00	.00	.00	.00	.26	.07	.13	.11	.00	.00	.00
7	.00	.00	.00	.00	.00	.29	.06	.15	.69	.00	.00	.00
8	.00	.05	.00	.00	.00	.18	.08	.09	.05	.00	.00	.00
9	.00	.04	.00	.00	.00	.17	.09	.07	.03	.00	.00	.00
10	.00	.03	.00	.00	.00	.16	7.5	.41	.02	.00	.00	.00
11	.00	.03	.00	.00	.01	.18	.48	14	.01	.00	.00	.00
12	.00	.02	.00	.00	2.2	.13	.36	.41	.01	.00	.00	.00
13	.00	.02	.00	.00	.14	.15	.29	.24	.01	.00	.00	.00
14	.00	.02	.00	.00	.07	.13	.21	.18	.01	.00	.00	.00
15	.00	.02	.00	.00	.10	.13	.18	.15	.01	.00	.00	.00
16	.00	.02	.00	.00	.09	.13	.18	.13	.01	.00	.00	.00
17	.00	.01	.00	.00	.26	.14	.15	.11	.01	.00	.00	.00
18	.00	.01	.00	.00	.15	.11	.14	.11	.01	.00	.00	.00
19	.00	.01	.00	.00	.15	.11	.11	.09	.01	.00	.00	.00
20	.00	.01	.00	.00	.13	.11	.09	.09	.01	.00	.00	.00
21	.00	.01	.00	.00	.09	.13	.10	.08	.00	.00	.00	.00
22	.00	.00	.00	.00	.09	.13	.11	.08	.00	.00	.00	.00
23	.00	.00	.00	.00	.09	.14	.13	.08	.00	.00	.00	.00
24	.00	.00	.00	.00	.13	.15	.10	.06	.00	.00	.00	.00
25	.00	.00	.00	.00	.15	.10	.10	.06	.00	.00	.00	.00
26	.00	.00	.00	.00	.09	.11	.07	.06	.00	.00	.00	.00
27	.00	.00	.00	.00	.13	.11	.08	.05	.00	.00	.00	.00
28	.00	.00	.00	.00	.13	.10	.06	.04	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.07	.06	.04	.00	.00	.00	.00
30	.00	.01	.00	.00	---	.07	.06	.03	.00	.00	.00	.00
31	.00	---	.00	.00	---	.07	---	.02	---	.00	.00	---
TOTAL	.00	.31	.01	.00	4.20	4.11	11.16	20.86	1.16	.00	.00	.00
MEAN	.000	.010	.000	.000	.15	.13	.37	.67	.039	.000	.000	.000
MAX	.00	.05	.01	.00	2.2	.29	7.5	14	.69	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.07	.05	.02	.00	.00	.00	.00
CFSM	.000	.002	.000	.000	.03	.03	.08	.15	.008	.000	.000	.000
IN.	.00	.00	.00	.00	.03	.03	.09	.17	.01	.00	.00	.00
AC-FT	.00	.6	.02	.00	8.3	8.2	22	41	2.3	.00	.00	.00

CAL YR 1977 TOTAL 658.31 MEAN 1.80 MAX 95 MIN .00 CFSM .39 IN 5.31 AC-FT 1310
WTR YR 1978 TOTAL 41.81 MEAN .11 MAX 14 MIN .00 CFSM .02 IN .34 AC-FT 83

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. During the water year, 5,802 acre-ft (7.15 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 5,138 acre-ft (6.34 hm³) above this station into Lake Bastrop. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--18 years, 2,215 ft³/s (62.73 m³/s), 1,605,000 acre-ft/yr (1.98 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, 6,410 ft³/s (182 m³/s) June 7, gage height, 8.54 ft (2.603 m); minimum daily, 164 ft³/s (4.64 m³/s) Mar. 14.

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	1210	286	197	215	459	183	1340	1720	2520	2600	1340	2780
2	1240	2460	193	199	465	194	1410	1760	2550	2590	1350	2600
3	1280	3500	181	194	463	186	1400	2310	2500	2600	738	2420
4	983	1750	190	186	459	180	1400	2210	2840	2600	445	2420
5	1140	486	189	187	459	179	1500	2070	2570	2470	1290	2520
6	635	331	180	184	464	183	1590	2060	2500	2230	1870	2470
7	600	278	945	312	501	1040	1580	2130	4070	1930	1790	2160
8	320	308	742	221	604	580	1690	2120	2270	1920	1960	2510
9	274	596	291	178	382	272	1830	2100	850	1880	1970	2420
10	383	407	217	308	248	215	2010	2130	1550	1920	2040	1950
11	243	280	216	372	216	194	2290	2700	2310	1830	1980	1940
12	234	241	199	441	261	172	1380	2780	2290	1820	2060	1690
13	206	230	291	316	855	183	1460	2440	2270	1720	2060	1150
14	198	221	933	216	581	164	1660	2260	2520	1720	1960	574
15	208	217	984	184	302	175	1860	2310	2840	1740	2060	443
16	186	214	991	195	255	195	1920	2320	2760	1720	2200	519
17	186	205	569	204	253	797	1950	2350	2950	1660	2210	1100
18	180	198	668	269	280	596	1970	2250	2050	1710	2220	1130
19	174	203	703	205	352	625	1900	2300	3130	1700	2170	1130
20	210	210	686	180	240	644	1870	2560	2960	1690	2520	1200
21	206	200	680	226	211	658	1530	2580	2480	1710	2500	1650
22	217	221	656	208	213	544	1720	2340	2630	1640	2600	1610
23	688	213	559	282	194	769	2010	2170	2630	1430	2540	1560
24	421	204	554	220	204	674	1920	2210	2600	1630	2760	1570
25	264	202	540	187	190	645	1820	2330	2600	1620	2580	1720
26	249	190	533	335	187	1060	2000	2390	2600	1470	2990	1460
27	233	195	526	414	191	881	1770	2700	2950	1100	2730	1400
28	226	188	531	430	191	803	1470	2550	2900	1310	2780	1070
29	224	192	543	438	---	1120	1690	2480	2820	1130	2780	1210
30	217	201	309	459	---	1340	1740	2480	2660	1210	2820	1000
31	217	---	246	455	---	1370	---	2460	---	1210	2830	---
TOTAL	13252	14627	15242	8420	9680	16821	51680	71570	77170	55510	66143	49376
MEAN	427	488	492	272	346	543	1723	2309	2572	1791	2134	1646
MAX	1280	3500	991	459	855	1370	2290	2780	4070	2600	2990	2780
MIN	174	188	180	178	187	164	1340	1720	850	1100	445	443
AC-FT	26290	29010	30230	16700	19200	33360	102500	142000	153100	110100	131200	97940

CAL YR 1977 TOTAL 1114363 MEAN 3053 MAX 39600 MIN 174 AC-FT 2210000
WTR YR 1978 TOTAL 449491 MEAN 1231 MAX 4070 MIN 164 AC-FT 891600

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 1977 TO SEPTEMBER 1978

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										
11...	1330	221	634	8.0	22.0	10.0	118	.4	250	44
DEC										
16...	1015	990	636	7.5	15.5	8.1	84	1.3	240	48
FEB										
24...	0920	206	658	8.1	12.0	12.8	123	2.6	250	64
APR										
18...	1118	2390	575	8.0	22.5	7.2	87	.9	220	61
JUN										
26...	1600	3050	600	8.2	27.5	7.6	97	.5	220	59
AUG										
22...	0920	2340	580	7.6	29.0	6.6	88	.4	190	38

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										
11...	62	23	38	1.0	3.7	250	0	43	56	.3
DEC										
16...	60	23	36	1.0	4.0	240	0	48	59	.4
FEB										
24...	70	19	44	1.2	4.7	230	0	63	62	.5
APR										
18...	49	23	37	1.1	3.9	190	0	40	63	.3
JUN										
26...	48	25	39	1.1	3.9	200	0	46	66	.3
AUG										
22...	43	21	34	1.1	3.8	190	0	38	58	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT									
11...	9.5	359	.23	.01	.24	.00	.44	.44	.18
DEC									
16...	10	359	1.3	.09	1.4	.23	.43	.66	.50
FEB									
24...	2.9	379	.49	.05	.54	.15	.79	.94	.83
APR									
18...	8.2	318	.40	.03	.43	.08	.92	1.0	.24
JUN									
26...	6.7	334	.33	.01	.34	.00	.40	.40	.13
AUG									
22...	8.9	300	.32	.02	.34	.03	.65	.68	.10

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

AVERAGE DISCHARGE.--16 years, 5.82 ft³/s (0.165 m³/s), 4.57 in/yr (116 mm/yr), 4,220 acre-ft/yr (5.20 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,200 ft³/s (119 m³/s) Oct. 23, 1970, gage height, 24.60 ft (7.498 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 Texas Department of Highways and Public Transportation and local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,990 ft³/s (56.4 m³/s) Sept. 12, gage height, 19.21 ft (5.855 m), no other peak above base of 600 ft³/s (17.0 m³/s); minimum, 0.03 ft³/s (0.001 m³/s) Aug. 19.

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	.22	7.2	.92	.99	4.2	1.4	1.0	.68	.59	1.3	.66	.40
2	.25	1.3	.86	1.1	1.8	1.4	1.0	.69	.88	.42	.53	.30
3	.39	.46	.82	.97	1.6	1.4	1.0	1.6	1.2	.39	.33	.16
4	.20	.42	.82	.97	1.4	1.3	1.0	.88	.98	.36	.24	1.7
5	.18	.42	.86	.97	1.3	1.3	.97	.76	.76	.30	.22	.39
6	.22	.42	.71	.97	1.3	1.4	.97	.72	1.1	.30	.19	.20
7	.23	.42	.69	.93	12	1.7	.97	.72	17	.27	.18	.19
8	.22	8.8	.81	.97	18	1.4	.97	.72	.99	.27	.16	.21
9	.20	1.0	.81	.82	3.0	1.3	1.0	.68	.78	.27	.14	.20
10	.17	.53	.77	.82	2.0	1.3	1.1	.59	.72	.25	.12	2.2
11	.39	.46	.77	14	1.8	1.3	1.1	.76	.71	.25	.11	5.1
12	.21	.45	.77	3.2	34	1.2	1.2	.76	.66	.27	.10	387
13	.19	.45	1.2	1.3	5.8	1.3	1.2	.67	1.1	.25	.08	168
14	.28	.45	.93	1.1	2.6	1.4	1.0	.55	1.1	.25	.07	17
15	.20	.48	.79	1.0	2.4	1.2	.97	.57	.72	.25	.06	5.6
16	.19	.52	.77	33	2.3	1.1	.97	.61	.72	.22	.05	3.1
17	.17	.52	.77	2.7	9.2	1.1	.99	.63	.66	.20	.05	2.2
18	.18	.54	.77	52	4.0	1.1	1.0	.63	.79	.22	.04	1.7
19	.18	.63	.77	11	2.6	1.1	.92	1.9	.80	.22	.04	1.5
20	.18	.63	.73	2.8	2.2	1.1	.82	1.3	.71	.33	.04	1.4
21	.18	.61	.68	2.1	1.8	1.1	.85	.77	.63	.39	.05	1.3
22	.29	.55	.68	2.0	1.7	1.1	.89	.77	.63	.27	.05	2.9
23	.38	.59	.76	2.1	1.6	1.1	.81	.77	.62	.39	.05	1.3
24	.87	.63	.82	1.8	1.6	2.1	.71	.76	.56	.63	.05	1.2
25	.42	.63	.79	1.7	1.6	1.2	.65	.72	.55	.24	.05	1.1
26	.32	.56	.72	1.6	1.6	1.0	.59	.73	.54	.15	.05	.92
27	.30	.55	.72	1.4	1.5	1.0	.59	.76	.50	.13	.04	.92
28	.30	.55	.86	1.3	1.5	1.0	.59	.72	.54	.15	.04	.92
29	.30	4.7	1.2	1.3	---	1.0	.59	.68	.53	.20	.05	.90
30	.30	1.3	1.0	1.3	---	1.0	.65	.67	3.9	.91	.05	.85
31	.30	---	.97	1.8	---	1.0	---	.63	---	.47	.29	---
TOTAL	8.41	36.77	25.54	150.01	126.4	38.4	27.07	24.40	41.97	10.52	4.18	610.86
MEAN	.27	1.23	.82	4.84	4.51	1.24	.90	.79	1.40	.34	.13	20.4
MAX	.87	8.8	1.2	52	34	2.1	1.2	1.9	17	1.3	.66	387
MIN	.17	.42	.68	.82	1.3	1.0	.59	.55	.50	.13	.04	.16
CFSM	.02	.07	.05	.28	.26	.07	.05	.05	.08	.02	.008	1.18
IN.	.02	.08	.05	.32	.27	.08	.06	.05	.09	.02	.01	1.31
AC-FT	17	73	51	298	251	76	54	48	83	21	8.3	1210

CAL YR 1977 TOTAL 2295.58 MEAN 6.29 MAX 477 MIN .17 CFSM .36 IN 4.94 AC-FT 4550
WTR YR 1978 TOTAL 1104.53 MEAN 3.03 MAX 387 MIN .04 CFSM .18 IN 2.37 AC-FT 2190

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 release 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 51,140 acre-ft (63.1 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 Fayettville. 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); 42 years (water years 1937-78) regulated, 2,969 ft³/s (84.08 m³/s), 2,151,000 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, 14,400 ft³/s (408 m³/s) Sept. 14, gage height, 12.14 ft (3.700 m); minimum daily, 148 ft³/s (4.19 m³/s) Mar. 18.

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	967	258	295	671	533	216	1310	1500	2450	2680	1250	2610
2	1020	557	258	512	547	220	1360	1540	2480	2660	1340	2780
3	1030	474	251	404	532	215	1360	1600	2590	2630	1450	2590
4	1030	2270	249	337	526	200	1420	1660	2670	2620	1310	2410
5	1050	2850	243	300	532	192	1400	2240	2660	2610	1070	2310
6	928	1390	249	266	526	214	1450	2120	2790	2550	876	2390
7	970	862	192	254	555	254	1510	1960	4100	2420	1140	2360
8	838	756	204	218	2370	273	1580	2000	5270	2110	1580	2260
9	826	799	417	192	2500	707	1620	2040	5750	1890	1610	2090
10	722	692	870	253	1110	814	1700	2010	2320	1850	1760	2360
11	625	674	641	376	819	608	1890	1990	1280	1800	1800	2440
12	584	704	486	600	700	456	2120	2320	1700	1820	1840	6540
13	550	587	405	707	642	373	2050	2830	2390	1740	1820	6180
14	475	498	441	653	697	312	1260	2690	2410	1700	1870	9090
15	430	438	481	629	748	253	1310	2360	2380	1590	1870	7270
16	371	406	663	560	820	200	1430	2240	2760	1570	1810	3410
17	322	378	994	2350	651	179	1690	2260	2830	1600	1880	1390
18	300	350	1010	1290	792	148	1770	2300	2840	1580	2000	1000
19	273	332	889	1660	997	238	1800	2250	2950	1550	2010	1160
20	240	325	785	988	665	641	1790	2230	2290	1670	2010	1200
21	218	317	830	668	543	663	1760	2270	3180	1690	2070	1500
22	204	307	833	475	505	687	1750	2780	2640	1680	2300	2860
23	227	281	845	371	397	721	1370	2570	2590	1760	2320	1640
24	285	273	859	319	334	737	1570	2320	2670	1660	2320	1550
25	362	280	766	308	315	769	1840	2090	2660	1460	2350	1440
26	558	277	730	293	267	793	1760	2170	2600	1630	2460	1450
27	428	265	725	274	238	768	1720	2300	2630	1560	2440	1510
28	322	294	719	188	241	951	1790	2420	2670	1420	2570	1370
29	270	380	735	243	---	942	1580	2650	2910	1290	2480	1300
30	235	341	735	432	---	937	1320	2530	3110	1320	2560	1140
31	210	---	724	472	---	1070	---	2450	---	1240	2680	---
TOTAL	16870	18615	18524	17263	20102	15751	48280	68690	84570	57350	58846	79600
MEAN	544	621	598	557	718	508	1609	2216	2819	1850	1898	2653
MAX	1050	2850	1010	2350	2500	1070	2120	2830	5750	2680	2680	9090
MIN	204	258	192	188	238	148	1260	1500	1280	1240	876	1000
AC-FT	33460	36920	36740	34240	39870	31240	95760	136200	167700	113800	116700	157900

CAL YR 1977 TOTAL 1310519 MEAN 3590 MAX 62000 MIN 192 AC-FT 2599000
WTR YR 1978 TOTAL 504461 MEAN 1382 MAX 9090 MIN 148 AC-FT 1001000

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 1977 TO SEPTEMBER 1978

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 30...	0845	348	679	7.8	14.0	8.6	86	.8	280	46
JAN 23...	1530	371	490	7.8	6.0	11.0	91	2.0	180	36
MAR 20...	1305	641	684	8.5	20.0	9.0	102	2.2	230	44
MAY 17...	1420	2310	600	7.9	28.0	7.6	97	1.0	210	45
AUG 08...	1650	1730	640	8.0	30.0	6.8	91	2.2	230	50
SEP 27...	0750	1550	560	7.9	25.0	8.5	105	.8	190	38

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 30...	79	19	36	.9	3.9	280	0	45	46	.3
JAN 23...	52	11	26	.9	3.9	170	0	36	40	.2
MAR 20...	62	19	47	1.3	4.3	230	0	73	58	.4
MAY 17...	49	21	42	1.3	4.2	200	0	44	58	.3
AUG 08...	56	22	41	1.2	4.0	220	0	45	68	.3
SEP 27...	48	18	32	1.0	4.3	190	0	36	58	.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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
NOV 30...	10	377	.97	.03	1.0	.09	.30	.39	.14
JAN 23...	10	263	.77	.02	.79	.01	.46	.47	.23
MAR 20...	2.1	379	.41	.05	.46	.03	.53	.56	.20
MAY 17...	9.4	327	.64	.01	.65	.03	.72	.75	.27
AUG 08...	4.9	350	.17	.01	.18	.02	.61	.63	.14
SEP 27...	7.9	298	.58	.01	.59	.02	.76	.78	.21

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); 40 years (water years 1939-78) regulated, 2,739 ft³/s (77.57 m³/s), 1,984,000 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).

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 Brazos River. Flood of about July 12, 1869, reached about same height. Flood of June 20, 1935, reached to 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). 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 m³s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,300 ft³/s (575 m³/s) Sept. 14, gage height, 17.70 ft (5.395 m); minimum daily, 308 ft³/s (8.72 m³/s) Mar. 20.

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	700	552	470	662	568	429	625	916	1550	1950	1020	1580
2	732	700	422	662	592	421	916	868	1660	1830	952	159v
3	722	646	388	587	615	407	991	859	1780	1800	970	1740
4	838	768	370	507	625	410	922	1110	2190	1780	979	1770
5	931	1370	359	470	611	407	1010	1060	2340	1750	927	1580
6	1090	2810	351	438	611	398	1030	1210	2130	1730	718	1540
7	1090	1970	341	415	606	399	1060	1360	2480	1730	604	1690
8	1090	1290	345	388	760	507	1070	1130	3740	1650	540	1570
9	959	1000	331	372	1810	474	1220	981	4780	1410	792	1510
10	855	872	328	352	2760	459	1280	1010	5110	1160	926	1360
11	771	810	584	384	1620	874	1350	957	2580	1230	935	1900
12	727	694	713	493	1230	743	1380	941	1410	1190	929	3880
13	694	705	590	615	1080	591	1650	975	1020	1200	967	12200
14	662	662	558	625	1130	497	1830	1450	1380	1150	872	15400
15	615	581	470	652	843	437	1330	1490	1400	1210	914	13400
16	582	528	484	872	843	395	1140	1260	1320	1060	915	7790
17	563	493	488	1130	1170	365	1350	1040	1500	1060	852	4350
18	535	474	760	2020	995	337	1470	1080	1710	1130	879	2460
19	512	466	931	3020	919	323	1500	1050	1710	1160	906	1700
20	502	440	912	2640	1190	308	1180	1090	1840	1140	962	1490
21	488	441	754	1620	919	397	1050	1040	1370	1210	971	1410
22	498	429	727	1100	705	550	1060	1100	2040	1270	994	1290
23	493	411	754	815	635	551	1440	1410	1840	1270	1210	2350
24	521	404	771	705	585	583	1380	1380	1520	1330	1220	1440
25	507	394	782	625	525	594	1310	1280	1600	1330	1260	1290
26	521	388	754	596	493	552	1590	1070	1580	1170	1230	1070
27	611	387	684	554	472	582	1520	945	1600	1220	1340	959
28	688	384	668	526	447	496	1360	1050	1550	1280	1290	1070
29	590	397	673	488	---	484	1410	1150	1680	1170	1480	973
30	531	438	678	460	---	624	1140	1600	1890	1030	1420	934
31	502	---	678	507	---	606	---	1710	---	956	1510	---
TOTAL	21120	21904	18118	25300	25359	15200	37564	35572	60300	41556	31484	93286
MEAN	681	730	584	816	906	490	1252	1147	2010	1341	1016	3110
MAX	1090	2810	931	3020	2760	874	1830	1710	5110	1950	1510	15400
MIN	488	384	328	352	447	308	625	859	1020	956	540	934
AC-FT	41890	43450	35940	50180	50300	30150	74510	70560	119600	82430	62450	185000

CAL YR 1977 TOTAL 1218634 MEAN 3339 MAX 52300 MIN 328 AC-FT 2417000
WTR YR 1978 TOTAL 426763 MEAN 1169 MAX 15400 MIN 308 AC-FT 846500

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.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1944 to current year.
WATER TEMPERATURES: October 1945 to September 1948, March 1950 to current year.

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, 751 micromhos Dec. 13; minimum daily, 210 micromhos Sept. 15.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 15; minimum daily, 3.0°C Jan. 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	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												
25...	1300	507	688	8.1	23.0	20	20	8.6	102	.7	2900	38
NOV												
30...	1025	438	689	8.3	14.0	10	10	9.3	93	.8	4000	150
DEC												
28...	0930	641	686	8.4	11.5	10	10	10.0	94	1.0	30000	2200
JAN												
23...	1230	821	340	8.1	5.0	100	100	11.6	94	2.1	3100	780
FEB												
07...	1030	625	681	8.2	7.5	10	20	10.2	88	1.8	500	10
MAR												
20...	1545	300	684	8.2	21.0	10	5	10.0	115	1.2	900	60
APR												
11...	0850	1310	617	8.1	18.5	5	80	8.2	90	1.7	8300	240
MAY												
17...	0915	995	620	8.2	26.0	5	80	7.2	90	.9	25000	38
JUN												
14...	0900	1400	500	7.9	28.5	30	100	7.4	96	1.0	32000	250
JUL												
19...	0835	1110	640	8.5	30.0	20	20	7.0	93	.8	6700	26
AUG												
09...	1000	776	620	7.9	27.5	20	20	7.4	95	33	8700	44
SEP												
27...	1100	1020	540	8.0	24.5	20	30	8.3	101	2.5	--	64

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...	48	270	28	70	22	34	.9	3.5	290	0	38
NOV											
30...	150	280	44	80	20	37	1.0	3.7	290	0	44
DEC											
28...	6600	260	41	69	22	36	1.0	3.7	270	0	43
JAN											
23...	850	120	19	37	6.1	19	.8	3.8	120	0	22
FEB											
07...	36	250	33	69	18	39	1.1	3.7	260	0	45
MAR											
20...	85	250	42	74	17	48	1.3	4.0	260	0	51
APR											
11...	34	220	59	53	22	39	1.1	4.3	200	0	42
MAY											
17...	62	220	64	50	23	41	1.2	4.3	190	0	52
JUN											
14...	190	180	52	47	16	28	.9	4.3	160	0	36
JUL											
19...	50	220	47	49	24	40	1.2	4.0	210	1	44
AUG											
09...	50	220	42	56	20	37	1.1	3.8	220	0	40
SEP											
27...	56	180	27	47	16	32	1.0	4.5	190	0	34

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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...	49	.3	10	362	370	31	1	.14	.01	.15	.04
NOV 30...	48	.3	10	370	386	25	8	.72	.03	.75	.08
DEC 28...	57	.3	7.4	381	372	17	4	.55	.00	.55	.03
JAN 23...	26	.2	8.8	192	182	158	42	.36	.01	.37	.08
FEB 07...	56	.4	4.3	350	363	29	9	1.2	.01	1.2	.04
MAR 20...	61	.3	1.3	369	385	12	9	.04	.01	.05	.01
APR 11...	65	.3	12	344	336	129	33	.30	.03	.33	.05
MAY 17...	61	.3	9.4	340	335	156	36	.63	.01	.64	.01
JUN 14...	47	.3	11	270	269	223	45	.30	.01	.31	.01
JUL 19...	70	.3	6.7	337	343	66	26	.08	.00	.08	.01
AUG 09...	65	.3	5.8	328	336	33	10	.04	.00	.04	.00
SEP 27...	53	.3	10	293	291	66	30	.56	.02	.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 25...	.27	.31	.32	.07	.02	1.9	--	--	22	30	94
NOV 30...	.36	.44	.45	.10	.06	2.4	--	--	40	47	35
DEC 28...	.42	.45	.68	.19	.22	--	3.1	.3	22	38	58
JAN 23...	1.2	1.3	.60	.25	.23	7.6	--	--	131	290	93
FEB 07...	--	--	.46	.28	.12	3.8	--	--	412	695	46
MAR 20...	.32	.33	.33	.18	.11	--	3.7	.2	5	4.0	84
APR 11...	.71	.76	.61	.41	.13	5.1	--	--	117	414	89
MAY 17...	3.3	3.3	1.5	.25	.12	4.6	--	--	152	408	97
JUN 14...	.96	.97	.41	.21	.10	--	4.1	1.4	207	782	87
JUL 19...	.54	.55	.54	.13	.10	2.6	--	--	35	105	98
AUG 09...	.48	.48	.37	.09	.06	3.6	--	--	44	92	62
SEP 27...	.86	.89	.52	.40	.34	--	5.1	.2	58	160	90

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
DEC 28...	0930	2	0	3	0	0	100	0	0	0
MAR 20...	1545	4	1	3	100	0	100	1	0	1
JUN 14...	0900	3	0	4	300	100	200	0	0	1
SEP 27...	1100	4	--	3	100	0	100	2	1	<1

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
DEC 28...	10	0	20	0	0	0	9	8	1	250
MAR 20...	0	0	0	0	0	0	6	2	4	90
JUN 14...	20	0	20	2	1	1	7	5	2	3900
SEP 27...	10	10	0	3	1	2	47	41	6	2000

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)
DEC 28...	--	10	2	2	0	30	30	0	.1	.1
MAR 20...	--	10	2	2	0	30	0	40	.0	.0
JUN 14...	3900	20	43	43	0	160	160	0	.1	.1
SEP 27...	2000	<10	20	20	0	90	90	3	.2	.2

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)
DEC 28...	.0	4	4	0	0	0	0	20	10	10
MAR 20...	.0	0	0	0	0	0	0	10	0	10
JUN 14...	.0	0	0	0	0	0	0	30	30	0
SEP 27...	.0	0	0	0	0	0	0	60	40	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)	ATRA-ZINE, TOTAL (UG/L)	ATRA-ZINE, 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)
NOV 30...	1025	ND	--	--	ND	ND	ND	ND	ND	ND	ND
DEC 28...	0930	.0	0	.00	.00	.0	--	--	.0	0	.00
FEB 07...	1030	ND	--	--	ND	--	--	--	ND	--	ND
MAR 20...	1545	.0	0	.00	.00	.0	--	--	.0	0	.00
MAY 17...	0915	ND	--	--	ND	--	--	--	ND	--	ND
JUN 14...	0900	.0	0	.00	.00	.0	--	--	.0	0	.00
AUG 09...	1000	.0	0	.00	.00	.0	--	--	.0	0	.00

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)	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)
NOV 30...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND
DEC 28...	.0	.00	.0	.00	.0	.02	--	.00	.0	.00	.00
FEB 07...	--	ND	--	ND	--	ND	--	ND	--	--	ND
MAR 20...	.0	.00	.0	.00	.0	.01	--	.00	.0	.00	.00
MAY 17...	--	ND	--	ND	--	ND	--	ND	--	--	ND
JUN 14...	.0	.00	.0	.00	.0	.01	--	.00	.0	.00	.00
AUG 09...	.0	.00	.0	.00	.0	.00	--	.00	.0	.00	.00

DATE	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)	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)
NOV 30...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DEC 28...	.0	.00	--	.00	.0	.00	.0	.00	.0	.00	--
FEB 07...	--	ND	--	ND	--	ND	--	ND	--	ND	--
MAR 20...	.0	.00	--	.00	.0	.00	.0	.00	.0	.00	--
MAY 17...	--	ND	--	ND	--	ND	--	ND	--	ND	--
JUN 14...	.0	.00	--	.00	.0	.00	.0	.00	.0	.00	--
AUG 09...	.0	.00	--	.00	.0	.00	.0	.00	.0	.00	--

DATE	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)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	SIMAZINE TOTAL COULSON COND. (UG/L)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS)
NOV 30...	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND
DEC 28...	--	--	.00	--	.00	--	.00	.01	--	--	--
FEB 07...	ND	--	ND	--	ND	--	--	ND	--	--	--
MAR 20...	--	--	.00	--	.00	--	.00	.00	--	--	--
MAY 17...	ND	--	ND	--	ND	--	--	ND	--	--	--
JUN 14...	--	--	.00	--	.00	--	.00	.00	--	--	--
AUG 09...	--	--	.00	--	.00	--	.00	.00	--	--	--

DATE	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-D, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 30...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DEC 28...	0	0	.00	--	.00	--	.00	--	.00	--
FEB 07...	ND	--	ND	--	--	--	--	--	--	--
MAR 20...	0	0	.00	--	.01	--	.00	--	.00	--
MAY 17...	ND	--	ND	--	--	--	--	--	--	--
JUN 14...	0	0	.00	--	.02	--	.00	--	.00	--
AUG 09...	0	0	.00	--	.02	--	.00	--	.00	--

08162000 COLORADO RIVER AT WHARTON, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	NOV 30,77	MAR 20,78	MAY 17,78	JUN 14,78	JUL 19,78	SEP 9,78
TIME	1025	1545	0915	0900	0835	1000
TOTAL CELLS/ML	110	440	110	0	490	370
DIVERSITY: DIVISION	0.7	0.0	0.8	0.0	0.4	0.2
.CLASS	0.7	0.0	0.8	0.0	0.4	0.2
..ORDER	0.7	0.2	0.8	0.0	0.4	0.2
...FAMILY	1.9	1.3	1.3	0.0	0.4	0.2
....GENUS	2.0	1.3	1.5	0.0	0.4	0.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	--	-	--	-	--	-	14	4
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	14	3	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...BIDDULPHIACEAE												
....BIDDULPHIA	--	-	14	3	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	14	3	--	-
...DIATOMACEAE												
....DIATOMA	--	-	310#	71	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	47#	43	--	-	68#	63	--	-	--	-	--	-
...NAVICULACEAE												
....GYROSIGMA	8	7	--	-	--	-	--	-	--	-	--	-
....NAVICULA	8	7	43	10	--	-	--	-	--	-	--	-
....PINNULARIA	--	-	--	-	14	13	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	24#	21	71#	16	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCOCCALES												
...CHROCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	460#	94	--	-
....ANACYSTIS	24#	21	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-	360#	96
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	14	13	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	14	13	--	-	--	-	--	-

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 1977 TO SEPTEMBER 1978

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. 1977.....	21120	632	340	19500	58	3330	46	2600	230
NOV. 1977.....	21904	631	340	20200	58	3440	46	2690	230
DEC. 1977.....	18118	700	380	18500	67	3260	51	2500	250
JAN. 1978.....	25300	462	250	17100	37	2560	32	2170	170
FEB. 1978.....	25359	516	280	19100	44	3000	36	2480	190
MAR. 1978.....	15200	661	360	14700	62	2540	48	1970	230
APR. 1978.....	37564	622	340	34200	57	5780	45	4540	220
MAY 1978.....	35572	611	330	31800	56	5360	44	4230	220
JUNE 1978.....	60300	554	300	49000	49	7920	39	6390	200
JULY 1978.....	41556	625	340	37900	57	6430	45	5050	220
AUG. 1978.....	31484	621	340	28500	57	4840	45	3800	220
SEPT 1978.....	93286	348	190	47500	24	5960	22	5630	130
TOTAL	426763	**	**	339000	**	54400	**	44000	**
WTD.AVG.	1169.21	542	290	**	47	**	38	**	200

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	589	689	668	662	631	610	642	633	591	615	630	569
2	599	518	698	634	657	648	646	643	575	576	625	558
3	601	637	682	645	684	667	639	637	557	617	635	548
4	610	651	679	655	682	673	635	629	575	620	641	553
5	608	676	675	660	682	660	634	631	596	621	643	547
6	604	630	684	663	689	643	628	629	595	623	625	542
7	614	619	649	653	662	635	620	623	577	617	635	551
8	617	582	640	679	687	630	625	612	554	621	637	555
9	620	550	717	690	576	638	623	626	434	625	638	539
10	629	570	728	685	505	554	627	575	480	630	639	526
11	623	573	725	692	386	609	624	594	443	632	630	530
12	618	630	740	585	360	691	621	595	430	634	617	473
13	639	610	751	596	332	689	615	623	453	636	610	272
14	641	612	724	634	365	696	605	621	494	640	619	257
15	651	593	711	591	361	675	611	609	530	638	627	210
16	593	635	720	612	420	682	615	591	551	640	633	296
17	664	671	729	440	484	689	644	623	570	638	637	273
18	678	660	735	587	509	687	615	560	595	634	636	281
19	650	645	728	275	525	690	609	598	598	632	637	291
20	630	655	683	225	473	696	612	610	600	630	636	309
21	645	673	673	253	551	693	615	622	604	628	635	384
22	679	669	688	270	612	649	621	615	609	627	633	466
23	659	685	718	315	614	643	615	611	615	623	629	350
24	592	695	703	379	517	656	606	621	619	630	623	282
25	657	683	684	427	508	683	607	610	617	631	613	458
26	672	691	686	444	528	698	626	602	619	632	612	519
27	678	701	687	459	549	693	624	613	621	623	606	526
28	647	706	688	502	568	696	627	602	623	625	601	536
29	660	695	685	559	---	667	629	618	621	617	597	540
30	688	682	688	589	---	647	630	598	602	630	585	545
31	700	---	689	619	---	649	---	594	---	638	571	---
MEAN	637	643	699	538	540	662	623	612	565	627	624	443

08162000 COLORADO RIVER AT WHARTON, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	24.0	14.0	---	7.0	17.0	28.0	24.0	28.0	30.0	27.0	27.5
2	26.0	18.0	15.0	8.0	7.0	16.0	22.0	24.0	27.0	30.0	27.5	28.0
3	25.0	20.0	18.0	6.0	7.0	14.0	22.0	22.0	27.0	29.5	31.0	28.0
4	23.0	17.0	20.0	9.0	7.0	7.0	22.0	20.0	27.0	---	28.5	28.0
5	23.0	19.0	20.0	15.0	9.0	---	23.0	22.0	28.0	30.0	29.0	27.0
6	23.0	---	13.0	---	8.0	15.0	23.0	24.0	28.0	30.0	28.5	27.0
7	25.0	20.0	11.0	15.0	---	12.0	23.0	25.0	27.0	30.0	28.5	27.0
8	25.0	21.0	18.0	14.0	6.0	13.0	23.0	26.0	27.0	30.0	---	26.0
9	24.0	17.0	15.0	8.0	7.0	10.0	22.0	26.0	26.0	30.0	---	27.0
10	23.0	14.0	10.0	8.0	5.0	17.0	22.0	26.0	28.0	30.0	28.0	21.0
11	---	14.0	10.0	7.0	6.0	16.0	18.0	26.0	28.0	29.0	29.0	23.0
12	23.0	---	13.0	7.0	---	16.0	18.0	26.0	28.0	30.0	29.0	26.0
13	17.0	---	17.0	6.0	9.0	18.0	17.0	25.0	29.0	30.0	---	26.0
14	18.0	17.0	14.0	5.0	9.0	17.0	20.0	24.0	28.5	30.0	29.0	26.0
15	19.0	18.0	12.0	5.0	10.0	18.0	21.0	25.0	28.0	30.0	32.0	25.5
16	20.0	20.0	15.0	7.0	8.0	15.0	22.0	26.0	29.0	31.0	29.0	26.0
17	18.0	23.0	17.0	9.0	11.0	14.0	23.0	26.0	29.0	30.0	29.0	28.0
18	20.0	---	---	7.0	7.0	16.0	23.0	26.0	29.0	30.0	29.0	28.0
19	---	21.0	16.0	---	---	18.0	24.0	26.0	28.5	30.0	29.0	28.0
20	21.0	22.0	14.0	---	10.0	18.0	20.0	---	---	---	30.5	28.0
21	22.0	22.0	11.0	3.0	7.0	10.0	20.0	28.0	29.0	29.0	29.0	28.0
22	23.0	18.0	18.0	4.0	8.0	20.0	21.0	27.0	29.0	30.0	28.0	26.0
23	21.0	18.0	11.0	4.0	9.0	21.0	---	26.0	29.5	30.0	29.0	27.0
24	22.0	20.0	15.0	7.0	12.0	15.0	23.0	27.0	30.0	28.0	29.0	26.0
25	21.0	20.0	14.0	7.0	15.0	17.0	24.0	27.0	30.0	29.5	29.0	25.0
26	26.0	17.0	11.0	6.0	---	16.0	22.0	27.0	29.5	29.0	29.0	25.0
27	22.0	20.0	10.0	8.0	15.0	17.0	23.0	28.0	29.0	29.0	29.0	25.0
28	23.0	20.0	11.0	8.0	17.0	18.0	23.0	28.0	29.0	29.0	29.0	25.0
29	23.0	16.0	11.0	8.0	---	18.0	22.0	28.0	30.0	28.5	28.0	23.0
30	24.0	14.0	11.0	8.0	---	17.0	23.0	27.0	28.0	29.0	29.0	24.0
31	23.0	---	10.0	7.0	---	17.0	---	28.0	---	28.0	27.5	---
MEAN	22.5	19.0	14.0	7.5	9.0	16.0	22.0	25.5	28.5	29.5	29.0	26.0

08162500 COLORADO RIVER NEAR BAY CITY, TX

LOCATION.--Lat 28°58'26", long 96°00'44", Matagorda County, Hydrologic Unit 12090302, on right bank 6,300 ft (1,920 m) downstream from bridge on State Highway 35, 7,100 ft (2,160 m) downstream from Texas and New Orleans Railroad Co. bridge, 2.8 mi (4.5 km) west of Bay City, and at mile 32.5 (52.3 km).

DRAINAGE AREA.--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 upstream regulation, see Colorado River at Columbus (station 08161000).

AVERAGE DISCHARGE.--30 years (water years 1949-78), 2,424 ft³/s (68.65 m³/s), 1,756,000 acre-ft/yr (2.17 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, 19,700 ft³/s (558 m³/s) Sept. 15, elevation, 22.96 ft (6.998 m); minimum daily, 161 ft³/s (4.56 m³/s) Mar. 22.

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	299	465	479	590	642	523	240	524	492	649	690	633
2	294	1750	459	587	700	513	270	347	492	775	770	674
3	316	1770	438	588	696	509	441	293	932	614	712	723
4	411	916	416	523	712	511	406	330	1840	621	752	880
5	564	770	389	454	689	513	363	386	1960	621	767	774
6	682	1950	374	425	647	514	418	337	1480	653	794	660
7	842	2320	371	497	714	523	442	461	1400	665	603	779
8	784	1480	374	522	998	506	461	520	2040	641	445	901
9	788	1570	369	419	1250	576	513	386	3470	583	388	762
10	629	1260	369	388	3120	556	633	334	4370	405	564	707
11	583	920	373	497	2460	669	692	330	2840	348	575	901
12	506	775	603	1080	1710	948	818	294	1000	427	521	1980
13	496	672	615	886	2370	723	1060	286	330	390	505	10100
14	486	678	532	731	1710	549	1310	390	222	436	450	14300
15	534	623	480	660	1320	469	1250	614	278	443	336	16600
16	510	559	428	619	1130	384	855	479	288	466	280	9950
17	489	515	459	1230	1160	308	793	316	283	440	251	5700
18	476	500	471	1610	2080	270	931	240	417	489	235	2930
19	456	481	707	3810	1670	249	950	217	489	598	230	1550
20	443	463	797	4110	1200	206	885	198	513	665	227	1070
21	433	491	762	2640	1290	164	545	211	556	728	227	1120
22	440	466	646	1600	976	161	506	201	390	838	228	937
23	506	436	653	1160	745	217	1350	240	824	856	233	1590
24	586	423	672	938	479	257	2180	411	492	898	330	1560
25	586	416	681	834	548	272	1310	330	430	1050	346	949
26	884	406	683	773	611	275	1060	260	466	1010	347	787
27	508	404	649	713	565	252	1130	188	462	889	349	608
28	574	388	597	638	546	222	964	168	414	1010	388	600
29	582	416	592	606	---	169	802	166	411	1020	402	664
30	506	500	594	562	---	180	713	198	594	880	517	597
31	446	---	593	521	---	228	---	538	---	771	540	---
TOTAL	16639	24783	16625	31211	32738	12416	24291	10193	30175	20879	14002	81986
MEAN	537	826	536	1007	1169	401	810	329	1006	674	452	2733
MAX	884	2320	797	4110	3120	948	2180	614	4370	1050	794	16600
MIN	294	388	369	388	479	161	240	166	222	348	227	597
AC-FT	33000	49160	32980	61910	64940	24630	48180	20220	59850	41410	27770	162600

CAL YR 1977 TOTAL 1129433 MEAN 3094 MAX 49100 MIN 174 AC-FT 2240000
WTR YR 1978 TOTAL 315938 MEAN 866 MAX 16600 MIN 161 AC-FT 626700

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.--8 years (water years 1971-78), 136 ft³/s (3.852 m³/s), 98,530 acre-ft/yr (121 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,590 ft³/s (215 m³/s) Sept. 11, 1973, gage height, 31.11 ft (9.482 m); minimum, 2.2 ft³/s (0.062 m³/s) Feb. 1, 2, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1885, 37 ft (11.3 m) in September 1960 and 35 ft (10.7 m) in June 1945, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 24	1600	*1,530	43.3	20.39	6.215	Feb. 13	0700	1,040	29.5	17.29	5.270
Nov. 2	1800	1,180	33.4	18.26	5.566	June 4	0600	1,400	39.6	19.67	5.995
Jan. 12	0900	1,230	34.8	18.60	5.669						

Minimum discharge, 7.0 ft³/s (0.20 m³/s) Dec. 11, 21, 22, 26.

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	39	80	42	8.3	269	19	26	13	20	29	55	86
2	44	979	26	8.1	202	18	31	17	25	34	53	76
3	58	866	16	7.8	98	18	26	26	593	36	31	67
4	50	320	12	7.6	58	17	31	32	1290	36	20	64
5	42	108	10	8.7	42	16	26	30	686	37	15	60
6	36	58	9.2	8.6	28	14	26	23	291	40	38	57
7	31	40	8.1	65	164	14	24	27	353	39	39	59
8	26	98	8.2	383	654	14	32	27	358	41	23	104
9	23	384	7.7	89	356	12	22	34	167	29	14	80
10	19	233	7.1	35	170	12	35	32	77	36	25	80
11	17	85	7.0	244	98	10	35	30	53	58	33	243
12	14	47	7.6	1080	265	11	48	24	43	58	18	549
13	13	31	7.8	491	868	11	116	18	36	59	8.3	629
14	12	20	8.0	166	353	12	94	15	35	84	8.0	635
15	11	16	7.6	81	138	12	53	17	32	99	8.4	637
16	10	14	8.6	58	223	11	39	13	29	72	8.0	475
17	10	12	7.8	172	215	11	40	19	27	47	9.5	404
18	9.3	16	7.2	134	338	11	42	25	28	46	11	240
19	7.9	22	7.2	414	254	11	39	17	34	61	13	122
20	13	16	7.3	421	92	14	30	15	32	96	19	73
21	11	22	7.0	147	53	13	19	13	32	112	21	76
22	49	32	7.0	116	40	12	26	13	29	84	27	85
23	436	18	7.1	103	32	13	423	17	26	89	21	141
24	1300	15	7.2	84	28	14	194	22	28	101	17	117
25	887	12	7.1	104	25	17	80	21	25	69	16	69
26	286	10	7.0	96	24	24	39	14	28	62	15	54
27	110	9.4	7.1	60	22	17	18	12	22	56	15	49
28	58	8.9	7.3	40	20	12	17	9.1	19	46	15	47
29	39	14	7.4	25	---	15	12	9.7	19	46	18	44
30	25	55	7.4	18	---	18	13	12	22	43	20	39
31	17	---	7.4	21	---	20	---	15	---	47	85	---
TOTAL	3703.2	3641.3	301.4	4696.1	5129	443	1656	611.8	4459	1792	719.2	5461
MEAN	119	121	9.72	151	183	14.3	55.2	19.7	149	57.8	23.2	182
MAX	1300	979	42	1080	868	24	423	34	1290	112	85	637
MIN	7.9	8.9	7.0	7.6	20	10	12	9.1	19	29	8.0	39
AC-FT	7350	7220	598	9310	10170	879	3280	1210	8840	3550	1430	10830

CAL YR 1977 TOTAL 23473.9 MEAN 64.3 MAX 1300 MIN 7.0 AC-FT 46560
WTR YR 1978 TOTAL 32613.0 MEAN 89.4 MAX 1300 MIN 7.0 AC-FT 64690

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 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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 18...	1355	10	1050	7.9	23.0	10	9.0	107	.9	270	7
NOV 29...	1510	15	1350	7.8	17.5	25	7.5	81	1.4	380	88
JAN 10...	1355	31	570	--	10.0	180	9.6	88	5.7	140	42
FEB 22...	1150	40	695	7.5	10.0	180	10.0	92	2.9	190	29
APR 04...	1405	32	960	7.8	25.5	60	7.6	95	4.1	270	51
MAY 16...	1425	12	1180	8.2	26.5	10	9.4	119	4.2	270	52
JUN 21...	1550	33	900	8.1	30.0	9	8.6	115	1.2	250	20
AUG 07...	1520	35	577	7.4	29.0	40	6.6	87	3.6	160	24
SEP 20...	1010	75	393	7.5	28.0	40	5.2	67	2.5	120	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 18...	70	23	110	2.9	6.3	320	0	35	160	.5	25
NOV 29...	99	31	140	3.1	4.6	350	0	33	250	.7	19
JAN 10...	38	11	49	1.8	5.2	120	0	30	110	.2	12
FEB 22...	51	14	65	2.1	4.1	190	0	20	100	.3	14
APR 04...	73	22	91	2.4	5.5	270	0	38	140	.5	12
MAY 16...	88	13	120	3.2	6.0	270	0	68	180	.5	13
JUN 21...	67	20	86	2.4	2.6	280	0	31	130	.5	21
AUG 07...	44	13	53	1.8	8.2	170	0	20	81	.3	19
SEP 20...	34	9.2	29	1.1	8.0	160	0	8.7	42	.2	38

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 18...	588	18	.97	.03	1.0	.01	.67	.68	.42	6.3
NOV 29...	751	44	.13	.01	.14	.06	.32	.38	.26	5.3
JAN 10...	315	282	1.2	.05	1.2	.08	3.2	3.3	.32	15
FEB 22...	362	328	.32	.02	.34	.08	1.1	1.2	.27	12
APR 04...	515	122	.71	.05	.76	.05	.86	.91	.25	7.2
MAY 16...	622	23	.58	.13	.71	.12	.98	1.1	.16	6.5
JUN 21...	496	22	.39	.01	.40	.00	.71	.71	.08	5.0
AUG 07...	322	67	.39	.01	.40	.05	.75	.80	.18	8.9
SEP 20...	249	102	.47	.11	.58	.08	1.1	1.2	.52	14

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 29...	1510	4	800	0	0	2	50
FEB 22...	1150	2	200	0	0	3	40
MAY 16...	1425	3	300	0	0	3	0
SEP 20...	1010	11	100	1	0	4	480

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 29...	0	40	.0	0	0	10
FEB 22...	0	50	.0	0	0	10
MAY 16...	1	30	.0	0	0	20
SEP 20...	2	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)
NOV 29...	1510	.0	0	.00	.00	.0	.0	1	.00	1.6
FEB 22...	1150	.0	0	.00	.00	.0	.0	0	.00	.0
MAY 16...	1425	.0	0	.00	.00	.0	.0	0	.00	.1
SEP 20...	1010	.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)
NOV 29...	.00	1.0	.00	.0	.12	.00	.3	.00	.00	.0
FEB 22...	.00	.8	.01	.2	.02	.01	.1	.00	.00	.0
MAY 16...	.00	.4	.00	.4	.04	.00	.1	.00	.00	.0
SEP 20...	.00	.3	.00	.4	.03	.00	.1	.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 29...	.00	.00	.0	.00	.0	.00	.0	.00	.00
FEB 22...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAY 16...	.00	.00	.0	.00	.0	.00	.0	.00	.00
SEP 20...	.00	.00	.0	.00	.0	.00	.0	.00	.01

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 29...	.00	--	.00	0	0	.00	.06	.00	.00
FEB 22...	.00	--	.00	0	0	.00	.02	.00	.00
MAY 16...	.00	--	.00	0	0	.00	.01	.00	.00
SEP 20...	.00	.00	.00	0	0	.00	.24	.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 bidge, 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.

DISCHARGE AND WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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 18...	1205	.80	1020	7.5	23.0	15	7.6	90	1.1	290	48
NOV 29...	1310	2.2	1000	7.6	18.5	60	13.4	147	1.8	290	64
JAN 10...	1445	11	420	6.9	9.0	320	10.4	93	6.4	110	31
FEB 22...	1335	12	650	7.3	11.5	130	10.4	98	--	190	31
APR 04...	1455	16	1050	8.0	26.0	70	8.7	109	4.3	230	0
MAY 16...	1320	9.0	1050	8.3	26.5	40	7.5	95	3.2	210	0
JUN 21...	1430	4.8	880	8.1	30.5	20	8.3	111	1.6	220	0
AUG 08...	1445	4.9	703	7.8	30.0	25	7.5	100	1.3	170	0
SEP 20...	1210	18	540	7.7	29.0	9	6.2	70	1.8	140	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 18...	65	30	100	2.6	6.5	290	0	23	170	.5	36
NOV 29...	63	31	100	2.6	5.1	270	0	36	160	.5	20
JAN 10...	29	9.8	43	1.8	4.4	100	0	27	--	.3	9.1
FEB 22...	45	18	63	2.0	3.8	190	0	29	94	.3	12
APR 04...	51	24	150	4.3	4.8	290	0	36	170	.7	17
MAY 16...	47	23	130	3.9	4.7	290	0	30	160	.7	16
JUN 21...	49	24	97	2.8	2.2	280	0	25	130	.6	21
AUG 08...	42	17	83	2.7	6.1	220	0	11	110	.5	30
SEP 20...	36	13	53	1.9	8.0	200	0	11	70	.4	47

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 18...	574	20	.03	.00	.03	.01	.56	.57	.05	8.7
NOV 29...	550	101	.04	.01	.05	.08	.44	.52	.09	8.8
JAN 10...	--	522	1.7	.07	1.8	.16	.39	.55	.33	27
FEB 22...	359	204	.28	.01	.29	.07	1.2	1.3	.13	14
APR 04...	596	134	.49	.05	.54	.14	1.1	1.2	.12	8.3
MAY 16...	555	86	.05	.02	.07	.03	.87	.90	.09	7.6
JUN 21...	487	37	.01	.00	.01	.01	.67	.68	.05	6.2
AUG 08...	408	39	.01	.00	.01	.02	.68	.70	.07	10
SEP 20...	337	12	.06	.02	.08	.05	1.3	1.3	.31	14

08162700 EAST CARANCAHUA CREEK NEAR BLESSING, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 29...	1310	3	700	0	4	2	60
FEB 22...	1335	1	100	0	0	2	50
MAY 16...	1320	3	300	0	10	4	10
SEP 20...	1210	9	200	1	10	1	160

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 29...	0	40	.0	0	0	10
FEB 22...	0	30	.0	0	0	10
MAY 16...	1	20	.0	0	0	20
SEP 20...	0	10	.0	0	0	0

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 29...	1310	.0	--	.00	.00	--	.0	--	.00	--
FEB 22...	1335	.0	--	.00	.00	--	.0	--	.00	--
MAY 16...	1320	.0	0	.00	.00	.0	.0	0	.00	.0
SEP 20...	1210	.0	0	.00	.00	.0	.0	0	.00	.3

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 29...	.00	--	.00	--	.00	.00	--	.00	.00	--
FEB 22...	.00	--	.00	--	.00	.00	--	.00	.00	--
MAY 16...	.00	.5	.00	.0	.00	.00	.1	.00	.00	.0
SEP 20...	.00	.4	.00	.0	.00	.00	.1	.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 29...	.00	.00	--	.00	--	.00	--	.00	.00
FEB 22...	.00	.00	--	.00	--	.00	--	.00	.00
MAY 16...	.00	.00	.0	.00	.0	.00	.0	.00	.00
SEP 20...	.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 29...	.00	--	.00	0	--	.00	.00	.00	.00
FEB 22...	.00	--	.00	0	--	.00	.00	.00	.00
MAY 16...	.00	--	.00	0	0	.00	.00	.00	.00
SEP 20...	.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.--39 years, 48.1 ft³/s (1.362 m³/s), 6.05 in/yr (154 mm/yr), 34,850 acre-ft/yr (43.0 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1840, that of June 30, 1940; 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 7	1200	*9,030	256	a24.6	7.50	Sept. 13	1700	6,370	180	22.38	6.821

a From floodmark.

Minimum discharge, 0.35 ft³/s (0.010 m³/s) Aug. 29.

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	2.3	34	5.5	3.5	7.4	8.2	7.1	5.7	3.6	.94	1.1	2.8
2	2.3	20	5.2	3.7	7.7	8.3	7.2	5.7	3.0	.90	.92	2.8
3	2.3	12	5.0	3.2	7.5	8.0	7.3	7.3	4.7	.88	.92	2.4
4	2.3	7.8	5.3	3.1	7.0	7.9	7.3	6.4	29	.88	.94	2.0
5	2.5	6.4	5.2	3.4	7.0	8.2	6.9	6.1	18	.80	.85	1.5
6	2.6	5.8	4.6	3.3	6.9	9.5	6.9	5.9	7.0	.73	1.0	1.3
7	2.6	5.4	4.5	3.4	32	49	6.6	5.4	2810	.72	.84	1.5
8	2.6	24	4.7	3.0	45	12	6.7	5.0	75	.70	.82	1.5
9	2.6	15	4.1	2.8	16	10	6.8	4.7	20	.67	.82	1.4
10	2.6	9.5	3.9	2.8	11	9.1	7.1	4.3	9.3	.62	.91	7.8
11	2.9	6.6	4.0	15	9.6	8.5	7.0	3.9	6.1	.59	.85	129
12	2.8	5.4	4.1	9.6	9.8	7.7	7.5	3.8	4.6	.57	.75	506
13	3.0	4.9	4.1	7.8	9.2	7.7	7.3	3.5	3.7	.49	.71	2220
14	3.0	4.7	3.8	5.3	8.8	7.4	6.8	3.2	3.2	.50	.67	429
15	3.1	4.6	3.8	4.6	9.0	7.2	6.3	3.0	2.7	.50	.65	108
16	3.1	4.6	3.9	5.1	8.9	6.7	5.9	2.9	2.4	.48	.60	29
17	3.1	4.7	3.7	6.4	10	6.7	5.5	2.9	2.1	.46	.61	18
18	3.3	4.7	3.6	10	9.3	6.8	5.3	2.8	1.8	.46	.59	13
19	3.4	4.7	3.6	12	9.5	7.0	4.8	2.7	2.0	.53	.66	11
20	3.6	4.9	3.4	7.9	8.8	6.9	4.5	2.6	1.7	.64	.61	9.1
21	3.6	5.1	3.1	6.8	8.1	7.2	4.3	3.1	1.5	.59	1.3	148
22	4.8	5.1	3.0	6.5	8.0	7.2	9.3	2.9	1.4	.59	.53	365
23	5.1	5.3	3.2	6.5	8.1	7.2	85	2.6	1.2	.57	.47	100
24	5.7	5.5	3.4	6.9	8.3	7.4	17	2.6	1.2	.67	.44	20
25	5.6	5.5	3.3	7.1	8.4	7.0	11	2.4	1.1	.81	.44	10
26	5.5	5.3	3.0	6.6	8.5	7.1	8.2	2.4	1.1	.73	.45	7.1
27	5.5	5.3	3.0	6.5	8.4	7.0	7.0	2.3	1.1	.72	.43	5.6
28	5.5	5.2	3.3	6.3	8.6	7.1	6.3	2.2	.94	.77	.41	4.9
29	5.5	15	3.6	6.4	---	7.0	6.0	2.2	.94	.78	.40	4.3
30	5.6	7.4	3.6	6.4	---	7.4	5.9	3.5	.95	.74	2.4	3.8
31	5.7	---	3.6	6.8	---	7.2	---	5.6	---	.87	7.6	---
TOTAL	114.1	254.4	122.1	188.7	306.8	281.6	290.8	119.6	3021.33	20.90	30.69	4165.8
MEAN	3.68	8.48	3.94	6.09	11.0	9.08	9.69	3.86	101	.67	.99	139
MAX	5.7	34	5.5	15	45	49	85	7.3	2810	.94	7.6	2220
MIN	2.3	4.6	3.0	2.8	6.9	6.7	4.3	2.2	.94	.46	.40	1.3
CFSM	.03	.08	.04	.06	.10	.08	.09	.04	.94	.006	.009	1.29
IN.	.04	.09	.04	.06	.11	.10	.10	.04	1.04	.01	.01	1.43
AC-FT	226	505	242	374	609	559	577	237	5990	41	61	8260

CAL YR 1977 TOTAL 19404.60 MEAN 53.2 MAX 7410 MIN 1.0 CFSM .49 IN 6.68 AC-FT 38490
WTR YR 1978 TOTAL 8916.82 MEAN 24.4 MAX 2810 MIN .40 CFSM .23 IN 3.07 AC-FT 17690

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. WDR 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.--40 years, 316 ft³/s (8.949 m³/s), 5.25 in/yr (133 mm/yr), 228,900 acre-ft/yr (282 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)
Sept. 14	1700	*22,400	634	26.46	8.065	Sept. 23	1000	5,820	165	21.12	6.437

Minimum discharge, 8.0 ft³/s (0.23 m³/s) Aug. 31.

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	26	42	141	43	57	56	48	79	33	21	31	8.2
2	25	807	89	44	57	53	48	72	34	22	25	9.2
3	23	745	68	45	57	52	49	67	291	22	22	25
4	22	220	60	45	58	52	46	64	543	21	20	20
5	23	120	54	45	57	51	46	63	357	20	19	16
6	25	87	49	46	53	50	46	64	148	19	19	17
7	28	70	45	47	129	60	46	60	136	19	29	14
8	30	111	45	45	659	1040	47	56	705	19	137	14
9	28	479	44	43	835	405	46	52	984	19	59	16
10	24	599	41	43	372	154	47	50	209	19	35	21
11	23	187	40	50	195	111	48	43	117	19	28	1020
12	22	115	40	70	151	93	50	39	85	21	20	4890
13	21	89	41	138	188	83	62	37	65	23	17	8940
14	21	76	43	109	147	75	60	34	54	24	14	17800
15	25	67	42	82	104	69	54	32	48	22	12	17700
16	25	62	42	86	100	65	52	31	45	19	11	12900
17	22	58	42	191	226	61	48	30	39	18	10	5520
18	21	55	42	274	351	58	47	30	37	16	9.5	960
19	21	52	41	1380	217	56	44	29	34	15	8.8	583
20	20	50	39	686	127	56	41	28	32	17	8.8	456
21	20	49	38	282	96	55	42	27	32	17	9.2	468
22	26	46	38	168	79	54	49	28	30	17	8.5	3280
23	52	45	37	123	71	55	2620	29	26	18	8.8	5600
24	39	44	37	106	66	57	2690	29	26	15	10	2790
25	39	44	37	96	63	57	602	27	26	14	9.2	649
26	39	43	37	87	61	55	233	25	24	14	8.8	431
27	32	42	37	77	59	52	154	26	23	14	8.5	336
28	30	42	38	68	57	51	117	24	22	508	9.2	287
29	28	51	39	62	---	49	100	23	22	222	9.2	254
30	28	312	40	59	---	48	87	50	21	59	8.2	226
31	27	---	41	57	---	49	---	66	---	40	8.0	---
TOTAL	835	4809	1467	4697	4692	3282	7669	1314	4248	1333	632.7	85250.4
MEAN	26.9	160	47.3	152	168	106	256	42.4	142	43.0	20.4	2842
MAX	52	807	141	1380	835	1040	2690	79	984	508	137	17800
MIN	20	42	37	43	53	48	41	23	21	14	8.0	8.2
CFSM	.03	.20	.06	.19	.21	.13	.31	.05	.17	.05	.03	3.48
IN.	.04	.22	.07	.21	.21	.15	.35	.06	.19	.06	.03	3.88
AC-FT	1660	9540	2910	9320	9310	6510	15210	2610	8430	2640	1250	169100

CAL YR 1977 TOTAL 102806.0 MEAN 282 MAX 6770 MIN 20 CFSM .35 IN 4.68 AC-FT 203900
WTR YR 1978 TOTAL 120229.1 MEAN 329 MAX 17800 MIN 8.0 CFSM .40 IN 5.47 AC-FT 238500

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.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 899 micromhos Apr. 22; minimum daily, 202 micromhos July 30.
WATER TEMPERATURES: Maximum daily, 33.0°C July 16; minimum daily, 5.0°C Jan. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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)
NOV											
10...	1030	618	235	7.1	15.0	230	8.7	89	3.9	270000	14000
DEC											
08...	1015	44	800	7.8	16.0	5	8.7	91	.8	2900	360
JAN											
26...	0755	107	563	7.9	7.0	25	10.4	88	1.4	1500	300
FEB											
16...	0945	102	530	7.5	8.0	45	10.3	90	1.6	840	240
MAR											
16...	0835	68	744	7.6	15.5	10	9.6	99	.6	560	160
APR											
25...	0915	564	374	7.6	20.5	170	6.9	78	5.1	210000	8400
MAY											
22...	1603	28	801	8.0	28.0	10	6.2	79	3.1	840	320
JUN											
13...	0920	67	554	7.8	28.0	35	12.8	164	2.6	11000	3200
JUL											
18...	1000	16	745	7.8	28.0	15	7.2	92	1.6	7800	580
AUG											
22...	0845	85	727	8.4	26.0	10	7.4	92	1.0	--	500
SEP											
26...	1015	440	449	7.8	24.0	45	7.2	88	1.7	--	1300

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)
NOV											
10...	20000	78	0	28	2.0	16	.8	3.9	96	0	8.0
DEC											
08...	1300	280	15	100	6.7	56	1.5	3.2	320	0	26
JAN											
26...	440	190	13	69	5.1	40	1.3	3.6	220	0	21
FEB											
16...	800	180	22	63	5.0	39	1.3	3.5	190	0	21
MAR											
16...	220	260	24	94	6.6	52	1.4	3.4	290	0	29
APR											
25...	2400	120	24	44	3.0	29	1.1	4.4	120	0	18
MAY											
22...	440	300	22	110	6.3	62	1.6	3.4	340	0	23
JUN											
13...	1100	160	10	57	3.7	32	1.1	4.4	180	0	17
JUL											
18...	920	240	0	83	7.9	73	2.1	3.0	320	0	18
AUG											
22...	920	260	0	93	7.0	55	1.5	3.6	310	4	17
SEP											
26...	1800	170	10	62	4.7	24	.8	3.7	200	0	16

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
NOV 10...	22	.2	9.8	153	137	.43	.01	.44	.04	.81
DEC 08...	78	.4	21	449	449	.44	.01	.45	.06	.20
JAN 26...	59	.3	16	329	322	.81	.01	.82	.04	.64
FEB 16...	56	.2	15	303	297	1.2	.01	1.2	.04	.66
MAR 16...	71	.4	18	424	417	.16	.00	.16	.01	.32
APR 25...	46	.3	10	206	214	.33	.05	.38	.18	1.1
MAY 22...	77	.3	21	462	471	.03	.00	.03	.01	.94
JUN 13...	42	.4	18	262	263	.18	.03	.21	.01	.78
JUL 18...	83	.4	29	455	455	.02	.00	.02	.00	.60
AUG 22...	75	.3	19	422	427	.02	.01	.03	.03	.47
SEP 26...	33	.2	21	282	263	.15	.01	.16	.04	.85

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 10...	.85	.38	.21	.09	15	--	--	491	819	99
DEC 08...	.26	.23	.11	.05	2.9	--	--	35	4.2	79
JAN 26...	.68	.47	.13	.06	7.2	--	--	53	15	95
FEB 16...	.70	.61	.13	.05	--	--	--	73	20	90
MAR 16...	.33	.32	.17	.09	4.0	--	--	25	4.6	79
APR 25...	1.3	.84	.18	.07	16	--	--	346	527	95
MAY 22...	.95	.32	.13	.04	--	--	--	17	1.3	86
JUN 13...	.79	.40	.19	.08	7.4	--	--	67	12	99
JUL 18...	.60	.55	.09	.05	5.0	--	--	14	.60	94
AUG 22...	.50	.36	.08	.03	--	5.5	.3	73	17	17
SEP 26...	.89	.68	.17	.14	11	--	--	196	233	60

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
FEB 16...	0945	3	1	2	200	0	200	0	0	0
MAY 22...	1603	8	2	6	300	0	300	0	--	1
AUG 22...	0845	6	0	6	400	0	400	2	2	0

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
FEB 16...	10	10	0	2	2	0	6	5	1	1100
MAY 22...	25	25	0	0	0	0	6	5	1	280
AUG 22...	10	10	0	0	0	0	6	6	0	220

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)
FEB 16...	--	30	18	17	1	50	50	0	.3	.3
MAY 22...	250	30	3	1	2	140	110	30	.1	.1
AUG 22...	170	50	2	2	0	80	50	30	.0	.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)
FEB 16...	.0	0	0	0	0	0	0	20	10	10
MAY 22...	.0	0	0	0	0	0	0	20	10	10
AUG 22...	.0	1	1	0	0	0	0	20	20	0

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)
APR 25...	0915	.0	.00	.00	.0	.00	.00	.00

DATE	DI-AZINON, TOTAL (UG/L)	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)
APR 25...	.00	.00	.00	.00	.00	.00	.00	.05	.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)
APR 25...	.00	.00	.00	0	.00	.30	.03	.00

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	NOV 10,77		MAR 16,78		MAY 22,78		JUN 13,78		JUL 18,78		AUG 22,78	
TIME	1030		0835		1603		0920		1000		0845	
TOTAL CELLS/ML	1200		18000		240000		28000		19000		1700	
DIVERSITY: DIVISION	1.3		1.0		0.9		1.1		1.5		1.2	
.CLASS	1.3		1.0		0.9		1.1		1.5		1.2	
..ORDER	2.0		1.7		1.9		1.8		2.0		1.9	
...FAMILY	2.3		2.3		2.5		2.5		2.7		2.6	
....GENUS	2.4		2.9		3.3		3.6		3.7		2.9	
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	--	-	--	-
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	1100	4	2100	11	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	--	-	--	-	--	-	85	5
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	*	0	--	-	--	-
....MICRACTINIUM	--	-	--	-	6500	3	850	3	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	16000	7	490	2	990	5	85	5
....CHODATELLA	--	-	--	-	11000	5	*	0	260	1	--	-
....DICTYOSPHAERIUM	--	-	3600#	20	--	-	1600	6	1400	8	--	-
....KIRCHNERIELLA	--	-	1300	7	18000	8	360	1	1100	6	--	-
....NEPHROCYTIUM	--	-	--	-	--	-	--	-	--	-	110	6
....OOCYSTIS	57	5	--	-	4900	2	1500	5	--	-	--	-
....QUADRIGULA	--	-	--	-	--	-	720	3	--	-	--	-
....SELENASTRUM	--	-	--	-	26000	11	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	*	0	130	1	11	1
....TREUBARIA	--	-	--	-	1600	1	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	800	3	--	-	--	-
....CRUCIGENIA	--	-	1400	8	--	-	360	1	790	4	--	-
....SCENEDESMUS	--	-	2200	12	44000#	19	1600	6	1200	6	510#	29
....TETRASTRUM	--	-	290	2	--	-	360	1	1300	7	43	2
..TETRASPORALES												
...PALMELLACEAE												
....GLOEOCYSTIS	57	5	--	-	--	-	--	-	--	-	--	-
....SPHAEROCYSTIS	--	-	--	-	25000	10	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	--	-	--	-	3300	1	*	0	--	-	--	-
....CHLAMYDOMONAS	14	1	3400#	19	31000	13	180	1	720	4	430#	25
...PHACOTACEAE												
....PHACOTUS	--	-	--	-	--	-	--	-	200	1	--	-
....PTEROMONAS	--	-	720	4	--	-	*	0	--	-	--	-
..ZYGNEMATALES												
...ZYGNEMATACEAE												
....MOUGEOTIA	29	2	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	220	1	1600	1	*	0	330	2	--	-
....MELOSIRA	--	-	--	-	--	-	*	0	--	-	--	-
..PENNALES												
...DIATOMACEAE												
....OPEPHORA	43	4	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....DIPLONEIS	43	4	--	-	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	43	2
....NAVICULA	57	5	*	0	--	-	--	-	--	-	21	1
...NITZSCHIACEAE												
....HANTZSCHIA	29	2	--	-	--	-	--	-	--	-	--	-
....NITZSCHIA	43	4	140	1	4900	2	220	1	390	2	160	9
.XANTHOPHYCEAE												
..HETEROCOCCALES												
...CHLOROTHECIACEAE												
....OPHIOCYTIUM	--	-	--	-	--	-	--	-	200	1	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	790	4	190	1

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

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978 (CONTINUI

DATE / TIME	NOV 10,77 1030		MAR 16,78 0835		MAY 22,78 1603		JUN 13,78 0920		JUL 18,78 1000		AUG 22,78 0845	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCCOCCALES												
...CHROCCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	4300#	15	3900#	21	--	-
....ANACYSTIS	140	12	4500#	25	39000#	17	2900	10	2200	12	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	660	3	--	-
...OSCILLATORIACEAE												
....ARTHROSPIRA	--	-	--	-	--	-	2500	9	--	-	--	-
....OSCILLATORIA	640#	55	--	-	--	-	7300#	26	--	-	--	-
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	490	2	--	-	--	-
..CHROCCOCCALES												
...CHROCCOCCACEAE												
....DACTYLOCOCCOPSIS	--	-	--	-	--	-	--	-	--	-	43	2
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	*	0	--	-	--	-
....PHACUS	14	1	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	140	1	1600	1	*	0	200	1	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	11	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%

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	835	768	450	1010	79	178	23	52	270
NOV. 1977.....	4809	371	210	2790	38	498	14	179	130
DEC. 1977.....	1467	712	420	1650	73	291	22	86	250
JAN. 1978.....	4697	411	240	3040	42	538	15	187	140
FEB. 1978.....	4692	448	260	3320	46	586	16	206	160
MAR. 1978.....	3282	575	340	2970	59	524	19	169	200
APR. 1978.....	7669	378	220	4540	39	811	14	283	130
MAY 1978.....	1314	781	460	1620	81	286	23	83	270
JUNE 1978.....	4248	409	240	2730	42	483	16	178	140
JULY 1978.....	1333	460	270	476	47	171	15	56	160
AUG. 1978.....	632.7	499	290	497	52	88	17	29	180
SEPT 1978.....	85250.37	142	83	19100	14	3310	5	1260	50
TOTAL	120224.06	**	**	44200	**	7760	**	2770	**
WTD.AVG.	329.39	234	140	**	24	**	8.2	**	82

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		680	363	807	763	795	854	698	548	752	307	
2		280	512	801	768	789	844	722	658	727	354	
3		280	577	787	781	795	853	753	558	730	444	
4		299	602	790	794	800	852	764	331	750	526	
5		364	696	799	800	810	850	779	400	767	673	
6		414	844	787	803	816	853	807	411	770	677	
7		470	810	782	704	813	867	822	435	772	766	
8		434	800	790	275	362	863	815	350	778	259	
9		314	776	801	346	400	867	810	303	772	327	
10		270	784	813	338	481	851	816	350	767	381	
11		322	790	704	354	497	847	815	363	792	493	
12		357	793	646	401	555	815	813	416	772	519	
13		442	784	614	408	625	798	822	475	780	631	
14		491	756	588	429	683	830	825	512	808	700	
15		540	772	668	497	730	850	830	572	805	750	
16		574	777	732	553	766	863	837	611	808	758	
17		605	782	416	440	787	870	828	637	796	771	
18		646	796	400	388	799	865	840	656	772	784	
19		677	784	220	406	801	870	831	680	786	771	
20		700	787	247	457	813	877	834	708	752	758	
21		712	793	272	579	816	888	831	731	770	750	
22		724	800	318	650	822	899	828	743	786	728	
23		736	801	415	704	825	242	837	753	824	691	
24		743	799	473	757	799	278	835	759	830	708	
25		759	796	537	755	816	397	834	756	780	718	
26		752	796	590	765	823	460	834	761	752	729	
27		775	796	643	770	830	534	831	760	772	722	
28		772	791	698	773	835	571	793	759	301	713	
29		759	774	732	---	840	580	810	720	215	677	
30		277	784	762	---	841	600	722	742	202	740	
31		---	787	771	---	847	---	492	---	234	734	
MEAN		539	752	626	588	742	750	797	582	707	631	

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	17.0	15.0	9.0	17.5	24.0	26.0	27.0	28.5	28.0	
2		---	18.5	10.0	10.5	20.0	23.5	25.0	27.5	29.5	29.5	
3		---	20.0	11.0	10.0	14.0	24.0	22.0	16.0	31.5	30.0	
4		18.0	21.0	15.0	11.0	14.0	27.0	22.5	27.5	32.0	31.0	
5		20.0	21.5	18.0	12.0	15.0	25.5	24.5	28.0	30.0	29.5	
6		20.0	15.5	20.0	9.5	15.5	24.0	25.0	29.5	29.0	29.0	
7		21.0	15.0	21.0	12.0	19.5	23.5	27.0	27.0	30.5	29.0	
8		20.5	20.0	16.0	8.0	15.0	24.0	27.5	26.0	32.0	26.5	
9		17.5	15.5	12.0	8.0	16.0	24.0	28.5	26.0	30.5	26.0	
10		16.5	12.5	10.0	8.0	15.0	23.0	28.0	---	28.0	29.5	
11		14.5	14.0	10.0	9.0	20.0	24.0	27.5	27.0	28.0	30.5	
12		15.5	17.0	10.5	13.0	19.5	17.5	28.0	28.0	31.0	30.0	
13		17.0	20.0	9.5	14.0	22.5	20.0	25.5	31.0	30.0	29.0	
14		17.5	18.0	10.5	13.5	22.0	23.0	25.0	28.0	31.0	31.0	
15		19.5	17.0	9.0	11.5	21.0	23.5	26.0	30.0	31.0	30.5	
16		21.5	19.0	16.0	12.0	20.0	22.5	25.5	29.5	33.0	31.0	
17		22.0	18.0	13.0	12.0	19.5	24.0	27.5	30.5	32.0	31.0	
18		21.0	14.5	10.0	10.5	20.0	26.0	28.5	27.0	31.5	31.5	
19		20.5	19.0	7.0	11.0	20.5	25.5	29.0	29.0	28.0	30.5	
20		21.5	14.5	6.0	15.0	20.0	20.5	27.0	31.0	28.0	31.0	
21		21.0	12.0	5.5	14.0	24.0	21.0	28.0	30.5	30.0	30.0	
22		19.0	10.0	5.0	15.0	23.5	20.5	28.0	30.0	29.5	30.5	
23		21.0	16.0	8.0	16.0	22.5	14.5	29.0	30.5	28.5	29.0	
24		21.5	17.0	10.5	16.0	22.0	20.0	28.5	30.5	26.5	29.0	
25		21.5	14.0	---	16.5	20.0	21.5	29.0	28.0	31.5	30.0	
26		18.5	12.0	10.0	14.0	16.0	22.0	29.0	30.0	31.0	28.5	
27		19.5	14.0	12.0	17.0	22.0	22.0	28.5	31.5	31.0	26.5	
28		21.0	13.0	11.0	22.0	22.5	23.0	29.0	30.5	24.5	30.5	
29		18.0	14.0	9.5	---	22.0	---	29.0	30.0	26.0	30.0	
30		15.0	14.5	10.0	---	23.0	---	28.0	30.0	27.0	28.0	
31		---	15.0	9.0	---	22.5	---	28.0	---	25.5	28.0	
MEAN		19.5	16.0	11.5	12.5	19.5	22.5	27.0	28.5	29.5	29.5	

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.--17 years, 154 ft³/s (4.361 m³/s), 6.30 in/yr (160 mm/yr), 111,600 acre-ft/yr (138 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.--Maximum discharge, 10,200 ft³/s (289 m³/s) Sept. 13, gage height, 26.53 ft (8.086 m), no other peak above base of 2,500 ft³/s (70.8 m³/s); minimum, 0.60 ft³/s (0.017 m³/s) Aug. 16-22.

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	4.6	28	26	21	32	41	30	17	8.9	5.2	1.8	31
2	4.1	93	22	21	34	40	29	17	7.2	6.5	2.8	18
3	4.1	42	21	20	30	40	29	20	59	5.4	3.1	8.4
4	4.3	24	20	20	29	40	28	24	342	4.9	2.4	5.7
5	4.3	20	20	20	28	39	27	21	62	4.2	1.7	4.3
6	4.6	18	18	20	28	41	27	18	33	4.0	1.4	3.6
7	4.6	17	17	21	77	112	27	17	1310	3.4	1.2	3.3
8	4.6	25	18	20	221	56	27	17	582	3.1	1.0	3.3
9	4.6	94	19	18	96	50	26	15	91	2.9	1.1	3.3
10	4.1	31	17	17	62	45	27	13	53	2.7	1.0	10
11	5.9	20	17	59	55	43	28	12	38	2.4	.94	122
12	12	17	18	128	60	41	27	12	30	2.2	.74	1590
13	9.1	16	19	42	55	40	27	11	58	1.9	.70	2220
14	7.3	15	22	31	49	40	26	9.9	122	1.9	.70	5700
15	7.0	15	20	27	48	38	24	9.0	27	1.8	.65	839
16	7.0	15	19	29	48	36	23	8.8	19	1.6	.65	165
17	6.7	15	19	70	52	35	21	8.8	16	1.3	.60	101
18	7.0	15	18	119	57	35	21	8.8	15	1.2	.60	74
19	7.0	15	18	173	49	35	20	8.0	13	1.2	.60	59
20	7.0	16	18	61	46	34	18	7.2	12	1.4	.60	50
21	7.0	16	16	41	44	34	18	11	11	1.7	.60	59
22	8.8	15	16	38	43	34	29	15	9.8	1.5	.65	403
23	9.8	15	16	34	43	34	45	8.9	9.2	1.4	.70	300
24	11	16	17	33	42	35	28	7.7	8.3	1.4	.74	62
25	12	17	18	32	42	38	23	6.7	7.7	1.7	.83	41
26	12	16	17	29	42	34	19	9.1	7.1	1.9	.87	34
27	12	16	17	28	41	33	18	6.8	6.3	1.5	.85	30
28	11	17	17	27	42	32	17	5.7	5.6	2.2	.76	29
29	9.8	42	20	27	---	31	17	5.5	5.4	2.2	.70	27
30	10	42	22	27	---	31	17	26	5.2	2.0	1.0	25
31	10	---	22	27	---	30	---	19	---	1.9	4.2	---
TOTAL	233.3	763	584	1280	1495	1247	743	395.9	2973.7	78.6	36.18	12020.9
MEAN	7.53	25.4	18.8	41.3	53.4	40.2	24.8	12.8	99.1	2.54	1.17	401
MAX	12	94	26	173	221	112	45	26	1310	6.5	4.2	5700
MIN	4.1	15	16	17	28	30	17	5.5	5.2	1.2	.60	3.3
CFSM	.02	.08	.06	.12	.16	.12	.08	.04	.30	.008	.004	1.21
IN.	.03	.09	.07	.14	.17	.14	.08	.04	.33	.01	.00	1.35
AC-FT	463	1510	1160	2540	2970	2470	1470	785	5900	156	72	23840

CAL YR 1977 TOTAL 55736.10 MEAN 153 MAX 13500 MIN 4.1 CFSM .46 IN 6.25 AC-FT 110600
WTR YR 1978 TOTAL 21850.58 MEAN 59.9 MAX 5700 MIN .60 CFSM .18 IN 2.45 AC-FT 43340

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 September 1978.

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 below 100 ft³/s (2.83 m³/s), 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.

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. 19	1600	2,660	75.3	13.79	4.203	Sept. 14	1700	*14,000	396	23.03	7.020

Minimum discharge, no flow at times.

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	7.5	105	2.8	.06	22	5.7	.01	3.5	16	39	55	.00
2	8.0	564	3.9	.13	25	4.6	.53	1.8	79	62	61	1.1
3	8.5	628	1.9	.08	35	3.6	2.4	2.2	492	104	50	3.9
4	9.0	473	.54	.08	28	3.1	.02	9.1	548	103	29	11
5	9.5	173	.05	.08	21	2.5	.00	6.1	376	101	18	24
6	10	84	.02	.08	16	1.9	.00	4.7	193	67	18	25
7	9.5	53	.02	.11	22	1.6	.76	.78	142	82	11	16
8	9.0	197	.03	.09	538	275	.52	4.3	389	89	7.1	28
9	8.5	537	.04	.06	930	103	2.3	2.9	257	89	4.9	49
10	8.0	518	.02	.06	583	46	3.3	.47	104	85	1.6	74
11	7.5	229	.01	9.6	247	27	5.7	1.3	42	103	4.0	294
12	7.0	103	.01	136	173	18	23	.60	18	111	3.7	3040
13	6.5	60	.03	263	595	12	34	.16	6.8	119	1.8	6640
14	6.0	38	.02	125	496	7.8	32	.08	3.7	118	1.3	11400
15	7.0	26	.02	58	195	4.9	15	.08	2.9	114	.95	7450
16	8.0	19	.02	282	120	2.7	7.6	.06	4.0	108	.46	3490
17	7.0	13	.02	1190	179	1.1	5.0	.06	1.7	86	.27	2180
18	5.6	10	.02	1310	359	.51	2.7	.11	1.1	65	.05	1400
19	3.9	8.4	.03	2430	251	.49	.89	.23	1.1	60	.00	860
20	2.2	8.0	.03	1980	108	.42	.21	.35	2.2	75	.00	573
21	.54	6.6	.03	1160	58	.42	.10	.57	2.4	91	.00	454
22	19	6.5	.03	502	38	.30	4.3	.84	1.0	84	.00	489
23	36	5.1	.03	259	29	.23	754	1.2	.30	69	.00	682
24	114	3.9	.03	222	23	.35	610	1.6	.19	64	.01	480
25	275	2.6	.03	185	16	.11	245	1.9	.21	61	.00	303
26	353	.65	.03	174	12	.11	90	2.6	.15	73	.00	227
27	176	.36	.03	129	9.4	.08	31	3.0	2.1	57	.00	212
28	82	.30	.03	74	7.6	.07	16	3.3	4.3	96	.00	192
29	43	.22	.05	40	---	.03	9.6	4.1	.50	121	.00	159
30	23	.13	.06	27	---	.02	3.1	5.9	2.6	94	.07	154
31	12	---	.06	22	---	.02	---	13	---	66	.21	---
TOTAL	1281.74	3872.76	9.94	10578.43	5136.0	523.66	1899.04	76.89	2693.25	2656	268.42	40911.00
MEAN	41.3	129	.32	341	183	16.9	63.3	2.48	89.8	85.7	8.66	1364
MAX	353	628	3.9	2430	930	275	754	13	548	121	61	11400
MIN	.54	.13	.01	.06	7.6	.02	.00	.06	.15	39	.00	.00
CFSM	.14	.45	.001	1.18	.63	.06	.22	.009	.31	.30	.03	4.72
IN.	.16	.50	.00	1.36	.66	.07	.24	.01	.35	.34	.03	5.27
AC-FT	2540	7680	20	20980	10190	1040	3770	153	5340	5270	532	81150

WTR YR 1978 TOTAL 69907.13 MEAN 192 MAX 11400 MIN .00 CFSM .66 IN 9.00 AC-FT 138700

08164450 SANDY CREEK NEAR LOUISE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT												
18...	1700	5.9	598	7.9	26.0	6	7.7	96	1.5	160	0	39
NOV												
30...	0850	.14	370	7.0	13.0	10	5.6	55	2.7	120	5	32
JAN												
11...	1315	2.8	200	7.3	7.0	40	10.4	88	3.5	83	13	25
FEB												
21...	1525	54	150	7.0	11.0	100	11.1	104	3.0	39	11	11
APR												
05...	1150	.04	420	7.0	24.0	7	5.6	68	3.2	150	35	47
MAY												
17...	0835	.06	480	7.6	25.0	7	5.5	68	<3.4	160	45	50
JUN												
21...	1210	2.1	585	7.7	28.5	8	8.3	108	1.9	160	33	53
AUG												
08...	1230	6.7	734	7.9	30.0	10	8.4	112	2.6	220	28	52
SEP												
20...	1615	545	222	7.2	29.0	20	5.4	71	3.5	74	5	19

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	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...	14	66	2.3	5.5	190	0	10	100	.3	39	367	11
NOV												
30...	9.7	24	1.0	5.6	140	0	3.9	41	.1	24	211	11
JAN												
11...	5.1	14	.7	3.3	86	0	6.6	25	.1	12	134	66
FEB												
21...	2.8	10	.7	3.7	34	0	11	18	.1	6.3	80	126
APR												
05...	7.9	27	1.0	4.5	140	0	7.8	56	.2	21	240	7
MAY												
17...	8.4	33	1.1	4.8	140	0	14	69	.2	20	269	23
JUN												
21...	7.8	49	1.7	1.7	160	0	12	88	.3	26	317	14
AUG												
08...	21	56	1.7	15	230	0	33	98	.5	46	435	18
SEP												
20...	6.4	13	.7	4.7	84	0	7.3	23	.1	27	143	64

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)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
18...	.04	.01	.05	.03	.84	.87	.16	11	--	--	--
NOV											
30...	.02	.01	.03	.23	.48	.71	.16	6.7	--	--	--
JAN											
11...	.12	.01	.13	.20	.09	.29	.11	4.9	--	--	--
FEB											
21...	.11	.01	.12	.04	1.1	1.1	.12	14	--	--	--
APR											
05...	.04	.01	.05	.20	.61	.81	.11	6.9	--	--	--
MAY											
17...	.00	.01	.01	.01	.81	.82	.08	6.2	--	--	--
JUN											
21...	.14	.02	.16	.03	.65	.68	.13	5.6	--	--	--
AUG											
08...	.06	.02	.08	.05	1.1	1.1	.43	13	--	--	--
SEP											
20...	.05	.03	.08	.12	1.2	1.3	.35	14	--	--	--

08164450 SANDY CREEK NEAR LOUISE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 30...	0850	2	500	0	0	1	670
FEB 21...	1525	1	0	0	10	4	140
MAY 17...	0835	2	200	0	0	3	60
SEP 20...	1615	5	100	1	0	2	590

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 30...	0	680	.0	0	0	10
FEB 21...	0	10	.0	0	0	20
MAY 17...	0	160	.0	0	0	10
SEP 20...	2	30	.0	0	0	0

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 30...	0850	.0	0	.00	.00	.0	.0	0	.00	.0
FEB 21...	1525	.0	0	.00	.00	.0	.0	0	.00	.0
MAY 17...	0835	.0	0	.00	.00	.0	.0	0	.00	.0
SEP 20...	1615	.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)
NOV 30...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
FEB 21...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
MAY 17...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
SEP 20...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
NOV 30...	.00	.00	.0	.00	.0	.00	.0	.00	.00
FEB 21...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAY 17...	.00	.00	.0	.00	.0	.00	.0	.00	.00
SEP 20...	.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 30...	.00	--	.00	0	0	.00	.00	.00	.00
FEB 21...	.00	--	.00	0	0	.00	.00	.00	.00
MAY 17...	.00	--	.00	0	0	.00	.00	.00	.00
SEP 20...	.00	.00	.00	0	0	.00	.24	.00	.00

08164450 SANDY CREEK NEAR LOUISE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	STREAM WIDTH (FT)	STREAM VELOC-ITY, MEAN (FPS)	STREAM DEPTH, MEAN (FT)	NUMBER OF SAM-PLING POINTS	SEDI-MENT DISCH. SUSP. + BED MA-TERIAL (T/DAY)	SEDI-MENT, SUS-PENDED (MG/L)
SEP									
12...	1015	2620	25.0	315	2.1	4.0	8	5560	753
12...	1540	3410	26.5	332	2.0	5.2	5	4960	519
13...	1100	7800	26.0	349	2.5	8.9	5	1780	63

DATE	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	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
SEP									
12...	5330	68	68	74	81	92	94	96	97
12...	4780	65	80	86	90	91	92	93	95
13...	1330	--	--	--	--	--	78	79	86

DATE	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 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	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM
SEP									
12...	100	--	2	4	62	95	99	100	--
12...	99	100	--	1	52	88	94	98	100
13...	99	100	--	10	80	99	100	--	--

SUSPENDED-SEDIMENT DISCHARGE FOR SELECTED DAYS, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TEMPER-ATURE (DEG.C)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	DATE	TEMPER-ATURE (DEG.C)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
Sept. 11, 1978..	--	294	405	477	Sept. 15, 1978..	26.5	7450	175	3520
Sept. 12.....	26.5	3040	748	5090	Sept. 16.....	26.0	3490	180	1700
Sept. 13.....	27.0	6640	178	3230	Sept. 17.....	28.5	2180	95	559
Sept. 14.....	26.5	11400	282	8390					

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.--WDR 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.--39 years, 559 ft³/s (15.83 m³/s), 405,000 acre-ft/yr (499 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 Texas 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.--Maximum discharge, 30,600 ft³/s (867 m³/s) Sept. 15, gage height, 30.76 ft (9.376 m); no other peak above base of 5,500 ft³/s (156 m³/s); minimum, 1.2 ft³/s (0.034 m³/s) Aug. 22, 23.

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	149	199	72	27	90	40	36	49	54	26	122	4.1
2	152	1220	70	29	94	38	38	45	326	86	116	4.8
3	160	1090	46	30	98	33	48	43	2340	135	91	5.1
4	155	845	35	29	97	29	45	51	3600	149	62	19
5	158	453	28	29	71	28	42	53	1980	140	41	27
6	141	214	25	29	56	28	38	67	957	117	34	38
7	126	136	24	42	161	28	37	47	680	129	31	32
8	106	381	24	36	1150	454	40	33	1510	154	18	34
9	93	1130	23	31	1780	292	50	34	1590	143	22	54
10	93	879	22	29	1150	145	72	35	538	133	19	106
11	65	611	22	78	656	100	91	35	266	130	16	762
12	61	280	23	316	464	77	105	45	158	147	13	5540
13	73	166	23	605	1020	66	184	42	101	164	9.3	14000
14	68	115	24	394	957	58	170	30	69	157	7.3	24500
15	61	86	24	188	518	53	101	26	143	137	5.6	28500
16	49	67	25	195	346	49	66	21	115	134	3.7	19700
17	39	54	25	1690	714	44	49	23	61	115	3.1	11100
18	31	45	24	1790	1120	43	39	20	47	94	2.7	3620
19	28	38	24	4610	735	42	30	21	40	92	2.3	1690
20	25	33	24	4640	371	41	31	18	32	101	2.8	1140
21	25	31	23	2250	191	36	30	15	32	144	2.4	1070
22	37	28	22	1110	126	36	49	14	35	128	1.8	1480
23	133	28	23	705	93	38	2010	13	36	102	2.2	2150
24	342	28	23	571	76	48	2020	24	30	101	3.2	1740
25	569	25	22	487	65	44	923	17	24	114	3.1	829
26	581	25	22	453	55	45	449	13	20	125	3.7	610
27	366	25	23	329	50	45	203	17	17	106	3.2	548
28	173	25	24	210	45	43	113	15	17	108	3.1	522
29	107	24	25	137	---	37	80	13	18	192	3.3	454
30	69	27	25	99	---	34	61	46	18	176	4.2	411
31	45	---	25	83	---	41	---	53	---	137	3.9	---
TOTAL	4280	8308	864	21251	12349	2135	7250	978	14854	3916	655.9	120690.0
MEAN	138	277	27.9	686	441	68.9	242	31.5	495	126	21.2	4023
MAX	581	1220	72	4640	1780	454	2020	67	3600	192	122	28500
MIN	25	24	22	27	45	28	30	13	17	26	1.8	4.1
AC-FT	8490	16480	1710	42150	24490	4230	14380	1940	29460	7770	1300	239400

CAL YR 1977 TOTAL 164362.0 MEAN 450 MAX 8770 MIN 22 AC-FT 326000
WTR YR 1978 TOTAL 197530.9 MEAN 541 MAX 28500 MIN 1.8 AC-FT 391800

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.

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, 929 micromhos Oct. 21; minimum daily, 80 micromhos Jan. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	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)
OCT											
05...	1355	160	635	--	--	--	--	--	--	--	--
20...	0925	25	832	7.6	19.0	120	10	7.8	87	1.4	2400
NOV											
10...	1220	22	190	6.8	14.5	280	130	9.0	91	3.8	--
DEC											
16...	0800	24	741	8.2	13.5	--	--	--	--	--	--
JAN											
26...	0920	470	188	7.1	7.0	440	130	10.6	90	3.8	--
MAR											
16...	0950	49	756	7.9	15.5	20	10	10.2	105	.3	--
MAY											
22...	1505	14	784	8.4	31.0	40	15	6.1	82	3.8	--
JUN											
02...	1000	73	642	--	27.0	--	--	--	--	--	--
JUL											
18...	0830	94	650	8.1	28.0	50	25	7.4	95	1.1	--
SEP											
26...	0815	616	246	7.5	23.5	160	45	7.2	87	1.8	--

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)
OCT										
05...	--	--	--	--	--	--	--	--	--	--
20...	260	570	220	0	68	11	96	2.8	4.9	300
NOV										
10...	--	--	47	0	13	3.6	18	1.1	5.6	60
DEC										
16...	--	--	250	3	90	5.8	57	1.6	3.0	300
JAN										
26...	--	--	45	5	13	3.0	15	1.0	4.3	48
MAR										
16...	--	--	260	22	94	6.0	57	1.5	2.5	290
MAY										
22...	--	--	250	17	87	7.5	75	2.1	4.5	270
JUN										
02...	--	--	180	0	60	6.3	57	1.9	3.7	220
JUL										
18...	--	--	200	27	50	18	68	2.1	2.3	210
SEP										
26...	--	--	87	5	27	4.7	15	.7	3.7	100

08164500 NAVIDAD RIVER NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	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, 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)
OCT										
05...	--	--	--	--	--	--	--	--	--	--
20...	0	14	110	.4	38	494	490	16	2	.05
NOV										
10...	0	9.5	25	.2	14	--	118	238	28	.08
DEC										
16...	0	17	89	.4	21	--	431	--	--	--
JAN										
26...	0	9.9	22	.1	8.8	--	100	194	8	.74
MAR										
16...	0	22	85	.4	13	--	423	23	2	.00
MAY										
22...	6	20	100	.4	19	--	453	38	6	.07
JUN										
02...	0	24	77	.3	18	--	355	--	--	--
JUL										
18...	0	30	100	.5	23	--	396	46	1	.06
SEP										
26...	0	8.6	21	.2	23	--	153	98	16	.12

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)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
05...	--	--	--	--	--	--	--	101	44	--
20...	.00	.05	.02	.68	.70	.11	8.7	14	.94	97
NOV										
10...	.01	.09	.03	1.2	1.2	.18	31	--	--	--
DEC										
16...	--	--	--	--	--	--	--	--	--	--
JAN										
26...	.01	.75	.12	1.2	1.3	.14	16	--	--	--
MAR										
16...	.00	.00	.00	.78	.78	.09	--	--	--	--
MAY										
22...	.01	.08	.04	1.5	1.5	.08	7.8	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
18...	.01	.07	.00	.80	.80	.10	6.9	--	--	--
SEP										
26...	.01	.13	.04	.96	1.0	.18	13	--	--	--

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)
MAY							
22...	1505	6	200	1	5	2	40
JUL							
18...	0830	3	300	2	0	2	30
SEP							
26...	0815	3	100	1	10	4	370

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)
MAY						
22...	3	50	.0	0	0	20
JUL						
18...	3	10	.0	0	0	20
SEP						
26...	1	20	.0	0	0	10

08164500 NAVIDAD RIVER NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 26...	0920	.0	0	.00	.00	.0	.0	0	.00	.0
JUL 18...	0830	.0	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 26...	.00	.1	.00	.0	.00	.00	.1	.00	.00	.0
JUL 18...	.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 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)
JAN 26...	.00	--	.00	0	0	.00	.00	.00	.00
JUL 18...	.00	.00	.01	0	0	.00	.01	.01	.00

08164500 NAVIDAD RIVER NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	STREAM WIDTH (FT)	STREAM VELOC-ITY, MEAN (FPS)	STREAM DEPTH, MEAN (FT)	NUMBER OF SAM-PLING POINTS	SEDI-MENT DISCH, SUSP. + BED MA-TERIAL (T/DAY)	SEDI-MENT, SUS-PENDED (MG/L)
OCT									
05...	1355	160	--	--	--	--	--	--	101
20...	0925	25	19.0	--	--	--	--	--	14
SEP									
12...	1430	6060	25.5	212	3.5	8.2	5	9180	464
13...	1100	10300	26.0	280	2.5	15	5	11100	364
13...	1700	11100	26.0	320	3.1	11	5	10200	271

DATE	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	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									
05...	44	--	--	--	--	--	--	--	--
20...	.94	--	--	--	--	--	97	--	--
SEP									
12...	7590	63	63	64	70	73	76	79	86
13...	10100	37	38	41	45	45	47	55	77
13...	8120	37	38	41	45	45	47	55	77

DATE	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 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	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM
OCT									
05...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
SEP									
12...	98	100	--	2	45	94	98	99	100
13...	99	100	1	7	80	100	--	--	--
13...	99	100	1	19	73	96	99	100	--

SUSPENDED-SEDIMENT DISCHARGE FOR SELECTED DAYS, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TEMPER-ATURE (DEG.C)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	DATE	TEMPER-ATURE (DEG.C)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
Sept. 11, 1978..	26.5	762	263	838	Sept. 15, 1978..	26.5	28500	230	17700
Sept. 12.....	26.5	5540	443	6620	Sept. 16.....	26.0	19700	140	7450
Sept. 13.....	27.0	14000	284	10400	Sept. 17.....	28.0	11100	95	2850
Sept. 14.....	26.5	24500	219	14400					

08164500 NAVIDAD RIVER NEAR GANADO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	4280	512	290	3410	60	689	17	202	170
NOV. 1977.....	8308	284	160	3670	30	678	11	245	93
DEC. 1977.....	864	749	430	1000	90	210	24	57	250
JAN. 1978.....	21251	156	92	5280	15	832	7	426	49
FEB. 1978.....	12349	201	120	3910	20	652	9	292	64
MAR. 1978.....	2135	542	310	1790	64	367	18	105	180
APR. 1978.....	7250	362	210	4140	40	791	13	260	120
MAY 1978.....	978	657	380	995	78	206	22	57	220
JUNE 1978.....	14854	290	170	6770	31	1230	11	451	95
JULY 1978.....	3916	702	400	4250	84	891	23	239	240
AUG. 1978.....	655.9	662	380	670	79	140	22	38	220
SEPT 1978.....	120689.93	128	76	24700	11	3600	7	2160	40
TOTAL	197530.72	**	**	60600	**	10300	**	4530	**
WTD.AVG.	541.18	194	110	**	19	**	8.7	**	62

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	660	350	742	770	300	695	760	658	317	660	704	760
2	630	150	690	760	204	626	750	650	642	750	674	700
3	592	206	700	756	180	717	733	649	400	714	652	660
4	650	244	720	731	190	700	768	638	200	600	582	450
5	595	300	710	708	350	690	774	646	237	578	610	245
6	735	450	730	743	579	682	721	660	264	603	640	149
7	792	653	740	612	400	644	698	700	275	711	670	189
8	760	419	730	670	200	300	700	758	254	670	562	170
9	740	150	740	702	163	194	720	800	206	690	747	150
10	735	190	750	720	155	592	730	859	342	717	691	140
11	788	244	760	550	225	600	782	869	335	720	678	100
12	772	350	751	336	300	603	770	840	328	722	650	110
13	777	550	793	312	206	605	740	845	396	720	610	116
14	812	716	741	350	160	664	768	850	402	716	591	147
15	800	759	760	500	170	670	760	853	445	720	567	93
16	790	785	779	470	188	684	750	793	675	725	550	95
17	779	759	785	131	209	704	733	534	640	729	508	120
18	794	688	780	125	140	705	766	341	600	720	574	188
19	808	685	779	100	160	710	793	651	585	717	620	218
20	807	680	740	80	186	713	686	550	609	752	660	245
21	929	678	745	142	255	729	637	450	670	721	694	243
22	880	695	796	150	307	812	625	341	621	730	671	211
23	600	750	785	170	383	789	250	268	614	710	827	170
24	400	796	780	180	448	801	233	330	600	720	750	190
25	292	695	775	198	500	810	223	731	590	711	800	219
26	286	730	770	212	550	805	241	750	582	751	770	245
27	341	760	765	230	628	801	637	700	661	730	790	276
28	410	780	764	290	668	795	686	720	712	720	810	289
29	400	790	760	350	---	792	670	730	609	680	800	383
30	410	796	770	383	---	800	660	529	604	690	770	410
31	415	---	780	400	---	750	---	269	---	700	790	---
MEAN	651	560	755	414	300	683	659	644	481	703	678	256

08164500 NAVIDAD RIVER NEAR GANADO, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	13.0	---	---	15.5	---	23.5	24.5	---	26.5	---
2	---	20.0	14.0	---	7.0	16.0	---	24.0	---	---	26.5	---
3	24.5	19.5	---	5.5	---	15.5	21.0	20.5	---	27.0	27.0	---
4	23.0	19.5	---	9.5	---	---	21.5	20.5	---	---	26.5	---
5	21.5	---	---	13.5	---	---	21.5	21.0	28.0	28.5	---	26.0
6	21.5	---	---	16.0	7.0	14.5	21.5	---	29.0	28.0	---	25.5
7	22.0	20.5	---	18.5	---	16.5	21.0	---	26.5	27.0	26.5	26.0
8	---	21.0	---	---	---	13.0	---	21.0	25.5	---	26.0	26.0
9	---	15.5	---	7.0	5.5	11.0	---	21.5	24.5	---	25.5	---
10	23.0	14.5	---	---	5.5	12.0	21.5	23.0	25.5	27.0	25.5	---
11	22.0	13.0	---	---	---	---	21.5	24.5	---	28.0	26.5	---
12	21.0	---	13.5	6.0	---	---	---	25.5	27.0	28.5	---	---
13	19.0	---	13.5	7.0	10.0	18.0	21.0	---	27.0	29.0	---	26.0
14	16.5	13.5	13.0	---	11.5	17.0	21.5	---	26.0	27.0	27.0	26.0
15	---	14.5	13.5	---	---	15.5	---	21.0	26.5	---	26.5	25.5
16	---	15.0	13.5	11.0	8.5	13.5	---	22.0	26.5	---	26.5	---
17	15.5	15.0	14.5	13.0	10.5	15.5	22.0	23.0	---	29.0	26.5	---
18	18.0	19.0	---	---	---	---	23.5	24.5	---	29.0	26.5	28.5
19	18.5	---	14.0	---	---	---	23.0	24.5	27.0	29.0	---	28.0
20	19.0	---	10.5	5.5	7.0	18.0	23.5	---	26.5	29.0	---	27.0
21	21.0	21.5	8.5	---	8.0	18.5	23.5	---	27.0	29.0	26.5	27.0
22	---	21.0	8.0	---	7.0	18.5	---	23.5	27.0	---	26.5	26.0
23	---	21.0	9.0	---	9.0	18.0	---	24.0	28.0	---	25.5	---
24	---	21.0	---	---	10.0	18.0	20.5	24.5	---	29.0	---	---
25	20.0	20.5	---	8.0	---	---	20.5	24.5	---	29.0	---	24.5
26	20.0	---	---	6.5	---	---	21.0	---	27.0	28.5	---	24.0
27	20.5	---	9.0	7.0	14.5	19.5	22.0	---	27.0	29.0	---	24.0
28	20.5	19.0	9.5	---	16.5	20.0	23.0	---	27.0	29.0	---	24.0
29	---	---	---	---	---	20.5	---	---	27.0	---	---	24.5
30	---	12.0	---	8.0	---	---	---	24.5	28.0	---	---	---
31	21.0	---	---	8.0	---	---	---	24.5	---	---	---	---
MEAN	20.5	18.0	12.0	9.5	9.0	16.5	22.0	23.0	26.5	28.5	26.5	26.0

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 September 1978.

GAGE.--Water-stage recorder. Datum of gage is 39.67 ft (12.091 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

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, 5,050 ft³/s (143 m³/s) Sept. 13, 1978, gage height, 16.68 ft (5.084 m); minimum, 0.15 ft³/s (0.004 m³/s) Jan. 11, 1978.

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)
Nov. 2	1400	1,420	40.2	13.10	3.993	June 4	1000	1,200	34.0	12.87	3.923
Jan. 19	1800	2,890	81.8	a15.27	4.654	Sept. 13	2200	*5,050	143	16.68	5.084
Feb. 18	0800	1,200	34.0	12.87	3.923	Sept. 22	1700	1,010	28.6	12.34	3.761

a From floodmark.

Minimum discharge, 0.15 ft³/s (0.004 m³/s) Jan. 11.

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	70	166	2.9	.28	32	2.4	4.0	3.9	19	67	83	47
2	75	1260	5.8	.26	43	2.1	8.5	5.6	31	96	75	46
3	80	1000	6.2	.24	31	1.6	4.9	8.0	468	124	62	34
4	80	406	5.9	.24	20	1.3	8.9	23	1120	113	52	26
5	80	167	4.6	.25	12	1.1	15	22	638	129	43	101
6	75	69	3.4	.26	8.0	1.2	21	20	337	117	34	111
7	70	31	2.9	.62	33	1.2	39	23	372	105	28	85
8	65	89	1.9	.48	281	.91	33	23	389	106	20	105
9	55	494	1.2	.23	402	.91	36	54	251	132	15	107
10	50	252	.76	.17	235	.87	45	35	140	139	16	157
11	45	103	.61	12	108	.86	59	22	56	146	19	332
12	40	43	.47	172	72	.86	74	15	22	178	11	1770
13	35	24	.51	230	340	.86	146	6.1	13	165	24	3800
14	32	18	.48	90	277	.78	73	6.3	8.3	164	24	4500
15	28	14	.38	37	93	.77	32	4.8	6.6	165	12	3410
16	25	11	13	21	67	.68	19	6.2	6.3	163	7.7	2020
17	23	9.8	8.7	512	256	.57	7.6	6.1	7.5	129	7.6	1590
18	21	8.6	5.7	528	1050	.53	6.4	4.8	7.2	104	7.6	910
19	18	7.7	4.4	1860	317	.53	4.3	3.2	12	121	7.2	341
20	16	7.0	4.0	1490	78	.54	2.3	2.5	20	173	15	261
21	15	6.4	2.2	746	33	.58	2.2	3.8	16	181	24	603
22	15	6.0	1.2	364	17	.62	6.3	5.4	13	206	18	959
23	25	5.6	.77	147	10	.62	285	5.0	16	191	15	841
24	50	5.1	.59	110	7.1	1.1	554	4.9	16	151	21	417
25	100	4.7	.42	110	5.5	.74	240	5.1	21	146	22	230
26	112	7.4	.33	158	4.4	2.2	74	3.4	17	165	29	171
27	69	4.1	.30	80	3.6	6.0	18	3.5	11	138	43	149
28	39	3.1	.26	38	3.0	2.6	6.0	1.7	9.4	117	43	129
29	24	2.7	.30	26	---	1.3	2.4	2.0	23	108	46	125
30	13	2.8	.33	18	---	.78	1.8	3.7	29	100	28	110
31	9.8	---	.29	14	---	.71	---	13	---	90	38	---
TOTAL	1454.8	4228.0	80.80	6766.03	3838.6	37.82	1828.6	346.0	4095.3	4229	890.1	23487
MEAN	46.9	141	2.61	218	137	1.22	61.0	11.2	137	136	28.7	783
MAX	112	1260	13	1860	1050	6.0	554	54	1120	206	83	4500
MIN	9.8	2.7	.26	.17	3.0	.53	1.8	1.7	6.3	67	7.2	26
CFSM	.26	.79	.02	1.23	.77	.007	.34	.06	.77	.76	.16	4.40
IN.	.30	.88	.02	1.41	.80	.01	.38	.07	.86	.88	.19	4.91
AC-FT	2890	8390	160	13420	7610	75	3630	686	8120	8390	1770	46590

WTR YR 1978 TOTAL 51282.05 MEAN 140 MAX 4500 MIN .17 CFSM .79 IN 10.72 AC-FT 101700

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 18...	1545	20	871	7.8	22.0	15	8.4	99	2.1	230	63	66
NOV 30...	1030	2.5	390	7.5	14.5	75	7.4	75	2.2	120	20	35
JAN 11...	1130	3.0	590	7.7	8.0	30	10.6	92	3.7	220	77	67
FEB 21...	1400	29	175	6.8	11.0	210	10.4	97	3.1	62	16	19
APR 05...	1050	20	1100	7.8	23.5	25	6.8	82	3.6	330	120	100
MAY 17...	1130	6.6	135	7.9	25.0	15	6.2	77	12	250	87	79
JUN 21...	0930	17	725	7.8	26.5	20	6.3	80	2.1	220	68	70
AUG 08...	0830	22	820	7.6	26.5	25	6.1	77	1.6	240	63	71
SEP 21...	1010	417	218	7.3	27.0	40	5.2	66	3.8	68	2	20

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	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...	15	80	2.3	6.7	200	0	15	160	.3	51	493	34
NOV 30...	7.5	27	1.1	7.2	120	0	19	48	.2	16	220	86
JAN 11...	12	47	1.4	6.7	170	0	36	100	.3	12	365	53
FEB 21...	3.6	16	.9	3.9	56	0	16	22	.1	10	118	332
APR 05...	19	76	1.8	7.1	250	0	33	180	.4	21	560	55
MAY 17...	13	73	2.0	5.1	200	0	36	140	.4	31	476	38
JUN 21...	12	54	1.6	2.0	190	0	27	110	.3	30	399	42
AUG 08...	16	66	1.8	12	220	0	28	140	.4	39	481	50
SEP 21...	4.4	13	.7	4.9	80	0	5.9	22	.1	30	140	92

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)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 18...	.03	.00	--	.06	1.1	--	.14	14	--	--	--
NOV 30...	.06	.01	--	.10	.85	--	.17	11	--	--	--
JAN 11...	.05	.01	.06	.08	.34	.42	.13	7.7	--	--	--
FEB 21...	.37	.01	.38	.08	1.1	1.2	.19	15	--	--	--
APR 05...	.86	.09	.95	.18	1.0	1.2	.12	8.5	--	--	--
MAY 17...	.33	.06	.39	.98	6.7	7.7	.12	11	--	--	--
JUN 21...	.07	.01	.08	.01	.81	.82	.10	5.7	--	--	--
AUG 08...	.05	.01	.06	.05	.85	.90	.12	9.8	--	--	--
SEP 21...	.08	.03	.11	.11	1.1	1.2	.28	13	--	--	--

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 30...	1030	3	500	0	0	3	100
FEB 21...	1400	1	0	1	10	8	200
MAY 17...	1130	3	200	0	0	4	0
SEP 21...	1010	5	0	1	10	2	270

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 30...	0	8	.0	0	0	10
FEB 21...	0	20	.0	2	0	20
MAY 17...	1	10	.0	0	0	20
SEP 21...	0	20	.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)
NOV 30...	1030	.0	3	.00	.00	.0	.0	1	.00	1.0
FEB 21...	1400	.0	0	.00	.00	.0	.0	0	.00	2.3
MAY 17...	1130	.0	0	.00	.00	.0	.0	0	.00	.0
SEP 21...	1010	.0	0	.00	.00	.0	.0	7	.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 30...	.00	2.6	.00	.0	.00	.00	.4	.00	.00	.0
FEB 21...	.00	6.2	.00	.0	.00	.01	.4	.00	.00	.0
MAY 17...	.00	.4	.00	.0	.00	.01	.2	.00	.00	.0
SEP 21...	.00	7.7	.00	.5	.00	.01	5.3	.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 30...	.00	.00	.0	.00	.0	.00	.0	.00	.00
FEB 21...	.00	.00	.0	.00	.0	.00	.0	.00	.00
MAY 17...	.00	.00	.0	.00	.0	.00	.0	.00	.00
SEP 21...	.00	.00	.0	.00	.2	.00	.0	.00	.20

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 30...	.00	--	.00	0	6	.00	.00	.00	.00
FEB 21...	.00	--	.00	0	0	.00	.00	.00	.00
MAY 17...	.00	--	.00	0	0	.00	.00	.00	.00
SEP 21...	.00	.00	.00	0	41	.00	.12	.00	.00

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	STREAM WIDTH (FT)	STREAM VELOC-ITY, MEAN (FPS)	STREAM DEPTH, MEAN (FT)	NUMBER OF SAM-PLING POINTS	SEDI-MENT DISCH, SUSP. + BED MA-TERIAL (T/DAY)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
SEP										
12...	1115	1010	25.0	58	1.5	11	5	399	145	395
12...	1645	950	26.0	38	2.0	13	5	295	112	287
13...	0855	2340	27.0	130	2.0	9.0	5	566	86	543

DATE	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. 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
SEP									
12...	69	72	77	78	82	98	98	99	100
12...	72	80	84	92	98	99	99	100	--
13...	69	72	77	78	82	98	99	99	100

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 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	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM
SEP									
12...	--	3	17	45	52	58	65	79	100
12...	--	2	21	51	57	61	66	82	100
13...	1	4	26	62	65	71	77	86	100

SUSPENDED-SEDIMENT DISCHARGE FOR SELECTED DAYS, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TEMPER-ATURE (DEG.C)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	DATE	TEMPER-ATURE (DEG.C)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
Sept. 11, 1978..	26.5	332	60	53.8	Sept. 15, 1978..	26.5	3410	80	737
Sept. 12.....	27.0	1770	145	630	Sept. 16.....	27.5	2020	75	409
Sept. 13.....	26.5	3800	90	923	Sept. 17.....	29.0	1590	40	172
Sept. 14.....	27.0	4500	85	1030					

08164600 GARCITAS CREEK NEAR INEZ, TX

LOCATION.--Lat 28°53'28", long 96°49'08", Victoria County, Hydrologic Unit 12100402, at right downstream end of bridge on U.S. Highway 59 access road, 0.3 mi (0.5 km) upstream from Southern Pacific Railroad bridge, 2.0 mi (3.2 km) southwest of Inez, and 3.6 mi (5.8 km) upstream from Case 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.--8 years (water years 1971-78), 51.9 ft³/s (1.470 m³/s), 7.69 in/yr (195 mm/yr), 37,600 acre-ft/yr (46.4 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 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)
Feb. 8	1200	473	13.4	10.45	3.185	Sept. 12	1900	7,720	219	22.31	6.800
Apr. 23	1200	411	11.6	10.10	3.078	Sept. 14	0400	*17,000	481	27.85	8.489
June 4	0100	1,340	37.9	13.81	4.209	Sept. 23	1500	412	11.7	10.11	3.082
June 8	0400	426	12.1	10.19	3.106						

Minimum discharge, 0.34 ft³/s (0.010 m³/s) Aug. 29, 30.

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	1.6	19	12	2.9	7.6	5.7	1.6	7.5	2.6	1.2	2.5	.65
2	3.1	32	9.4	2.9	6.1	5.1	1.4	6.7	2.9	1.2	1.9	1.2
3	4.2	33	7.2	2.9	5.1	4.9	1.4	6.5	361	1.1	1.3	1.3
4	1.9	26	5.7	2.9	4.2	4.6	1.3	6.1	624	1.0	.95	1.1
5	1.4	17	4.4	2.9	3.8	4.2	1.4	5.5	100	.92	.83	.90
6	1.1	11	3.2	2.8	3.3	4.2	1.4	5.2	39	.92	.62	.81
7	1.0	8.3	2.9	2.9	44	4.0	1.9	5.0	115	.84	.47	1.5
8	1.7	25	3.1	2.6	407	3.3	1.6	4.8	277	.75	.46	1.4
9	2.1	110	3.2	2.4	210	3.2	1.4	4.4	70	.68	2.3	1.5
10	1.9	53	2.6	2.3	85	3.1	1.5	3.8	31	.67	2.7	4.5
11	2.2	28	2.4	5.9	47	4.3	1.7	3.7	23	.60	1.9	93
12	2.0	16	2.3	6.6	34	3.7	2.8	3.5	18	.52	1.3	4680
13	1.5	10	2.5	5.5	37	3.2	2.3	3.2	15	.56	.89	5300
14	1.3	7.3	2.5	4.9	36	2.8	2.0	2.8	11	.54	.67	10500
15	1.4	5.5	2.6	4.1	27	2.5	7.9	2.6	9.1	.69	.56	1290
16	1.3	4.9	2.9	3.9	35	2.1	6.7	2.7	7.7	4.5	.63	523
17	1.3	4.3	3.1	3.9	67	1.9	4.0	2.8	13	2.2	.56	208
18	1.4	4.0	3.0	34	200	1.7	3.1	2.7	8.4	1.3	.49	115
19	1.5	4.1	3.0	267	82	1.6	2.9	2.5	6.7	.93	.46	73
20	1.6	4.2	2.9	128	41	1.6	2.6	2.3	4.7	1.0	.49	51
21	2.1	4.7	2.7	57	26	1.7	2.5	2.1	3.9	.97	.82	40
22	124	4.2	2.7	34	17	1.7	5.1	2.2	3.6	1.2	.84	95
23	60	3.8	2.7	23	13	1.8	214	2.0	3.1	1.5	.82	326
24	38	3.7	2.6	17	11	2.1	74	1.8	2.8	1.3	.78	170
25	35	3.5	2.5	14	9.1	1.9	32	1.7	2.3	1.1	.80	70
26	21	3.4	2.4	12	7.7	1.7	20	1.6	1.9	1.1	.87	37
27	13	3.4	2.4	9.5	6.7	1.5	14	1.7	1.6	.88	.67	26
28	8.9	3.4	2.6	7.4	6.2	1.6	10	1.5	1.5	.86	.52	20
29	6.6	5.1	3.1	5.9	---	1.5	8.8	1.7	1.4	1.1	.40	17
30	5.7	9.7	3.3	5.1	---	1.4	8.0	3.1	1.3	2.0	.38	15
31	5.0	---	3.0	5.6	---	1.4	---	1.9	---	2.4	.73	---
TOTAL	354.8	467.5	110.9	681.8	1478.8	86.0	439.3	105.6	1762.5	36.53	29.61	23663.86
MEAN	11.4	15.6	3.58	22.0	52.8	2.77	14.6	3.41	58.8	1.18	.96	789
MAX	124	110	12	267	407	5.7	214	7.5	624	4.5	2.7	10500
MIN	1.0	3.4	2.3	2.3	3.3	1.4	1.3	1.5	1.3	.52	.38	.65
CFSM	.12	.17	.04	.24	.58	.03	.16	.04	.64	.01	.01	8.60
IN.	.14	.19	.04	.28	.60	.03	.18	.04	.71	.01	.01	9.60
AC-FT	704	927	220	1350	2930	171	871	209	3500	72	59	46940

CAL YR 1977 TOTAL 11556.20 MEAN 31.7 MAX 2140 MIN 1.0 CFSM .35 IN 4.69 AC-FT 22920
WTR YR 1978 TOTAL 29217.20 MEAN 80.0 MAX 10500 MIN .38 CFSM .87 IN 11.85 AC-FT 57950

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 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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...	1055	1.6	706	7.7	22.0	3	7.8	92	.9	230	23
NOV 30...	1400	11	688	8.2	18.0	9	10.1	110	1.2	270	48
JAN 11...	1015	3.9	730	7.9	8.0	2	10.8	94	1.4	280	30
FEB 21...	1700	23	270	7.2	12.0	70	10.3	99	2.5	86	16
APR 05...	1400	1.4	760	8.0	25.5	2	10.4	130	1.8	270	44
MAY 17...	1340	2.8	694	8.2	27.5	4	8.9	114	1.3	250	36
JUN 20...	1505	3.7	550	7.7	33.0	9	8.6	119	1.7	200	36
AUG 07...	1330	.47	649	7.7	31.0	2	11.3	153	1.3	170	17
SEP 19...	1605	70	311	7.4	30.5	15	5.6	75	1.8	120	11

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 19...	70	13	64	1.8	1.9	250	0	52	86	.4	34
NOV 30...	88	12	42	1.1	2.0	270	0	53	58	.3	28
JAN 11...	89	13	49	1.3	1.7	300	0	54	65	.3	28
FEB 21...	28	3.9	16	.8	2.6	86	0	16	21	.1	12
APR 05...	85	13	52	1.4	1.8	270	0	50	70	.4	23
MAY 17...	80	12	49	1.4	1.8	260	0	49	59	.3	26
JUN 20...	66	8.5	33	1.0	2.2	200	0	28	48	.3	33
AUG 07...	51	11	70	2.3	2.3	190	0	34	90	.3	31
SEP 19...	39	4.8	16	.6	3.1	130	0	19	21	.1	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 19...	445	4	.01	.00	.01	.01	.34	.35	.01	4.6
NOV 30...	417	16	.01	.01	.02	.06	.31	.37	.00	5.8
JAN 11...	448	3	.01	.01	.02	.01	.02	.03	.01	2.8
FEB 21...	142	90	.03	.00	.03	.02	.78	.80	.06	13
APR 05...	428	3	.01	.01	.02	.00	.24	.24	.01	3.4
MAY 17...	406	8	.01	.00	.01	.01	.39	.40	.02	5.3
JUN 20...	318	14	.01	.00	.01	.01	.87	.88	.03	11
AUG 07...	383	2	.01	.00	.01	.00	.40	.40	.01	5.7
SEP 19...	193	20	.04	.01	.05	.02	.83	.85	.09	15

08164600 GARCITAS CREEK NEAR INEZ, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 30...	1400	2	800	0	0	1	30
FEB 21...	1700	1	100	0	10	2	80
MAY 17...	1340	4	300	0	0	1	10
SEP 19...	1605	5	100	1	10	2	220

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 30...	0	8	.0	0	0	0
FEB 21...	0	20	.0	1	0	20
MAY 17...	1	200	.0	0	0	10
SEP 19...	0	70	.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)
FEB 21...	1700	.0	0	.00	.00	.0	.0	0	.00	.0
SEP 19...	1605	.0	0	.00	.00	.0	.0	0	.00	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
FEB 21...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
SEP 19...	.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)
FEB 21...	.00	.00	.0	.00	.0	.00	.0	.00	.00
SEP 19...	.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)
FEB 21...	.00	--	.00	0	0	.00	.01	.00	.00
SEP 19...	.00	.00	.00	0	0	.00	.00	.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.--8 years, 62.5 ft³/s (1.770 m³/s), 45,280 acre-ft/yr (55.8 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 1,000 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)
Nov. 1	2300	3,450	97.7	21.74	6.626	Sept. 12	0900	6,240	177	24.69	7.526
Feb. 7	2200	1,210	34.3	17.95	5.471	Sept. 14	0400	*15,100	428	29.64	9.034

Minimum discharge, 0.01 ft³/s (0.0003 m³/s) Aug. 17-19, 28-30.

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	1.3	977	11	1.1	12	.76	.68	.35	5.3	2.2	2.6	1.2
2	1.3	1530	3.6	1.1	10	.72	.88	.38	48	2.4	1.7	.36
3	1.5	159	1.8	1.2	5.6	.72	.56	1.1	307	1.2	1.5	.06
4	1.4	34	1.2	1.1	2.5	.66	.53	.95	499	.94	.64	.05
5	1.4	12	.85	1.1	1.4	.63	1.2	1.6	89	.84	.30	.05
6	1.5	5.5	.71	1.3	.93	.68	.92	1.8	24	.97	1.6	1.8
7	2.0	3.1	.72	1.3	396	.76	.39	1.3	35	.92	1.4	1.5
8	2.7	94	.71	1.3	832	.66	.40	2.1	83	.81	.24	1.4
9	3.1	93	.74	1.2	225	.58	.40	.89	28	.59	20	12
10	3.3	32	.78	1.1	66	.55	.40	.51	7.2	.65	6.3	291
11	4.0	9.9	.75	21	25	.55	.74	.38	3.1	.86	20	1780
12	3.5	4.6	.81	27	36	.55	2.1	.35	1.9	.92	7.2	5520
13	2.6	2.8	.81	14	52	.54	5.6	.50	1.3	.87	2.1	5400
14	2.0	2.1	.72	3.8	14	.57	11	.86	1.0	.89	.59	10900
15	3.7	1.8	.77	1.4	7.2	.50	3.1	.83	1.2	.71	.11	2540
16	3.0	1.7	.74	.93	15	.50	1.2	.88	.94	.76	.04	437
17	1.9	1.7	.74	.75	212	.54	.94	1.2	1.4	.91	.02	112
18	1.3	46	.80	32	229	.59	.61	.69	1.5	.83	.01	37
19	1.5	22	.70	206	56	.64	.43	.43	1.6	3.7	.01	13
20	1.6	6.0	.78	67	17	.68	.35	.39	1.4	5.0	.11	27
21	81	3.2	.76	19	6.4	.65	.38	.34	1.2	3.2	.94	46
22	311	4.5	.78	7.5	3.0	.61	1.1	.39	1.1	7.8	.74	87
23	102	3.0	.82	4.0	1.8	.61	4.1	.41	1.0	9.6	.24	119
24	75	1.9	.89	2.7	1.3	.97	7.3	.29	.90	4.4	.07	33
25	56	1.5	.94	2.2	1.0	.58	7.3	.27	.93	3.2	.05	9.8
26	18	1.2	.91	1.7	.92	.50	1.9	.30	.99	16	.03	4.2
27	9.2	1.3	.98	1.1	.79	.58	.82	.27	1.0	12	.02	2.6
28	5.7	1.5	1.0	.95	.78	.70	.49	.24	1.0	4.3	.01	2.2
29	3.6	1.7	1.3	.82	---	.71	.41	.27	.81	4.1	.01	1.9
30	2.6	7.2	1.3	.70	---	.63	.35	.63	.75	5.5	.26	1.8
31	2.1	---	1.1	2.0	---	.61	---	.37	---	4.3	.87	---
TOTAL	710.8	3065.2	40.51	428.35	2230.62	19.53	56.58	21.27	1150.52	101.37	69.71	27382.92
MEAN	22.9	102	1.31	13.8	79.7	.63	1.89	.69	38.4	3.27	2.25	913
MAX	311	1530	11	206	832	.97	11	2.1	499	16	20	10900
MIN	1.3	1.2	.70	.70	.78	.50	.35	.24	.75	.59	.01	.05
AC-FT	1410	6080	80	850	4420	39	112	42	2280	201	138	54310

CAL YR 1977 TOTAL 22594.57 MEAN 61.9 MAX 5490 MIN .37 AC-FT 44820
WTR YR 1978 TOTAL 35277.38 MEAN 96.7 MAX 10900 MIN .01 AC-FT 69970

08164800 PLACEDO CREEK NEAR PLACEDO, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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											
18...	1035	1.3	5650	7.2	21.0	6	4.5	52	2.8	1100	870
NOV											
29...	1120	1.7	3850	7.3	19.5	35	3.0	34	1.7	720	440
JAN											
10...	1050	1.1	4750	7.6	10.0	3	8.0	73	1.3	1000	670
FEB											
22...	1545	2.8	1200	7.1	13.0	130	9.7	95	2.5	270	150
APR											
04...	1350	.61	4400	7.6	25.0	8	6.1	75	2.0	910	580
MAY											
16...	0930	.72	3380	7.7	23.0	35	4.1	49	3.3	570	290
JUN											
21...	1745	1.3	2700	7.8	28.0	10	5.8	74	1.6	460	200
AUG											
09...	0800	27	384	7.4	27.0	400	5.8	73	4.9	78	0
SEP											
19...	1410	13	713	7.3	28.5	25	5.0	65	1.8	160	47

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
18...	340	66	800	10	5.9	310	0	51	1800	.6	26
NOV											
29...	220	41	550	8.9	6.2	340	0	48	1100	.4	30
JAN											
10...	310	55	650	8.9	3.6	400	0	62	1300	.6	25
FEB											
22...	86	14	130	3.4	4.5	150	0	20	310	.2	17
APR											
04...	280	50	590	8.5	4.2	400	0	61	1200	.7	26
MAY											
16...	170	34	450	8.2	5.8	330	0	39	840	.7	17
JUN											
21...	140	27	380	7.7	3.5	320	0	45	700	.6	29
AUG											
09...	23	5.0	50	2.5	4.6	130	0	14	45	.3	13
SEP											
19...	52	7.8	75	2.6	4.3	140	0	12	150	.2	22

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT										
18...	3240	15	.03	.00	.03	.04	.44	.48	.08	5.3
NOV										
29...	2170	104	.10	.01	.11	.10	.40	.50	.09	5.5
JAN										
10...	2600	8	.00	.00	.00	.02	.18	.20	.03	3.1
FEB										
22...	656	204	.71	.02	.73	.07	1.2	1.3	.16	12
APR										
04...	2410	18	.04	.00	.04	.01	.41	.42	.06	--
MAY										
16...	1720	79	.06	.02	.08	.11	.76	.87	.11	35
JUN										
21...	1480	23	.08	.01	.09	.03	.71	.74	.09	6.4
AUG										
09...	219	920	2.1	.09	2.2	.20	1.4	1.6	.24	16
SEP										
19...	393	38	.07	.01	.08	.04	1.2	1.2	.24	9.3

08164800 PLACEDO CREEK NEAR PLACEDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 29...	1120	4	2000	0	0	1	40
FEB 22...	1545	3	300	0	0	1	30
MAY 16...	0930	6	600	0	0	6	0
SEP 19...	1410	9	20	1	0	1	60

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 29...	0	240	.0	0	0	10
FEB 22...	0	100	.0	0	0	10
MAY 16...	0	160	.0	0	0	20
SEP 19...	0	80	.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)
NOV 29...	1120	.0	0	.00	.00	.0	.0	0	.00	.0
FEB 22...	1545	.0	--	.00	.00	--	.0	--	.00	--
MAY 16...	0930	.0	0	.00	.00	.0	.0	0	.00	.1
SEP 19...	1410	.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 29...	.00	.2	.00	.0	.00	.00	.0	.00	.00	.0
FEB 22...	.00	--	.00	--	.01	.00	--	.00	.00	--
MAY 16...	.00	.4	.00	.0	.00	.00	.0	.00	.00	.0
SEP 19...	.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)
NOV 29...	.00	.00	.0	.00	.0	.00	.0	.00	.00
FEB 22...	.00	.00	--	.00	--	.00	--	.00	.00
MAY 16...	.00	.00	.0	.00	.0	.00	.0	.00	.00
SEP 19...	.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)
NOV 29...	.00	--	.00	0	0	.00	.00	.00	.00
FEB 22...	.00	--	.00	0	--	.00	.00	.00	.00
MAY 16...	.00	--	.00	0	0	.00	.01	.00	.00
SEP 19...	.00	.00	.00	0	--	.00	.00	.00	.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.

DISCHARGE AND WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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 18...	0940	.30	4960	7.4	21.0	20	6.9	79	3.3	1100	860
NOV 29...	0950	1.1	1800	7.2	19.0	35	10.2	113	2.9	420	290
JAN 10...	1155	.30	5700	8.2	9.5	7	11.5	104	5.4	1400	1100
FEB 22...	1635	6.9	650	7.0	12.0	220	12.0	115	2.3	140	76
APR 04...	1235	1.0	3150	8.0	25.5	20	11.3	141	15	670	400
MAY 16...	1040	1.0	2490	7.9	26.0	30	4.5	56	5.0	390	99
JUN 22...	0855	.80	2850	7.8	27.5	9	3.9	50	3.4	530	270
AUG 09...	1000	.20	2750	7.4	27.5	25	3.8	49	4.1	500	230
SEP 19...	1225	29	298	7.1	29.5	20	4.0	53	2.4	77	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 18...	300	84	630	8.3	7.4	290	0	300	1400	.7	28
NOV 29...	120	30	200	4.2	6.0	160	0	100	420	.2	27
JAN 10...	380	100	730	8.6	5.0	350	0	370	1700	.7	18
FEB 22...	43	8.2	60	2.2	4.7	80	0	35	110	.1	19
APR 04...	190	48	490	8.2	8.9	330	0	150	910	.7	14
MAY 16...	110	29	360	7.9	5.4	360	0	82	540	.8	18
JUN 22...	150	38	390	7.4	6.2	320	0	120	720	.7	23
AUG 09...	140	36	370	7.2	7.4	330	0	120	660	.7	28
SEP 19...	24	4.1	28	1.4	6.4	110	0	7.9	39	.2	36

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 18...	2890	46	.22	.04	.26	.21	.69	.90	.29	7.7
NOV 29...	983	74	.37	.04	.41	.52	.58	1.1	.33	9.9
JAN 10...	3480	20	.26	.03	.29	.51	.48	.99	.42	4.5
FEB 22...	320	400	1.6	.03	1.6	.10	1.3	1.4	.22	15
APR 04...	1970	38	.04	.01	.05	.05	1.5	1.5	.22	--
MAY 16...	1320	74	.10	.03	.13	.35	1.5	1.8	.43	8.6
JUN 22...	1610	20	.16	.03	.19	.34	.86	1.2	.28	7.8
AUG 09...	1520	42	.24	.02	.26	.71	1.3	2.0	.57	12
SEP 19...	200	46	.02	.01	.03	.10	.84	.94	.35	12

08164850 CHOCOLATE BAYOU NEAR PORT LAVACA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 29...	0950	6	700	0	4	1	70
FEB 22...	1635	4	0	0	0	1	40
MAY 16...	1040	8	200	0	0	4	0
SEP 19...	1225	18	0	1	0	1	80

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 29...	0	260	.0	1	0	10
FEB 22...	0	60	.0	0	0	10
MAY 16...	0	50	.0	0	0	20
SEP 19...	0	40	.0	0	0	0

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 29...	0950	.0	10	.00	.00	.0	.0	9	.00	15
FEB 22...	1635	.0	--	.00	.00	--	.0	--	.00	--
MAY 16...	1040	.0	0	.00	.00	.0	.0	0	.00	36
SEP 19...	1225	.0	3	.00	.00	.0	.0	0	.00	35

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 29...	.00	25	.00	7.8	.01	.00	.2	.00	.00	.0
FEB 22...	.00	--	.00	--	.00	.00	--	.00	.00	--
MAY 16...	.00	290	.00	38	.02	.00	.0	.00	.00	.5
SEP 19...	.00	94	.00	8.0	.00	.00	.2	.00	.00	.1

08164850 CHOCOLATE BAYOU NEAR PORT LAVACA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 29...	.00	.00	.0	.00	.1	.00	.0	.00	.00
FEB 22...	.00	.00	--	.00	--	.00	--	.00	.00
MAY 16...	.00	.00	.0	.00	.3	.00	.0	.00	.00
SEP 19...	.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 29...	.00	--	.00	0	20	.00	.00	.00	.00
FEB 22...	.00	--	.00	0	--	.00	.00	.00	.00
MAY 16...	.00	--	.00	0	200	.00	.00	.00	.00
SEP 19...	.00	.00	.00	0	65	.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) upsteam from Honey Creek.

DRAINAGE AREA.--168 mi² (435 km²).

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

REVISED RECORDS.--WDR 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 Water Commission to impound and use 20.33 acre-ft (25,100 m³) of water on a game preserve. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years, 39.0 ft³/s (1.104 m³/s), 3.15 in/yr (80 mm/yr), 28,260 acre-ft/yr (34.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,300 ft³/s (1,110 m³/s) Aug. 3, 1978, gage height, 26.80 ft (8.169 m), from highwater mark and from rating curve extended above 170 ft³/s (4.81 m³/s) on basis of slope-area measurements of 7,460 and 38,400 ft³/s (211 and 1,090 m³/s); minimum, 0.68 ft³/s (0.019 m³/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 ft³/s (3,960 m³/s), by slope-area measurements, combined flow of North Fork Guadalupe River 5 mi (8 km) upstream and Bear Creek 2 mi (3 km) upstream from mouth, and adjusted for difference in drainage area.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 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)
Aug. 2	0815	a32,300	915	24.8	7.56	Aug. 3	0345	*39,300	1,110	26.80	8.169

a Based on information from local resident.

Minimum discharge, 2.0 ft³/s (0.057 m³/s) May 19.

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	18	19	24	21	20	20	21	18	15	12	44	34
2	18	19	23	20	20	20	18	17	16	13	6370	34
3	18	19	21	20	20	20	17	18	18	12	5870	31
4	18	20	21	20	20	20	17	18	17	12	194	30
5	18	20	21	21	20	20	18	17	15	11	135	34
6	18	20	21	21	20	20	16	17	17	11	120	43
7	18	20	21	21	20	22	16	17	41	11	109	44
8	18	24	20	21	20	22	15	17	37	11	95	100
9	18	23	21	19	20	20	15	16	31	11	86	69
10	18	20	20	19	20	20	31	15	26	11	79	54
11	18	19	20	19	20	20	27	15	23	11	72	49
12	18	20	23	20	23	19	22	16	21	11	65	45
13	17	20	22	20	23	19	20	16	20	11	60	42
14	17	19	21	20	20	19	19	15	18	11	59	40
15	18	19	21	20	20	19	18	15	17	10	52	110
16	18	19	21	21	20	19	18	15	16	10	46	53
17	18	19	21	21	21	19	18	15	14	11	44	44
18	18	19	21	20	20	18	18	14	14	12	43	40
19	18	19	21	20	20	18	17	10	14	11	41	37
20	18	19	20	20	20	18	17	11	14	8.8	39	36
21	18	20	20	20	19	19	17	15	14	9.9	38	36
22	27	19	20	20	19	18	18	15	13	11	37	35
23	30	21	20	20	19	18	18	17	13	10	36	34
24	24	21	21	20	20	18	18	15	13	11	35	33
25	21	22	21	20	20	17	17	13	13	11	35	32
26	19	22	20	20	20	17	17	11	12	11	34	30
27	19	22	21	20	20	17	17	13	11	11	33	31
28	19	22	21	20	21	17	16	14	12	12	32	32
29	19	26	21	20	---	17	17	14	12	13	32	31
30	18	27	21	20	---	17	18	14	12	12	33	30
31	18	---	21	20	---	17	---	14	---	12	32	---
TOTAL	590	618	651	624	565	584	551	467	529	345.7	14000	1293
MEAN	19.0	20.6	21.0	20.1	20.2	18.8	18.4	15.1	17.6	11.2	452	43.1
MAX	30	27	24	21	23	22	31	18	41	13	6370	110
MIN	17	19	20	19	19	17	15	10	11	8.8	32	30
CFSM	.11	.12	.13	.12	.12	.11	.11	.09	.11	.07	2.69	.26
IN.	.13	.14	.14	.14	.13	.13	.12	.10	.12	.08	3.10	.29
AC-FT	1170	1230	1290	1240	1120	1160	1090	926	1050	686	27770	2560

CAL YR 1977 TOTAL 18537.0 MEAN 50.8 MAX 8640 MIN 17 CFSM .30 IN 4.10 AC-FT 36770
WTR YR 1978 TOTAL 20817.7 MEAN 57.0 MAX 6370 MIN 8.8 CFSM .34 IN 4.61 AC-FT 41290

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.--13 years, 71.9 ft³/s (2.036 m³/s), 3.39 in/yr (86 mm/yr), 52,090 acre-ft/yr (64.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,900 ft³/s (1,780 m³/s) Aug. 2, 1978, gage height, 23.5 ft (7.16 m), from floodmark, from rating curve extended above 3,700 ft³/s (105 m³/s) on basis of channel geometry and flow-over-dam measurement of peak flow; minimum, 6.9 ft³/s (0.20 m³/s) June 17, 1948.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 36.6 ft (11.16 m) July 2, 1932, from information by local resident, discharge 206,000 ft³/s (5,830 m³/s), determined by slope-area measurement 4.5 mi (7.2 km) downstream from gage.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 22	0845	1,050	29.7	5.36	1.634	Sept. 8	1130	1,090	30.9	5.49	1.673
Aug. 2	0700	*62,900	1,781	a23.5	7.16	Sept. 15	1245	2,610	73.9	8.87	2.704
Aug. 3	0500	52,800	1,500	a22.25	6.782						

a From floodmark.

Minimum discharge, 12 ft³/s (0.34 m³/s) May 20.

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	38	53	68	50	44	44	37	38	29	22	621	92
2	39	50	61	48	44	44	44	38	33	23	16300	86
3	39	47	58	47	44	42	41	39	88	23	9460	74
4	35	49	58	47	44	41	40	30	46	22	687	69
5	35	49	55	47	44	41	40	27	38	22	424	79
6	36	48	53	47	43	40	40	34	52	21	342	97
7	37	48	52	47	44	44	39	36	147	21	324	94
8	38	74	53	46	44	46	38	33	84	19	234	395
9	38	66	52	44	44	46	41	31	65	19	189	206
10	38	55	49	43	44	46	59	29	58	19	171	144
11	38	51	49	44	43	45	62	30	50	19	151	126
12	35	50	53	45	57	44	51	32	43	18	141	117
13	31	52	56	45	56	44	47	29	41	18	129	113
14	31	50	53	45	48	44	45	27	40	18	116	105
15	35	50	51	44	47	42	43	40	37	17	117	493
16	34	50	51	48	47	42	41	48	34	17	111	199
17	34	49	50	49	49	42	41	30	31	20	106	148
18	33	48	50	46	49	41	41	27	30	21	102	131
19	33	48	50	45	46	41	39	18	29	23	97	109
20	34	48	50	45	45	41	37	16	28	21	94	112
21	34	48	48	44	44	42	37	28	26	17	95	118
22	238	47	47	44	43	43	37	27	26	17	85	112
23	240	45	47	44	43	43	38	30	25	18	82	106
24	97	37	48	45	43	43	37	29	24	18	76	103
25	74	45	49	45	44	42	50	27	24	19	70	99
26	65	46	49	43	43	42	37	24	25	20	71	95
27	59	46	48	43	44	41	35	18	22	21	73	96
28	59	46	48	43	45	40	35	24	22	21	71	97
29	56	113	50	43	---	42	36	25	22	23	69	93
30	54	86	51	43	---	35	37	29	22	23	84	91
31	64	---	50	43	---	32	---	27	---	23	74	---
TOTAL	1751	1594	1607	1402	1275	1305	1245	920	1241	623	30766	3999
MEAN	56.5	53.1	51.8	45.2	45.5	42.1	41.5	29.7	41.4	20.1	992	133
MAX	240	113	68	50	57	46	62	48	147	23	16300	493
MIN	31	37	47	43	43	32	35	16	22	17	69	69
CFSM	.20	.18	.18	.16	.16	.15	.14	.10	.14	.07	3.44	.46
IN.	.23	.21	.21	.18	.16	.17	.16	.12	.16	.08	3.97	.52
AC-FT	3470	3160	3190	2780	2530	2590	2470	1820	2460	1240	61020	7930

CAL YR 1977 TOTAL 39793 MEAN 109 MAX 11600 MIN 30 CFSM .38 IN 5.14 AC-FT 78930
WTR YR 1978 TOTAL 47728 MEAN 131 MAX 16300 MIN 16 CFSM .46 IN 6.16 AC-FT 94670

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 1,1721.30 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.--35 years (water years 1942-59, 1962-78), 19.2 ft³/s (0.544 m³/s), 2.29 in/yr (58 mm/yr), 13,910 acre-ft/yr (17.2 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Aug. 2	1000	13,500	382	11.08	3.377	Aug. 3	0200	*73,900	2,090	a21.4	6.52

a From floodmarks.

Minimum discharge, 6.6 ft³/s (0.19 m³/s) Jan. 21, 22.

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	18	27	21	19	21	17	14	15	12	11	30	35
2	20	24	20	19	21	17	14	24	12	9.4	3710	30
3	21	24	19	19	21	17	15	20	13	10	17200	24
4	20	24	19	19	21	17	16	18	12	10	215	24
5	19	24	19	19	21	17	15	15	11	9.2	130	27
6	20	24	20	18	21	17	15	15	28	9.6	106	23
7	19	26	20	17	22	19	16	15	45	9.2	97	25
8	19	32	20	17	21	16	16	13	26	8.1	87	115
9	20	26	19	17	21	15	17	14	20	7.9	79	83
10	21	23	19	17	21	16	44	15	15	7.9	73	55
11	19	23	19	17	21	17	28	14	15	7.9	66	49
12	20	23	20	17	26	16	24	13	15	7.9	61	44
13	21	23	21	17	22	15	23	11	15	7.9	58	42
14	21	23	21	17	19	15	22	11	15	7.9	53	40
15	21	24	19	17	19	14	19	11	13	7.9	46	38
16	21	23	19	20	19	14	17	12	15	8.8	41	37
17	21	21	19	19	20	14	15	13	15	9.8	39	33
18	21	21	19	19	19	15	16	12	13	9.4	37	33
19	22	23	19	19	19	15	14	12	12	8.0	36	31
20	21	22	19	18	18	15	14	11	11	7.9	34	28
21	21	21	19	17	17	14	14	12	11	6.6	32	30
22	46	21	19	17	18	14	12	14	11	7.9	30	29
23	32	21	19	17	17	13	12	15	11	7.9	29	27
24	28	20	19	18	17	12	12	14	11	8.7	29	27
25	27	19	19	19	17	13	13	14	11	9.2	28	28
26	25	19	19	20	17	14	11	13	11	9.2	25	31
27	25	19	19	21	18	15	13	13	11	8.9	24	30
28	26	20	21	21	17	15	12	12	11	12	24	28
29	26	34	21	21	---	14	13	12	11	12	22	26
30	26	23	19	21	---	14	14	12	11	11	27	24
31	26	---	19	21	---	14	---	12	---	11	26	---
TOTAL	713	697	604	574	551	470	500	427	443	280.1	22494	1096
MEAN	23.0	23.2	19.5	18.5	19.7	15.2	16.7	13.8	14.8	9.04	726	36.5
MAX	46	34	21	21	26	19	44	24	45	12	17200	115
MIN	18	19	19	17	17	12	11	11	11	6.6	22	23
CFSM	.20	.20	.17	.16	.17	.13	.15	.12	.13	.08	6.37	.32
IN.	.23	.23	.20	.19	.18	.15	.16	.14	.14	.09	7.34	.36
AC-FT	1410	1380	1200	1140	1090	932	992	847	879	556	44620	2170

CAL YR 1977 TOTAL 16237.0 MEAN 44.5 MAX 4050 MIN 14 CFSM .39 IN 5.30 AC-FT 32210
WTR YR 1978 TOTAL 28849.1 MEAN 79.0 MAX 17200 MIN 6.6 CFSM .69 IN 9.41 AC-FT 57220

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.--39 years (water years 1940-78), 176 ft³/s (4.984 m³/s), 127,500 acre-ft/yr (157 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1848, that of Aug. 2, 1978. 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 flood-mark, and from information by Texas Department of Highways and Public Transportation. Flood of July 16, 1960, 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)
June 6	2300	10,200	289	15.63	4.764	Aug. 3	0800	150,000	4,250	a35.20	10.729
June 7	0400	3,030	85.8	10.38	3.164	Sept. 9	0300	4,820	137	12.60	3.840
Aug. 2	0900	*240,000	6,800	a40.90	12.466						

a From high-water mark in well.

Minimum discharge, 35 ft³/s (0.99 m³/s) July 23.

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	65	132	160	112	101	101	82	71	61	50	873	624
2	66	132	140	109	103	99	82	96	68	47	74200	628
3	76	113	132	106	102	98	84	95	176	45	55100	380
4	74	110	128	106	101	94	85	80	129	45	3820	307
5	73	125	124	106	101	93	85	74	95	45	1800	513
6	70	113	121	107	101	93	85	67	685	44	1270	358
7	71	112	118	107	104	114	84	67	1500	44	1330	356
8	70	206	117	106	109	109	81	69	363	44	936	1290
9	71	179	117	102	106	102	80	66	198	42	772	2240
10	71	148	115	101	104	99	148	64	145	41	695	792
11	74	133	114	101	103	98	140	138	120	39	619	651
12	70	126	118	102	128	96	123	79	104	38	561	612
13	70	126	125	104	166	95	108	69	98	38	519	668
14	70	126	124	104	137	94	100	64	89	37	480	601
15	70	126	121	103	126	93	95	60	82	38	450	562
16	72	123	116	107	124	89	90	60	77	37	416	904
17	74	120	114	119	125	86	88	64	72	38	398	553
18	74	117	113	112	129	86	86	64	70	37	371	492
19	76	117	112	113	122	85	81	58	68	36	357	447
20	76	117	111	107	116	85	79	56	64	37	341	403
21	77	117	110	106	111	85	76	54	60	36	326	435
22	338	113	109	105	107	87	75	52	58	36	311	453
23	454	112	112	103	106	79	76	59	57	36	292	412
24	244	113	112	103	106	81	76	73	57	37	274	401
25	174	111	112	106	105	81	73	71	55	40	257	380
26	149	107	109	100	103	81	72	68	53	42	250	357
27	137	110	109	98	103	82	73	67	52	47	241	358
28	135	112	108	98	102	82	67	62	51	50	235	380
29	131	123	112	98	---	84	67	61	51	53	234	354
30	125	178	114	99	---	84	69	71	51	52	249	331
31	122	---	112	101	---	88	---	68	---	48	259	---
TOTAL	3519	3797	3659	3251	3151	2823	2610	2167	4809	1299	148236	17242
MEAN	114	127	118	105	113	91.1	87.0	69.9	160	41.9	4782	575
MAX	454	206	160	119	166	114	148	138	1500	53	74200	2240
MIN	65	107	108	98	101	79	67	52	51	36	234	307
AC-FT	6980	7530	7260	6450	6250	5600	5180	4300	9540	2580	294000	34200

CAL YR 1977 TOTAL 117311 MEAN 321 MAX 23500 MIN 65 AC-FT 232700
WTR YR 1978 TOTAL 196563 MEAN 539 MAX 74200 MIN 36 AC-FT 389900

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 REOCRDS.--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 at station.

AVERAGE DISCHARGE.--56 years, 299 ft³/s (8.468 m³/s), 216,600 acre-ft/yr (267 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 160,000 ft³/s (4,530 m³/s) Aug. 3, 1978, gage height, 45.25 ft (13.792 m), from floodmark, from rating curve extended above 55,600 ft³/s (1,570 m³/s) on basis of slope-area measurement of peak flow; no flow at times in 1951-52, 1954-56, and 1963-64.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, about 53 ft (16.2 m) in 1869; flood in July 1900 reached a stage of about 49 ft (14.9 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 22	1800	10,300	292	14.72	4.487	Aug. 4	0200	117,000	3,310	a40.6	12.37
June 7	1700	4,210	119	9.01	2.746	Sept. 8	1300	6,680	189	10.77	3.283
Aug. 3	0300	*160,000	4,530	a45.25	13.792	Sept. 9	0100	6,590	187	10.68	3.255

a From floodmark.

Minimum discharge, 23 ft³/s (0.65 m³/s) July 22, 23.

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	100	481	209	148	130	132	106	84	68	54	62	423
2	104	363	223	145	130	132	107	89	90	53	6730	1120
3	101	240	194	140	130	127	102	107	167	50	76500	804
4	100	190	183	139	130	123	101	118	165	49	46300	519
5	105	173	176	139	130	121	101	112	157	46	4290	431
6	105	178	167	139	130	121	101	99	130	44	2550	629
7	103	173	161	140	133	123	102	95	1720	43	2280	490
8	102	214	161	140	135	124	103	87	895	43	2020	1670
9	103	326	159	135	136	140	103	84	375	41	1500	3650
10	101	285	154	134	137	130	128	84	249	36	1240	2120
11	101	234	154	132	137	126	152	77	192	35	1020	1220
12	96	209	151	132	145	121	171	130	161	34	881	1050
13	97	196	154	133	151	121	152	122	149	32	806	955
14	96	192	161	135	213	118	139	91	134	29	735	1010
15	98	190	161	135	177	122	128	82	125	28	664	1660
16	97	189	160	139	164	125	122	77	114	28	608	1220
17	96	182	156	142	160	120	116	73	105	27	569	1140
18	99	178	151	147	157	118	116	69	97	26	545	859
19	101	173	149	146	159	119	107	72	92	24	508	757
20	101	172	147	141	154	121	101	74	89	24	483	686
21	101	183	144	141	144	118	99	70	84	24	456	628
22	1860	167	144	137	139	118	99	69	79	23	438	667
23	608	164	145	137	135	118	99	66	74	24	421	658
24	534	160	147	137	135	118	97	61	69	24	396	612
25	359	159	149	137	135	103	95	62	67	26	375	590
26	269	158	146	133	132	108	87	63	63	25	356	555
27	225	154	142	132	132	110	84	64	61	24	344	536
28	205	152	141	132	132	109	86	64	57	38	332	534
29	193	154	143	131	---	108	87	60	54	43	322	539
30	189	156	146	130	---	107	84	58	54	39	326	510
31	180	---	147	130	---	105	---	59	---	36	332	---
TOTAL	6729	6145	4925	4258	4022	3706	3275	2522	5936	1072	154389	28242
MEAN	217	205	159	137	144	120	109	81.4	198	34.6	4980	941
MAX	1860	481	223	148	213	140	171	130	1720	54	76500	3650
MIN	96	152	141	130	130	103	84	58	54	23	62	423
AC-FT	13350	12190	9770	8450	7980	7350	6500	5000	11770	2130	306200	56020

CAL YR 1977 TOTAL 198049 MEAN 543 MAX 29900 MIN 96 AC-FT 392800
WTR YR 1978 TOTAL 225221 MEAN 617 MAX 76500 MIN 23 AC-FT 446700

08167600 REBECCA CREEK NEAR SPRING BRANCH, TX

LOCATION.--Lat 29°55'06", long 98°22'10", Comal County, Hydrologic Unit 12100201, on right bank 72 ft (22 m) upstream from private road crossing, 2.9 mi (4.7 km) upstream from mouth, 3.7 mi (6.0 km) northeast of Spring Branch Post Office, and 6.3 mi (10.1 km) south of Twin Sisters.

DRAINAGE AREA.--10.9 mi² (28.2 km²).

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

REVISED RECORD.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 985.55 ft (300.396 m) Corps of Engineers datum.

REMARKS.--Records good. Six dams forming recreational lakes at housing developments upstream control runoff from 3.13 mi² (8.11 km²) drainage area. Amount of impoundment unknown. Recording rain gage located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 5.31 ft³/s (0.150 m³/s), 3,850 acre-ft/yr (4.75 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,300 ft³/s (263 m³/s) Oct. 18, 1965, gage height, 7.97 ft (2.429 m), from rating curve extended above 420 ft³/s (11.9³/s) on basis of critical-depth measurement of 4,340 ft³/s (123 m³/s); no flow in 1963-65, 1967, 1971, and 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1885, 25.5 ft (7.77 m) in September 1952. Flood in 1947 or 1948 was about 4.5 ft (1.4 m) lower than flood in 1952, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14 ft³/s (0.40 m³/s) Nov. 21, gage height, 2.28 ft (0.695 m), no peak above base of 100 ft³/s (2.83 m³/s); minimum daily, 0.28 ft³/s (0.008 m³/s) June 26 to Aug. 1.

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	1.2	1.5	2.5	1.2	.74	.95	.93	.56	.84	.28	.54	.40
2	1.3	1.8	2.7	1.2	.74	.93	.74	1.0	.69	.28	1.4	.40
3	1.2	2.3	2.9	1.3	.74	.75	.74	1.1	.71	.28	.95	.40
4	1.2	2.9	2.9	1.2	.74	.85	.74	.95	.56	.28	.93	.40
5	1.2	3.3	2.9	1.2	.74	.95	.74	.76	.56	.28	.69	.40
6	1.2	3.4	2.6	1.2	.74	.99	.74	.56	.56	.28	.40	.40
7	1.2	3.3	2.1	1.2	.74	1.1	.95	.56	.68	.28	.40	.40
8	1.2	3.0	2.1	1.0	.74	1.2	.95	.56	.56	.28	.40	1.5
9	1.2	2.1	2.1	.95	.74	1.2	.90	.56	.56	.28	.40	1.6
10	1.2	2.1	2.1	.95	.74	1.2	2.0	.56	.56	.28	.40	1.2
11	.96	2.1	2.1	.95	.74	.95	1.2	.56	.56	.28	.40	1.2
12	.67	2.3	2.1	.95	.99	.95	1.2	.56	.56	.28	.60	1.2
13	.95	2.3	2.0	.95	.91	.95	1.2	.56	.56	.28	.59	1.2
14	1.3	2.1	2.1	.95	.74	1.0	1.2	.53	.56	.28	.56	1.2
15	1.3	2.1	2.1	.95	.74	.95	1.2	.40	.55	.28	.54	1.2
16	1.5	2.3	2.1	.95	.74	.95	1.1	.40	.40	.28	.47	1.2
17	1.5	2.1	2.1	.74	.82	1.2	.95	.40	.40	.28	.40	1.2
18	1.5	2.1	2.1	.74	.74	1.2	.95	.40	.40	.28	.40	.95
19	1.5	2.1	1.8	.74	.74	1.2	.81	.40	.40	.28	.40	.95
20	1.2	1.8	1.7	.74	.74	1.2	.74	.40	.40	.28	.40	.95
21	1.0	4.8	1.7	.74	.74	1.2	.74	.47	.40	.28	.40	.90
22	2.3	3.2	1.5	.74	.74	1.2	.74	.56	.40	.28	.40	.74
23	2.5	2.9	1.5	.74	.74	1.2	.74	.56	.40	.28	.40	.94
24	2.5	2.9	1.8	.77	.95	1.0	.74	.56	.40	.28	.40	.95
25	2.1	2.2	1.3	.80	.95	.95	.74	.56	.40	.28	.40	.95
26	2.1	2.1	1.2	.74	.95	.95	.69	.56	.40	.28	.40	.95
27	1.9	2.3	1.2	.74	.95	.95	.56	.56	.37	.28	.40	.74
28	1.5	2.5	1.2	.74	.95	.95	.74	.56	.28	.28	.40	.74
29	1.5	2.7	1.3	.74	---	.95	.74	.56	.28	.28	.40	.84
30	1.5	2.9	1.5	.74	---	.95	.64	.56	.28	.28	.40	.95
31	1.5	---	1.2	.74	---	.95	---	.56	---	.28	.40	---
TOTAL	44.88	75.5	60.5	28.29	22.27	31.92	27.05	17.85	14.68	8.68	15.67	27.05
MEAN	1.45	2.52	1.95	.91	.80	1.03	.90	.58	.49	.28	.51	.90
MAX	2.5	4.8	2.9	1.3	.99	1.2	2.0	1.1	.84	.28	1.4	1.6
MIN	.67	1.5	1.2	.74	.74	.75	.56	.40	.28	.28	.40	.40
AC-FT	89	150	120	56	44	63	54	35	29	17	31	54

CAL YR 1977 TOTAL 2412.74 MEAN 6.61 MAX 205 MIN .67 AC-FT 4790
WTR YR 1978 TOTAL 374.34 MEAN 1.03 MAX 4.8 MIN .28 AC-FT 743

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 ft (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, 588,400 acre-ft (725 hm³) Aug. 4, elevation, 930.61 ft (283.650 m); minimum, 344,500 acre-ft (425 hm³) Oct. 18-21, elevation, 904.30 ft (275.631 m).

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

904.0	342,200	914.0	424,600	924.0	518,700
906.0	357,800	916.0	442,400	926.0	539,100
908.0	373,800	918.0	460,800	928.0	560,100
910.0	390,300	920.0	479,600	930.0	581,700
912.0	407,300	922.0	498,800	932.0	603,800

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	347000	351000	352800	354800	356200	360400	362000	363400	362200	367300	362200	409200
2	347200	350800	353000	354700	356200	360600	362000	363800	363000	367000	369800	408800
3	346800	350200	353300	354700	356300	360600	362000	363700	363500	366700	500800	408400
4	346600	349900	353500	354800	356400	360400	362000	363700	363500	366500	588400	407500
5	346400	349400	353500	355000	356400	360500	362100	363600	363700	366100	583400	406400
6	346300	348900	353300	355100	356500	360800	362100	363800	365000	365800	577600	405400
7	346300	348700	353500	355300	356900	361000	362200	363900	367900	365700	570500	405400
8	346200	349700	353700	355100	357000	361000	362200	363800	369600	365500	563600	407700
9	346000	349500	353500	355000	357000	360900	362300	363800	370000	365000	555600	412300
10	346100	349500	353400	355000	357100	361100	363600	363500	370300	364400	547300	414400
11	345700	349500	353400	355300	357400	361100	363400	363500	370400	364300	538300	415000
12	345300	349500	353500	355200	358000	361200	363700	363500	370500	364000	530100	415200
13	345100	349500	353800	355300	358200	361400	363800	363400	370500	363600	520700	416900
14	345000	349500	353800	355400	358200	361500	363800	363300	370500	363400	512400	418800
15	344800	349700	353900	355500	358600	361400	363900	363200	370400	363300	503500	420600
16	344600	349900	354000	355700	358700	361300	364000	363000	370300	363200	494500	421400
17	344600	350100	354200	355500	359300	361400	364200	363000	370200	362900	485300	422000
18	344500	350200	354200	355700	359200	361400	364100	362800	370000	362100	475500	418900
19	344500	350400	354200	355700	359400	361400	363900	362600	369900	361700	467500	410700
20	344500	350600	354200	355600	359600	361500	363800	363000	369600	361400	458400	402100
21	344500	351800	354000	355600	359500	361500	363800	362900	369500	361200	449500	398500
22	349700	351900	353900	355700	359600	361600	363800	362800	369300	360700	441100	397700
23	351000	352000	354000	355700	359800	362100	363800	362600	369100	360300	431100	397400
24	351800	352300	354200	356100	359900	362000	363800	362600	368900	360100	422700	396500
25 ●	352300	352300	354100	355900	360000	361900	363700	362600	368700	359900	416600	395800
26	352000	352400	354000	355900	360100	361900	363500	362400	368300	359600	415400	394900
27	351700	352400	354100	355900	360300	361900	363400	362300	368000	359400	414200	394100
28	351400	352400	354300	355900	360400	361900	363400	362200	367800	359100	413000	393200
29	351000	352700	354500	355900	---	361900	363400	362400	367500	358800	411500	392200
30	350600	352700	354600	356100	---	361900	363400	362200	367300	358700	410100	391300
31	350200	---	354700	356100	---	361900	---	362100	---	360500	409100	---
MAX	352300	352700	354700	356100	360400	362100	364200	363900	370500	367300	588400	422000
MIN	344500	348700	352800	354700	356200	360400	362000	362100	362200	358700	362200	391300
(†)	905.03	905.35	905.61	905.79	906.33	906.52	906.70	906.54	907.19	906.34	912.21	910.12
(ǂ)	+3100	+2500	+2000	+1400	+4300	+1500	+1500	-1300	+5200	-6800	+48600	-17800

CAL YR 1977 MAX 459000 MIN 344500 ǂ -27600
WTR YR 1978 MAX 588400 MIN 344500 ǂ +44200

† Elevation, in feet, at end of month.
ǂ 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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
MAR 10...	1250	430	8.0	10.5	210	44	52	19	10
JUN 06...	1153	440	7.8	14.0	210	31	52	19	10

DATE	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)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
MAR 10...	.3	1.7	200	0	20	16	.2	12	230
JUN 06...	.3	1.8	216	0	20	19	.2	8.7	237

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), 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.--16 years (water years 1962-78) since regulation began at Canyon Lake, 376 ft³/s (10.65 m³/s), 272,400 acre-ft/yr (336 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 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, 5,850 ft³/s (166 m³/s) Aug. 5, gage height, 8.31 ft (2.533 m); minimum, 13 ft³/s (0.37 m³/s) Sept. 14.

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	95	390	97	97	95	99	99	99	93	93	123	951
2	95	390	97	97	95	99	99	100	98	93	99	946
3	95	390	97	97	95	99	99	100	95	93	98	946
4	95	390	97	97	95	99	99	97	93	93	1820	946
5	95	390	97	97	95	99	99	97	84	93	5680	946
6	95	390	97	97	95	99	99	97	96	93	5620	946
7	95	289	97	97	98	99	99	97	100	93	5570	948
8	95	172	97	97	97	99	99	97	96	93	5550	957
9	95	169	97	97	97	99	99	97	93	93	5520	957
10	95	169	97	97	97	99	103	86	93	93	5390	957
11	95	169	97	97	97	99	97	95	93	93	5380	957
12	95	169	97	97	99	99	98	95	93	93	5410	957
13	95	169	97	97	99	99	97	95	93	93	5420	460
14	95	134	97	97	99	99	97	95	93	93	5440	121
15	95	97	97	97	99	99	97	95	93	93	5420	471
16	95	97	97	97	99	99	97	95	93	93	5390	763
17	95	97	97	97	99	99	97	95	93	93	5360	767
18	95	97	97	97	99	98	97	92	93	93	5330	2440
19	95	97	97	97	99	99	97	92	93	93	5320	5210
20	95	97	97	97	99	99	97	93	93	93	5290	5180
21	86	99	97	97	99	99	97	95	93	93	5260	2900
22	61	97	97	97	99	99	97	93	93	93	5260	936
23	60	97	97	97	99	99	97	93	93	95	5240	936
24	60	97	97	97	99	99	98	93	93	95	5210	936
25	176	97	97	97	99	99	99	93	93	95	3610	936
26	380	97	97	97	99	99	99	93	93	95	939	936
27	380	97	97	97	99	99	99	93	93	95	936	936
28	380	97	97	97	99	99	99	93	93	95	939	936
29	380	97	97	97	---	99	99	95	93	95	946	936
30	380	97	97	96	---	99	99	93	93	95	946	936
31	380	---	97	95	---	99	---	93	---	95	946	---
TOTAL	4623	5334	3007	3004	2739	3068	2948	2936	2801	2901	119462	38150
MEAN	149	178	97.0	96.9	97.8	99.0	98.3	94.7	93.4	93.6	3854	1272
MAX	380	390	97	97	99	99	103	100	100	95	5680	5210
MIN	60	97	97	95	95	98	97	86	84	93	98	121
AC-FT	9170	10580	5960	5960	5430	6090	5850	5820	5560	5750	237000	75670

CAL YR 1977 TOTAL 225629 MEAN 618 MAX 5270 MIN 60 AC-FT 447500
WTR YR 1978 TOTAL 190973 MEAN 523 MAX 5680 MIN 60 AC-FT 378800

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); 16 years (water year 1963-78) regulated, 467 ft³/s (13.23 m³/s), 338,300 acre-ft/yr (417 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, 5,620 ft³/s (159 m³/s) Aug. 5, 6, gage height, 6.45 ft (1.966 m); minimum, 97 ft³/s (2.75 m³/s) June 6.

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	170	468	170	160	141	141	134	130	128	118	301	1050
2	177	475	167	157	141	142	137	132	122	118	268	1030
3	168	475	166	157	140	142	134	138	146	120	224	1020
4	166	475	166	157	139	141	134	128	127	118	672	1020
5	166	471	166	157	141	141	134	127	124	118	5510	1020
6	166	466	165	157	141	151	134	127	123	116	5600	1020
7	163	449	166	155	154	149	134	127	230	118	5570	1060
8	162	307	166	146	144	141	134	127	180	118	5540	1320
9	163	272	163	145	141	141	134	127	154	118	5520	1210
10	161	269	161	145	140	141	181	127	141	118	5500	1170
11	159	268	161	150	142	141	159	116	136	118	5480	1160
12	157	265	161	147	162	141	156	124	134	114	5430	1160
13	157	263	166	145	153	141	149	124	131	114	5430	1470
14	157	261	162	145	147	141	145	124	127	114	5390	303
15	157	198	161	145	146	138	143	122	127	113	5370	508
16	157	188	161	147	145	137	141	121	126	113	5340	1000
17	158	186	161	142	150	140	141	121	124	113	5310	989
18	157	184	161	142	147	137	139	121	124	112	5280	1730
19	156	184	161	142	147	137	136	120	122	113	5240	5400
20	153	184	159	141	145	137	134	131	122	113	5220	5450
21	155	200	158	141	148	137	134	129	122	113	5180	3980
22	151	185	157	141	147	137	135	123	120	113	5260	1190
23	130	184	158	141	148	139	135	121	120	113	5300	1180
24	126	184	161	141	149	151	134	121	121	113	5250	1160
25	123	180	160	140	149	137	133	123	121	112	4290	1160
26	387	174	158	140	145	135	130	123	120	113	1200	1150
27	419	174	159	141	143	134	130	121	118	112	1040	1150
28	426	172	161	140	143	134	130	120	118	113	1040	1140
29	426	173	161	141	---	135	130	118	118	114	1030	1140
30	426	170	161	141	---	135	130	125	118	113	1030	1130
31	427	---	161	141	---	134	---	121	---	119	1040	---
TOTAL	6426	8104	5025	4530	4078	4328	4154	3859	3944	3565	119855	44470
MEAN	207	270	162	146	146	140	138	124	131	115	3866	1482
MAX	427	475	170	160	162	151	181	138	230	120	5600	5450
MIN	123	170	157	140	139	134	130	116	118	112	224	303
AC-FT	12750	16070	9970	8990	8090	8580	8240	7650	7820	7070	237700	88210

CAL YR 1977 TOTAL 283008 MEAN 775 MAX 5710 MIN 123 AC-FT 561300
WTR YR 1978 TOTAL 212338 MEAN 582 MAX 5600 MIN 112 AC-FT 421200

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.--46 years (water years 1933-78), 297 ft³/s (8.411 m³/s), 215,200 acre-ft/yr (265 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)
June 7	0200	2,770	78.4	8.39	2.557	Sept. 13	1430	*4,440	126	10.75	3.277

Minimum daily discharge, 226 ft³/s (6.40 m³/s) July 19, 21, 28.

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	345	446	365	360	350	340	322	312	304	270	304	258
2	355	375	365	360	350	340	322	312	290	274	340	266
3	340	350	365	375	350	340	322	317	286	270	286	266
4	340	345	365	365	350	340	317	312	286	262	266	262
5	340	350	365	365	345	340	317	312	282	258	309	254
6	340	350	365	365	340	350	317	312	350	254	335	254
7	340	355	365	365	360	345	317	312	910	250	335	266
8	340	439	365	360	350	345	317	312	317	250	330	274
9	335	380	365	365	350	340	322	304	304	254	330	270
10	340	365	365	360	350	345	350	304	304	250	335	278
11	340	365	365	360	350	335	322	304	304	238	330	286
12	330	365	365	355	370	335	326	304	304	242	330	282
13	340	365	365	355	360	330	322	299	294	238	330	1210
14	330	370	365	355	350	330	322	299	294	230	330	439
15	326	370	365	355	350	330	317	299	294	238	326	335
16	330	370	365	355	345	330	322	290	290	242	330	335
17	335	370	365	350	355	330	317	290	294	234	326	330
18	330	360	365	350	345	326	317	290	294	230	322	330
19	330	360	365	350	350	326	317	286	294	226	322	330
20	326	360	365	350	355	330	317	294	286	234	322	330
21	326	365	365	350	350	326	312	290	290	226	324	326
22	345	365	370	350	345	326	312	286	294	234	322	326
23	330	360	365	345	345	330	317	286	290	230	317	330
24	335	365	365	345	345	330	317	286	286	234	317	335
25	335	360	365	350	345	322	317	290	286	234	288	330
26	330	360	365	340	345	326	317	282	282	234	254	330
27	330	360	365	343	345	330	317	290	274	234	254	330
28	335	375	365	350	340	326	317	286	274	226	250	330
29	330	375	365	350	---	326	312	282	274	242	250	330
30	330	365	365	350	---	322	312	278	266	242	258	330
31	330	---	365	350	---	326	---	278	---	246	270	---
TOTAL	10388	11060	11320	10998	9785	10317	9572	9198	9397	7526	9542	10152
MEAN	335	369	365	355	349	333	319	297	313	243	308	338
MAX	355	446	370	375	370	350	350	317	910	274	340	1210
MIN	326	345	365	340	340	322	312	278	266	226	250	254
AC-FT	20600	21940	22450	21810	19410	20460	18990	18240	18640	14930	18930	20140

CAL YR 1977 TOTAL 146054 MEAN 400 MAX 1520 MIN 326 AC-FT 289700
WTR YR 1978 TOTAL 119255 MEAN 327 MAX 1210 MIN 226 AC-FT 236500

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 1977 TO SEPTEMBER 1978

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)
OCT 17...	1000	552	7.9	21.0	9.0	103	.8	270	38	79
DEC 05...	1020	559	7.7	20.5	8.3	94	.6	270	36	80
FEB 14...	1010	527	7.6	16.5	8.9	94	.8	240	32	70
MAY 31...	1715	390	8.3	30.0	12.4	165	>9.0	160	31	37
JUL 05...	1020	455	8.0	29.5	15.6	201	16	190	34	48
SEP 06...	1030	333	7.6	24.0	8.0	98	4.5	160	11	48

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)
OCT 17...	17	16	.4	1.6	280	0	35	23	.2
DEC 05...	18	15	.4	1.6	290	0	30	23	.2
FEB 14...	17	14	.4	1.6	260	0	26	22	.2
MAY 31...	17	16	.5	1.6	160	0	22	24	.2
JUL 05...	17	15	.5	1.6	190	0	23	22	.2
SEP 06...	9.4	6.1	.2	2.2	180	0	14	10	.2

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)
OCT 17...	11	321	1.3	.02	1.3	.03	.48	.51	.04
DEC 05...	12	323	1.6	.02	1.6	.11	.44	.55	.05
FEB 14...	11	290	1.3	.02	1.3	.09	.02	.11	.07
MAY 31...	12	209	.09	.02	.11	.04	3.2	3.2	.00
JUL 05...	12	232	.14	.02	.16	.00	3.2	3.2	.19
SEP 06...	9.8	188	.45	.01	.46	.09	.88	.97	.18

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 or 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 temperatures were made during the year.

AVERAGE DISCHARGE.--22 years (water years 1957-78), 168 ft³/s (4.758 m³/s), 121,700 acre-ft/yr (150 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, 177 ft³/s (5.01 m³/s) Oct. 1; maximum gage height, 7.00 ft (2.134 m) Sept. 13 (flood runoff); minimum daily spring discharge, 100 ft³/s (2.83 m³/s) July 27, 28.

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	177	143	146	126	118	121	115	124	119	113	110	113
2	174	143	141	125	119	121	114	122	119	113	115	112
3	174	144	141	128	121	116	113	122	119	115	116	112
4	172	142	138	124	122	117	110	122	119	113	116	113
5	174	144	138	125	121	118	108	119	118	113	116	113
6	174	144	138	126	122	119	108	119	116	113	116	112
7	174	143	139	127	122	118	108	122	127	113	115	113
8	173	149	139	127	121	116	108	121	135	115	117	113
9	165	154	135	128	119	117	108	119	132	113	117	115
10	166	154	137	127	117	117	107	118	133	110	116	119
11	163	155	137	127	122	120	110	116	133	110	115	119
12	162	155	138	127	121	119	108	116	130	107	113	119
13	161	155	135	125	121	121	110	116	125	105	115	119
14	162	153	135	127	118	121	113	116	124	104	113	136
15	164	153	135	127	122	121	114	118	124	102	113	138
16	162	153	135	125	121	121	113	118	124	102	114	138
17	159	152	134	124	119	119	113	116	124	101	111	139
18	157	151	134	127	119	121	112	116	124	101	110	139
19	154	153	133	125	119	119	113	118	124	101	111	138
20	154	152	131	122	119	119	114	118	122	102	112	138
21	152	150	130	122	119	119	114	119	122	102	112	137
22	153	150	132	122	119	118	117	119	121	101	110	136
23	153	150	132	122	119	118	118	119	118	104	110	136
24	153	152	131	122	119	115	122	119	122	103	108	136
25	150	150	132	122	119	110	122	118	122	102	108	135
26	149	150	132	121	122	108	124	116	118	101	108	132
27	147	151	130	119	123	109	124	115	116	100	108	130
28	146	151	129	119	121	109	124	115	116	100	105	130
29	146	148	129	119	---	111	124	118	113	101	105	130
30	144	147	127	119	---	112	124	118	113	104	109	131
31	144	---	126	118	---	113	---	119	---	105	110	---
TOTAL	4958	4491	4169	3844	3364	3623	3432	3671	3672	3289	3474	3791
MEAN	160	150	134	124	120	117	114	118	122	106	112	126
MAX	177	155	146	128	123	121	124	124	135	115	117	139
MIN	144	142	126	118	117	108	107	115	113	100	105	112
AC-FT	9830	8910	8270	7620	6670	7190	6810	7280	7280	6520	6890	7520

CAL YR 1977 TOTAL 81457 MEAN 223 MAX 306 MIN 126 AC-FT 161600
WTR YR 1978 TOTAL 45778 MEAN 125 MAX 177 MIN 100 AC-FT 90800

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. The Geological Survey operated satellite telemeter at station.

AVERAGE DISCHARGE.--52 years (water years 1925-26, 1929-78), 122 ft³/s (3.455 m³/s), 4.67 in/yr (119 mm/yr), 88,390 acre-ft/yr (109 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1869, that of May 28, 1929; 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)
Oct. 22	1800	2,380	67.4	7.06	2.152	Sept. 8	2200	*3,100	87.8	7.68	2.341

Minimum daily discharge, 18 ft³/s (0.51 m³/s) July 26, Aug. 17, 25.

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	45	48	46	45	45	43	37	31	31	29	236	48
2	47	42	46	43	43	41	37	38	54	26	94	35
3	45	43	48	43	43	41	36	44	61	24	63	59
4	46	43	49	43	43	38	33	38	49	23	45	63
5	44	41	48	44	43	39	33	42	41	26	41	58
6	45	40	45	45	43	43	34	37	43	24	39	46
7	44	41	43	46	43	42	35	35	305	23	37	44
8	42	56	44	44	41	40	35	31	168	23	35	351
9	41	45	43	41	41	42	35	29	150	21	33	613
10	39	51	43	41	41	42	77	28	128	23	37	202
11	39	52	43	43	43	43	46	27	110	23	27	149
12	36	53	44	41	52	41	50	28	93	21	24	126
13	37	51	47	41	45	42	51	26	85	21	23	130
14	38	49	46	41	45	40	49	28	72	21	23	114
15	37	48	46	41	49	38	47	29	64	20	20	105
16	35	49	47	43	47	38	44	29	63	20	20	102
17	33	48	48	42	52	36	43	30	60	20	18	97
18	34	48	46	41	52	38	43	29	58	20	20	97
19	35	49	47	42	54	38	40	27	54	19	21	94
20	34	50	46	41	54	37	38	40	51	19	20	91
21	34	187	59	41	52	38	38	36	48	19	20	89
22	440	75	48	41	47	38	38	35	47	19	20	86
23	285	58	47	41	47	39	37	33	44	19	21	91
24	104	55	47	41	47	41	38	31	45	19	20	89
25	77	51	46	41	47	37	35	29	47	19	18	89
26	69	51	45	40	47	38	30	29	44	18	20	83
27	66	50	45	42	47	38	33	26	43	19	21	83
28	61	49	46	43	45	40	32	25	39	19	19	81
29	54	50	47	43	---	39	31	39	35	21	21	75
30	51	46	47	44	---	38	32	31	29	23	21	75
31	49	---	47	45	---	37	---	29	---	26	24	---
TOTAL	2086	1619	1439	1313	1298	1225	1187	989	2161	667	1101	3465
MEAN	67.3	54.0	46.4	42.4	46.4	39.5	39.6	31.9	72.0	21.5	35.5	116
MAX	440	187	59	46	54	43	77	44	305	29	236	613
MIN	33	40	43	40	41	36	30	25	29	18	18	35
CFSM	.19	.15	.13	.12	.13	.11	.11	.09	.20	.06	.10	.33
IN.	.22	.17	.15	.14	.14	.13	.12	.10	.23	.07	.12	.36
AC-FT	4140	3210	2850	2600	2570	2430	2350	1960	4290	1320	2180	6870

CAL YR 1977	TOTAL	74364	MEAN	204	MAX	4680	MIN 33	CFSM .58	IN 7.79	AC-FT	147500	
WTR YR 1978	TOTAL	18550	MEAN	50.8	MAX	613	MIN 18	CFSM .14	IN 1.94	AC-FT	36790	

08171000 BLANCO RIVER AT WIMBERLEY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: December 1976 to current year.

INSTRUMENTATION.--Water-temperature is recorded continuously at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum values are not shown, mean value is estimated.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 36.0°C July 16, 1978, minimum daily, 2.5°C Jan. 20, 1978.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 36.0°C July 16; minimum daily 2.5°C Jan. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
OCT 13...	1440	37	466	8.2	20.5	0	1	9.6	109	.1
DEC 15...	1125	52	496	7.5	12.0	0	2	10.6	102	.3
FEB 21...	1850	47	480	8.2	10.5	0	1	10.7	99	.0
APR 19...	1044	37	470	8.1	21.5	0	2	9.6	114	.4
JUN 28...	0930	35	460	8.0	27.0	0	1	7.6	96	.1
AUG 22...	1217	20	430	7.6	31.5	0	5	9.8	134	.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
OCT 13...	1400	47	53	230	36	62	19	8.0	.2
DEC 15...	640	15	52	250	32	72	18	8.3	.2
FEB 21...	80	7	11	260	47	73	19	4.0	.1
APR 19...	>340	K340	180	230	28	62	17	8.0	.2
JUN 28...	420	88	280	210	25	56	18	8.4	.3
AUG 22...	360	350	1300	190	19	50	16	8.0	.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)
OCT 13...	1.3	240	0	31	11	.2	11	262	0
DEC 15...	1.4	270	0	38	14	.2	9.2	294	2
FEB 21...	1.3	260	0	31	16	.2	7.6	281	2
APR 19...	1.3	240	0	27	17	.2	8.6	259	2
JUN 28...	1.5	230	0	30	15	.2	9.4	252	1
AUG 22...	1.3	210	0	24	12	.2	11	226	12

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 13...	0	.09	.00	.09	.01	.09	.10	.00	.8
DEC 15...	1	.71	.01	.72	.06	.03	.09	.00	1.6
FEB 21...	0	.40	.01	.41	.02	.18	.20	.85	.6
APR 19...	1	.15	.01	.16	.01	.19	.20	.00	1.7
JUN 28...	1	.18	.00	.18	.00	.20	.20	.00	1.3
AUG 22...	2	.14	.01	.15	.02	.27	.29	.02	--

08171000 BLANCO RIVER AT WIMBERLEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 21...	1850	1	300	2	0	1	10
AUG 22...	1217	1	--	0	0	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)
FEB 21...	1	0	.0	2	0	0
AUG 22...	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)
FEB 21...	1850	.0	.00	.00	.0	.00	.00	.00	.00
AUG 22...	1217	.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)
FEB 21...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 22...	.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 21...	.00	--	.00	0	.00	.00	.00	.00
AUG 22...	.00	.00	.00	0	.00	.00	.00	.00

08171000 BLANCO RIVER AT WIMBERLEY, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	30.0	26.0	28.0	23.5	18.5	21.5	15.5	12.0	13.5	14.0	8.5	12.0
2	27.5	24.0	26.5	19.5	16.5	18.0	16.0	11.0	13.5	10.0	6.5	8.5
3	25.0	22.0	23.5	19.5	15.5	17.0	17.5	13.0	15.0	11.5	6.0	8.5
4	26.0	20.5	23.0	20.0	15.5	17.0	19.0	14.5	16.0	11.0	8.0	10.0
5	26.5	21.0	23.5	20.0	15.5	17.5	17.5	13.5	15.5	15.5	11.0	13.0
6	26.0	22.5	24.0	20.0	15.5	17.5	14.0	9.5	12.0	15.5	11.5	13.5
7	27.0	21.5	24.0	20.0	16.5	18.0	14.5	9.0	12.0	17.5	13.0	15.0
8	27.0	23.5	25.0	20.0	16.5	18.0	17.5	12.5	15.5	14.5	10.0	12.5
9	23.5	20.5	21.5	17.0	12.5	15.0	14.5	8.5	11.5	12.0	7.5	9.5
10	24.5	20.5	22.5	16.0	11.5	13.5	10.0	8.0	9.0	8.0	7.0	8.0
11	22.5	18.5	21.5	16.0	10.5	13.0	10.5	8.5	9.5	6.5	6.0	6.5
12	21.0	16.5	18.5	16.0	10.5	13.0	13.5	10.0	12.0	8.0	5.5	6.5
13	21.0	14.5	17.5	15.5	12.0	14.0	16.0	13.0	14.5	11.5	6.0	8.0
14	20.5	14.5	17.5	16.5	13.5	15.0	15.5	10.5	13.0	11.0	6.0	8.0
15	21.5	16.5	18.5	20.0	15.5	17.0	15.0	10.5	12.5	10.0	5.5	8.0
16	20.5	16.0	18.0	21.0	16.5	18.5	17.0	12.0	15.0	14.5	9.0	11.5
17	21.0	15.0	17.5	19.5	15.5	17.5	15.5	11.5	14.0	9.0	7.0	8.0
18	22.5	17.0	19.5	20.5	17.0	18.0	15.5	10.0	12.5	7.5	6.0	7.0
19	23.5	18.0	20.5	21.0	18.0	19.0	16.5	12.5	14.0	8.0	4.0	5.5
20	24.0	19.0	21.0	22.0	19.5	20.0	13.5	10.0	12.0	7.5	2.5	4.5
21	24.5	20.5	22.0	20.5	16.0	18.5	12.0	7.5	9.5	5.5	3.0	4.0
22	24.0	20.5	21.5	17.0	15.0	16.0	10.5	6.0	8.0	8.0	3.0	5.0
23	21.5	19.5	20.5	20.5	16.0	17.5	11.5	8.0	9.5	7.0	4.0	6.0
24	21.5	19.5	20.5	20.5	18.0	18.5	13.5	9.0	11.0	8.5	6.0	7.5
25	23.0	18.5	20.5	19.5	15.5	17.5	12.0	8.5	10.0	10.0	6.5	8.0
26	23.5	18.5	21.0	18.5	14.5	16.0	11.0	7.5	9.0	10.0	5.0	7.0
27	22.5	19.0	20.5	19.5	15.5	17.0	10.0	7.0	8.5	8.5	6.0	7.5
28	24.0	20.0	21.5	17.5	15.5	16.5	9.5	8.5	9.0	8.5	5.5	7.0
29	25.0	21.0	22.5	16.5	12.5	14.0	12.5	8.5	10.5	7.5	6.0	7.0
30	23.5	21.5	22.0	16.0	12.5	14.0	15.0	11.0	12.5	8.0	6.0	7.0
31	25.0	21.5	23.0	---	---	---	15.5	12.5	14.0	7.5	6.0	6.5
MONTH	30.0	14.5	21.5	23.5	10.5	17.0	19.0	6.0	12.0	17.5	2.5	8.5
		FEBRUARY			MARCH			APRIL			MAY	
1	8.0	6.0	7.0	16.0	14.5	15.0	24.5	17.5	20.5			26.0
2	7.5	6.0	7.0	18.0	14.0	15.5	22.5	18.5	20.5			24.0
3	7.5	6.0	6.5	14.5	9.5	12.0	25.5	19.0	22.0			22.0
4	10.0	6.0	8.0	14.0	7.0	10.0	26.5	20.0	23.0			20.0
5	10.5	6.0	8.0	14.5	7.5	10.5	24.0	20.5	22.0			19.5
6	9.5	5.5	8.0	14.0	11.0	12.5	24.5	19.5	22.0			21.5
7	8.0	6.5	7.5	16.0	11.0	13.5	24.5	20.0	22.0			24.0
8	7.0	5.0	6.0	14.5	9.5	11.5	23.0	20.5	21.5			26.0
9	7.0	5.0	6.0	16.0	8.0	12.0	24.5	20.0	22.0			25.0
10	8.0	4.5	6.0	18.0	10.0	13.5	22.5	18.5	20.5			25.5
11	8.0	5.0	6.5	20.0	14.0	16.0	22.5	17.5	19.5			26.0
12	13.5	7.5	10.0	17.0	13.5	15.0	18.5	16.0	17.5			26.0
13	14.5	8.0	10.5	20.0	14.5	16.5	24.0	15.0	19.0			25.0
14	13.0	8.0	10.0	21.0	13.5	16.5	25.0	17.5	21.0			24.0
15	9.5	8.0	9.0	19.5	14.5	16.0	25.5	19.0	22.0			23.0
16	13.5	8.0	10.5	20.0	12.5	15.5	26.0	20.0	22.5			25.0
17	11.0	8.0	9.5	19.5	12.0	15.5	25.5	21.0	22.5			27.0
18	12.5	6.5	9.0	20.0	13.0	16.5	27.0	20.5	23.0			26.0
19	12.5	6.0	8.5	21.0	14.5	17.0	25.0	18.0	21.0			26.5
20	13.5	7.0	9.5	20.5	16.0	18.0	24.0	16.5	20.0			27.0
21	12.5	6.5	9.0	24.5	17.0	20.0	24.0	16.5	20.0			26.0
22	14.0	6.0	9.5	22.0	18.5	20.0	20.5	18.5	19.5			26.0
23	14.5	7.5	10.5	20.5	19.0	19.5	25.5	18.0	21.5			26.0
24	16.0	8.5	12.0	23.0	16.5	19.0	28.0	21.0	24.0			26.5
25	18.0	12.5	15.0	18.0	14.5	16.5	---	---	22.5			27.0
26	17.5	12.5	14.5	21.0	13.0	16.0	---	---	21.0			27.5
27	15.0	13.5	14.5	22.0	13.5	17.5	---	---	20.0			28.0
28	20.5	14.5	17.0	22.5	15.0	18.0	---	---	21.5			28.0
29	---	---	---	21.5	15.5	18.0	---	---	23.0			28.0
30	---	---	---	24.0	16.0	19.5	---	---	25.0			26.5
31	---	---	---	24.0	17.0	19.5	---	---	---			25.0
MONTH	20.5	4.5	9.5	24.5	7.0	16.0	28.0	15.0	21.5			25.5

08171000 BLANCO RIVER AT WIMBERLEY, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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

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

AVERAGE DISCHARGE.--22 years (water years 1957-78), 152 ft³/s (4.305 m³/s), 5.01 in/yr (127 mm/yr), 110,100 acre-ft/yr (136 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, and 1971.

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 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)
Oct. 22	2345	1,570	44.5	9.33	2.844	Sept. 9	0330	*1,950	55.2	9.93	3.027

Minimum discharge, no flow July 19-29.

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	22	81	37	34	33	35	27	19	14	5.6	134	8.9
2	23	39	37	33	32	34	27	21	16	4.9	107	21
3	24	36	37	32	32	34	27	39	73	4.3	52	13
4	22	36	36	32	32	33	26	27	43	3.8	32	28
5	22	36	35	33	32	33	25	23	28	3.3	22	41
6	22	36	34	33	32	35	24	25	23	2.7	18	26
7	22	35	33	34	31	44	24	25	190	2.3	18	20
8	21	58	34	33	31	36	24	22	120	2.1	17	29
9	21	47	34	31	30	35	24	18	90	1.8	14	678
10	21	39	32	30	31	35	53	17	68	1.6	12	185
11	21	43	32	31	33	35	44	17	56	1.2	10	107
12	20	43	34	30	54	34	28	17	46	1.1	8.4	91
13	19	43	36	30	44	34	32	15	38	1.0	6.7	129
14	19	40	33	30	36	33	30	13	31	.81	5.6	94
15	20	39	32	30	36	32	28	14	26	.61	5.1	69
16	20	38	33	33	39	31	27	14	23	.50	4.4	57
17	19	38	32	32	41	30	25	14	21	.30	3.3	51
18	20	37	31	31	43	30	25	13	17	.11	2.9	47
19	20	37	31	32	41	30	23	13	16	.00	3.0	47
20	20	38	31	31	42	30	21	14	15	.00	2.6	45
21	19	135	33	31	41	30	21	33	14	.00	2.8	43
22	99	92	37	31	40	30	22	20	12	.00	2.8	40
23	490	52	32	31	39	30	24	16	12	.00	2.8	49
24	113	45	32	31	38	33	22	14	10	.00	2.4	47
25	67	42	31	31	38	32	21	13	9.1	.00	2.2	44
26	55	40	30	30	37	30	19	13	8.0	.00	2.0	41
27	50	39	31	31	36	30	17	13	7.1	.00	1.8	41
28	48	38	33	32	36	29	18	12	7.1	.00	1.7	42
29	45	38	34	33	---	29	18	11	9.8	.00	1.4	40
30	42	38	33	33	---	29	19	29	7.0	.52	1.4	39
31	40	---	33	34	---	28	---	17	---	.78	2.9	---
TOTAL	1486	1398	1033	983	1030	1003	765	571	1050.1	39.33	502.2	2212.9
MEAN	47.9	46.6	33.3	31.7	36.8	32.4	25.5	18.4	35.0	1.27	16.2	73.8
MAX	490	135	37	34	54	44	53	39	190	5.6	134	678
MIN	19	35	30	30	30	28	17	11	7.0	.00	1.4	8.9
CFSM	.12	.11	.08	.08	.09	.08	.06	.05	.09	.003	.04	.18
IN.	.13	.13	.09	.09	.09	.09	.07	.05	.09	.00	.05	.20
AC-FT	2950	2770	2050	1950	2040	1990	1520	1130	2080	78	996	4390

CAL YR 1977	TOTAL	71991.00	MEAN	197	MAX	6320	MIN	19	CFSM	.48	IN	6.50	AC-FT	142800
WTR YR 1978	TOTAL	12073.53	MEAN	33.1	MAX	678	MIN	.00	CFSM	.08	IN	1.09	AC-FT	23950

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: Dainage 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 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.--39 years, 368 ft³/s (10.42 m³/s), 266,600 acre-ft/yr (329 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 Texas 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.--Maximum discharge, 2,020 ft³/s (57.2 m³/s) June 7, gage height, 15.39 ft (4.691 m), no peak above base of 2,900 ft³/s (82.1 m³/s); minimum, 88 ft³/s (2.492 m³/s) July 21.

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	183	334	203	188	183	179	155	146	136	119	128	110
2	191	300	200	189	184	176	157	151	137	119	165	129
3	191	237	197	187	183	177	156	166	133	117	150	108
4	187	217	195	188	184	174	152	161	136	117	170	107
5	185	212	195	187	182	175	150	160	160	115	153	109
6	186	214	194	187	182	186	149	158	168	109	136	111
7	184	214	195	188	226	202	147	155	1060	110	131	109
8	182	232	199	189	218	196	143	154	300	110	123	118
9	182	262	196	186	196	187	146	148	266	109	121	123
10	180	234	194	184	191	179	166	144	222	109	118	407
11	183	220	192	203	185	178	179	136	205	107	115	331
12	178	216	190	199	208	180	178	140	190	105	112	243
13	178	219	196	194	232	179	173	136	177	102	110	236
14	176	220	192	190	229	178	158	135	165	101	107	411
15	181	219	190	187	201	179	158	132	156	99	106	294
16	178	216	194	204	192	180	157	130	150	97	105	236
17	179	210	198	200	243	172	158	125	146	102	102	211
18	178	210	193	189	205	171	158	121	141	99	101	197
19	176	209	192	189	192	167	150	123	139	99	101	187
20	173	208	189	186	193	171	147	136	130	96	101	180
21	174	208	184	186	189	170	145	145	131	97	101	177
22	183	250	183	185	190	167	161	144	128	103	101	174
23	204	325	189	188	188	166	159	143	126	103	100	173
24	510	240	195	190	182	175	154	139	125	104	96	176
25	333	220	191	188	181	166	152	135	125	102	96	175
26	265	212	189	184	183	161	137	129	124	103	91	170
27	240	210	190	184	184	158	137	132	121	100	95	167
28	230	208	190	183	186	159	138	128	118	101	94	166
29	225	207	190	181	---	154	135	126	120	103	101	165
30	222	205	190	182	---	156	138	140	120	103	125	164
31	219	---	189	184	---	155	---	141	---	112	108	---
TOTAL	6436	6888	5974	5849	5492	5373	4593	4359	5555	3272	3563	5664
MEAN	208	230	193	189	196	173	153	141	185	106	115	189
MAX	510	334	203	204	243	202	179	166	1060	119	170	411
MIN	173	205	183	181	181	154	135	121	118	96	91	107
AC-FT	12770	13660	11850	11600	10890	10660	9110	8650	11020	6490	7070	11230

CAL YR 1977 TOTAL 207504 MEAN 569 MAX 10100 MIN 173 AC-FT 411600
WTR YR 1978 TOTAL 63018 MEAN 173 MAX 1060 MIN 91 AC-FT 125000

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 1977 TO SEPTEMBER 1978

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...	1315	198	627	7.9	26.5	280	44	80	20	23
NOV 07...	1050	213	598	7.8	19.5	270	42	79	18	20
DEC 19...	1115	193	654	8.0	16.0	300	45	87	20	22
JAN 30...	--	182	--	--	--	--	--	--	--	--
MAR 13...	1130	179	630	8.1	19.5	290	60	83	20	24
APR 24...	1150	152	657	--	21.0	280	39	81	20	26
JUN 05...	1150	164	589	7.8	27.0	250	34	71	17	23
JUL 17...	1025	102	576	--	30.0	250	35	68	19	21
AUG 28...	1200	93	577	--	28.5	260	48	75	18	21

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 03...	.6	1.8	290	0	31	36	.2	12	347
NOV 07...	.5	1.8	280	0	39	42	.3	11	349
DEC 19...	.6	1.9	310	0	32	36	.2	9.2	361
JAN 30...	--	--	--	--	--	--	--	--	--
MAR 13...	.6	1.4	280	0	37	40	.3	5.0	349
APR 24...	.7	2.1	300	0	34	44	.2	11	366
JUN 05...	.6	1.9	260	0	32	44	.2	12	329
JUL 17...	.6	1.8	260	0	30	38	.2	12	318
AUG 28...	.6	1.8	260	0	29	40	.3	12	325

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.--19 years, 49.2 ft³/s (1.393 m³/s), 35,650 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, 5.9 ft³/s (0.17 m³/s) Feb. 13, gage height, 2.35 ft (0.176 m), no 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.32	.32	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.32	.32	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.32	.28	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.28	.24	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.26	.21	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.34	.18	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.48	.14	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.58	.12	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.84	.78	.11	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	1.2	.80	.45	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.87	.67	.43	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	1.1	.55	.39	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	2.0	.49	.36	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	4.2	.46	.26	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	2.1	.41	.19	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	1.2	.35	.13	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.97	.32	.09	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.86	.28	.08	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.80	.26	.06	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.99	.26	.04	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.81	.25	.02	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.58	.24	.01	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.47	.24	.01	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.43	.33	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.37	.28	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.30	.22	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.29	.39	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.29	.46	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.42	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.39	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.35	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	20.67	12.10	4.44	.00	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.74	.39	.15	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	4.2	.80	.45	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.22	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	41	24	8.8	.00	.00	.00	.00	.00

CAL YR 1977 TOTAL 15201.70 MEAN 41.6 MAX 1720 MIN .00 AC-FT 30150
WTR YR 1978 TOTAL 37.21 MEAN .10 MAX 4.2 MIN .00 AC-FT 74

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.--48 years (water years 1931-78), 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1868, that of July 1, 1936; flood in December 1913 reached about same stage, from information by loca residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,800 ft³/s (108 m³/s) June 7, gage height, 20.50 ft (6.248 m), no other peak above base of 2,300 ft³/s (65.1 m³/s); minimum daily, 1.4 ft³/s (0.040 m³/s) July 27, 28.

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	8.3	30	14	15	13	20	14	9.6	5.6	7.8	9.8	56
2	8.4	34	12	14	15	20	14	9.7	9.1	7.8	20	23
3	8.1	16	11	13	14	19	14	14	8.5	7.4	13	11
4	8.6	12	12	13	13	19	14	14	7.0	7.3	8.7	6.0
5	8.3	11	13	14	13	19	14	11	7.0	6.6	7.4	4.1
6	8.3	11	12	15	13	20	14	9.8	9.8	6.1	6.8	3.7
7	10	11	11	15	19	117	14	9.7	2460	5.7	5.8	4.6
8	12	20	11	14	46	64	13	10	1060	5.3	6.0	4.8
9	8.0	28	11	13	25	26	13	9.5	172	4.3	5.4	7.9
10	7.6	16	11	12	19	21	18	8.3	121	4.2	3.4	14
11	7.3	13	11	15	18	20	28	7.8	94	4.3	2.9	50
12	6.5	12	12	31	26	19	15	7.7	63	4.6	3.7	21
13	6.2	12	13	19	58	17	13	8.4	47	3.9	3.2	11
14	7.2	12	14	15	29	16	13	9.0	39	3.9	2.8	12
15	7.5	12	13	13	24	16	12	7.0	32	3.6	2.0	11
16	7.8	13	12	15	23	15	12	7.2	25	3.1	2.3	8.2
17	7.8	13	12	17	30	14	11	6.9	23	3.0	2.0	7.1
18	7.8	12	12	15	31	14	12	6.9	22	2.8	2.7	5.7
19	8.1	12	12	14	23	14	12	6.5	19	2.8	2.8	5.5
20	8.2	13	11	14	20	14	10	6.8	17	2.8	2.7	5.7
21	7.8	13	11	13	19	16	10	8.8	15	3.0	2.3	5.2
22	8.0	13	11	12	18	16	10	11	13	3.0	2.1	4.9
23	47	13	12	12	18	16	11	8.3	12	3.0	1.8	4.7
24	75	14	13	12	18	19	12	8.1	10	2.7	1.8	4.8
25	66	14	13	13	18	20	11	7.3	9.1	2.5	2.0	5.2
26	60	14	12	13	19	15	9.7	6.6	8.2	1.8	2.0	4.7
27	41	13	12	12	19	15	8.8	6.1	7.6	1.4	2.0	4.3
28	22	12	12	12	19	14	9.3	7.1	8.3	1.4	2.0	4.3
29	18	12	14	12	---	15	9.1	6.8	7.9	2.5	2.1	5.1
30	15	12	17	12	---	15	9.4	5.7	7.8	6.6	28	5.7
31	13	---	16	12	---	15	---	5.0	---	3.7	18	---
TOTAL	534.8	443	383	441	620	680	380.3	260.6	4339.9	128.9	177.5	321.2
MEAN	17.3	14.8	12.4	14.2	22.1	21.9	12.7	8.41	145	4.16	5.73	10.7
MAX	75	34	17	31	58	117	28	14	2460	7.8	28	56
MIN	6.2	11	11	12	13	14	8.8	5.0	5.6	1.4	1.8	3.7
AC-FT	1060	879	760	875	1230	1350	754	517	8610	256	352	637

CAL YR 1977	TOTAL	55387.3	MEAN	152	MAX	9530	MIN	6.2	AC-FT	109900
WTR YR 1978	TOTAL	8710.2	MEAN	23.9	MAX	2460	MIN	1.4	AC-FT	17280

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.

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, 2,120 micromhos Apr. 27; minimum daily, 309 micromhos June 8.
WATER TEMPERATURES: Maximum daily, 32.0°C July 16, 18, 21, 26, 27; minimum daily, 10.0°C on several days during January and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
NOV										
07...	0920	11	1290	8.0	17.0	370	120	130	12	120
DEC										
19...	0935	12	1430	8.1	13.0	420	140	150	12	130
FEB										
28...	1500	14	1500	--	18.0	410	180	140	14	150
APR										
24...	1000	12	1520	--	19.5	460	170	160	15	150
MAY										
31...	1900	5.0	1450	--	27.0	400	110	140	13	140
JUN										
30...	0800	7.8	1560	--	24.0	430	150	150	14	170
JUL										
17...	0855	3.1	1670	--	27.0	410	79	140	14	190
AUG										
31...	1800	30	923	--	28.0	220	85	76	8.3	86
SEP										
06...	0800	2.0	1470	--	26.0	400	140	140	12	170

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...	2.7	4.6	310	0	110	200	.4	20	750
DEC									
19...	2.7	3.6	350	0	110	230	.6	19	828
FEB									
28...	3.2	4.0	280	0	120	260	.5	14	841
APR									
24...	3.0	4.0	360	0	140	230	.6	17	894
MAY									
31...	3.0	4.6	360	0	100	230	.6	23	829
JUN									
30...	3.6	6.0	350	0	110	270	.5	20	913
JUL									
17...	4.1	4.9	400	0	120	280	.7	20	967
AUG									
31...	2.5	6.4	170	0	68	160	.3	12	501
SEP									
06...	3.7	6.9	320	0	140	270	.5	18	915

08173000 PLUM CREEK NEAR LULING, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	534.8	1350	780	1120	220	318	110	158	360
NOV. 1977.....	443	1350	770	926	220	264	110	131	360
DEC. 1977.....	383	1400	800	827	230	237	110	114	380
JAN. 1978.....	441	1410	810	963	230	277	110	134	380
FEB. 1978.....	620	1360	780	1300	220	372	110	182	370
MAR. 1978.....	680	1420	820	1500	240	433	110	206	380
APR. 1978.....	380.3	1520	870	897	250	261	120	121	410
MAY 1978.....	260.6	1500	860	605	250	176	120	83	400
JUNE 1978.....	4339.88	468	260	3100	53	619	40	465	150
JULY 1978.....	128.9	1400	810	280	230	80	110	39	380
AUG. 1978.....	177.5	1270	730	348	210	99	100	49	340
SEPT 1978.....	321.2	1470	840	732	240	211	110	99	390
TOTAL	8710.17	**	**	12600	**	3350	**	1780	**
WTD.AVG.	23.86	937	530	**	140	**	76	**	260

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1390	1280	1380	1400	1350	1520	1550	1580	1480	1330	1370	1290
2	1340	1470	1380	1420	1430	1550	1580	1520	1370	1410	1330	763
3	1340	1210	1400	1370	1420	1530	1560	1510	1600	1620	1430	1490
4	1370	1490	1390	1400	1400	1440	1580	1510	1520	1600	1330	1620
5	1410	1210	1400	1270	1450	1530	1580	1580	1600	1520	1340	1310
6	1330	1320	1210	1420	1410	1440	1570	1500	1580	1580	1380	1470
7	1310	1270	1400	1330	1390	1860	1570	1500	390	1620	1090	1660
8	1300	1250	1420	1430	1220	831	1530	1430	309	1640	1380	1430
9	1420	1250	1280	1430	1310	807	1550	1410	317	1410	1720	1370
10	1320	1310	1420	1430	1230	1010	1560	1410	323	1290	1380	1590
11	1320	1310	1300	1430	1190	1150	1480	1580	1520	1320	1670	1290
12	1250	1300	1430	1300	1390	1380	1440	1500	419	1340	1430	1890
13	1260	1310	1410	1390	1360	1450	1270	1520	1630	1650	1720	1830
14	1320	1270	1390	1370	1410	1290	1340	1510	561	1630	1530	1800
15	1290	1340	1420	2020	1140	1510	1470	1510	1420	1650	1870	1810
16	1130	1380	1430	1410	1210	1440	1460	1520	1570	341	1280	1730
17	1290	1390	1350	1330	1310	1530	1500	1520	831	1650	1580	1700
18	1290	1630	1410	1380	1540	1420	1560	1470	1570	378	1560	1690
19	1220	1430	1420	1420	1350	1530	1910	1470	1440	1670	1540	1660
20	1280	1410	1420	1410	1280	1510	1580	1550	1070	414	1600	1670
21	1270	1360	1410	1360	1440	1380	1580	1550	852	1670	1600	1650
22	1300	1400	1420	1410	1360	1530	1580	1430	1150	1670	1620	1630
23	1390	1390	1420	1410	1440	1470	831	1410	1250	503	1640	1640
24	1250	1330	1410	1420	1440	1260	1520	1620	1430	1620	1580	1620
25	1420	1390	1490	1340	1430	1590	1570	1490	1380	356	1650	1590
26	1460	1390	1420	1440	1490	1450	1340	1490	1400	1620	1630	1570
27	1310	1310	1590	1460	1400	1490	2120	1490	1510	1660	1690	1560
28	1510	1390	1440	1460	1500	1160	1560	1320	1350	1700	1690	1540
29	1310	1370	1350	1360	---	1560	1440	1440	1290	1290	1690	1510
30	1340	1410	1280	1440	---	1560	1520	1590	1590	1520	639	1500
31	1550	---	1430	1440	---	1510	---	1470	---	1550	930	---
MEAN	1330	1350	1400	1420	1370	1410	1520	1500	1190	1360	1480	1560

08173000 PLUM CREEK NEAR LULING, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	24.0	16.0	12.0	10.0	16.0	16.0	20.0	24.0	29.0	26.0	26.0
2	25.0	20.0	17.0	12.0	10.0	17.0	17.0	25.0	27.0	26.0	28.0	26.0
3	26.0	26.0	20.0	14.0	12.0	14.0	13.0	18.0	24.0	30.0	23.0	26.0
4	24.0	24.0	18.0	14.0	12.0	12.0	24.0	20.0	26.0	28.0	28.0	26.0
5	24.0	24.0	19.0	15.0	10.0	12.0	24.0	23.0	26.0	31.0	26.0	26.0
6	22.0	25.0	16.0	15.0	12.0	16.0	19.0	24.0	27.0	30.0	26.0	26.0
7	27.0	28.0	16.0	14.0	---	15.0	22.0	26.0	20.0	28.0	28.0	30.0
8	27.0	28.0	17.0	14.0	---	14.0	20.0	26.0	24.0	26.0	30.0	30.0
9	26.0	20.0	14.0	14.0	10.0	16.0	18.0	18.0	27.0	30.0	26.0	26.0
10	28.0	18.0	14.0	14.0	12.0	18.0	20.0	18.0	27.0	26.0	30.0	26.0
11	23.0	18.0	15.0	12.0	12.0	18.0	20.0	26.0	20.0	30.0	26.0	28.0
12	23.0	16.0	14.0	10.0	12.0	17.0	20.0	27.0	28.0	31.0	30.0	28.0
13	24.0	18.0	16.0	12.0	14.0	19.0	19.0	26.0	30.0	31.0	26.0	---
14	25.0	22.0	18.0	14.0	14.0	19.0	24.0	25.0	30.0	31.0	30.0	---
15	24.0	24.0	18.0	14.0	14.0	20.0	18.0	26.0	24.0	26.0	30.0	---
16	24.0	26.0	16.0	15.0	14.0	18.0	20.0	25.0	30.0	32.0	30.0	---
17	24.0	26.0	16.0	12.0	12.0	18.0	20.0	26.0	24.0	28.0	26.0	---
18	24.0	26.0	15.0	---	14.0	16.0	24.0	24.0	24.0	32.0	30.0	---
19	28.0	24.0	14.0	12.0	14.0	16.0	23.0	26.0	30.0	27.0	26.0	---
20	24.0	22.0	14.0	10.0	12.0	18.0	18.0	24.0	30.0	27.0	26.0	---
21	26.0	16.0	14.0	10.0	12.0	19.0	22.0	24.0	26.0	32.0	30.0	---
22	24.0	18.0	15.0	12.0	14.0	19.0	18.0	26.0	30.0	26.0	30.0	---
23	24.0	20.0	15.0	12.0	16.0	19.0	18.0	24.0	29.0	26.0	26.0	---
24	24.0	20.0	14.0	12.0	14.0	18.0	24.0	26.0	30.0	28.0	28.0	---
25	28.0	22.0	15.0	10.0	14.0	16.0	24.0	26.0	30.0	26.0	28.0	---
26	24.0	20.0	15.0	10.0	14.0	15.0	24.0	26.0	30.0	32.0	26.0	---
27	28.0	20.0	15.0	12.0	14.0	20.0	18.0	24.0	28.0	32.0	26.0	---
28	28.0	19.0	14.0	12.0	18.0	18.0	24.0	24.0	30.0	30.0	30.0	---
29	29.0	19.0	14.0	12.0	---	20.0	20.0	27.0	29.0	30.0	30.0	---
30	26.0	18.0	16.0	12.0	---	20.0	25.0	26.0	24.0	26.0	26.0	---
31	28.0	---	14.0	10.0	---	16.0	---	27.0	---	28.0	28.0	---
MEAN	25.5	21.5	15.5	12.5	13.0	17.0	20.5	24.5	27.0	29.0	27.5	27.0

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 current year.

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. Recording rain gage located at station was discontinued May 30, 1978.

AVERAGE DISCHARGE.--19 years, 160 ft³/s (4.531 m³/s), 4.72 in/yr (120 mm/yr), 115,900 acre-ft/yr (143 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.--Maximum discharge, 2,820 ft³/s (79.9 m³/s) June 7, gage height, 25.53 ft (7.782 m), no other peak above base of 1,800 ft³/s (51.0 m³/s); no flow for many days.

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	.92	6.2	1.1	1.6	3.5	7.9	4.8	6.6	1.8	2.2	8.8	.23
2	1.1	143	1.2	1.6	3.2	7.8	4.9	6.3	5.2	2.9	83	.18
3	1.3	115	1.2	1.7	3.2	7.8	4.7	7.0	8.4	2.1	86	1.3
4	1.1	23	1.2	1.5	3.2	7.7	4.7	6.8	34	1.9	17	1.2
5	.98	9.9	1.4	1.5	3.2	7.4	4.4	6.7	80	1.8	8.4	.92
6	.84	5.0	1.6	1.6	3.1	7.7	4.3	6.5	19	1.8	5.5	.41
7	.87	2.7	1.6	1.6	5.3	22	4.3	6.5	1930	1.6	3.4	.67
8	.93	9.7	1.9	1.5	152	32	4.2	6.2	2090	1.3	1.3	1.8
9	.92	45	2.1	1.7	356	25	4.2	5.3	1080	1.4	.45	4.0
10	1.8	29	2.0	1.5	87	18	4.6	4.7	97	1.7	.09	3.8
11	1.9	14	2.0	1.9	31	12	13	4.7	27	1.4	.12	12
12	1.3	6.6	2.1	5.3	19	9.9	12	4.1	15	1.1	.29	79
13	1.3	3.3	2.4	5.2	14	8.7	6.9	3.4	11	.72	.05	138
14	1.3	2.2	2.5	3.7	12	8.1	6.4	2.6	8.6	.08	.00	880
15	1.2	1.8	1.9	6.0	11	7.5	5.5	2.0	7.7	.00	.00	1310
16	1.2	1.6	2.1	5.0	10	7.0	4.7	1.9	9.7	.00	.00	1370
17	1.1	1.4	2.2	174	10	6.6	4.1	1.9	7.6	.00	.00	485
18	1.0	1.3	1.4	116	118	6.1	3.7	1.7	6.3	.00	.00	27
19	1.2	1.2	1.4	107	135	5.9	3.3	1.6	5.1	.00	.00	11
20	1.1	1.1	1.3	38	34	5.8	3.3	1.6	4.6	.00	.03	6.8
21	1.1	1.0	1.2	14	19	5.6	3.2	2.5	4.4	.00	1.6	19
22	1.4	.99	1.1	7.7	13	5.7	51	3.5	3.8	.00	1.8	341
23	1.9	1.1	1.3	6.3	11	6.0	43	4.2	3.6	.00	.81	36
24	1.9	1.2	1.4	6.1	9.8	5.8	12	4.5	3.4	.00	.71	18
25	1.5	1.0	1.4	5.1	9.1	5.0	9.7	5.2	2.9	.00	.52	8.8
26	1.6	.96	1.3	4.3	8.7	7.2	7.9	4.3	2.3	.00	.34	6.3
27	1.5	.99	1.3	3.9	8.3	6.8	7.3	4.1	2.6	.00	.11	4.8
28	1.4	1.1	1.4	3.7	8.2	5.8	7.0	3.0	2.6	.00	.00	3.8
29	1.4	1.1	1.6	3.5	---	5.3	6.7	2.0	2.3	.00	.00	3.1
30	1.4	1.2	1.6	3.4	---	5.1	6.6	.97	2.3	.02	.00	2.8
31	1.3	---	1.5	3.4	---	4.9	---	1.2	---	.50	.00	---
TOTAL	39.76	433.64	49.7	539.3	1100.8	284.1	262.4	123.57	5478.2	22.52	220.32	4776.91
MEAN	1.28	14.5	1.60	17.4	39.3	9.16	8.75	3.99	183	.73	7.11	159
MAX	1.9	143	2.5	174	356	32	51	7.0	2090	2.9	86	1370
MIN	.84	.96	1.1	1.5	3.1	4.9	3.2	.97	1.8	.00	.00	.18
CFSM	.003	.03	.003	.04	.09	.02	.02	.009	.40	.002	.02	.35
IN.	.00	.04	.00	.04	.09	.02	.02	.01	.44	.00	.02	.39
AC-FT	79	860	99	1070	2180	564	520	245	10870	45	437	9470

CAL YR 1977	TOTAL	115854.71	MEAN	317	MAX	28700	MIN	.27	CFSM .69	IN 9.37	AC-FT	229800
WTR YR 1978	TOTAL	13331.22	MEAN	36.5	MAX	2090	MIN	.00	CFSM .08	IN 1.08	AC-FT	26440

08174600 PEACH CREEK BELOW DILWORTH, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1962 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 31...	1325	1.4	620	7.5	24.5	85	0	28	3.7	120
DEC 12...	1525	2.1	644	7.5	17.0	85	0	26	4.8	110
JAN 24...	1723	6.0	413	6.9	7.5	110	52	32	6.7	34
MAR 07...	1707	17	920	7.4	14.5	200	110	58	14	120
APR 19...	1719	3.4	790	7.4	22.0	200	73	57	15	89
MAY 31...	1715	1.2	890	7.4	26.0	240	57	62	20	110
JUL 12...	0830	1.2	600	7.2	27.0	81	0	25	4.6	100
AUG 23...	1515	.87	424	8.0	29.0	41	0	13	2.1	79

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...	5.7	3.4	300	0	38	46	.2	15	402
DEC 12...	5.2	3.9	230	0	59	50	.2	20	387
JAN 24...	1.4	5.9	68	0	70	41	.1	14	237
MAR 07...	3.7	5.8	110	0	130	160	.1	12	554
APR 19...	2.7	6.6	160	0	140	100	.2	16	503
MAY 31...	3.1	6.0	220	0	160	100	.3	13	580
JUL 12...	4.8	4.5	250	0	34	46	.2	20	358
AUG 23...	5.4	4.0	220	0	14	24	.2	16	261

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. Recording rain gage was discontinued in June 1978.

AVERAGE DISCHARGE.--23 years (water years 1931-34, 1960-78), 132 ft³/s (3.738 m³/s), 3.27 in/yr (83 mm/yr), 95,630 acre-ft/yr (118 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 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)
Nov. 3	1200	*1,520	43.0	16.20	4.938	Sept. 16	1900	1,330	37.7	15.44	4.706

Minimum discharge, 0.56 ft³/s (0.016 m³/s) July 25.

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	5.5	297	10	12	11	14	11	20	6.7	3.3	119	2.7
2	5.8	1050	11	12	11	14	10	18	6.4	4.0	124	4.8
3	5.4	1460	11	12	11	13	10	18	14	4.3	150	5.1
4	4.8	882	11	12	11	13	9.9	20	30	4.2	100	4.6
5	4.9	231	10	12	11	12	9.8	19	34	3.5	39	5.9
6	5.1	68	9.7	13	11	13	9.6	18	29	3.1	18	5.3
7	4.6	38	9.6	13	36	372	9.4	16	79	2.8	11	4.2
8	5.3	287	9.5	12	136	262	9.2	15	253	2.4	22	3.9
9	5.3	401	9.4	11	116	89	9.6	13	480	2.0	12	4.0
10	4.9	415	9.6	11	85	55	9.8	12	263	1.9	7.1	7.0
11	5.1	349	9.1	17	49	37	9.9	11	79	1.8	5.1	29
12	5.0	100	8.7	21	33	27	14	11	39	1.8	4.4	47
13	4.8	41	8.8	22	25	22	24	10	26	1.6	4.1	269
14	4.5	27	9.2	17	22	18	19	9.2	19	1.4	3.8	537
15	4.5	21	9.5	15	23	16	14	8.8	15	1.3	3.5	784
16	5.1	18	10	15	25	15	12	8.0	12	1.1	3.2	1210
17	4.8	16	9.6	14	23	14	12	7.8	11	.94	2.9	753
18	4.5	15	9.4	13	42	13	11	7.6	9.6	.84	2.8	103
19	4.3	13	10	23	59	13	10	7.3	8.5	.79	2.7	48
20	4.6	12	10	20	53	12	9.8	7.3	7.8	.79	3.0	34
21	4.9	11	9.8	15	34	12	9.4	7.9	7.3	.78	3.0	29
22	11	11	8.9	13	26	12	12	9.3	6.7	.75	2.5	44
23	26	11	8.5	13	21	11	37	9.1	6.3	.74	2.1	32
24	57	10	9.0	12	18	13	528	9.2	6.1	.75	2.0	39
25	89	11	9.1	11	16	14	533	10	5.9	.75	2.0	32
26	23	11	9.6	11	15	21	130	12	5.5	.96	2.0	22
27	19	11	9.4	9.9	15	21	54	9.8	5.2	.99	1.9	17
28	16	10	9.2	9.7	18	15	36	8.8	4.8	1.9	1.9	14
29	11	9.9	10	9.8	---	13	27	8.2	4.3	2.8	2.7	13
30	8.8	10	11	9.9	---	12	23	8.2	3.3	11	2.6	12
31	7.6	---	12	10	---	11	---	7.3	---	15	2.5	---
TOTAL	372.1	5846.9	301.6	421.3	956	1199	1623.4	356.8	1477.4	80.28	662.8	4115.5
MEAN	12.0	195	9.73	13.6	34.1	38.7	54.1	11.5	49.2	2.59	21.4	137
MAX	89	1460	12	23	136	372	533	20	480	15	150	1210
MIN	4.3	9.9	8.5	9.7	11	11	9.2	7.3	3.3	.74	1.9	2.7
CFSM	.02	.36	.02	.03	.06	.07	.10	.02	.09	.005	.04	.25
IN.	.03	.40	.02	.03	.06	.08	.11	.02	.10	.01	.04	.28
AC-FT	738	11600	598	836	1900	2380	3220	708	2930	159	1310	8160

CAL YR 1977	TOTAL	69820.30	MEAN	191	MAX	13500	MIN	1.1	CFSM	.35	IN	4.73	AC-FT	138500
WTR YR 1978	TOTAL	17413.08	MEAN	47.7	MAX	1460	MIN	.74	CFSM	.09	IN	1.18	AC-FT	34540

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 1977 TO SEPTEMBER 1978

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)
NOV 02...	1652	1210	185	6.5	16.5	35	2	10	2.4	18
DEC 14...	1557	9.3	1200	7.5	15.0	220	26	63	14	150
JAN 26...	1440	10	1276	7.8	8.5	250	26	71	17	180
MAR 06...	1325	13	1180	7.7	14.0	220	49	64	15	160
APR 20...	1535	9.8	1225	7.6	14.0	220	21	61	16	150
JUN 02...	1530	6.3	1500	7.8	28.0	260	46	71	20	190
JUL 10...	1140	1.8	1100	7.4	27.0	200	0	59	12	160
AUG 29...	1255	1.1	1390	7.9	26.5	160	0	49	10	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)
NOV 02...	1.3	6.6	40	0	15	20	.1	14	106
DEC 14...	4.5	10	230	0	97	190	.3	20	658
JAN 26...	5.0	9.3	270	0	130	200	.4	17	758
MAR 06...	4.7	9.2	210	0	110	200	.3	16	678
APR 20...	4.4	11	240	0	120	180	.4	17	674
JUN 02...	5.1	11	260	0	98	250	.4	15	784
JUL 10...	5.0	11	260	0	76	180	.4	25	652
AUG 29...	7.1	12	240	0	56	260	.3	23	739

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).

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.--WDR TX-1968-1969-1: 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. 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.--34 years (water years 1904-6, 1917-18, 1921-35, 1965-78), 1,630 ft³/s (46.16 m³/s), 1,181,000 acre-ft/yr (1.46 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.

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 Texas Department of Highways and Public Transportation. Other floods at this station occurred Mar. 1, 1903, 43.0 ft (13.11 m), at different site and datum; 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; 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; June 21, 1961, 37.0 ft (11.28 m), present site and datum; all from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,500 ft³/s (212 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 9	1600	8,450	239	16.27	4.959	Sept. 15	1200	8,100	229	15.89	4.843
Sept. 14	0100	*8,480	240	16.30	4.968						

Minimum discharge, 473 ft³/s (13.4 m³/s) July 28, 29.

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	813	1390	923	870	818	842	861	591	573	604	646	1620
2	808	2890	986	880	849	829	722	657	570	615	803	1580
3	804	4820	983	867	828	848	679	714	602	614	792	1480
4	824	3810	903	823	827	796	747	756	718	610	1100	1500
5	861	2040	810	834	805	794	768	669	752	602	873	1600
6	781	1390	851	849	792	794	839	664	745	597	1290	1550
7	768	1300	863	864	855	1250	796	659	881	589	2650	1550
8	804	2100	853	876	980	1660	697	669	4950	583	4350	1550
9	1000	2390	868	823	1340	1360	734	662	8030	565	4780	1550
10	819	1990	868	800	1440	1060	738	660	4740	532	4890	1550
11	815	1760	851	933	1080	866	814	654	1510	528	4940	4000
12	797	1280	848	937	926	892	954	650	1140	521	4960	2810
13	787	1060	885	863	909	834	921	626	975	536	5000	4070
14	768	1070	904	821	956	819	862	625	820	513	5020	6750
15	827	1050	862	854	987	866	848	621	803	521	5020	7640
16	780	1050	862	845	953	833	810	600	788	517	5030	6290
17	767	1040	836	911	913	795	775	559	766	513	5030	4720
18	775	957	879	1200	896	795	769	583	747	510	5020	2570
19	824	936	850	1190	1250	785	781	595	715	506	5020	1760
20	783	956	826	904	1200	788	762	591	698	498	5020	1800
21	815	901	848	847	1000	807	749	609	693	491	5060	3920
22	882	910	824	834	896	852	728	756	679	498	5050	5380
23	918	923	812	826	844	776	3050	838	663	498	5030	5260
24	920	910	830	795	831	747	1810	675	651	484	5020	2690
25	959	1020	856	830	824	833	1630	612	644	487	5000	1930
26	1210	960	833	849	837	971	1020	574	641	484	4990	1860
27	1020	928	805	810	851	860	725	591	632	491	4810	1800
28	998	922	838	781	833	819	623	587	624	495	2820	1780
29	1060	903	844	819	---	795	633	586	618	487	1820	1760
30	1120	876	841	796	---	887	627	598	615	517	1700	1730
31	1120	---	839	816	---	827	---	574	---	517	1650	---
TOTAL	27227	44532	26681	26947	26520	27680	27472	19805	37983	16523	115184	86050
MEAN	878	1484	861	869	947	893	916	639	1266	533	3716	2868
MAX	1210	4820	986	1200	1440	1660	3050	838	8030	615	5060	7640
MIN	767	876	805	781	792	747	623	559	570	484	646	1480
AC-FT	54000	88330	52920	53450	52600	54900	54490	39280	75340	32770	228500	170700

CAL YR 1977 TOTAL 1023178 MEAN 2803 MAX 45400 MIN 767 AC-FT 2029000
WTR YR 1978 TOTAL 482604 MEAN 1322 MAX 8030 MIN 484 AC-FT 957200

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 1977 TO SEPTEMBER 1978

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)
NOV 02...	1542	3050	410	7.6	22.0	150	19	45	9.3	22
DEC 14...	1229	960	648	7.8	15.0	280	44	83	18	29
JAN 23...	1530	809	588	8.2	7.5	260	43	78	17	31
MAR 07...	1350	1260	570	8.0	17.5	260	56	75	18	32
APR 20...	1400	759	670	7.8	21.5	270	52	78	19	34
JUN 01...	1106	605	640	7.8	25.5	250	41	72	18	37
JUL 10...	1600	524	570	7.7	31.0	230	35	65	17	30
AUG 28...	1500	2610	312	8.2	28.0	140	2	41	9.6	9.1

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV 02...	.8	4.1	160	0	21	31	.2	13	224
DEC 14...	.8	2.3	290	0	35	42	.3	13	365
JAN 23...	.8	2.6	270	0	38	46	.3	11	357
MAR 07...	.9	2.0	250	0	39	43	.2	6.5	339
APR 20...	.9	2.6	270	0	40	50	.3	13	370
JUN 01...	1.0	2.5	260	0	36	53	.3	11	358
JUL 10...	.9	2.6	240	0	33	41	.3	16	323
AUG 28...	.3	2.6	170	0	12	15	.1	9.8	183

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).

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. Many diversions above station. Records furnished by the city of Victoria show that during the year they discharged about 6,500 acre-ft (8.01 hm³) of sewage effluent below station.

AVERAGE DISCHARGE.--43 years (water years 1936-78), 1,769 ft³/s (50.10 m³/s), 1,282,000 acre-ft/yr (1.58 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, that of July 3, 1936. Flood of June 1, 1929, reached a stage of 30.2 ft (9.21 m), present site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,800 ft³/s (221 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)
Sept. 12	1300	11,200	317	24.23	7.385	Sept. 14	0500	*12,700	360	25.64	7.815

Minimum discharge, 565 ft³/s (16.0 m³/s) July 25.

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	858	1280	965	919	856	865	840	794	842	698	628	1790
2	862	2120	1000	942	874	878	867	762	789	692	811	1790
3	868	3340	1060	946	868	858	728	814	1850	696	820	1660
4	860	4680	1030	912	872	882	724	866	1460	695	979	1670
5	893	3110	945	891	852	833	777	886	1060	687	1110	1720
6	905	1740	888	892	840	843	808	792	987	680	993	1690
7	827	1430	933	913	949	864	860	804	1230	672	1530	1670
8	844	1580	938	909	1160	1440	804	788	1930	664	3350	1680
9	908	2740	924	915	1180	1480	725	797	5910	655	4380	1690
10	1010	2210	942	859	1480	1270	783	786	7060	636	4650	1680
11	877	1960	934	914	1350	1020	771	785	3330	620	4750	1980
12	865	1640	923	983	1080	909	935	775	1520	615	4830	8640
13	857	1250	934	995	982	927	975	770	1260	616	4880	6000
14	838	1160	959	843	965	865	929	748	1100	628	4920	11500
15	854	1140	979	900	1030	860	889	744	962	601	4950	11300
16	870	1120	945	892	1040	891	877	746	941	605	4990	8190
17	836	1120	948	896	1090	842	829	708	914	603	5010	6220
18	833	1090	921	1050	1060	813	815	675	888	600	5040	4460
19	848	1020	973	1320	1040	809	799	713	866	608	5050	2470
20	872	1020	915	1130	1330	796	814	703	823	614	5080	2050
21	841	1030	924	945	1160	812	789	743	810	590	5120	2610
22	977	972	923	900	1020	829	833	745	800	581	5140	5640
23	1010	1000	909	875	919	875	1210	954	783	586	5150	6290
24	1040	990	893	862	884	805	2850	920	760	599	5140	4850
25	971	1010	915	841	868	802	1780	806	744	571	5150	2650
26	1080	1070	936	880	865	903	1560	747	736	572	5130	2210
27	1190	1010	896	881	876	962	1070	713	725	572	5120	2110
28	1030	996	895	838	886	875	886	737	722	587	4470	2040
29	1050	1020	928	831	---	845	803	727	711	588	2460	1990
30	1110	977	914	850	---	838	815	755	706	583	1940	1940
31	1120	---	909	849	---	908	---	740	---	632	1860	---
TOTAL	28804	46825	29098	28573	28376	28399	29145	24043	43219	19346	115431	112180
MEAN	929	1561	939	922	1013	916	972	776	1441	624	3724	3739
MAX	1190	4680	1060	1320	1480	1480	2850	954	7060	698	5150	11500
MIN	827	972	888	831	840	796	724	675	706	571	628	1660
AC-FT	57130	92880	57720	56670	56280	56330	57810	47690	85720	38370	229000	222500

CAL YR 1977 TOTAL 1052751 MEAN 2884 MAX 50100 MIN 827 AC-FT 2088000
WTR YR 1978 TOTAL 533439 MEAN 1461 MAX 11500 MIN 571 AC-FT 1058000

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.

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, 722 micromhos Mar. 18; minimum daily, 175 micromhos Sept. 12.
WATER TEMPERATURES: Maximum daily, 30.0°C on many days during summer months; minimum daily, 7.0°C Jan. 20, 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	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												
20...	1525	870	599	7.4	23.5	0	15	7.8	94	1.0	530	32
NOV												
10...	1630	2060	302	7.3	17.5	110	130	8.4	90	2.3	84000	5400
DEC												
08...	1505	938	648	7.7	18.0	15	15	9.0	98	1.0	2100	310
JAN												
26...	1515	906	637	7.9	10.0	15	8	11.1	102	.9	170	8
FEB												
16...	1715	1030	621	7.7	11.0	30	20	11.0	103	1.2	210	36
MAR												
16...	1535	891	673	8.0	18.5	25	20	9.6	105	.4	140	64
APR												
24...	1245	2800	622	7.5	22.0	25	200	8.0	94	--	7600	1100
MAY												
22...	1245	736	622	7.8	28.5	10	10	5.8	75	1.1	340	140
JUN												
12...	1155	1480	312	7.3	29.5	140	140	5.0	66	3.0	5800	240
JUL												
17...	1245	601	595	7.8	31.0	5	20	7.4	100	.8	580	28
AUG												
22...	1130	5140	340	8.0	27.5	30	150	7.8	100	1.2	--	380
SEP												
26...	1320	2190	328	7.9	25.5	50	85	7.5	94	.3	--	360

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											
20...	140	240	22	68	18	31	.9	2.1	270	0	33
NOV											
10...	3700	110	3	34	5.9	18	.8	4.3	130	0	13
DEC											
08...	440	280	39	81	18	29	.8	2.3	290	0	33
JAN											
26...	24	270	40	80	17	32	.8	2.6	280	0	36
FEB											
16...	630	250	37	74	16	34	.9	2.8	260	0	39
MAR											
16...	48	270	61	77	18	39	1.0	2.7	250	0	56
APR											
24...	870	260	51	76	18	30	.8	2.4	260	0	37
MAY											
22...	50	260	42	71	19	34	.9	2.6	260	0	38
JUN											
12...	800	110	16	33	5.7	18	.8	5.3	110	0	20
JUL											
17...	50	230	35	63	18	32	.9	2.7	240	0	34
AUG											
22...	460	170	18	45	13	10	.3	2.3	180	0	16
SEP											
26...	320	150	14	45	8.1	9.9	.4	2.8	160	0	14

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 20...	45	.2	14	335	344	30	6	.99	.01	1.0	.06
NOV 10...	23	.1	11	181	173	306	60	.55	.01	.56	.03
DEC 08...	41	.3	14	343	362	21	1	1.5	.01	1.5	.06
JAN 26...	47	.2	11	359	364	14	0	.43	.01	.44	.01
FEB 16...	50	.2	11	355	355	40	5	1.5	.01	1.5	.08
MAR 16...	54	.2	10	367	380	42	3	1.2	.01	1.2	.01
APR 24...	45	.3	13	357	350	506	104	1.4	.02	1.4	.04
MAY 22...	50	.3	11	345	354	29	3	.73	.01	.74	.01
JUN 12...	23	.2	12	182	171	270	50	.64	.02	.66	.03
JUL 17...	46	.3	18	333	332	46	3	.46	.00	.46	.00
AUG 22...	18	.2	10	194	203	308	126	.52	.01	.53	.03
SEP 26...	15	.1	11	192	185	164	26	.57	.01	.58	.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 20...	.40	.46	--	.05	--	3.8	--	--	90	211	80
NOV 10...	.65	.68	.49	.18	.08	9.8	--	--	270	1500	92
DEC 08...	.15	.21	.00	.07	.02	1.8	--	--	62	157	78
JAN 26...	.30	.31	.20	.06	.02	3.0	--	--	30	73	83
FEB 16...	.44	.52	.30	.09	.03	--	--	--	39	108	87
MAR 16...	.37	.38	.28	.13	.07	3.0	--	--	28	67	80
APR 24...	.79	.83	.40	.20	.03	10	--	--	431	3260	97
MAY 22...	.47	.48	.36	.04	.02	--	--	--	13	26	86
JUN 12...	1.7	1.7	.56	.27	.09	11	--	--	205	819	98
JUL 17...	.70	.70	.68	.06	.03	3.3	--	--	42	68	66
AUG 22...	1.1	1.1	.69	.07	.02	--	8.1	6.0	295	4090	91
SEP 26...	.52	.54	.49	.12	.03	8.3	--	--	352	2080	40

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
FEB 16...	1715	2	1	1	100	0	100	0	0	0
MAY 22...	1245	3	1	2	100	100	0	0	--	1
AUG 22...	1130	2	0	2	200	0	200	0	0	0

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
FEB 16...	0	0	10	1	1	0	2	1	1	690
MAY 22...	0	0	0	0	0	0	4	3	1	170
AUG 22...	10	10	0	0	0	0	13	11	2	3900

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)
FEB 16...	--	10	10	9	1	20	20	0	.0	.0
MAY 22...	--	40	3	0	3	20	0	20	.1	.1
AUG 22...	3900	30	10	10	0	130	130	0	.0	.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)
FEB 16...	.0	1	1	0	0	0	0	30	20	10
MAY 22...	.0	0	0	0	0	0	0	20	20	5
AUG 22...	.0	1	1	0	0	0	0	20	10	10

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 26...	1515	.0	5	.00	.00	.0	.0	5	.00	.5
APR 24...	1245	.0	--	.00	.00	--	.0	--	.00	--
JUL 17...	1245	.0	1	.00	.00	.0	.0	1	.00	.2

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 26...	.00	.7	.00	.3	.01	.00	.0	.00	.00	.0
APR 24...	.00	--	.00	--	.01	.00	--	.00	.00	--
JUL 17...	.00	.2	.00	.2	.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 26...	.00	.00	.0	.00	.0	.00	.0	.00	.00
APR 24...	.00	.00	--	.00	--	.01	--	.00	.00
JUL 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)
JAN 26...	.00	--	.00	0	0	.00	.03	.00	.00
APR 24...	.00	--	.00	0	--	.00	.02	.00	.01
JUL 17...	.00	.00	.00	0	0	.00	.03	.00	.00

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

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)	SAMPLING METHOD
OCT 20...	35	66.4	70.2	1.36	.571	POLYETHYLENE STRIP

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	NOV 10,77	MAR 16,78	MAY 22,78	JUN 12,78	JUL 17,78	AUG 22,78
TIME	1630	1535	1245	1155	1245	1130
TOTAL CELLS/ML	86	700	620	420	88000	8
DIVERSITY: DIVISION	1.3	1.5	0.8	1.1	0.0	0.0
.CLASS	1.3	1.5	0.8	1.1	0.0	0.0
..ORDER	1.3	2.5	1.6	1.1	0.0	0.0
...FAMILY	1.3	2.9	2.4	1.1	0.0	0.0
....GENUS	1.3	2.9	2.7	1.3	0.0	0.0

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												
...MICRACTINIACEAE												
....MICRACTINIUM	--	-	41	6	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	--	-	--	-	*	0	--	-
....OOCYSTIS	--	-	30	4	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	280#	67	--	-	--	-
..TETRASPORALES												
...COCCOMYXACEAE												
....ELAKATOTHRIX	--	-	24	3	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	14#	17	47	7	43	7	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	24	3	190#	30	--	-	--	-	8#	100
....MELOSIRA	--	-	--	-	14	2	--	-	--	-	--	-
..PENNALES												
...CYMBELLACEAE												
....AMPHORA	*	0	6	1	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	*	0	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	--	-	18	3	160#	26	--	-	--	-	--	-
...NAVICULACEAE												
....GYROSIGMA	--	-	--	-	72	12	--	-	--	-	--	-
....NAVICULA	--	-	6	1	57	9	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	14#	17	89	13	43	7	23	6	--	-	--	-
...SURIRELLACEAE												
....CYMATOPLEURA	--	-	6	1	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....OCHROMONAS	--	-	6	1	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	6	1	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCOCCALES												
...CHROCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	88000#	100	--	-
....ANACYSTIS	57#	67	170#	25	14	2	--	-	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	*	0	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	220#	32	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....PHACUS	--	-	--	-	--	-	23	6	--	-	--	-
....TRACHELOMONAS	--	-	--	-	29	5	93#	22	--	-	--	-

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 1977 TO SEPTEMBER 1978

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. 1977.....	28804	584	330	25700	44	3380	35	2740	240
NOV. 1977.....	46825	495	280	35500	36	4600	29	3660	200
DEC. 1977.....	29098	648	370	28900	48	3790	40	3140	260
JAN. 1978.....	28573	636	360	27800	47	3650	39	3020	260
FEB. 1978.....	28376	641	360	27900	48	3660	39	3020	260
MAR. 1978.....	28399	646	370	28100	48	3680	40	3050	260
APR. 1978.....	29145	567	320	25300	41	3240	34	2680	230
MAY 1978.....	24043	624	350	23000	46	3010	38	2480	250
JUNE 1978.....	43219	439	250	29100	32	3680	25	2880	180
JULY 1978.....	19346	569	320	16900	42	2210	34	1790	230
AUG. 1978.....	115431	398	230	70500	28	8620	22	6810	170
SEPT 1978.....	112180	285	160	48900	15	4600	14	4140	120
TOTAL	533439	**	**	388000	**	49100	**	39400	**
WTD.AVG.	1461.48	474	270	**	33	**	27	**	200

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	603	598	634	566	666	683	646	580	603	549	571	335
2	595	521	635	590	677	678	652	592	589	552	565	345
3	600	533	628	620	683	664	659	619	376	557	556	348
4	599	464	630	644	667	670	655	626	281	560	553	371
5	587	433	634	650	665	664	669	634	507	527	509	369
6	531	402	637	655	660	662	679	676	554	540	558	376
7	587	425	628	630	561	658	670	652	557	554	538	390
8	514	454	626	640	572	650	674	615	433	552	515	401
9	577	430	645	655	609	617	683	589	475	560	494	422
10	598	331	630	657	648	472	689	638	437	568	479	379
11	559	352	645	659	653	477	667	594	331	582	437	383
12	572	360	656	603	648	583	683	647	307	585	415	175
13	565	406	657	652	649	626	668	643	324	587	448	286
14	577	450	657	611	650	670	660	648	345	588	437	215
15	568	491	655	607	585	686	657	639	365	586	430	198
16	581	440	651	652	631	673	655	606	390	585	420	277
17	577	589	640	655	543	691	675	643	418	582	409	269
18	574	606	667	636	642	722	694	573	439	560	399	275
19	597	602	662	639	646	678	672	631	459	567	384	261
20	605	598	656	622	667	670	653	623	462	582	372	296
21	608	618	658	630	671	662	670	592	475	574	364	368
22	599	620	659	678	677	658	687	622	467	577	353	261
23	589	610	661	611	682	664	634	624	459	581	344	300
24	571	608	646	606	656	658	275	625	467	583	335	318
25	582	615	659	644	649	637	244	620	491	585	327	325
26	587	618	663	634	619	666	404	625	510	579	318	330
27	546	622	657	644	643	660	448	623	533	574	313	361
28	614	615	661	655	658	663	459	635	531	577	307	360
29	604	583	657	660	---	666	502	643	545	579	316	373
30	606	625	658	663	---	668	567	638	549	578	330	395
31	623	---	657	674	---	660	---	617	---	549	340	---
MEAN	584	521	649	637	642	650	608	624	456	570	424	325

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.0	24.0	16.0	14.0	9.0	16.0	20.0	---	28.0	30.0	28.0	27.0
2	29.0	21.0	17.0	10.0	9.0	16.0	21.0	25.0	28.0	30.0	28.0	27.0
3	27.0	20.0	18.0	10.0	8.0	15.0	22.0	23.0	26.0	30.0	28.0	27.0
4	25.0	19.0	19.0	11.0	9.0	12.0	23.0	22.0	26.0	30.0	28.0	27.0
5	25.0	20.0	18.0	13.0	9.0	13.0	23.0	23.0	28.0	30.0	28.0	27.0
6	25.0	19.0	16.0	14.0	---	15.0	23.0	25.0	29.0	30.0	29.0	27.0
7	25.0	20.0	15.0	16.0	9.0	16.0	23.0	25.0	28.0	30.0	29.0	---
8	26.0	20.0	17.0	14.0	8.0	15.0	23.0	26.0	27.0	30.0	29.0	27.0
9	25.0	20.0	16.0	13.0	8.0	13.0	23.0	26.0	27.0	30.0	29.0	27.0
10	25.0	17.0	13.0	12.0	8.0	14.0	23.0	26.0	26.0	30.0	28.0	27.0
11	25.0	16.0	14.0	11.0	8.0	16.0	21.0	27.0	27.0	30.0	29.0	27.0
12	22.0	16.0	15.0	10.0	10.0	16.0	20.0	27.0	27.0	---	29.0	25.0
13	21.0	16.0	17.0	10.0	10.0	18.0	20.0	27.0	28.0	30.0	25.0	27.0
14	21.0	---	15.0	10.0	10.0	18.0	20.0	26.0	29.0	30.0	24.0	25.0
15	21.0	17.0	15.0	10.0	---	18.0	21.0	26.0	---	30.0	24.0	25.0
16	21.0	---	16.0	10.0	10.0	17.0	22.0	27.0	---	30.0	25.0	26.0
17	---	19.0	15.0	10.0	11.0	17.0	23.0	27.0	29.0	30.0	25.0	26.0
18	21.0	20.0	15.0	9.0	10.0	17.0	23.0	27.0	30.0	30.0	25.0	27.0
19	22.0	20.0	16.0	8.0	10.0	18.0	23.0	28.0	30.0	30.0	26.0	28.0
20	22.0	22.0	15.0	7.0	10.0	19.0	22.0	28.0	30.0	30.0	27.0	28.0
21	23.0	20.0	12.0	7.0	10.0	19.0	21.0	28.0	29.0	30.0	27.0	27.0
22	---	18.0	11.0	8.0	10.0	20.0	22.0	27.0	29.0	30.0	---	26.0
23	23.0	19.0	12.0	8.0	11.0	20.0	21.0	28.0	30.0	29.0	---	26.0
24	22.0	20.0	14.0	9.0	12.0	20.0	21.0	28.0	30.0	28.0	---	26.0
25	22.0	---	14.0	8.0	13.0	20.0	19.0	28.0	30.0	29.0	---	---
26	22.0	18.0	13.0	8.0	13.0	18.0	19.0	28.0	30.0	30.0	---	25.0
27	22.0	19.0	12.0	8.0	15.0	---	20.0	28.0	30.0	30.0	---	25.0
28	23.0	20.0	13.0	9.0	15.0	19.0	21.0	---	30.0	30.0	27.0	25.0
29	23.0	19.0	13.0	---	---	19.0	22.0	---	30.0	29.0	27.0	24.0
30	23.0	16.0	13.0	9.0	---	19.0	23.0	28.0	30.0	29.0	27.0	24.0
31	24.0	---	13.0	9.0	---	20.0	---	28.0	---	28.0	27.0	---
MEAN	23.5	19.0	15.0	10.0	10.0	17.0	21.5	26.5	28.5	29.5	27.0	26.5

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 current year.

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.--29 years, 95.6 ft³/s (2.707 m³/s), 3.52 in/yr (89 mm/yr), 69,260 acre-ft/yr (85.4 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1872 at present site and datum, that of Sept. 21, 1967, 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)
June 3	1300	2,640	74.8	8.18	2.493	Sept. 13	1900	14,100	399	13.28	4.048
Sept. 12	0500	5,470	155	10.17	3.100	Sept. 14	2000	*16,100	456	14.01	4.270

Minimum discharge, 0.97 ft³/s (0.028 m³/s) Aug. 29.

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	11	68	21	21	24	20	22	19	19	6.2	16	4.2
2	11	97	20	21	25	20	23	18	33	6.2	11	5.9
3	9.5	106	20	21	24	18	22	19	907	6.2	19	5.0
4	9.3	56	20	22	23	17	21	19	181	5.6	14	7.4
5	9.3	41	18	22	21	18	21	18	70	5.1	9.1	8.1
6	9.3	34	16	23	21	22	21	17	44	5.6	7.0	5.0
7	9.7	30	16	23	65	27	21	17	214	5.6	7.2	8.1
8	11	494	18	19	60	23	22	16	143	5.1	5.4	6.6
9	14	618	16	16	41	20	23	16	65	4.6	4.4	8.6
10	14	134	15	16	33	20	26	14	42	4.1	5.3	17
11	19	77	15	23	30	20	26	14	32	4.1	4.5	53
12	20	55	17	26	35	18	30	14	25	3.2	4.0	2070
13	16	44	19	25	30	20	34	12	21	2.8	3.5	3380
14	15	38	19	24	24	19	30	11	17	2.8	2.6	5720
15	14	34	18	23	25	19	27	11	16	2.8	2.2	4340
16	13	31	20	27	29	17	25	11	15	2.8	2.3	349
17	13	29	18	26	46	18	25	11	15	2.5	2.4	189
18	13	27	17	33	39	20	21	12	13	2.5	2.1	135
19	13	26	17	34	32	20	16	10	12	3.2	1.8	107
20	14	26	15	28	28	22	15	9.8	11	4.1	2.6	89
21	14	23	15	25	23	22	14	11	10	3.6	9.2	107
22	30	21	15	24	23	23	26	18	8.7	2.8	4.8	137
23	52	21	17	24	23	23	51	26	8.2	2.6	3.1	108
24	58	21	18	24	22	30	46	16	7.9	3.1	2.3	78
25	59	21	17	25	23	30	31	12	7.3	3.1	2.4	58
26	44	21	16	24	22	27	24	11	6.7	2.7	2.0	49
27	33	21	16	22	22	24	20	9.8	5.6	2.3	1.9	44
28	30	20	17	20	22	23	19	9.1	7.3	6.2	2.0	39
29	28	24	19	20	---	21	18	8.5	7.0	4.5	1.6	37
30	26	22	21	20	---	20	18	16	6.2	4.3	1.9	34
31	26	---	21	21	---	21	---	15	---	14	3.7	---
TOTAL	658.1	2280	547	722	835	662	738	441.2	1969.9	134.3	161.3	17198.9
MEAN	21.2	76.0	17.6	23.3	29.8	21.4	24.6	14.2	65.7	4.33	5.20	573
MAX	59	618	21	34	65	30	51	26	907	14	19	5720
MIN	9.3	20	15	16	21	17	14	8.5	5.6	2.3	1.6	4.2
CFSM	.06	.21	.05	.06	.08	.06	.07	.04	.18	.01	.01	1.55
IN.	.07	.23	.06	.07	.08	.07	.07	.04	.20	.01	.02	1.73
AC-FT	1310	4520	1080	1430	1660	1310	1460	875	3910	266	320	34110

CAL YR 1977	TOTAL	34594.1	MEAN 94.8	MAX 3790	MIN 9.3	CFSM .26	IN 3.49	AC-FT 68620			
WTR YR 1978	TOTAL	26347.7	MEAN 72.2	MAX 5720	MIN 1.6	CFSM .20	IN 2.66	AC-FT 52260			

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 (water stage and rainfall). Datum of gage is 907.92 ft (276.734 m) National Geodetic Vertical Datum of 1929, San Antonio supplementary adjustments of 1951 and 1953.

REMARKS.--Additional storm rainfall-runoff data for this site can be obtained from the report "Hydrologic Data for Urban Studies in the San Antonio, Texas Metropolitan Area, 1978."

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 339 ft³/s (9.60 m³/s) Sept. 13, 1978, gage height, 6.71 ft (2.045 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
aNov. 1	0825	106	3.00	3.76	1.146	aSept. 13	0805	*339	9.60	6.71	2.045

a Water-quality samples were obtained during this flood event.

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 01...	0912	30	142	7.0	19.0	280	25	--	--	3.4
SEP 13...	1100	23	156	6.7	22.5	20	25	7.2	85	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)
NOV 01...	220000	48000	92000	55	2	20	1.2	3.3	.2	4.9
SEP 13...	190000	20000	49000	74	5	27	1.6	2.4	.1	5.1

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)
NOV 01...	65	0	6.0	6.0	.1	12	86	42	3
SEP 13...	84	0	6.8	2.9	.1	15	102	40	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, 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)
NOV 01...	1.8	.04	1.8	.07	1.1	1.2	.29	14	.10
SEP 13...	.29	.01	.30	.05	1.1	1.1	.16	16	.10

08177600 OLMOS CREEK TRIBUTARY AT FARM ROAD 1535, SHAVANO PARK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 01...	0912	2	0	0	5	1	60
SEP 13...	1100	2	--	0	10	4	50

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 01...	1	4	.0	0	0	10
SEP 13...	0	0	.2	0	0	0

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
NOV 01...	0912	.0	.00	.00	.0	.00	.00	.00	.31
SEP 13...	1100	.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)
NOV 01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP 13...	.01	.00	.00	.00	.00	.01	.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)
NOV 01...	.00	--	.00	0	.00	.02	.06	.00
SEP 13...	.00	.00	.00	0	.00	.00	.22	.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.--10 years, 4.57 ft³/s (0.129 m³/s), 2.93 in/yr (74 mm/yr), 3,310 acre-ft/yr (4.08 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1935, that of Sept. 13, 1978. 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)
aNov. 1	0730	1,270	36.0	9.41	2.868	aAug. 1	2200	415	11.8	6.98	2.128
Apr. 22	1500	1,210	34.3	9.53	2.905	aSept. 7	2245	882	25.0	8.39	2.557
aJune 6	2230	941	26.6	8.58	2.615	Sept. 13	0900	*7,450	211	b14.82	4.517

a Water-quality samples were obtained during this flood event.
b From floodmark.

Minimum discharge, no flow for many days.

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	.10	583	.00	.12	.21	.18	.95	.84	5.5	.04	128	5.4
2	.10	12	.00	.11	.16	.14	.46	3.8	2.8	.04	34	5.3
3	.10	2.0	.01	.11	.17	.24	.84	6.4	14	.04	3.5	.85
4	.10	.93	.00	.14	.42	.24	.88	.73	3.1	.03	.91	3.4
5	.10	.68	.00	.14	.18	.10	.73	.44	.65	.02	.62	1.5
6	.10	.57	.00	.14	.19	7.7	.68	.33	69	.01	1.1	.91
7	.10	.38	.00	.14	11	.97	.77	.36	43	.01	1.0	88
8	.06	14	.00	.14	.26	.38	.65	.31	3.0	.00	.51	124
9	.04	1.6	.00	.14	.08	.24	.78	.29	.34	.00	.46	3.7
10	.04	.57	.00	.14	.05	.24	34	.20	.27	.00	.36	1.7
11	.02	.31	.12	.50	.30	.24	1.7	.52	.23	.00	.36	1.6
12	.02	.31	.02	.44	16	.24	.84	.23	.17	.00	.36	.29
13	.04	.31	.01	.14	.14	.24	.93	.16	.17	.00	.32	791
14	.04	.24	.00	.08	.10	.24	1.1	.16	.14	.00	.37	24
15	.04	.24	.00	.06	.10	.24	1.2	.18	.13	.00	.31	11
16	.04	.24	.01	.59	.06	.24	1.2	.18	.13	.00	.29	10
17	.04	.24	.01	.14	.52	.24	1.6	.18	.13	.00	.27	6.3
18	.04	.18	.01	.22	.14	.24	1.6	.18	.10	.00	.25	4.2
19	.06	.18	.01	.23	.04	.24	1.5	.18	.10	.00	.21	3.7
20	.06	.14	.01	.10	.02	.24	1.6	2.8	.09	.00	.18	3.0
21	2.5	.14	.03	.10	.02	.24	1.6	5.8	.10	.00	.15	2.8
22	26	.18	.05	.10	.02	.22	122	2.1	.10	.01	.14	3.0
23	19	.18	.06	.10	.10	.48	10	.39	.07	.00	.12	3.9
24	7.1	.18	.06	.11	.14	4.4	2.7	.31	.06	.00	.12	3.4
25	3.6	.18	.09	.13	.10	.77	.81	.31	.04	.00	.10	2.7
26	3.4	.17	.08	.10	.14	.65	.86	.29	.05	.00	.10	1.8
27	3.4	.18	.08	.26	.18	.66	.64	.31	.04	.17	.09	3.4
28	3.1	.18	.08	.30	.18	.57	.61	.25	.04	3.3	.07	3.1
29	2.9	.62	.15	.14	---	.58	.45	3.6	.05	.38	.09	2.7
30	2.7	.01	.14	.17	---	.61	.46	6.7	.04	.10	.15	2.7
31	2.4	---	.14	.39	---	.81	---	.68	---	1.6	.17	---
TOTAL	77.34	620.14	1.17	5.72	31.02	22.82	194.14	39.21	143.64	5.75	174.68	1119.35
MEAN	2.49	20.7	.038	.18	1.11	.74	6.47	1.26	4.79	.19	5.63	37.3
MAX	26	583	.15	.59	16	7.7	122	6.7	69	3.3	128	791
MIN	.02	.01	.00	.06	.02	.10	.45	.16	.04	.00	.07	.29
CFSM	.12	.98	.002	.008	.05	.04	.31	.06	.23	.009	.27	1.76
IN.	.14	1.09	.00	.01	.05	.04	.34	.07	.25	.01	.31	1.96
AC-FT	153	1230	2.3	11	62	45	385	78	285	11	346	2220
(††)	2.07	6.70	.26	.74	2.01	.92	4.00	2.42	2.52	.66	4.64	9.02

CAL YR 1977 TOTAL 1553.66 MEAN 4.26 MAX 583 MIN .00 CFSM .20 IN 2.73 AC-FT 3080 †† 29.55
WTR YR 1978 TOTAL 2434.98 MEAN 6.67 MAX 791 MIN .00 CFSM .32 IN 4.27 AC-FT 4830 †† 35.96

†† 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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV										
01...	0920	1040	105	8.1	19.5	560	320	8.3	93	4.3
01...	1415	1590	100	8.4	19.0	520	310	8.4	93	3.9
JUN										
06...	2305	1260	87	8.2	17.5	520	1400	6.8	73	6.1
AUG										
01...	1446	139	124	7.5	23.5	100	170	7.1	86	4.8
SEP										
08...	0040	638	110	7.7	22.5	100	280	8.8	104	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	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
NOV										
01...	550000	66000	82000	44	0	16	.9	2.4	.2	4.0
01...	240000	72000	100000	43	0	16	.8	2.8	.2	3.4
JUN										
06...	>75000	K75000	96000	40	0	15	.6	3.2	.2	3.0
AUG										
01...	500000	250000	120000	49	0	18	.9	3.1	.2	3.2
SEP										
08...	110000	70000	110000	46	5	17	.9	2.1	.1	3.2

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)
NOV									
01...	57	0	3.7	2.3	.1	6.0	64	772	208
01...	57	0	3.1	2.4	.1	6.0	63	704	196
JUN									
06...	52	0	4.6	2.5	.1	4.2	59	3420	480
AUG									
01...	60	0	5.6	2.6	.1	5.8	69	264	36
SEP									
08...	50	0	7.2	2.8	.1	5.7	64	490	80

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)
NOV									
01...	.44	.02	.46	.10	1.8	1.9	.61	21	.00
01...	.35	.01	.36	.04	1.3	1.3	.43	20	.00
JUN									
06...	.76	.00	.76	.27	1.3	1.6	1.2	50	.00
AUG									
01...	.35	.05	.40	.01	.65	.66	.38	9.7	.00
SEP									
08...	.27	.01	.28	.02	1.7	1.7	.53	11	.00

08177700 OLMOS CREEK AT DRESDEN DRIVE, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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							
01...	0920	2	0	0	5	1	30
01...	1415	2	200	0	10	6	90
JUN							
06...	2305	3	200	0	0	15	130

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						
01...	1	4	.0	0	0	10
01...	5	4	.0	0	0	20
JUN						
06...	9	5	.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)
NOV								
01...	0920	.0	.00	.00	.2	.00	.00	.00
01...	1415	.0	.00	.00	.3	.00	.00	.01
JUN								
06...	2305	.0	.00	.00	.4	.00	.02	.04

DATE	DI-AZINON, TOTAL (UG/L)	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)
NOV									
01...	.22	.01	.00	.00	.00	.00	.02	.00	.00
01...	.00	.01	.00	.00	.00	.00	.02	.00	.00
JUN									
06...	.34	.06	.00	.00	.00	.01	.03	.01	.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								
01...	.00	.00	.00	0	.00	.00	.01	.00
01...	.00	.00	.00	0	.00	.00	.00	.00
JUN								
06...	.00	.00	.00	0	.00	.00	.02	.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, Olmos Creek at Dresden Drive, San Antonio.

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, 704.50 ft (214.732 m) Sept. 13.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	679.86	697.20	680.46	680.38	680.44	680.77	680.58	680.68	681.17	680.50	692.32	682.33
2	681.22	680.97	680.46	680.51	680.39	680.80	680.68	683.13	680.82	680.37	681.56	681.34
3	680.34	680.63	680.46	680.40	680.36	680.86	680.64	681.20	681.12	680.47	681.35	681.11
4	680.19	680.54	680.44	680.39	680.35	680.85	680.63	680.92	680.81	680.44	681.17	683.46
5	680.25	680.51	680.45	680.37	680.40	680.93	680.63	680.72	680.68	680.43	681.09	681.22
6	680.12	680.50	680.42	680.35	680.36	685.19	680.67	680.78	694.88	680.41	681.95	681.07
7	680.12	680.51	680.38	680.36	684.08	683.74	680.61	680.72	681.20	680.31	681.13	694.37
8	680.10	681.10	680.42	680.36	681.50	681.80	680.69	680.83	680.94	680.15	681.05	681.89
9	680.15	680.58	680.41	680.37	681.04	681.23	680.60	680.67	680.67	679.99	681.02	681.42
10	680.10	680.52	680.39	680.35	680.96	681.15	682.44	680.66	680.59	679.86	681.03	681.44
11	680.15	680.44	682.07	681.79	681.98	681.20	680.95	680.70	680.56	---	681.00	681.50
12	680.08	680.43	680.51	680.51	684.21	680.90	680.89	680.66	680.56	680.09	680.90	681.22
13	680.10	680.42	680.46	680.44	681.72	680.92	680.81	680.62	680.51	680.38	680.89	700.74
14	680.11	680.41	680.39	680.37	680.94	680.90	680.77	680.54	680.52	680.27	680.84	681.56
15	680.21	680.43	680.37	680.35	681.91	680.86	680.74	680.52	680.51	680.07	680.49	681.27
16	680.14	680.43	680.37	681.76	680.86	680.73	680.74	680.56	680.49	679.92	680.26	681.20
17	680.18	680.41	680.36	680.47	683.71	680.74	680.77	680.55	680.47	---	680.11	681.15
18	680.15	680.39	680.37	680.39	680.97	680.71	680.72	680.58	680.47	---	679.96	681.12
19	680.15	680.39	680.37	680.65	680.76	680.82	680.73	680.64	680.47	---	679.84	681.11
20	680.22	680.38	680.34	680.37	680.64	680.95	680.82	681.43	680.62	680.24	---	681.18
21	682.77	680.52	680.34	680.34	681.12	681.04	680.72	681.30	680.52	679.96	680.81	681.18
22	681.23	680.37	680.35	680.33	680.93	681.09	693.82	680.76	680.49	679.82	680.96	681.33
23	683.40	680.35	680.37	680.32	680.90	684.12	681.32	680.64	680.51	---	681.03	681.31
24	680.63	680.37	680.37	680.33	680.62	681.16	680.98	680.62	680.47	---	681.04	681.32
25	680.38	680.36	680.36	680.37	680.66	680.71	680.85	680.61	680.46	680.00	680.91	681.32
26	680.26	680.35	680.35	680.32	680.69	680.67	680.82	680.55	680.26	680.16	681.07	681.37
27	680.22	680.35	680.35	680.33	680.76	680.69	680.75	680.54	680.50	680.46	681.20	681.47
28	680.25	680.34	680.39	680.37	680.80	680.64	680.75	680.54	680.62	683.30	681.06	681.28
29	680.21	680.85	680.64	680.35	---	680.62	680.69	682.18	680.50	681.28	681.15	681.17
30	680.20	680.42	680.44	680.35	---	680.61	680.71	681.02	680.39	681.09	681.20	681.11
31	680.23	---	680.40	680.37	---	680.59	---	680.72	---	683.42	681.65	---
MAX	683.40	697.20	682.07	681.79	684.21	685.19	693.82	683.13	694.88	---	---	700.74
MIN	679.86	680.34	680.34	680.32	680.35	680.59	680.58	680.52	680.26	---	---	681.07

NOTE.--Gage heights below 679.8 ft are not published.

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.--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). December 1895 to June 1906, periodic discharge measurements only.

REVISED RECORDS.--WSP 1312: 1917. WSP 1923: Drainage area. WDR 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 ft (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.--53 years, 55.1 ft³/s (1.560 m³/s), 17.90 in/yr (455 mm/yr), 39,920 acre-ft/yr (49.2 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1819, that of Sept. 10, 1921; flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,470 ft³/s (98.3 m³/s) Sept. 13, gage height, 12.56 ft (3.828 m); no flow at times due to regulation.

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	65	1330	122	100	81	70	57	53	37	21	634	48
2	100	539	120	103	79	72	41	124	12	17	310	7.5
3	90	94	107	99	77	70	31	36	82	19	20	8.1
4	77	91	120	99	75	70	32	25	10	16	13	52
5	60	93	119	101	75	74	34	24	8.7	19	6.1	28
6	72	103	116	98	73	234	34	24	78	21	13	13
7	68	123	112	99	199	126	32	25	285	12	18	310
8	75	178	112	95	59	79	33	23	14	13	15	360
9	70	113	110	94	75	77	35	21	21	12	15	33
10	78	116	108	94	74	52	313	17	22	13	17	44
11	73	113	124	102	80	74	54	34	23	13	17	38
12	64	112	120	100	157	74	51	5.6	25	13	15	33
13	68	117	118	94	79	77	52	14	15	15	12	1160
14	68	143	113	94	76	72	52	29	12	15	13	757
15	67	100	111	91	102	66	52	1.6	15	12	13	58
16	67	114	111	105	66	62	52	9.6	8.6	9.9	14	60
17	71	112	110	96	94	62	53	9.2	11	13	15	63
18	68	108	110	93	79	62	53	7.9	9.1	10	16	61
19	66	122	110	98	74	60	50	7.1	11	11	14	60
20	69	127	106	91	74	58	50	26	8.9	12	13	62
21	158	126	106	89	72	58	50	16	6.4	9.9	15	60
22	289	122	105	89	72	54	315	13	5.9	9.7	13	65
23	121	107	106	89	72	55	200	8.7	9.3	7.6	11	71
24	132	117	107	89	70	105	62	8.2	18	11	13	62
25	78	128	105	86	66	63	53	9.1	28	12	13	63
26	87	111	107	86	64	63	49	9.1	10	11	12	61
27	90	97	107	84	68	63	47	7.5	24	8.8	12	61
28	75	124	110	81	72	60	44	4.6	17	43	16	60
29	91	138	110	81	---	47	43	23	21	18	14	56
30	91	127	106	83	---	45	45	28	20	11	29	54
31	95	---	103	82	---	42	---	7.5	---	24	21	---
TOTAL	2743	5145	3451	2885	2304	2246	2069	650.7	867.9	452.9	1372.1	3868.6
MEAN	88.5	172	111	93.1	82.3	72.5	69.0	21.0	28.9	14.6	44.3	129
MAX	289	1330	124	105	199	234	315	124	285	43	634	1160
MIN	60	91	103	81	59	42	31	1.6	5.9	7.6	6.1	7.5
CFSM	2.12	4.12	2.66	2.23	1.97	1.73	1.65	.50	.69	.35	1.06	3.09
IN.	2.44	4.58	3.07	2.57	2.05	2.00	1.84	.58	.77	.40	1.22	3.44
AC-FT	5440	10210	6850	5720	4570	4450	4100	1290	1720	898	2720	7670

CAL YR 1977	TOTAL	53002.0	MEAN	145	MAX	1330	MIN	34	CFSM	3.47	IN	47.17
WTR YR 1978	TOTAL	28055.2	MEAN	76.9	MAX	1330	MIN	1.6	CFSM	1.84	IN	24.97

AC-FT 105100
AC-FT 55650

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 (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. 1	1315	3,170	89.8	a12.2	3.72	Sept. 7	1945	1,500	42.5	9.77	2.978
May 2	2015	1,720	48.7	9.99	3.045	Aug. 1	1000	1,120	31.7	9.17	2.795
July 28	1745	483	13.7	7.73	2.356						

a From floodmark.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 01...	1525	1870	128	8.2	19.0	440	310	7.3	81	4.6
MAY 02...	2134	398	219	7.1	20.5	100	85	8.8	100	20
JUL 28...	1710	129	443	8.1	27.5	30	40	6.8	87	7.6
AUG 01...	1405	70	161	7.8	24.5	90	150	8.0	98	5.0
SEP 08...	0115	817	150	7.9	23.5	80	200	7.4	89	3.5

DATE	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
NOV 01...	230000	68000	190000	47	1	16	1.7	3.4	.2	3.7
MAY 02...	420000	90000	160000	84	20	26	4.6	7.1	.3	3.5
JUL 28...	250000	94000	40000	200	25	56	14	11	.3	2.5
AUG 01...	890000	310000	240000	59	10	20	2.2	4.2	.2	3.4
SEP 08...	K180000	130000	94000	61	12	21	2.1	3.8	.2	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)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
NOV 01...	56	0	7.3	3.6	.1	4.8	68	840	188	.59
MAY 02...	78	0	14	11	.1	4.5	109	538	140	.90
JUL 28...	210	0	28	22	.2	9.8	247	99	12	1.2
AUG 01...	60	0	13	5.0	.1	5.3	83	232	12	.55
SEP 08...	60	0	14	5.0	.1	5.4	84	390	90	.46

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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)	OIL AND GREASE (MG/L)
NOV 01...	.02	.61	.14	1.6	1.7	.40	23	.00	--
MAY 02...	.04	.94	.34	2.2	2.5	.63	46	.30	--
JUL 28...	.04	1.2	.04	.87	.91	.22	9.2	.30	--
AUG 01...	.04	.59	.00	.87	.87	.38	14	.00	0
SEP 08...	.02	.48	.07	.83	.90	.41	17	.10	--

08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 01...	1525	4	0	0	5	1	50
MAY 02...	2134	3	0	0	0	7	100
JUL 28...	1710	5	--	<1	50	7	20

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 01...	2	0	.0	0	0	10
MAY 02...	13	40	.0	0	0	40
JUL 28...	25	20	.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)
NOV 01...	1525	.0	.00	.00	.4	.02	.00	.04	.07
MAY 02...	2134	.5	.00	.00	1.3	.00	.00	.21	1.5
JUL 28...	1710	.0	.00	.00	.1	.00	.01	.04	.16
AUG 01...	1405	.0	.00	.00	.4	.00	.00	.09	.37

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 01...	.02	.00	.00	.00	.00	.02	.00	.00	--
MAY 02...	.00	.00	.00	.00	.02	.00	.02	.86	--
JUL 28...	.01	.00	.00	.00	.00	.00	.01	.00	.00
AUG 01...	.05	.00	.00	.00	.01	.00	.00	.03	--

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 01...	.00	.00	--	.00	0	.00	.00	.02	.00
MAY 02...	.00	.00	--	.00	0	.00	.50	.14	.04
JUL 28...	.01	.00	.00	.01	0	.00	.00	.01	.00
AUG 01...	.00	.00	.00	.00	0	.00	.00	.02	.02

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 current year.

GAGE.--Digital recorders (water stage and rainfall). Gage not referenced to 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 San Antonio, Texas Metropolitan Area, 1978."

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)
aOct. 22	0715	464	13.1	8.28	2.524	aJune 6	2120	608	17.2	8.91	2.716
aNov. 1	1325	1,800	51.0	12.07	3.679	aAug. 1	1215	304	8.61	7.48	2.280
Apr. 10	0225	554	15.7	8.68	2.646	Aug. 1	2100	803	22.7	9.66	2.944
Apr. 22	1355	1,740	49.3	11.94	3.639	Sept. 13	--	*3,200	90.6	b14.44	4.401
aMay 2	1915	201	5.69	6.87	2.094						

a Water-quality samples were obtained during this flood event.
b From crest-stage gage mark.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: September 1970 to September 1973. Water temperatures: November 1968 to current year. Bacteria analyses: December 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
OCT										
22...	1045	14	202	7.3	21.5	220	120	8.2	95	5.7
NOV										
01...	1500	62	230	7.5	19.5	640	90	8.4	94	4.3
MAY										
02...	2205	51	228	7.0	20.5	110	85	7.2	82	21
JUN										
07...	0130	74	158	7.9	21.0	140	120	6.8	78	3.9
AUG										
01...	1213	214	110	7.9	23.0	110	180	4.7	56	3.3

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)
OCT										
22...	820000	98000	130000	73	27	26	2.0	7.7	.4	3.3
NOV										
01...	540000	130000	240000	93	16	33	2.6	8.8	.4	6.6
MAY										
02...	390000	63000	150000	82	8	29	2.3	13	.6	4.1
JUN										
07...	430000	K180000	51000	69	1	26	1.1	4.9	.3	2.6
AUG										
01...	K1200000	490000	390000	39	5	14	1.0	2.1	.1	2.3

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)
OCT									
22...	56	0	24	12	.2	4.8	108	172	46
NOV									
01...	94	0	28	8.7	.1	10	144	132	28
MAY									
02...	90	0	21	14	.2	5.4	133	984	256
JUN									
07...	84	0	11	4.7	.1	5.4	97	180	21
AUG									
01...	42	0	8.7	2.2	.1	3.8	55	484	64

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)
OCT									
22...	.46	.02	.48	.00	.61	.61	.24	9.6	.10
NOV									
01...	2.0	.04	2.0	.04	1.4	1.4	.42	11	.10
MAY									
02...	.75	.05	.80	.16	--	--	.81	27	.30
JUN									
07...	.46	.04	.50	.09	.75	.84	.17	11	.00
AUG									
01...	.32	.03	.35	.01	1.1	1.1	.34	26	.00

08178300 ALAZAN CREEK AT ST. CLOUD STREET, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 01...	1500	2	0	0	10	4	50
MAY 02...	2205	2	0	0	0	4	60

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 01...	10	8	.0	0	0	10
MAY 02...	12	20	.1	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)
OCT 22...	1045	.0	.00	.00	.0	.00	.00	.00
NOV 01...	1500	.0	.00	.00	.1	.00	.00	.01
MAY 02...	2205	.0	.00	.00	.1	.00	.01	.02

DATE	DI-AZINON, TOTAL (UG/L)	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)
OCT 22...	.20	.00	.00	.00	.00	.00	.00	.00	.00
NOV 01...	.00	.02	.00	.00	.00	.00	.02	.00	.00
MAY 02...	.22	.01	.00	.00	.00	.02	.00	.00	.19

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 22...	.00	.00	.00	0	.00	.00	.02	.00
NOV 01...	.00	.00	.00	0	.00	.00	.02	.00
MAY 02...	.00	.00	.00	0	.00	.20	.17	.00

08178555 HARLENDALE CREEK AT WEST HARDING STREET, SAN ANTONIO, TX

LOCATION.--29°21'05", long 98°29'32", Bexar County, Hydrologic Unit 12100301, at mid-channel, 71 ft (22 m) upstream from West Harding Street, and 1.3 mi (2.1 km) upstream from Six Mill Creek.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
OCT										
22...	1430	21	124	7.9	--	140	80	5.1	--	4.4
NOV										
01...	1330	340	201	7.5	13.0	80	250	7.5	81	5.7
APR										
10...	1110	3.0	150	6.8	22.0	130	35	3.0	35	6.2
MAY										
02...	2248	45	124	7.1	20.0	80	35	6.2	70	14
JUN										
07...	0040	3.3	89	7.8	24.0	80	50	--	--	3.3

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)
OCT										
22...	1400000	240000	180000	44	3	16	.9	3.4	.2	2.8
NOV										
01...	470000	100000	160000	66	5	22	2.8	8.4	.4	7.2
APR										
10...	970000	170000	200000	62	0	23	1.0	3.4	.2	3.5
MAY										
02...	1900000	1000000	100000	43	5	16	.7	4.2	.3	3.1
JUN										
07...	270000	240000	80000	42	2	16	.5	1.5	.1	1.5

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)
OCT									
22...	50	0	5.6	3.8	.0	2.4	60	116	28
NOV									
01...	74	0	19	9.3	.1	6.1	111	568	40
APR									
10...	76	0	4.3	3.7	.1	3.6	80	42	16
MAY									
02...	46	0	6.0	5.0	.0	1.7	59	60	16
JUN									
07...	49	0	4.1	1.6	.0	2.2	52	66	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, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
OCT									
22...	.20	.01	.21	.00	.50	.50	.24	9.4	.10
NOV									
01...	.71	.03	.74	.26	2.5	2.8	.82	25	.00
APR									
10...	.25	.04	.29	.05	.70	.75	.27	11	.20
MAY									
02...	.31	.01	.32	.25	1.2	1.4	.05	22	.40
JUN									
07...	.19	.02	.21	.06	.49	.55	.12	9.6	.10

08178555 HARLANDALE CREEK AT WEST HARDING BOULEVARD, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 22...	1430	2	0	0	0	2	30
NOV 01...	1330	3	0	0	5	2	40
APR 10...	1110	3	100	0	0	2	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)
OCT 22...	5	4	.0	0	0	4
NOV 01...	2	4	.0	0	0	10
APR 10...	6	0	.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)
OCT 22...	1430	.0	.00	.00	.4	.00	.00	.02
NOV 01...	1330	.0	.00	.00	.1	.02	.03	.02
APR 10...	1110	.0	.00	.00	.0	.01	.01	.02

DATE	DI-AZINON, TOTAL (UG/L)	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)
OCT 22...	.09	.01	.00	.00	.00	.00	.00	.00	.00
NOV 01...	.10	.00	.00	.00	.00	.00	.00	.00	.00
APR 10...	.24	.01	.00	.00	.00	.00	.00	.00	.04

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 22...	.00	.00	.00	0	.00	.00	.00	.00
NOV 01...	.00	.00	.00	0	--	.00	.00	.00
APR 10...	.00	.00	.00	0	.00	.08	.03	.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 (water stage and rainfall). Gage not referenced to 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 San Antonio, Texas Metropolitan Area, 1978."

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,000 ft³/s (56.6 m³/s) Nov. 1, 1978, gage height, 5.82 ft (1.774 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Elevation (ft)	Elevation (m)
aNov. 1	0820	*2,000	56.6	5.82	1.774	aSept. 13	0825	335	9.49	4.30	1.311

a Water-quality samples were obtained during this flood event.

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 01...	0950	28	121	7.4	17.5	160	25	8.7	94	2.5
SEP 13...	1054	28	156	8.1	23.0	160	20	7.9	94	2.3
13...	1355	.70	202	7.1	23.0	140	10	7.5	89	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	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
NOV 01...	160000	42000	41000	59	5	22	.9	1.0	.1	2.7
SEP 13...	51000	39000	46000	75	1	28	1.2	1.3	.1	3.4
13...	190000	25000	34000	110	8	41	1.0	1.2	.1	3.2

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)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
NOV 01...	66	0	4.4	2.3	.0	9.4	75	42	12	.34
SEP 13...	90	0	5.6	1.6	.1	14	100	42	9	.02
13...	120	0	6.6	2.0	.1	14	128	13	0	.01

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, 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)	OIL AND GREASE (MG/L)
NOV 01...	.01	.35	.02	.72	.74	.09	10	.10	0
SEP 13...	.01	.03	.04	.74	.78	.06	1.3	.10	0
13...	.00	.01	.02	.59	.61	.02	17	.10	0

08178640 WEST ELM CREEK AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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							
01...	0950	1	0	0	5	0	40
SEP							
13...	1054	1	--	0	10	8	40
13...	1355	1	--	0	10	3	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)
NOV						
01...	1	4	.0	0	0	8
SEP						
13...	0	0	.0	0	0	10
13...	0	0	.2	0	0	0

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
NOV									
01...	0950	.0	.00	.00	.0	.00	.00	.00	.00
SEP									
13...	1054	.0	.00	.00	.0	.00	.00	.00	.00
13...	1355	.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)
NOV									
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP									
13...	.00	.00	.00	.00	.00	.00	.00	.00	.00
13...	.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)
NOV								
01...	.00	--	.00	0	.00	.00	.00	.00
SEP								
13...	.00	.00	.00	0	.00	.00	.00	.00
13...	.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 (water stage and rainfall). Gage not referenced to 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 San Antonio, Texas Metropolitan Area, 1978."

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)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
aNov. 1	0940	*277	7.84	6.61	2.015	aSept. 13	0845	267	7.56	6.53	1.990
Sept. 4	2100	158	4.47	5.47	1.667						

a Water-quality samples were obtained during this flood event.

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV										
01...	1109	6.8	100	7.3	18.0	180	15	8.5	920	2.3
SEP										
13...	0945	130	85	7.8	22.5	120	20	8.4	99	1.9
13...	1515	2.0	144	7.2	24.5	140	7	7.7	94	1.7

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)
NOV										
01...	330000	21000	17000	46	3	17	.9	.9	.1	3.3
SEP										
13...	60000	K30000	31000	41	0	15	.9	.7	.0	3.0
13...	86000	19000	14000	73	4	27	1.3	1.0	.1	3.6

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)
NOV										
01...	53	0	2.9	2.2	.0	11	64	17	4	.34
SEP										
13...	50	0	4.0	.8	.0	13	62	51	13	.04
13...	84	0	4.1	1.2	.1	18	98	8	0	.05

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)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)	OIL AND GREASE (MG/L)
NOV									
01...	.01	.35	.01	.81	.82	.07	9.7	.10	0
SEP									
13...	.01	.05	.05	1.1	1.1	.04	6.9	.00	0
13...	.01	.06	.03	.63	.66	.02	27	.10	1

08178645 EAST ELM CREEK AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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							
01...	1109	0	0	0	0	0	40
SEP							
13...	0945	1	--	0	0	5	30
13...	1515	1	--	0	0	3	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)
NOV						
01...	1	0	.0	0	0	10
SEP						
13...	0	0	.0	0	0	0
13...	0	0	.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)
NOV									
01...	1109	.0	.00	.00	.0	.00	.00	.00	.00
SEP									
13...	0945	.0	.00	.00	.0	.00	.00	.00	.00
13...	1515	.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)
NOV									
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP									
13...	.00	--	.00	.00	.00	.00	.00	.00	.00
13...	.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)
NOV								
01...	.00	--	.00	0	.00	.00	.00	.00
SEP								
13...	.00	.00	.00	0	.00	--	--	--
13...	.00	.00	.00	0	.00	.00	.00	.00

08178690 SALADO CREEK TRIBUTARY AT BITTERS ROAD, SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°31'36", long 98°26'25", Bexar County, Hydrologic Unit 12100301, at culvert on Bitters Road immediately east of MacArthur High School in San Antonio.

DRAINAGE AREA.--0.26 mi² (0.67 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Digital recorders (water stage and rainfall). Gage not referenced to 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 San Antonio, Texas Metropolitan Area, 1978."

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 279 ft³/s (7.90 m³/s) Sept. 13, 1978, elevation, 8.34 ft (2.542 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)
Oct. 22	0720	83	2.35	4.66	1.420	June 1	1105	57	1.61	4.13	1.259
Oct. 23	1820	94	2.66	4.88	1.487	June 6	2030	213	6.03	7.15	2.179
Nov. 1	0435	211	5.98	7.12	2.170	Aug. 1	0940	86	2.44	4.72	1.439
aNov. 1	0740	154	4.36	6.08	1.853	Sept. 4	2035	59	1.67	4.17	1.271
Apr. 10	0245	93	2.63	4.86	1.481	aSept. 7	2020	97	2.75	4.95	1.509
Apr. 22	1405	244	6.91	7.72	2.353	Sept. 13	0645	279	7.90	8.34	2.542
May 29	1845	132	3.74	5.64	1.719						

a Water-quality samples were obtained during this flood event.

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 01...	0828	22	122	7.2	19.0	200	25	8.0	89	4.7
SEP 07...	1055	16	69	7.2	24.5	55	20	8.5	104	1.4

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)
NOV 01...	270000	32000	83000	45	1	15	1.9	3.2	.2	5.4
SEP 07...	140000	92000	100000	31	4	11	.8	.9	.1	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)
NOV 01...	54	0	5.9	4.6	.1	4.6	67	41	10
SEP 07...	33	0	4.0	1.3	.0	2.6	39	29	5

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)
NOV 01...	.85	.02	.87	.08	.72	.80	.66	8.2	.00
SEP 07...	.26	.01	.27	.03	.47	.50	.20	12	.10

08178690 SALADO CREEK TRIBUTARY AT BITTERS ROAD, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 01...	0828	2	0	1	5	2	50
SEP 07...	2250	2	--	0	0	2	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 01...	9	4	.0	0	0	20
SEP 07...	0	0	.2	0	0	0

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 01...	0828	.0	.00	.00	.2	.00	.00	.01	.00
SEP 07...	2250	.0	.00	.00	.1	.00	.01	.01	.15

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 01...	.03	.00	.00	.00	.00	.03	.00	.00	.00
SEP 07...	.02	.00	.00	.00	.00	.02	.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 01...	.00	--	.00	0	.00	.00	.05	.00
SEP 07...	.00	.00	.00	0	.00	.00	.00	.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.--18 years, 10.2 ft³/s (0.289 m³/s), 1.01 in/yr (26 mm/yr), 7,390 acre-ft/yr (9.11 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 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)
a Nov. 1	1045	5,070	144	b9.34	2.847	a June 6	2315	2,900	82.1	8.31	2.533
a Apr. 10	0530	70	1.98	3.36	1.024	Aug. 1	1145	285	8.07	4.66	1.420
Apr. 22	1545	772	219	6.65	2.027	a Sept. 7	2200	543	15.4	6.06	1.847
May 29	2130	243	6.88	4.37	1.332	Sept. 13	1030	*19,800	561	b13.96	4.255

a Water-quality samples were obtained during this flood event.
b From floodmark.

Minimum discharge, no flow for many days.

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	2.7	1890	.74	1.1	5.7	4.6	.42	2.3	21	.68	87	1.8
2	6.6	225	.60	1.2	5.4	4.8	.07	4.0	6.1	.66	42	2.2
3	4.4	19	.51	1.3	5.3	3.8	.67	4.8	11	.62	9.6	2.8
4	3.1	10	.51	1.3	4.0	3.8	2.3	5.0	4.4	.56	7.7	3.7
5	1.2	7.8	.47	4.4	1.1	3.1	2.2	4.9	2.9	.44	6.0	7.2
6	.98	6.8	.51	5.9	1.1	1.1	.38	3.5	216	.32	.44	3.1
7	.79	6.5	2.6	5.3	10	5.2	.06	4.9	516	.19	.23	76
8	4.5	12	5.2	3.5	4.8	1.0	.03	3.4	15	.08	2.5	65
9	6.8	6.6	.89	.75	3.9	.53	.02	.66	9.3	.04	2.9	8.0
10	5.9	5.6	.63	.75	3.8	.17	16	.51	7.6	.01	3.4	8.8
11	.96	4.9	.68	.88	3.8	.09	5.5	2.0	6.9	.00	2.0	12
12	2.3	4.6	.44	.90	12	.07	4.9	4.9	6.5	.33	1.7	10
13	4.6	4.6	.75	.84	4.0	1.8	4.0	2.4	6.0	.51	.19	4040
14	.67	4.6	.75	.90	1.3	5.7	3.3	.72	6.0	.51	.05	182
15	.51	4.4	.70	.90	2.0	6.0	2.0	.57	6.2	.47	.02	17
16	.51	3.6	.90	2.4	7.2	5.9	.98	.51	5.1	.31	.89	14
17	.42	.83	.90	5.0	6.0	3.5	2.1	.51	3.7	.13	1.8	12
18	5.8	.65	.90	5.1	2.8	1.1	5.7	.51	3.2	.05	2.0	10
19	5.7	.62	.90	4.2	2.5	.90	5.4	.51	2.6	.01	1.7	9.6
20	2.5	.60	1.9	.89	2.4	.90	1.6	.51	2.3	.00	.15	8.5
21	5.5	3.4	.97	.78	2.4	.90	.73	.51	1.9	.00	.02	10
22	7.4	4.9	.93	.90	1.9	.96	94	.51	1.8	.00	.00	10
23	14	.89	1.3	.90	1.1	.91	14	.51	1.2	.00	.00	7.4
24	9.4	.97	1.1	.99	1.0	2.3	8.5	.51	.85	.00	.04	7.0
25	6.1	.54	1.1	.61	.52	.75	8.0	.62	.87	.00	1.3	6.1
26	6.1	.62	1.3	.84	.53	.75	8.0	.62	.82	.00	1.6	4.9
27	6.1	.62	1.3	.53	.17	.99	3.2	2.3	.57	.00	1.6	4.9
28	5.7	.66	1.3	.29	4.1	3.5	.75	.99	.46	.18	1.6	4.9
29	1.3	5.4	3.5	3.3	---	3.4	.75	22	.37	.02	.12	4.9
30	.75	4.2	5.8	4.6	---	2.8	.75	7.3	.79	.00	.03	4.8
31	2.6	---	1.3	5.7	---	.92	---	6.3	---	.04	3.2	---
TOTAL	125.89	2240.90	41.38	66.95	100.82	72.24	196.31	89.28	867.43	6.16	181.78	4558.6
MEAN	4.06	74.7	1.33	2.16	3.60	2.33	6.54	2.88	28.9	.20	5.86	152
MAX	14	1890	5.8	5.9	12	6.0	94	22	516	.68	87	4040
MIN	.42	.54	.44	.29	.17	.07	.02	.51	.37	.00	.00	1.8
CFSM	.03	.55	.01	.02	.03	.02	.05	.02	.21	.001	.04	1.11
IN.	.03	.61	.01	.02	.03	.02	.05	.02	.24	.00	.05	1.24
AC-FT	250	4440	82	133	200	143	389	177	1720	12	361	9040
(††)	2.46	6.12	.26	.55	1.92	.82	2.88	1.96	2.61	.95	5.73	7.74

CAL YR 1977 TOTAL 5349.79 MEAN 14.7 MAX 1890 MIN .05 CFSM .11 IN 1.45 AC-FT 10610 †† 28.76
WTR YR 1978 TOTAL 8547.74 MEAN 23.4 MAX 4040 MIN .00 CFSM .17 IN 2.32 AC-FT 16950 †† 34.00

†† Weighted-mean rainfall, in inches, based on five 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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV										
01...	1112	4550	118	7.3	19.5	720	380	8.2	92	5.2
APR										
10...	0915	18	566	7.7	21.5	55	180	7.2	84	5.4
JUN										
06...	2310	2620	167	8.6	22.0	280	3800	--	--	4.6
SEP										
07...	2340	448	212	8.6	23.0	120	1500	4.8	57	2.1

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	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
NOV										
01...	250000	34000	100000	54	0	20	.9	2.7	.2	5.0
APR										
10...	89000	7600	430000	180	48	60	7.2	29	.9	33
JUN										
06...	>50000	K50000	114000	45	0	17	.7	7.6	.5	6.8
SEP										
07...	150000	94000	130000	46	0	17	.9	6.8	.4	18

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)
NOV									
01...	120	0	4.7	3.4	.2	7.6	104	1100	272
APR									
10...	160	0	100	34	.6	7.9	351	210	56
JUN									
06...	65	3	5.2	2.1	.1	2.7	78	7750	690
SEP									
07...	64	3	28	6.5	.6	8.6	121	2320	360

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)
NOV									
01...	.79	.02	.81	.09	2.1	2.2	.77	22	.00
APR									
10...	.56	.03	.59	.13	.82	.95	.29	3.4	.10
JUN									
06...	.88	.00	.88	.37	3.1	3.5	1.2	65	.00
SEP									
07...	.44	.03	.47	.08	1.0	1.1	.67	19	.00

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 01...	1112	3	100	1	5	2	80
APR 10...	0915	2	100	0	0	1	20
JUN 06...	2310	3	200	0	0	9	160

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 01...	3	4	.0	0	0	20
APR 10...	1	0	.0	0	0	0
JUN 06...	4	5	.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)
NOV 01...	1112	.0	.00	.00	.1	.00	.00	.00
APR 10...	0915	.0	.00	.00	.0	.00	.00	.00
JUN 06...	2310	.0	.00	.00	.1	.00	.00	.01

DATE	DI-AZINON, TOTAL (UG/L)	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)
NOV 01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR 10...	.21	.00	.00	.00	.00	.00	.00	.00	.04
JUN 06...	.23	.01	.00	.00	.00	.00	.01	.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 01...	.00	.00	.00	0	.00	.00	.30	.00
APR 10...	.00	.00	.00	0	.00	.08	.17	.00
JUN 06...	.00	.00	.00	0	.00	1.1	1.7	.16

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.--18 years, 42.2 ft³/s (1.195 m³/s), 3.03 in/yr (77 mm/yr), 30,570 acre-ft/yr (37.7 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1941, that of Sept. 27, 1973. 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)
a Oct. 22	1500	402	11.4	10.15	3.094	a June 7	1100	3,840	109	b19.50	5.944
a Nov. 1	2100	5,470	155	b22.00	6.760	Aug. 1	2200	1,410	39.9	b14.33	4.368
a Apr. 10	1400	678	19.2	11.71	3.569	Sept. 8	0900	1,160	32.9	13.57	4.136
Apr. 23	0300	1,080	30.6	13.27	4.045	Sept. 13	1900	*12,000	340	b28.21	8.598

a Water-quality samples were obtained during this flood event.
b From high-water mark.

Minimum discharge, 6.8 ft³/s (0.19 m³/s) July 22, 23.

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	20	1960	35	28	28	31	29	33	135	13	607	38
2	81	1150	31	28	28	32	28	34	111	13	740	25
3	52	87	30	27	28	32	28	81	119	13	79	15
4	27	55	29	29	28	31	27	39	54	12	41	13
5	24	46	28	29	28	31	29	35	24	11	33	50
6	22	43	26	29	25	37	30	34	39	10	27	23
7	21	40	27	31	77	81	29	33	1670	10	22	99
8	22	157	28	29	70	39	26	33	122	10	21	716
9	25	80	31	28	26	31	33	30	52	10	18	82
10	24	44	28	26	23	29	375	24	43	11	17	57
11	23	40	30	27	22	29	81	34	37	10	15	66
12	22	38	38	29	58	28	41	28	35	13	15	54
13	21	37	30	27	70	28	37	27	33	15	14	3670
14	22	36	27	27	35	28	35	27	30	14	14	1200
15	23	35	27	27	37	31	33	27	29	15	12	117
16	21	35	27	30	34	31	34	25	27	17	12	63
17	20	35	27	30	47	31	31	23	26	20	13	53
18	20	33	27	30	39	30	30	24	24	17	13	48
19	21	33	26	32	29	28	31	25	23	16	13	44
20	23	33	26	32	27	27	31	42	21	16	13	42
21	26	35	26	27	26	27	30	60	19	16	13	38
22	214	41	26	27	26	27	139	38	18	13	13	36
23	68	36	27	26	33	28	414	28	17	9.6	12	45
24	67	33	26	26	32	84	55	25	15	12	13	38
25	34	32	26	26	31	41	43	23	15	14	13	34
26	26	31	25	25	29	30	41	23	15	13	13	32
27	25	31	25	25	29	29	41	21	14	14	14	31
28	25	31	27	23	29	28	38	21	14	30	18	33
29	25	45	29	23	---	31	35	22	14	82	19	30
30	23	55	29	23	---	31	34	89	14	30	23	29
31	22	---	31	26	---	31	---	30	---	22	16	---
TOTAL	1089	4387	875	852	994	1052	1888	1038	2809	521.6	1906	6821
MEAN	35.1	146	28.2	27.5	35.5	33.9	62.9	33.5	93.6	16.8	61.5	227
MAX	214	1960	38	32	77	84	414	89	1670	82	740	3670
MIN	20	31	25	23	22	27	26	21	14	9.6	12	13
CFSM	.19	.77	.15	.15	.19	.18	.33	.18	.50	.09	.33	1.20
IN.	.21	.86	.17	.17	.20	.21	.37	.20	.55	.10	.38	1.34
AC-FT	2160	8700	1740	1690	1970	2090	3740	2060	5570	1030	3780	13530
(††)	2.75	6.07	.27	.52	1.86	.87	3.03	2.03	2.98	1.13	5.35	8.91

CAL YR 1977 TOTAL 22595.0 MEAN 61.9 MAX 2580 MIN 17 CFSM .33 IN 4.45 AC-FT 44820 †† 28.34
WTR YR 1978 TOTAL 24232.6 MEAN 66.4 MAX 3670 MIN 9.6 CFSM .35 IN 4.77 AC-FT 48070 †† 35.77

†† 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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
OCT										
22...	1640	340	340	7.8	23.0	480	320	6.4	76	5.0
NOV										
01...	1450	2390	58	7.4	18.0	180	80	6.9	75	4.7
APR										
10...	1005	508	446	7.1	22.5	140	280	5.6	66	11
JUN										
07...	0130	231	311	7.8	--	70	640	--	--	4.1
AUG										
02...	1000	912	222	7.5	24.5	120	240	7.2	88	3.5

DATE	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT										
22...	3000000	180000	120000	120	21	37	6.6	20	.8	5.1
NOV										
01...	420000	160000	180000	25	0	9.2	.5	1.9	.2	2.0
APR										
10...	1000000	170000	290	160	24	50	9.4	25	.9	6.0
JUN										
07...	220000	160000	120000	110	16	35	5.1	17	.7	6.9
AUG										
02...	550000	84000	88000	81	10	28	2.6	7.1	.3	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)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
OCT									
22...	120	0	28	26	.2	7.0	189	1320	264
NOV									
01...	34	0	1.7	1.7	.0	1.8	36	176	46
APR									
10...	170	0	38	39	.2	8.5	260	704	148
JUN									
07...	113	0	29	22	.2	9.2	180	1740	400
AUG									
02...	86	0	19	8.0	.2	9.4	124	392	52

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)
OCT									
22...	.70	.01	.71	.05	1.2	1.2	.32	14	.10
NOV									
01...	.18	.01	.19	.06	.91	.97	.25	10	.10
APR									
10...	.72	.03	.75	.13	1.7	1.8	.51	18	--
JUN									
07...	.88	.00	.88	.26	1.8	2.1	.73	37	.00
AUG									
02...	.45	.05	.50	.00	1.0	1.0	.30	13	.00

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 22...	1640	2	0	0	10	2	30
NOV 01...	1450	1	0	1	5	4	40
APR 10...	1005	2	100	0	0	1	20

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 22...	2	4	.0	0	0	10
NOV 01...	14	4	.0	0	0	10
APR 10...	2	60	.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)
OCT 22...	1640	.0	.00	.00	.0	.00	.00	.02
NOV 01...	1450	--	--	--	--	--	--	--
APR 10...	1005	.0	.00	.00	.1	.00	.01	.03

DATE	DI-AZINON, TOTAL (UG/L)	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)
OCT 22...	.10	.00	.00	.00	.00	.00	.00	.00	.00
NOV 01...	--	--	--	--	--	--	--	--	--
APR 10...	.18	.01	.00	.00	.00	.00	.00	.00	.04

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 22...	.00	.00	.00	0	.00	.00	.00	.00
NOV 01...	--	--	--	--	--	.00	.01	.00
APR 10...	.00	.00	.00	0	.00	.03	.12	.34

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.--38 years (water years 1923-34, 1953-78), 137 ft³/s (3.880 m³/s), 3.92 in/yr (100 mm/yr), 99,260 acre-ft/yr (122 hm³/s).

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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, that of Aug. 2, 1978. 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)
Aug. 2	1100	*281,000	7,960	a49.6	15.12	Sept. 16	0200	2,310	65.4	6.53	1.990
Aug. 3	0400	30,400	861	23.0	7.01						

a From floodmark.

Minimum discharge, 9.2 ft³/s (0.26 m³/s) July 21 to Aug. 1.

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	39	651	110	72	65	68	48	41	23	22	18	284
2	39	307	103	70	65	68	48	40	28	22	41700	477
3	39	161	98	70	65	68	48	44	36	21	15000	311
4	39	126	96	68	65	68	48	43	100	20	3680	259
5	39	109	93	69	65	68	48	42	74	18	2870	238
6	37	102	89	70	64	68	48	39	57	17	2030	235
7	37	102	88	68	65	67	48	39	191	16	1420	233
8	37	244	88	67	65	68	45	39	153	15	776	355
9	36	263	86	65	65	67	45	37	104	15	816	485
10	36	202	84	65	65	68	54	35	83	14	581	394
11	36	163	84	66	65	67	62	34	71	14	478	354
12	36	137	85	67	71	67	66	32	62	14	449	348
13	36	131	90	67	88	66	60	31	55	13	413	588
14	36	124	88	67	89	65	56	30	52	13	387	459
15	36	124	85	67	82	64	54	29	49	12	356	546
16	36	120	84	68	80	64	52	28	45	12	336	1220
17	36	111	83	68	82	61	51	27	43	12	321	598
18	36	111	81	68	82	61	49	26	41	12	304	477
19	36	111	80	68	80	60	46	24	40	11	288	419
20	36	109	79	68	79	59	45	24	37	10	274	383
21	36	106	77	68	74	59	44	24	35	10	266	350
22	40	98	77	68	73	57	48	26	32	9.3	254	325
23	154	96	77	68	72	57	45	28	31	10	244	305
24	153	96	76	68	71	56	45	28	29	9.3	236	291
25	106	96	76	67	71	56	43	27	29	9.2	227	279
26	84	93	74	67	68	53	39	26	26	9.2	221	261
27	78	93	74	67	68	53	38	25	23	9.2	214	256
28	71	91	74	66	68	52	39	23	23	9.7	207	265
29	67	96	75	65	---	52	39	22	23	9.2	202	256
30	67	103	74	65	---	50	39	22	22	9.2	205	248
31	67	---	74	65	---	48	---	21	---	9.2	205	---
TOTAL	1661	4476	2602	2092	2012	1905	1440	956	1617	406.5	74978	11499
MEAN	53.6	149	83.9	67.5	71.9	61.5	48.0	30.8	53.9	13.1	2419	383
MAX	154	651	110	72	89	68	66	44	191	22	41700	1220
MIN	36	91	74	65	64	48	38	21	22	9.2	18	233
CFSM	.11	.31	.18	.14	.15	.13	.10	.07	.11	.03	5.10	.81
IN.	.13	.35	.20	.16	.16	.15	.11	.08	.13	.03	5.88	.90
AC-FT	3290	8880	5160	4150	3990	3780	2860	1900	3210	806	148700	22810

CAL YR 1977 TOTAL 78826.0 MEAN 216 MAX 2450 MIN 36 CFSM .46 IN 6.19 AC-FT 156400
WTR YR 1978 TOTAL 105644.5 MEAN 289 MAX 41700 MIN 9.2 CFSM .61 IN 8.29 AC-FT 209500

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 07...	1110	92	559	7.8	18.0	0	15	8.8	96	.2
JAN 16...	1145	68	560	7.5	14.5	0	5	10.2	103	.3
MAR 20...	1100	59	549	8.0	17.0	0	7	9.0	96	.4
MAY 30...	1045	22	561	7.6	22.5	0	10	6.8	80	1.1
JUL 05...	1255	18	560	7.8	26.5	0	10	6.6	115	1.3
AUG 08...	1800	776	494	7.5	27.0	20	15	8.8	111	1.6
SEP 06...	1350	238	537	7.9	26.5	15	20	8.7	113	.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	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
NOV 07...	900	310	440	280	72	78	20	8.2	.2	1.5
JAN 16...	30	11	88	290	89	80	21	9.0	.2	1.3
MAR 20...	120	20	480	270	78	72	21	9.0	.2	1.3
MAY 30...	1700	110	1100	270	90	75	21	7.7	.2	1.5
JUL 05...	--	--	--	270	80	73	21	9.5	.3	1.7
AUG 08...	21000	610	390	250	47	76	15	6.3	.2	1.9
SEP 06...	--	320	56	280	63	84	17	7.1	.2	1.6

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)	BROMIDE DIS-SOLVED (MG/L AS BR)	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)
NOV 07...	250	0	74	16	.2	--	12	333	23	3
JAN 16...	240	0	74	18	.2	--	9.4	331	8	1
MAR 20...	230	0	72	16	.3	--	6.1	311	12	2
MAY 30...	220	0	76	18	.3	--	11	319	18	2
JUL 05...	230	0	71	14	.3	--	13	317	20	6
AUG 08...	250	0	39	10	.2	.1	13	285	27	2
SEP 06...	264	0	55	12	.2	--	13	320	30	7

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)	OIL AND GREASE (MG/L)
NOV 07...	.64	.00	.64	.00	.40	.40	.03	1.9	--	--
JAN 16...	.58	.01	.59	.01	.19	.20	.01	1.3	--	--
MAR 20...	.22	.01	.23	.00	.30	.30	.00	1.4	--	--
MAY 30...	.43	.01	.44	.00	.33	.33	.00	1.5	--	--
JUL 05...	.35	.01	.36	.00	.00	.00	.01	1.7	--	--
AUG 08...	1.7	.02	1.7	.02	.41	.43	.02	3.8	.10	0
SEP 06...	.90	.01	.91	.01	.64	.65	.02	2.8	--	--

08179000 MEDINA RIVER NEAR PIPE CREEK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 16...	1145	0	100	0	0	0	10
AUG 08...	1800	1	30	<1	10	0	<10
SEP 06...	1350	1	--	1	0	2	10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 16...	0	0	.0	0	0	10
AUG 08...	3	5	.0	0	0	<3
SEP 06...	0	10	.2	1	0	0

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
JAN 16...	1145	.0	--	.00	.00	--	.0	--	.00	--
AUG 08...	1800	.0	--	.00	.00	--	.0	--	.00	--
SEP 06...	1350	--	4	--	--	.0	--	1	--	.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)
JAN 16...	.00	--	.00	--	.00	.00	--	.00	.00	--
AUG 08...	.00	--	.00	--	.00	.00	--	.00	.00	--
SEP 06...	--	.3	--	.2	--	--	.0	--	--	.0

DATE	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JAN 16...	.00	.00	--	.00	--	.00	--	.00	--	.00
AUG 08...	.00	.00	--	.00	--	.00	--	.00	.00	.00
SEP 06...	--	--	.0	--	.0	--	.0	--	--	--

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)
JAN 16...	.00	--	.00	0	--	.00	.00	.00	.00
AUG 08...	.00	.00	.00	0	--	.00	.01	.00	.00
SEP 06...	--	--	--	--	0	--	.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.--22 years (water years 1957-78), 12.2 ft³/s (0.346 m³/s), 2.94 in/yr (75 mm/yr), 8,840 acre-ft/yr (10.9 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1905, that of Sept. 27, 1964. 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.--Maximum discharge, 1,240 ft³/s (35.1 m³/s) Nov. 1, gage height, 6.16 ft (1.878 m), no other peak above base of 200 ft³/s (5.66 m³/s); 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	360	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	38	.00	.00	.00	.00	.00	.00	.00	.00	70	.00
3	.00	15	.00	.00	.00	.00	.00	.00	.00	.00	5.4	.00
4	.00	7.4	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
5	.00	3.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	1.6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.39	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	7.6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	5.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	4.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	4.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	2.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	1.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.71	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.11	.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	494.21	.00	.00	.00	.00	.00	.00	.00	.00	75.41	.00
MEAN	.000	16.5	.000	.000	.000	.000	.000	.000	.000	.000	2.43	.000
MAX	.00	360	.00	.00	.00	.00	.00	.00	.00	.00	70	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.29	.000	.000	.000	.000	.000	.000	.000	.000	.04	.000
IN.	.00	.33	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00
AC-FT	.00	980	.00	.00	.00	.00	.00	.00	.00	.00	150	.00

CAL YR 1977 TOTAL 4155.43 MEAN 11.4 MAX 360 MIN .00 CFSM .20 IN 2.75 AC-FT 8240
WTR YR 1978 TOTAL 569.62 MEAN 1.56 MAX 360 MIN .00 CFSM .03 IN .38 AC-FT 1130

08179500 MEDINA LAKE NEAR SAN ANTONIO, TX

LOCATION.--Lat 29°32'24", long 98°56'01", Medina County, Hydrologic Unit 12100302, at gate operating platform, 576 ft (176 m) from left end of Medina Dam on Medina River, 4.2 mi (6.8 km) upstream from Medina diversion dam, 13 mi (21 km) north of Castroville, 28 mi (45 km) west of San Antonio, and 70.4 mi (113.3 km) upstream from mouth. Water-quality sampling site at the center of low-water bridge 0.6 mi (1.0 km) downstream.

DRAINAGE AREA.--634 mi² (1,642 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1913 to current year. Prior to October 1965, monthend contents only.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Nonrecording gage read once daily if stage changing materially, otherwise intermittently. Datum of gage is 7.80 ft (2.377 m) below National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a gravity-type concrete dam, 1,580 ft (482 m) long. The dam was completed and storage began May 7, 1913. The uncontrolled emergency spillway is a cut through natural rock 880 ft (268 m) long, with a 3-foot-wide (1 m) cutoff wall, located near right end of dam. The dam and lake are owned by the Bexar-Medina-Atascosa Counties Water Improvement District No. 1, which has a permit from the Texas Water Commission 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 Resevoir 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, 280,100 acre-ft (345 hm³) Aug. 3, gage height, 1,076.5 ft (328.12 m); minimum, 188,200 acre-ft (232 hm³) Aug. 1, gage height, 1,059.1 ft (322.81 m).

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

1,059.0	187,800	1,070.0	242,400
1,060.0	192,000	1,075.0	271,400
1,065.0	217,200	1,080.0	300,300

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236900	233900	236400	233900	230300	228300	223300	219700	211700	203100	188200	254000
2	236400	236400	236400	233400	230300	228300	222800	219700	211200	202600	198100	254000
3	236400	236400	236400	233400	230300	228300	222800	219200	211200	202100	280100	255200
4	235900	236400	236400	233400	229800	228300	222300	219200	210700	201600	278300	255200
5	235900	236400	235900	233400	229800	227800	222300	218700	210200	200600	274300	255200
6	235400	236400	235900	233400	229800	227800	221800	218700	210700	200100	271400	254600
7	235400	236400	235900	232800	229800	227800	221800	218700	210700	199600	268500	254600
8	235400	236400	235900	232800	229800	227800	221800	218200	210700	199100	265000	255200
9	234900	236900	235900	232800	229800	227800	221200	218200	210700	198600	262100	255200
10	234900	236900	235400	232800	229300	227300	221200	218200	210200	198100	259200	255700
11	234400	236900	235400	232800	229300	227300	221200	217700	210200	197500	256900	255700
12	234400	236900	235400	232300	229300	227300	221200	217200	210200	197000	256300	255700
13	234400	236900	235400	232300	229300	227300	221200	217200	210200	196500	255700	256900
14	233900	236900	235400	232300	229300	227300	221200	216700	210200	196000	255700	256900
15	233400	236900	235400	232300	229300	227300	220700	216700	210200	195500	255700	256300
16	233400	236900	234900	232300	229300	226800	220700	216200	209700	195000	255700	257500
17	232800	236900	234900	231800	229300	226800	220700	216200	209100	194500	255200	257500
18	232800	236900	234900	231800	229300	226800	220200	215700	208600	194000	255200	256900
19	232300	236900	234900	231800	229300	226300	220200	215200	208100	193500	255200	256900
20	232300	236900	234900	231800	229300	226300	220200	215200	208100	193000	255200	256300
21	231800	236900	234900	231800	229300	226300	220200	214200	207600	192000	255200	256300
22	231800	236900	234400	231300	229300	225800	219700	214200	207100	191600	255200	256300
23	231300	236900	234400	231300	228800	225800	220700	213700	206600	191200	254600	255700
24	232300	236900	234400	231300	228800	225300	220700	213700	206100	191200	254600	255700
25	232300	236900	234400	231300	228800	225300	220700	213200	205600	190700	254600	255700
26	231800	236900	234400	230800	228800	224800	220200	213200	205100	190300	254600	255700
27	231800	236900	233900	230800	228300	224800	220200	212700	204600	189900	254600	255200
28	231800	236900	233900	230800	228300	224300	220200	212700	204100	189500	254000	255200
29	231800	236900	233900	230800	---	223800	220200	212200	203600	189100	254000	255200
30	231800	236400	233900	230300	---	223800	219700	212200	203100	188600	254000	255200
31	231800	---	233900	230300	---	223300	---	211700	---	188600	254000	---
MAX	236900	236900	236400	233900	230300	228300	223300	219700	211700	203100	280100	257500
MIN	231300	233900	233900	230300	228300	223300	219700	211700	203100	188600	188200	254000
(†)	1067.9	1068.8	1068.3	1067.6	1067.2	1066.2	1065.5	1063.9	1062.2	1059.2	1072.0	1072.2
(‡)	-5100	+4600	-2500	-3600	-2000	-5000	-3600	-8000	-8600	-14500	+65400	+1200

CAL YR 1977 MAX 260400 MIN 231300 ‡ -22400
WTR YR 1978 MAX 280100 MIN 188200 ‡ -18300

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

08179500 MEDINA LAKE NEAR SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)
JAN 06...	1304	441	8.0	16.0	--	--	--	--	--	--
JUN 22...	1500	447	7.9	15.0	--	--	--	--	--	--
AUG 08...	1540	351	8.3	27.5	5	5	9.7	124	1.8	K380

DATE	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)
JAN 06...	--	--	210	62	56	17	9.0	.3	1.6
JUN 22...	--	--	220	69	57	18	9.8	.3	1.7
AUG 08...	K40	K41	170	52	42	15	8.0	.3	1.8

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)	BROMIDE DISSOLVED (MG/L AS BR)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
JAN 06...	180	0	50	18	.2	--	12	253	--
JUN 22...	180	0	54	16	.2	--	12	257	--
AUG 08...	140	0	46	13	.2	.2	9.9	205	5

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)	OIL AND GREASE (MG/L)
JAN 06...	--	--	--	--	--	--	--	--	--
JUN 22...	--	--	--	--	--	--	--	--	--
AUG 08...	0	.14	.00	.00	.27	.01	3.0	.00	0

08179500 MEDINA LAKE NEAR SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
AUG 08...	1540	1	20	<1	10	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)
AUG 08...	0	<1	.0	1	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)
AUG 08...	1540	.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)	METHOXYCHLOR, TOTAL (UG/L)
AUG 08...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG 08...	.00	.00	.00	.00	0	.00	.01	.00	.00

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.--32 years (water years 1923-33, 1958-78), 40.3 ft^3/s (1.141 m^3/s), 29,200 acre-ft/yr (36.0 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	26	35	27	38	30	108	57	96	189	49	22
2	45	26	35	26	48	30	98	67	167	178	7.8	4.4
3	47	26	34	30	58	36	91	86	142	179	8.1	.00
4	51	26	35	34	55	54	88	55	106	185	3.9	.00
5	50	26	34	34	53	52	85	33	115	187	2.4	12
6	50	26	34	34	50	59	85	33	124	188	1.6	53
7	57	17	33	33	23	61	84	41	39	193	1.4	56
8	65	.00	33	33	10	59	83	57	5.8	196	38	7.3
9	63	.00	33	33	21	57	83	65	5.5	192	98	.00
10	54	10	33	31	.12	53	46	79	5.3	190	46	.00
11	50	26	32	26	.09	50	18	71	5.3	189	30	.00
12	55	26	32	26	.08	47	20	55	72	191	30	.00
13	53	26	31	29	.01	33	21	48	142	190	29	.56
14	51	26	32	35	19	33	7.3	38	145	190	29	.00
15	50	26	32	35	9.0	44	.06	61	144	189	41	.00
16	49	26	32	31	.06	48	.03	81	129	188	65	.00
17	48	26	32	24	.05	54	6.0	86	147	187	80	.00
18	51	26	32	24	.01	58	31	92	156	188	80	.00
19	59	26	32	24	.00	59	58	98	120	187	80	.00
20	67	26	32	24	15	61	54	101	124	187	72	.00
21	60	26	32	24	26	66	35	91	127	187	66	.00
22	46	26	32	24	28	84	28	72	145	187	71	.00
23	16	26	32	24	30	94	28	78	182	187	85	.00
24	.06	33	39	33	30	100	46	82	181	184	92	.00
25	.01	47	44	35	31	103	63	84	181	172	92	.00
26	.00	32	43	39	31	103	59	73	182	160	91	.00
27	.00	24	37	39	30	105	66	63	183	163	91	.00
28	.00	25	30	39	30	106	70	62	186	165	91	12
29	.00	25	38	38	---	109	59	74	188	147	90	14
30	.00	29	38	28	---	111	55	88	189	123	79	13
31	18	---	27	31	---	111	---	83	---	105	51	---
TOTAL	1201.07	736.00	1050	947	635.42	2070	1575.39	2154	3733.9	5543	1691.2	194.26
MEAN	38.7	24.5	33.9	30.5	22.7	66.8	52.5	69.5	124	179	54.6	6.48
MAX	67	47	44	39	58	111	108	101	189	196	98	56
MIN	.00	.00	27	24	.00	30	.03	33	5.3	105	1.4	.00
AC-FT	2380	1460	2080	1880	1260	4110	3120	4270	7410	10990	3350	385

CAL YR 1977 TOTAL 15185.09 MEAN 41.6 MAX 135 MIN .00 AC-FT 30120
WTR YR 1978 TOTAL 21531.24 MEAN 59.0 MAX 196 MIN .00 AC-FT 42710

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), 634 mi² (1,642 km²) 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.--8 years, 283 ft³/s (8.015 m³/s), 205,000 acre-ft/yr (253 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1890, that of July 17, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,800 ft³/s (362 m³/s) Aug. 4, gage height, 22.35 ft (6.812 m); minimum, 40 ft³/s (1.13 m³/s) July 22, 23.

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	94	412	98	90	86	82	66	65	53	48	62	117
2	99	1670	97	90	85	82	64	63	55	48	268	111
3	100	385	97	91	85	82	65	65	63	49	2260	111
4	93	183	96	91	85	82	65	68	66	47	10700	162
5	93	149	94	92	84	81	64	65	61	46	6450	190
6	92	138	92	92	83	84	64	64	59	45	3470	195
7	91	130	91	91	88	88	64	66	89	44	2190	187
8	92	147	93	90	95	90	65	67	86	44	1880	333
9	89	142	97	89	89	82	67	60	67	47	1570	432
10	87	126	97	87	83	82	147	57	62	47	1170	339
11	86	113	97	88	80	81	116	62	74	49	974	391
12	85	111	96	90	80	80	88	62	64	48	848	419
13	84	106	95	92	85	80	79	58	59	46	746	437
14	85	104	97	94	83	78	77	54	57	44	664	961
15	86	104	96	97	81	78	76	56	56	42	595	797
16	84	104	93	92	81	76	75	55	55	43	536	967
17	83	103	93	90	84	74	74	53	51	45	477	762
18	82	103	95	88	84	71	73	53	49	44	420	848
19	81	103	96	87	83	71	71	52	48	42	372	771
20	80	104	95	87	82	71	70	51	47	43	327	675
21	81	101	92	87	82	71	70	56	47	41	289	626
22	100	100	89	86	82	70	71	59	47	41	263	585
23	101	100	89	86	82	69	78	56	47	41	231	542
24	100	100	89	89	82	69	83	55	48	44	196	483
25	98	100	89	92	83	71	76	55	47	42	162	446
26	92	99	89	89	84	72	72	58	45	42	145	416
27	89	99	89	88	84	71	70	58	45	43	133	389
28	88	97	89	87	84	70	69	57	44	44	125	353
29	87	98	93	85	---	67	68	59	45	52	120	331
30	86	98	93	85	---	66	67	56	45	53	118	328
31	84	---	91	86	---	66	---	55	---	51	121	---
TOTAL	2772	5529	2897	2768	2349	2357	2254	1820	1681	1405	37882	13704
MEAN	89.4	184	93.5	89.3	83.9	76.0	75.1	58.7	56.0	45.3	1222	457
MAX	101	1670	98	97	95	90	147	68	89	53	10700	967
MIN	80	97	89	85	80	66	64	51	44	41	62	111
AC-FT	5500	10970	5750	5490	4660	4680	4470	3610	3330	2790	75140	27180

CAL YR 1977	TOTAL	110635	MEAN 303	MAX	1670	MIN 80	AC-FT	219400
WTR YR 1978	TOTAL	77418	MEAN 212	MAX	10700	MIN 41	AC-FT	153600

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 (water stage and rainfall). Gage not referenced to 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 San Antonio, Texas Metropolitan Area, 1978."

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,790 ft³/s (50.7 m³/s) July 16, 1973, gage height, 10.91 ft (3.325 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 945 ft³/s (26.8 m³/s) Nov. 1, gage height, 7.00 ft (2.134 m), no peak above base of 200 ft³/s (5.66 m³/s); water-quality sample obtained during this flood event.

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 01...	0945	170	146	7.3	19.0	400	200	9.5	106	2.4

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)
NOV 01...	78000	27000	44000	72	1	26	1.8	1.5	.1	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)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
NOV 01...	86	0	5.1	2.7	.0	6.2	89	352	96	.41

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, 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)	OIL AND GREASE (MG/L)
NOV 01...	.01	.42	.13	1.2	1.3	.13	15	.20	0

08181000 LEON CREEK TRIBUTARY AT FARM ROAD 1604, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 01...	0945	1	0	0	0	0	40

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 01...	1	4	.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)
NOV 01...	0945	.0	.00	.00	.0	.00	.00	.00

DATE	DI-AZINON, TOTAL (UG/L)	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)
NOV 01...	.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 01...	.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.--WDR 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.--10 years, 4.57 ft³/s (0.129 m³/s), 4.14 in/yr (105 mm/yr), 3,310 acre-ft/yr (4.08 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)
aNov. 1	0815	*1,970	55.8	5.37	1.637	aSept. 15	0845	132	3.74	2.42	0.738
aAug. 1	2245	16	.45	1.86	.567						

a Water-quality samples were obtained during this flood event.

Minimum discharge, no flow at times.

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	346	.00	.00	.00	.00	.00	.00	.04	.00	2.1	.07
2	.00	42	.00	.00	.00	.00	.00	.03	.00	.00	3.2	.00
3	.00	16	.00	.00	.00	.00	.00	.00	.13	.00	.23	.00
4	.00	6.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	3.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	1.8	.00	.00	.00	.01	.00	.00	.25	.00	.00	.00
7	.00	.54	.00	.00	.02	.00	.00	.00	.01	.00	.00	.69
8	.00	1.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.68
9	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.22	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	11
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	11
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	49
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	24
17	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	13
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.3
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.0
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.6
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.57
22	.05	.00	.00	.00	.00	.00	4.1	.00	.00	.00	.00	.02
23	.07	.00	.00	.00	.00	.00	.25	.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	.09	.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	.12	418.35	.00	.00	.21	.01	4.57	.03	.43	.09	5.53	124.93
MEAN	.004	13.9	.000	.000	.008	.000	.15	.001	.014	.003	.18	4.16
MAX	.07	346	.00	.00	.14	.01	4.1	.03	.25	.09	3.2	49
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.93	.000	.000	.001	.000	.01	.000	.001	.000	.01	.28
IN.	.00	1.04	.00	.00	.00	.00	.01	.00	.00	.00	.01	.31
AC-FT	.2	830	.00	.00	.4	.02	9.1	.06	.9	.2	11	248
(††)	1.65	7.56	.18	.38	2.08	.69	3.05	1.32	1.79	.56	5.87	8.02

CAL YR 1977 TOTAL 1617.10 MEAN 4.43 MAX 346 MIN .00 CFSM .30 IN 4.01 AC-FT 3210 †† 33.58
WTR YR 1978 TOTAL 554.27 MEAN 1.52 MAX 346 MIN .00 CFSM .10 IN 1.37 AC-FT 1100 †† 33.15

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

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV										
01...	1020	393	165	7.4	19.0	640	250	9.2	102	3.4
AUG										
01...	1250	3.2	126	7.8	23.0	70	20	8.0	95	2.8
SEP										
15...	1400	39	436	7.9	26.5	45	15	8.4	106	.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)
NOV										
01...	79000	32000	47000	80	2	27	3.0	2.6	.1	2.5
AUG										
01...	K120000	K95000	73000	56	1	20	1.3	2.0	.1	3.3
SEP										
15...	19000	4600	4900	230	23	73	11	6.2	.2	1.5

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)
NOV									
01...	95	0	6.3	3.9	.1	5.4	98	440	124
AUG									
01...	67	0	2.3	1.0	.0	6.9	70	25	0
SEP									
15...	250	0	17	12	.1	11	255	15	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)
NOV									
01...	.55	.01	.56	.08	1.6	1.7	.12	17	.00
AUG									
01...	.21	.02	.23	.01	.57	.58	.14	6.3	.10
SEP									
15...	.62	.01	.63	.01	.49	.50	.00	5.4	.10

08181400 HELOTES CREEK AT HELOTES, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 01...	1020	1	0	0	15	1	40
AUG 01...	1250	1	300	0	0	2	20
SEP 15...	1400	2	--	0	10	2	20

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 01...	0	4	.0	0	0	4
AUG 01...	4	0	.1	0	0	10
SEP 15...	0	0	.2	0	0	0

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
NOV 01...	1020	.0	.00	.00	.0	.00	.00	.00	.00
AUG 01...	1250	.0	.00	.00	.0	.00	.00	.00	.00
SEP 15...	1400	.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)
NOV 01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG 01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP 15...	.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)
NOV 01...	.00	--	.00	0	.00	.00	.00	.00
AUG 01...	.00	.00	.00	0	.00	.00	.00	.00
SEP 15...	.00	.00	.00	0	.00	.00	.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.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV										
01...	1040	1.1	291	7.3	21.0	100	7	8.8	101	2.0
01...	1437	3.0	237	7.4	21.0	140	6	9.4	108	1.4
AUG										
01...	1355	.02	170	7.8	23.0	70	15	8.2	98	1.6
01...	1955	.05	168	--	--	90	260	--	--	2.7
01...	2005	.10	147	--	--	90	180	--	--	2.7
01...	2045	.05	172	--	--	80	25	--	--	1.8
01...	2135	.05	178	--	--	80	15	--	--	1.6
01...	2145	.06	142	--	--	90	120	--	--	2.0
01...	2305	8.2	257	7.8	24.0	100	5	9.0	110	2.4

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)
NOV										
01...	62000	6700	7900	130	7	50	1.9	2.8	.1	2.1
01...	22000	2000	8500	110	3	43	1.7	2.2	.1	1.8
AUG										
01...	K130000	4900	15000	78	13	28	1.9	1.9	.1	2.6
01...	K130000	6400	K14000	76	7	27	2.0	2.3	.1	3.5
01...	K98000	26000	19000	67	1	24	1.6	1.8	.1	3.0
01...	52000	5300	K10000	81	7	29	2.0	1.9	.1	2.1
01...	60000	4500	9700	81	8	29	2.2	2.2	.1	1.8
01...	24000	5300	9300	68	9	24	1.8	2.0	.1	1.7
01...	200000	26000	34000	130	32	49	2.0	2.8	.1	3.3

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)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
NOV										
01...	150	0	5.1	5.0	.0	8.3	149	6	2	3.0
01...	130	0	4.0	3.9	.0	7.8	129	6	2	1.6
AUG										
01...	79	0	6.9	2.9	.1	6.9	91	22	0	2.0
01...	84	0	5.4	3.1	.1	5.9	91	1040	448	.79
01...	80	0	3.7	2.5	.1	5.4	82	408	20	.59
01...	90	0	5.2	3.6	.1	6.6	95	45	0	.77
01...	90	0	7.0	5.0	.1	6.6	98	22	0	.41
01...	72	0	5.9	3.7	.1	6.3	81	288	0	.30
01...	120	0	9.5	7.2	.0	8.2	141	12	0	4.2

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, 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)	OIL AND GREASE (MG/L)
NOV									
01...	.01	3.0	.03	.85	.88	.02	10	.20	0
01...	.01	1.6	.00	.86	.86	.02	12	.10	0
AUG									
01...	.03	2.0	.00	.58	.58	.01	6.3	.10	0
01...	.02	.81	.05	2.4	2.4	.17	21	.00	0
01...	.02	.61	.05	1.4	1.4	.15	17	.00	0
01...	.02	.79	.00	1.0	1.0	.04	8.7	.10	0
01...	.03	.44	.00	.50	.50	.01	8.0	--	0
01...	.02	.32	.00	1.1	1.1	.05	10	--	--
01...	.03	4.2	.01	1.5	1.5	.04	19	.20	--

08181410 RANCH CREEK NEAR HELOTES, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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							
01...	1040	0	0	1	0	0	40
01...	1437	1	0	0	5	0	40
AUG							
01...	1355	1	--	1	10	3	50
01...	1955	1	20	<1	10	11	30
01...	2005	1	10	<1	0	9	20
01...	2045	1	10	<1	10	9	40
01...	2145	0	300	1	0	5	30
01...	2305	0	200	1	10	2	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)
NOV						
01...	0	4	.0	0	0	10
01...	1	4	.0	0	0	10
AUG						
01...	3	10	.0	0	0	10
01...	0	2	.0	1	0	7
01...	0	1	.0	1	0	5
01...	0	3	.0	1	0	10
01...	3	0	.0	0	0	10
01...	2	0	.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)
NOV									
01...	1040	.0	.00	.00	.0	.00	.00	.00	.00
01...	1437	.0	.00	.00	.0	.00	.00	.00	.00
AUG									
01...	1355	.0	.00	.00	.0	.00	.00	.00	.00
01...	2005	.0	.00	.00	.0	.00	.00	.00	.01
01...	2045	.0	.00	.00	.0	.00	.00	.00	.01
01...	2305	.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)
NOV									
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG									
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
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)
NOV								
01...	.00	--	.00	0	.00	.00	.00	.00
01...	.00	--	.00	0	.00	.00	.00	.00
AUG								
01...	.00	.00	.00	0	.00	.00	.00	.00
01...	.00	.00	.00	0	.00	.00	.00	.00
01...	.00	.00	.00	0	.00	.00	.00	.00
01...	.00	.00	.00	0	.00	.00	.00	.00

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 current year.

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.--9 years, 0.54 ft³/s (0.0153 m³/s), 6.16 in/yr (156 mm/yr), 391 acre-ft/yr (482,100 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), 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)
a Oct. 22	0815	152	4.30	2.48	0.756	a July 28	1545	159	4.50	2.52	0.768
a Nov. 1	1500	128	3.62	2.35	.716	a Aug. 1	2130	119	3.37	2.30	.701
Apr. 10	0345	160	4.53	2.53	.771	Sept. 7	2045	*186	5.27	2.67	.814
a June 6	2300	61	1.73	1.95	.594						

a Water-quality samples were obtained during this flood event.

Minimum discharge, 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	24	.00	.00	.00	.00	.00	.00	.00	.00	24	.79
2	.00	4.4	.00	.00	.00	.00	.00	2.3	.00	.00	6.6	.00
3	.00	2.1	.00	.00	.00	.00	.00	.39	3.8	.00	.08	.00
4	.00	1.1	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00
5	.00	.12	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00
6	.00	.00	.00	.00	.00	1.1	.00	.00	3.4	.00	.02	.00
7	.00	.00	.00	.00	3.9	1.3	.00	.00	4.7	.00	.02	22
8	.00	4.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.8
9	.00	.46	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
10	.00	.04	.00	.00	.00	.00	13	.00	.00	.00	.00	.02
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13
12	.00	.00	.00	.00	1.3	.00	.00	.00	.00	.00	.00	.08
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.5
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
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	.99	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	16	.00	.00	.00	.00	.00	7.8	.00	.00	.00	.00	.00
23	4.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.04	.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	20	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.35	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	1.3	.18	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.04	.00	---
TOTAL	22.63	36.72	.00	.00	5.20	2.40	20.80	2.69	11.90	21.69	30.95	35.60
MEAN	.73	1.22	.000	.000	.19	.077	.69	.087	.40	.70	1.00	1.19
MAX	16	24	.00	.00	3.9	1.3	13	2.3	4.7	20	24	22
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.61	1.03	.000	.000	.16	.07	.58	.07	.34	.59	.84	1.00
IN.	.71	1.15	.00	.00	.16	.07	.65	.08	.37	.68	.97	1.11
AC-FT	45	73	.00	.00	10	4.8	41	5.3	24	43	61	71
(††)	4.13	2.81	.41	.45	1.72	1.06	2.90	1.73	2.84	2.64	4.01	5.74

CAL YR 1977 TOTAL 304.13 MEAN .83 MAX 63 MIN .00 CFSM .70 IN 9.50 AC-FT 603 †† 26.97
WTR YR 1978 TOTAL 190.58 MEAN .52 MAX 24 MIN .00 CFSM .44 IN 5.95 AC-FT 378 †† 30.44

†† 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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
OCT										
22...	1210	20	92	8.1	20.5	80	50	7.8	89	2.6
NOV										
01...	1410	99	60	7.5	19.0	100	60	9.0	100	2.4
JUN										
07...	0030	35	64	8.4	22.0	90	80	6.4	75	3.0
JUL										
28...	1900	56	72	--	--	80	50	--	--	5.0
AUG										
01...	1317	32	109	7.2	23.5	70	10	6.8	82	2.2

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	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT										
22...	170000	14000	17000	26	0	9.4	.5	.9	.1	1.8
NOV										
01...	64000	21000	20000	35	3	13	.6	.9	.1	2.0
JUN										
07...	48000	39000	25000	26	5	9.8	.4	.6	.1	1.5
JUL										
28...	27000	8000	12000	27	0	10	.5	2.0	.2	2.7
AUG										
01...	K160000	54000	48000	50	3	19	.7	1.2	.1	2.5

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)
OCT									
22...	36	0	1.3	.8	.0	2.7	35	63	20
NOV									
01...	39	0	2.6	1.7	.0	2.4	42	103	3
JUN									
07...	24	1	3.2	1.0	.0	2.1	32	110	15
JUL									
28...	38	0	3.8	1.4	.0	2.4	42	81	5
AUG									
01...	58	0	2.3	1.2	.0	6.1	62	14	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)
OCT									
22...	.27	.01	.28	.00	.36	.36	.16	7.0	.10
NOV									
01...	.18	.01	.19	.06	.29	.35	.13	5.7	.10
JUN									
07...	.42	.02	.44	.11	.33	.44	.08	4.5	.10
JUL									
28...	.24	.03	.27	.06	.74	.80	.25	8.6	.20
AUG									
01...	.13	.03	.16	.00	.39	.39	.07	6.2	.10

08181450 LEON CREEK TRIBUTARY AT KELLY AIR FORCE BASE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JUN 07...	0030	5	100	0	0	3	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)
JUN 07...	3	0	.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)
OCT 22...	1210	.0	.00	.00	.0	.00	.00	.84
NOV 01...	1410	.0	.00	.00	.0	.07	.00	.20
JUN 07...	0030	--	--	--	--	--	--	--

DATE	DI-AZINON, TOTAL (UG/L)	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)
OCT 22...	.00	.04	.00	.00	.00	.00	.00	.00	.00
NOV 01...	.04	.00	.00	.01	.00	.00	.00	.00	.00
JUN 07...	--	--	--	--	--	--	--	--	--

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 22...	.00	.00	.00	0	.00	.00	.00	.00
NOV 01...	.00	.00	.00	0	.00	.00	.00	.00
JUN 07...	--	--	--	--	--	.02	.01	.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), 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 that no releases were made of sewage effluent from Mitchell Lake into river above gage during periods of high water, and 14,650 acre-ft (18.1 hm³) of sewage effluent was made into the river just above the Mitchell Lake discharge point from the Leon Creek plant. A considerable part of the low flow is wastewater from Kelly Field Air Force Base which enters via Leon Creek. City of San Antonio Sanitation Department temperature and gage-height telemeter at station.

AVERAGE DISCHARGE.--39 years (water years 1930-31, 1939-78), 161 ft³/s (4.560 m³/s), 116,600 acre-ft/yr (144 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 Texas Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,440 ft³/s (267 m³/s) Aug. 4, gage height, 25.95 ft (7.910 m), no other peak above base of 1,500 ft³/s (42.5 m³/s); 58 ft³/s (1.64 m³/s) July 23, 25, 27, 28.

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	123	254	146	129	134	127	98	105	99	77	247	264
2	123	909	145	129	133	126	95	104	99	75	788	269
3	141	424	146	133	131	126	96	122	104	75	434	243
4	122	207	148	131	133	122	96	110	113	74	7760	285
5	121	178	144	133	133	121	95	107	111	73	6250	326
6	118	167	140	133	131	125	93	106	114	72	3370	323
7	112	167	138	134	165	163	97	107	174	71	2320	331
8	113	226	142	131	168	139	102	107	182	70	1890	907
9	111	234	143	129	150	130	102	105	116	70	1720	749
10	109	182	138	127	141	126	480	99	96	71	1300	490
11	109	182	136	130	133	125	280	103	111	72	1100	501
12	108	174	143	134	144	122	155	106	96	72	977	509
13	113	165	141	137	145	120	130	105	94	70	856	556
14	120	163	142	133	136	119	124	103	94	69	762	1000
15	118	165	142	136	133	117	118	100	96	66	689	940
16	117	163	138	132	133	115	115	98	102	65	630	1100
17	116	161	140	133	135	112	114	98	101	66	558	828
18	117	160	138	135	134	108	115	97	97	65	508	927
19	114	156	140	132	129	108	111	95	96	64	462	847
20	114	157	138	130	128	102	110	96	93	66	428	728
21	114	158	138	130	126	97	109	98	93	63	397	658
22	267	154	133	129	125	97	114	98	91	62	387	610
23	199	154	132	129	125	95	168	98	90	61	366	578
24	231	155	132	130	125	103	133	98	88	63	339	509
25	167	151	129	135	124	97	116	98	85	62	312	464
26	145	149	129	131	124	97	102	98	82	63	287	432
27	130	149	123	130	126	98	102	99	76	60	262	415
28	128	153	120	129	128	100	108	98	76	60	256	388
29	128	155	122	130	---	103	107	98	77	139	251	366
30	130	154	128	133	---	103	106	98	76	68	256	363
31	128	---	132	135	---	101	---	99	---	68	255	---
TOTAL	4106	6126	4246	4082	3772	3544	3891	3153	3022	2172	36417	16906
MEAN	132	204	137	132	135	114	130	102	101	70.1	1175	564
MAX	267	909	148	137	168	163	480	122	182	139	7760	1100
MIN	108	149	120	127	124	95	93	95	76	60	247	243
AC-FT	8140	12150	8420	8100	7480	7030	7720	6250	5990	4310	72230	33530

CAL YR 1977 TOTAL 145724 MEAN 399 MAX 3020 MIN 107 AC-FT 289000
WTR YR 1978 TOTAL 91437 MEAN 251 MAX 7760 MIN 60 AC-FT 181400

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 21...	1315	112	879	7.6	22.5	10	20	6.6	7	.8	320	78
NOV 11...	1405	180	753	8.0	16.0	20	30	8.9	93	1.0	300	90
DEC 09...	1445	144	870	7.5	14.0	10	10	7.9	79	2.4	340	98
JAN 27...	1340	127	868	7.9	14.0	10	15	8.5	85	8.2	340	90
FEB 17...	1340	134	877	7.6	13.0	15	15	7.9	77	7.7	350	110
MAR 17...	1220	106	937	7.4	18.0	20	25	7.1	77	8.5	370	140
APR 20...	1545	110	927	7.7	21.0	35	40	5.9	68	11	340	110
MAY 11...	1350	103	908	7.4	26.0	30	40	4.8	60	7.4	320	95
JUN 09...	1200	115	762	7.4	26.5	55	70	6.2	78	7.0	270	69
JUL 31...	1115	67	710	7.7	26.0	30	70	6.8	84	3.0	270	77
AUG 21...	1045	392	667	7.5	27.0	10	35	6.9	87	1.6	290	83
SEP 28...	1500	384	594	8.0	23.5	20	25	7.5	90	.8	250	51

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 21...	92	23	58	1.4	4.0	300	0	95	73	.4	14	507
NOV 11...	87	19	47	1.2	4.7	250	0	77	61	.3	13	432
DEC 09...	100	23	54	1.3	4.0	300	0	98	72	.4	14	513
JAN 27...	100	23	55	1.3	3.8	310	0	94	77	.4	13	519
FEB 17...	99	24	58	1.4	4.1	290	0	97	85	.4	13	524
MAR 17...	110	24	59	1.3	3.7	290	0	100	78	.4	9.7	528
APR 20...	100	23	59	1.4	4.5	280	0	110	84	.4	14	533
MAY 11...	92	23	60	1.5	4.4	280	0	110	83	.3	14	525
JUN 09...	80	16	53	1.4	5.5	240	0	88	68	.4	10	439
JUL 31...	80	18	46	1.2	4.5	240	0	93	65	.3	12	437
AUG 21...	84	19	30	.8	2.9	250	0	70	44	.2	13	387
SEP 28...	73	16	25	.7	2.9	240	0	57	36	.2	12	340

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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											
21...	30	8	6.2	.09	6.3	.51	.69	1.2	.91	2.4	2
NOV											
11...	51	18	4.2	.05	4.2	.24	.69	.93	.72	4.3	2
DEC											
09...	24	2	4.8	.14	4.9	.29	.68	.97	.80	3.2	5
JAN											
27...	28	5	4.3	.47	4.8	1.6	1.1	2.7	1.4	4.3	3
FEB											
17...	33	8	4.5	.48	5.0	1.9	.70	2.6	2.1	5.3	1
MAR											
17...	50	7	3.9	.75	--	1.8	1.4	--	1.4	21	15
APR											
20...	69	14	3.9	.47	4.4	2.0	1.0	3.0	1.2	5.7	23
MAY											
11...	18	3	3.9	.52	4.4	1.2	2.2	3.4	.37	6.1	10
JUN											
09...	134	24	1.7	.30	2.0	1.6	2.1	3.7	.99	7.4	1
JUL											
31...	126	19	3.5	.05	3.5	.09	.71	.80	.25	7.1	3
AUG											
21...	78	13	2.7	.12	2.8	.22	.39	.61	.30	5.0	0
SEP											
28...	58	12	2.3	.15	2.4	.24	.69	.93	.43	5.3	1

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
FEB							
17...	1340	1	200	0	0	0	10
MAY							
11...	1350	1	300	0	0	1	0
AUG							
21...	1045	1	200	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)
FEB						
17...	1	20	.0	1	0	10
MAY						
11...	2	100	.0	1	0	20
AUG						
21...	0	10	.0	0	0	10

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 27...	1340	.0	14	.00	.00	.0	.0	16	.00	.9
APR 20...	1545	.0	5	.00	.00	.0	.0	0	.00	.6
JUL 31...	1115	.0	13	.00	.00	.0	.0	15	.00	2.6

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 27...	.00	1.9	.00	.0	.06	.00	.5	.00	.00	.0
APR 20...	.00	1.1	.00	.4	.11	.00	.3	.00	.00	.0
JUL 31...	.00	4.0	.00	.0	.02	.00	.6	.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 27...	.00	.00	.0	.00	.0	.01	.0	.00	.00
APR 20...	.00	.00	.0	.00	.6	.01	.0	.00	.00
JUL 31...	.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)
JAN 27...	.00	--	.00	0	0	.00	.00	.00	.00
APR 20...	.00	--	.00	0	0	.00	.01	.00	.00
JUL 31...	.00	.00	.00	0	0	.00	.00	.01	.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 except those for period of no gage-height record, which are fair. 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 Reservoir 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 23,030 acre-ft (2.84 hm³) of sewage effluent was discharged into the San Antonio River from the Salado Creek Plant and 85,060 acre-ft (105 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 7,570 acre-ft (9.33 hm³) was pumped into the Braunig Plant Lake and 11,900 acre-ft (14.7 hm³) was pumped into Calaveras Lake. During the current year, 629 acre-ft (0.776 hm³) was released from Braunig Lake. For additional information relative to sewage effluent, see Medina River at San Antonio (station 08181500).

AVERAGE DISCHARGE.--16 years (water years 1963-78), 507 ft³/s (14.36 m³/s), 367,300 acre-ft/yr (453 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), 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. 2	0200	*12,400	351	31.16	9.498	Sept. 8	0700	8,490	240	28.13	8.574
Aug. 2	0600	9,100	258	28.74	8.760	Sept. 14	0600	11,900	337	*31.27	9.531
Aug. 5	0100	11,500	326	30.91	9.421						

Minimum discharge, 52 ft³/s (1.47 m³/s) July 28.

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	271	4160	544	460	449	425	355	367	408	144	1970	561
2	362	7680	521	455	443	430	333	365	645	134	6030	578
3	467	1270	502	463	437	425	333	830	850	132	1470	392
4	306	720	503	442	432	420	330	408	543	136	6780	414
5	287	605	517	446	431	420	326	374	347	135	10300	668
6	279	581	500	446	435	740	325	358	344	136	5490	510
7	273	584	496	437	781	690	329	357	3740	132	2990	532
8	268	1080	505	436	727	475	331	364	1330	119	2110	5170
9	283	976	500	440	482	445	335	353	462	109	1950	1400
10	298	645	482	426	462	390	1880	329	383	117	1580	726
11	317	615	488	440	443	430	1040	410	353	124	1280	848
12	305	586	559	433	675	425	493	381	353	122	1150	748
13	304	571	518	383	550	420	434	324	344	122	1020	2950
14	317	607	506	369	465	410	418	317	327	122	925	7230
15	314	586	500	367	500	400	400	275	319	118	858	1710
16	317	561	495	392	435	390	388	202	323	108	797	1390
17	365	568	488	413	510	385	389	208	313	112	738	1130
18	350	564	479	387	470	380	397	203	297	122	681	1190
19	315	539	492	387	430	365	381	200	295	119	626	1140
20	304	541	485	392	425	355	374	211	300	124	584	1030
21	323	569	481	386	420	345	371	336	290	119	556	949
22	1450	563	475	381	418	335	700	268	287	115	549	903
23	834	551	476	389	430	335	1680	231	283	108	527	886
24	827	521	472	390	420	660	522	216	276	109	498	822
25	479	518	461	393	410	450	441	255	269	119	476	773
26	403	534	447	386	405	376	387	309	223	116	441	738
27	399	515	465	418	415	371	371	295	148	120	408	716
28	395	526	464	429	425	374	380	285	155	180	397	711
29	376	584	471	427	---	364	368	283	149	572	422	675
30	383	636	470	438	---	367	361	461	149	324	466	652
31	387	---	471	446	---	357	---	349	---	394	476	---
TOTAL	12558	29556	15233	12897	13325	13154	15172	10124	14505	4763	54545	38142
MEAN	405	985	491	416	476	424	506	327	484	154	1760	1271
MAX	1450	7680	559	463	781	740	1880	830	3740	572	10300	7230
MIN	268	515	447	367	405	335	325	200	148	108	397	392
AC-FT	24910	58620	30210	25580	26430	26090	30090	20080	28770	9450	108200	75650

CAL YR 1977 TOTAL 312509 MEAN 856 MAX 13300 MIN 268 AC-FT 619900
WTR YR 1978 TOTAL 233974 MEAN 641 MAX 10300 MIN 108 AC-FT 464100

NOTE.--No gage-height record Feb. 11 to Mar. 24.

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.

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, 982 micromhos July 2; minimum daily, 263 micromhos Sept. 14.
WATER TEMPERATURES: Maximum daily, 30.5°C Aug. 18; minimum daily, 12.0°C on several days during December, January, and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 21...	1235	270	861	7.3	24.5	15	8	4.1	50	20	280	34
NOV 11...	1330	566	771	7.8	18.0	30	30	7.6	83	8.4	--	--
DEC 09...	1320	459	840	7.2	16.5	15	10	5.3	56	8.7	300	56
JAN 27...	1300	401	855	7.6	15.0	15	10	5.6	57	9.0	--	--
FEB 17...	1240	470	891	7.2	15.5	40	15	5.2	54	8.1	300	68
MAR 17...	1140	385	876	7.4	19.0	25	10	5.2	58	8.6	300	72
APR 26...	1230	359	830	7.3	23.5	45	30	5.2	63	16	280	76
MAY 11...	1515	394	858	7.4	27.5	40	290	3.8	49	23	280	57
JUN 09...	1025	448	691	7.3	26.5	90	150	4.9	62	14	240	73
JUL 31...	1000	326	559	7.3	28.0	40	70	4.3	54	13	180	46
AUG 21...	1230	537	731	7.5	28.5	20	35	6.0	78	3.2	280	74
SEP 28...	1300	671	696	7.8	24.5	20	30	6.3	77	2.7	260	42

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 21...	81	19	62	1.6	5.2	300	0	75	78	.4	16	485
NOV 11...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 09...	88	20	59	1.5	5.5	300	0	69	77	.5	16	483
JAN 27...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 17...	86	20	62	1.6	7.5	280	0	74	86	.4	15	489
MAR 17...	88	20	60	1.5	5.3	280	0	77	76	.4	13	478
APR 26...	83	18	56	1.5	6.2	250	0	76	74	.4	14	451
MAY 11...	80	19	64	1.7	7.3	270	0	73	87	.5	15	479
JUN 09...	70	17	47	1.3	7.0	210	0	73	63	.4	11	392
JUL 31...	53	11	29	.9	5.2	160	0	53	47	.3	10	287
AUG 21...	82	18	45	1.2	4.5	250	0	73	56	.3	14	416
SEP 28...	76	16	40	1.1	4.5	260	0	71	54	.3	13	403

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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												
21...	20	5	2.5	.90	3.4	3.7	1.0	4.7	8.0	4.9	2	.20
NOV												
11...	78	26	2.7	.41	3.1	2.0	1.5	3.5	3.0	5.9	3	.20
DEC												
09...	30	4	2.9	1.4	4.3	2.5	.90	3.4	4.7	5.7	2	.10
JAN												
27...	25	7	1.3	3.3	4.6	2.6	1.5	4.1	1.7	7.1	2	.20
FEB												
17...	36	10	3.0	1.3	4.3	4.6	1.5	6.1	2.4	7.8	3	.30
MAR												
17...	35	12	3.0	1.4	4.4	1.9	2.0	3.9	1.9	7.5	2	.10
APR												
26...	67	13	2.1	1.1	3.2	3.9	.80	4.7	1.6	7.0	4	.20
MAY												
11...	238	94	2.2	1.4	3.6	3.0	1.9	4.9	1.6	17	1	.10
JUN												
09...	276	48	2.0	.57	2.6	1.8	1.2	3.0	.01	12	2	.00
JUL												
31...	139	26	2.0	.35	2.3	.38	1.6	2.0	1.2	14	4	.20
AUG												
21...	76	12	3.3	.77	4.1	.32	.59	.91	1.1	6.8	0	.10
SEP												
28...	112	19	2.6	.67	3.3	1.1	2.3	3.4	1.3	6.0	1	.20

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
FEB							
17...	1240	1	100	0	10	1	20
MAY							
11...	1515	3	200	0	10	0	0
AUG							
21...	1230	2	300	0	10	1	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)
FEB						
17...	1	40	.0	4	0	20
MAY						
11...	3	20	.0	1	0	20
AUG						
21...	0	0	.0	0	0	20

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 27...	1300	.0	170	.00	.00	.0	.0	130	.00	12
APR 26...	1230	.0	20	.00	.00	.0	.0	19	.00	4.0
JUL 31...	1000	.0	10	.00	.00	.0	.0	3	.01	.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)
JAN 27...	.00	18	.00	.0	.30	.00	5.0	.00	.00	.0
APR 26...	.00	4.4	.00	1.6	.44	.01	.8	.00	.00	.0
JUL 31...	.00	.4	.01	.0	.22	.00	.2	.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 27...	.00	.00	.0	.00	.0	.03	.0	.00	.00
APR 26...	.00	.00	.0	.00	.1	.01	.0	.04	.00
JUL 31...	.00	.00	.0	.00	.0	.00	.0	.03	.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)
JAN 27...	.00	--	.00	0	0	.00	.36	.02	.00
APR 26...	.00	--	.00	0	0	.00	.15	.07	.02
JUL 31...	.00	.00	.00	0	0	.00	.16	.09	.14

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	12558	740	410	14000	65	2200	68	2300	250
NOV. 1977.....	29556	606	340	26900	48	3860	54	4300	220
DEC. 1977.....	15233	830	460	19000	76	3140	77	3170	290
JAN. 1978.....	12897	842	470	16300	78	2710	78	2730	290
FEB. 1978.....	13325	824	460	16500	76	2720	77	2760	280
MAR. 1978.....	13154	822	460	16200	75	2680	76	2710	280
APR. 1978.....	15172	789	440	18000	71	2910	73	2990	270
MAY 1978.....	10124	853	480	13000	79	2170	80	2180	290
JUNE 1978.....	14505	673	370	14600	56	2210	61	2390	240
JULY 1978.....	4763	838	470	6000	78	997	78	1000	290
AUG. 1978.....	54545	512	280	41700	36	5260	44	6530	200
SEPT 1978.....	38142	484	270	27800	34	3530	41	4260	190
TOTAL	233974	**	**	230000	**	34400	**	37300	**
WTD.AVG.	641.02	655	360	**	54	**	59	**	240

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	852	500	810	814	856	888	894	845	835	966	661	766
2	780	332	821	810	849	880	891	848	613	982	400	668
3	692	464	837	809	856	870	853	571	671	922	502	769
4	745	678	847	820	869	898	859	765	608	911	450	832
5	798	789	803	836	862	888	894	812	708	918	421	722
6	800	804	815	842	827	600	913	885	794	878	402	710
7	820	784	831	877	750	562	909	896	395	911	420	751
8	836	550	834	857	745	762	909	875	438	949	470	309
9	833	602	854	830	740	807	921	859	701	966	500	453
10	804	728	837	826	833	850	783	900	777	926	522	583
11	798	771	847	848	859	921	601	907	842	875	550	617
12	833	765	783	839	815	895	728	830	829	911	603	596
13	845	789	794	861	679	844	809	862	835	929	619	400
14	853	784	831	864	774	834	846	966	875	918	618	263
15	840	792	837	867	825	877	891	896	899	957	653	413
16	863	831	844	818	804	884	880	862	896	953	667	506
17	819	819	850	804	859	870	859	922	918	907	693	587
18	814	831	857	827	834	898	846	930	937	868	708	537
19	853	853	824	845	846	891	880	930	903	903	738	534
20	856	846	840	851	830	849	909	970	878	907	756	566
21	856	806	844	867	849	880	930	900	933	926	755	600
22	536	833	844	851	859	884	800	804	941	961	782	613
23	529	827	840	827	875	884	545	827	949	974	790	625
24	550	856	868	830	883	700	645	893	966	899	796	635
25	651	830	804	851	893	750	733	910	965	858	807	645
26	764	804	810	861	890	831	809	922	925	903	831	662
27	793	818	804	861	843	815	859	938	885	910	857	695
28	813	806	813	881	856	850	873	945	926	903	847	708
29	825	821	835	871	---	870	880	950	925	614	819	728
30	873	798	841	838	---	884	891	865	933	700	860	733
31	805	---	831	848	---	880	---	784	---	549	807	---
MEAN	785	750	830	843	831	839	835	873	823	892	655	608

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	25.0	17.0	18.0	13.0	19.5	24.0	24.0	27.0	27.0	27.0	28.0
2	27.0	19.0	16.5	15.0	14.0	18.5	24.0	24.5	26.0	27.0	---	26.0
3	25.5	18.5	20.0	13.5	13.5	18.0	23.0	21.0	26.0	29.0	26.0	26.0
4	24.5	18.5	20.0	15.5	15.0	16.0	23.5	21.5	25.0	28.0	---	27.0
5	24.5	22.0	17.0	16.5	15.0	17.0	24.0	24.0	27.0	29.0	26.0	28.5
6	25.5	21.0	16.5	18.0	13.5	19.0	23.5	25.0	28.5	29.5	25.0	27.0
7	25.5	21.0	16.0	19.0	13.5	18.0	23.5	25.0	25.0	29.5	---	27.0
8	25.0	21.0	19.0	19.0	12.0	16.5	24.0	25.5	24.5	28.0	---	29.0
9	23.0	19.0	18.0	14.5	12.0	16.0	24.0	25.0	26.0	28.0	---	25.0
10	25.0	17.0	15.0	14.5	12.0	18.0	23.0	26.0	25.0	29.5	29.0	25.5
11	24.5	16.5	20.0	13.5	15.0	20.0	20.0	26.5	26.0	29.5	---	27.0
12	21.5	17.0	16.5	13.5	18.0	20.0	19.5	26.5	28.0	29.5	27.0	27.0
13	20.5	20.0	16.5	14.5	14.5	19.0	19.5	25.0	29.0	30.0	27.0	28.0
14	20.0	16.0	18.0	15.0	14.5	17.0	21.0	23.0	28.5	30.0	28.5	27.0
15	20.0	20.0	17.0	17.0	14.5	18.5	25.0	27.0	29.0	28.0	29.0	26.5
16	22.0	20.5	18.5	16.5	14.0	16.5	24.0	26.0	29.0	28.0	28.5	27.0
17	20.5	21.0	18.0	14.5	15.5	19.0	24.0	26.5	27.0	29.0	28.5	27.0
18	21.5	21.0	19.0	13.5	14.0	20.0	23.5	27.0	27.0	30.0	30.5	28.0
19	23.5	23.0	18.0	12.0	15.0	21.0	23.5	27.0	28.0	30.0	27.0	28.5
20	24.0	24.0	18.0	12.0	14.5	20.5	21.5	25.0	29.0	29.0	27.0	28.0
21	24.0	23.0	15.5	14.0	14.5	22.0	---	24.0	28.5	29.0	28.5	28.0
22	22.0	19.5	12.0	14.0	14.5	23.0	22.0	25.5	28.5	28.0	28.5	27.0
23	23.0	20.0	15.0	13.5	15.0	24.5	21.0	26.0	28.5	28.0	29.0	25.0
24	---	22.0	18.0	14.5	15.0	21.5	20.5	26.5	27.0	29.5	28.5	25.0
25	23.5	---	15.0	14.5	20.0	20.0	23.5	26.5	28.0	29.5	29.5	25.5
26	23.5	---	---	13.5	19.0	21.0	23.0	26.5	29.0	29.5	27.0	25.5
27	24.0	---	14.5	13.5	18.0	19.5	21.5	26.0	29.5	29.0	27.0	25.5
28	24.0	19.5	15.5	15.0	19.0	---	23.0	26.0	29.0	29.0	28.5	24.5
29	23.0	19.5	15.5	15.0	---	20.0	23.0	---	28.5	27.0	28.5	24.0
30	25.0	16.5	17.0	13.5	---	20.5	23.0	27.0	28.5	28.0	29.0	23.0
31	24.5	---	18.0	13.5	---	21.5	---	26.5	---	28.0	27.0	---
MEAN	23.5	20.0	17.0	15.0	15.0	19.5	22.5	25.5	27.5	29.0	28.0	26.5

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 Falls 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. Diversion 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 slightly regulated by Calaveras Lake on Calaveras Creek, which enters San Antonio River downstream from San Anto- nio River near Elmendorf. Records furnished by San Antonio City Public Service Board show that during the current year 4,290 acre-ft (5.29 hm³) was released into Calaveras Creek from Calaveras Lake.

AVERAGE DISCHARGE.--53 years (water years 1926-78), 383 ft³/s (10.85 m³/s), 277,500 acre-ft/yr (342 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, that of Sept. 29, 1946. 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), 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. 4	0400	4,580	130	7.74	2.359	Sept. 16	0300	4,750	135	8.00	2.438
Aug. 7	0900	*6,750	191	11.07	3.374						

Minimum discharge, 84 ft³/s (2.38 m³/s) July 18, 19, 25, 26.

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	300	414	572	453	425	432	369	393	427	148	406	505
2	284	1190	572	451	430	438	364	391	333	150	1370	535
3	273	3610	522	442	429	430	358	456	614	139	3060	615
4	472	3790	502	437	422	430	339	748	721	127	3170	468
5	380	1020	490	439	420	428	336	550	780	121	2590	410
6	298	670	480	428	417	422	338	425	421	124	4810	578
7	276	598	485	426	419	438	333	404	900	126	6520	565
8	279	581	484	421	532	881	330	392	1880	129	4830	582
9	274	732	481	415	903	657	336	388	2400	121	3150	2590
10	282	1220	482	414	548	485	343	390	728	108	2400	2700
11	267	745	484	417	460	446	1180	370	461	103	2010	997
12	308	610	475	414	438	425	1600	363	395	98	1490	889
13	309	590	493	416	473	426	646	456	371	108	1270	1160
14	301	568	516	405	756	416	488	374	367	109	1130	1700
15	315	554	502	366	554	414	448	340	353	108	1020	3770
16	331	577	484	352	454	408	430	327	337	112	936	4040
17	321	549	482	343	509	405	415	248	326	111	871	1720
18	344	540	478	360	472	393	400	198	323	99	793	1310
19	390	537	475	379	548	386	405	193	313	90	710	1250
20	343	535	465	360	469	372	406	193	295	107	646	1230
21	319	520	460	359	430	359	402	409	300	108	598	1130
22	310	511	458	370	426	358	416	410	294	118	555	1030
23	1010	532	459	364	421	352	905	314	290	116	531	977
24	1230	530	463	359	424	358	1710	253	284	111	520	945
25	846	518	459	366	434	450	850	215	276	102	499	899
26	648	502	457	368	436	557	506	202	265	95	476	824
27	449	507	445	368	429	403	437	274	261	119	453	783
28	439	508	437	365	420	364	403	300	203	135	424	746
29	435	493	445	415	---	378	402	285	148	129	401	729
30	427	504	445	411	---	370	404	267	153	400	412	697
31	413	---	450	411	---	374	---	334	---	458	423	---
TOTAL	12873	24755	14902	12294	13498	13455	16299	10862	15219	4229	48474	36374
MEAN	415	825	481	397	482	434	543	350	507	136	1564	1212
MAX	1230	3790	572	453	903	881	1710	748	2400	458	6520	4040
MIN	267	414	437	343	417	352	330	193	148	90	401	410
AC-FT	25530	49100	29560	24390	26770	26690	32330	21540	30190	8390	96150	72150

CAL YR 1977 TOTAL 351111 MEAN 962 MAX 11800 MIN 259 AC-FT 696400
WTR YR 1978 TOTAL 223234 MEAN 612 MAX 6520 MIN 90 AC-FT 442800

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 1977 TO SEPTEMBER 1978

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 21...	1045	313	892	7.2	22.5	3.7	44	5.0	310	76
NOV 11...	1155	711	635	7.2	17.5	5.2	56	7.6	230	64
DEC 09...	1120	479	930	7.1	15.0	4.9	50	5.9	330	90
JAN 27...	1115	368	873	7.6	12.5	5.5	53	3.8	320	93
FEB 17...	1115	530	868	7.2	13.0	4.2	41	8.2	300	90
MAR 17...	1025	393	891	7.4	18.0	5.1	55	1.9	330	110
APR 26...	1045	516	519	7.0	20.5	4.3	49	6.2	180	47
MAY 24...	1130	253	971	7.1	26.5	1.8	23	16	300	68
JUN 27...	1045	252	1130	7.8	30.0	6.4	84	4.4	340	110
JUL 19...	1130	95	1150	8.0	30.5	7.4	99	7.0	390	140
AUG 24...	1110	520	805	8.0	29.0	5.8	76	1.1	300	77
SEP 25...	1045	919	652	7.9	26.0	6.2	78	1.0	250	56

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 21...	86	22	66	1.6	5.6	280	0	97	78	.4
NOV 11...	70	13	39	1.1	5.8	200	0	65	53	.3
DEC 09...	95	22	66	1.6	5.9	290	0	97	90	.5
JAN 27...	93	22	50	1.2	5.1	280	0	89	78	.4
FEB 17...	90	19	62	1.6	6.3	260	0	91	82	.4
MAR 17...	99	21	64	1.5	5.2	270	0	95	79	.3
APR 26...	55	10	31	1.0	7.0	160	0	56	38	.3
MAY 24...	88	19	81	2.0	8.4	280	0	99	99	.5
JUN 27...	100	23	90	2.1	8.0	290	0	110	120	.5
JUL 19...	110	28	120	2.6	8.3	310	0	180	160	.5
AUG 24...	85	21	52	1.3	4.7	270	0	91	70	.3
SEP 25...	75	16	38	1.0	4.1	240	0	63	49	.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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT 21...	16	509	5.5	.73	6.2	.67	1.1	1.8	9.8
NOV 11...	13	358	2.6	.51	3.1	.05	1.8	1.8	25
DEC 09...	16	535	5.3	.49	5.8	.85	.65	1.5	5.7
JAN 27...	15	491	5.5	.57	6.1	.46	.64	1.1	2.1
FEB 17...	15	494	5.1	.48	5.6	1.1	1.5	2.6	2.3
MAR 17...	13	510	4.9	.23	5.1	.12	1.1	1.2	1.9
APR 26...	9.8	286	2.5	.23	2.7	.15	1.4	1.5	.94
MAY 24...	14	547	4.2	1.1	5.3	1.5	1.8	3.3	2.0
JUN 27...	14	608	5.0	.25	5.2	.01	1.2	1.2	1.5
JUL 19...	17	777	2.3	.06	2.4	.18	1.7	1.9	2.1
AUG 24...	15	472	4.3	.05	4.3	.04	1.1	1.1	.83
SEP 25...	13	377	2.9	.14	3.0	.02	.94	.96	.63

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.--WDR TX-73-1: 1964-65, 1966(P), 1968-72(P).

GAGE.--Water-stage recorder. 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.--16 years, 28.5 ft³/s (0.807 m³/s), 5.66 in/yr (144 mm/yr), 20,650 acre-ft/yr (25.5 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1892, that of Sept. 27, 1964. 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; no flow at times in 1962-64, 1966-67, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 450 ft³/s (12.7 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)
Nov. 1	0730	*3,830	108	6.91	2.106	Sept. 15	0845	2.760	78.2	6.04	1.841
Aug. 2	0045	462	13.1	3.65	1.113						

Minimum discharge, 0.03 ft³/s (0.001 m³/s) July 13, 14.

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	2.7	994	12	7.3	6.0	7.2	4.3	4.9	1.6	.89	21	9.0
2	6.3	146	11	7.3	6.0	6.9	4.5	5.2	2.1	.98	97	11
3	3.0	72	11	7.3	5.6	6.7	4.5	7.0	5.9	.90	4.7	3.4
4	2.0	39	12	7.3	5.6	6.2	4.4	5.3	4.4	1.0	2.0	2.5
5	1.8	28	12	7.3	5.6	6.0	4.2	4.6	2.7	1.0	1.2	1.8
6	1.6	23	11	7.0	5.6	6.2	4.2	4.0	2.2	.82	1.1	1.6
7	1.6	20	11	6.8	6.3	9.5	4.1	4.2	21	.57	2.7	4.1
8	1.7	63	11	6.6	6.5	7.3	3.7	4.5	5.9	.38	1.5	77
9	1.6	43	11	6.2	6.4	6.4	3.5	4.2	4.1	.17	.97	11
10	2.0	31	9.4	6.0	6.0	6.4	8.9	3.8	3.8	.10	.88	4.7
11	2.2	27	8.9	6.2	6.0	6.1	5.0	3.6	3.0	.12	.89	10
12	2.4	24	9.4	6.4	13	6.0	4.5	3.9	2.7	.09	.93	9.2
13	2.1	22	11	6.1	11	5.9	4.5	3.5	2.6	.04	1.0	19
14	1.7	21	11	6.0	9.7	5.9	4.5	2.5	2.6	.04	1.0	12
15	1.6	20	10	6.0	9.0	5.4	4.5	2.0	2.0	.18	.90	393
16	1.5	19	9.4	8.0	8.9	5.2	4.6	2.2	1.8	.40	.88	32
17	1.7	17	9.4	8.9	13	5.2	6.6	2.4	1.8	.57	.96	19
18	1.6	16	8.9	8.5	9.8	5.2	6.3	2.0	1.4	.48	1.0	16
19	1.4	16	8.9	7.7	8.7	4.9	5.4	1.9	1.7	.55	1.1	15
20	1.1	16	8.3	7.0	8.2	4.9	5.0	1.9	1.5	.86	1.1	14
21	1.0	17	6.9	6.6	7.2	4.9	4.9	2.6	1.9	.92	1.2	14
22	33	16	6.9	6.4	6.5	4.9	6.3	3.0	1.5	.76	1.2	16
23	3.9	16	6.9	6.4	6.4	4.9	6.8	2.4	1.3	.81	1.2	14
24	3.1	15	6.9	6.6	6.4	5.6	6.6	1.8	1.6	1.3	1.2	13
25	2.7	14	6.9	6.7	6.6	5.4	5.9	1.7	.95	1.4	1.2	13
26	2.3	13	6.9	6.1	6.9	5.1	5.4	1.7	.55	1.1	1.3	12
27	2.0	13	6.9	6.0	6.4	4.9	5.1	1.6	.62	1.1	1.2	12
28	2.2	13	6.9	6.0	7.1	4.9	4.8	1.4	.80	1.4	1.1	13
29	1.7	13	7.3	6.0	---	4.6	4.5	1.2	.69	2.1	1.4	12
30	1.6	13	7.8	6.0	---	4.5	4.5	1.6	.58	1.8	2.3	11
31	1.4	---	7.8	6.0	---	4.5	---	1.5	---	.70	3.4	---
TOTAL	96.5	1800	284.7	208.7	210.4	177.7	152.0	94.1	85.29	23.53	159.51	795.3
MEAN	3.11	60.0	9.18	6.73	7.51	5.73	5.07	3.04	2.84	.76	5.15	26.5
MAX	33	994	12	8.9	13	9.5	8.9	7.0	21	2.1	97	393
MIN	1.0	13	6.9	6.0	5.6	4.5	3.5	1.2	.55	.04	.88	1.6
CFSM	.05	.88	.13	.10	.11	.08	.07	.04	.04	.01	.08	.39
IN.	.05	.98	.15	.11	.11	.10	.08	.05	.05	.01	.09	.43
AC-FT	191	3570	565	414	417	352	301	187	169	47	316	1580

CAL YR 1977 TOTAL 13677.40 MEAN 37.5 MAX 994 MIN 1.0 CFSM .55 IN 7.44 AC-FT 27130
WTR YR 1978 TOTAL 4087.73 MEAN 11.2 MAX 994 MIN .04 CFSM .16 IN 2.22 AC-FT 8110

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. 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.--32 years, 15.2 ft³/s (0.430 m³/s), 11,010 acre-ft/yr (13.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1869, that of July 16, 1973. 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), 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. 2	0200	1,500	42.5	6.35	1.935	Sept. 9	0400	412	11.7	4.77	1.454
June 6	2400	476	13.5	4.79	1.460	Sept. 13	1000	*2,490	70.5	7.49	2.283

Minimum discharge, 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	38	.00	.00	.00	.00	.00	.00	.00	.00	47	.00
2	.00	533	.00	.00	.00	.00	.00	.00	.00	.00	19	.00
3	.00	33	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00
4	.00	1.6	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00
5	.00	.22	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
6	.00	.06	.00	.00	.00	.00	.00	.00	20	.00	.00	.00
7	.00	.03	.00	.00	.00	.00	.00	.00	53	.00	.00	3.3
8	.00	.28	.00	.00	.00	.00	.00	.00	.03	.00	.00	99
9	.00	.08	.00	.00	.00	.00	.00	.00	.00	.00	.00	126
10	.00	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.8
11	.00	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.50
12	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.22
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	407
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	9.0
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.2
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.3
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.0
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.54
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.37
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.23
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.18
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.17
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.01
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.01
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	606.35	.00	.00	.00	.00	.00	.00	73.03	.00	66.17	655.33
MEAN	.000	20.2	.000	.000	.000	.000	.000	.000	2.43	.000	2.13	21.8
MAX	.00	533	.00	.00	.00	.00	.00	.00	53	.00	47	407
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	1200	.00	.00	.00	.00	.00	.00	145	.00	131	1300

CAL YR 1977 TOTAL 3402.28 MEAN 9.32 MAX 896 MIN .00 AC-FT 6750
WTR YR 1978 TOTAL 1400.88 MEAN 3.84 MAX 533 MIN .00 AC-FT 2780

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.--48 years, 124 ft³/s (3.512 m³/s), 89,840 acre-ft/yr (111 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, that of Sept. 28, 1973. 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. 2	1800	*9,460	268	23.94	7.297	June 8	1400	4,030	114	17.81	5.428

Minimum discharge, 16 ft³/s (0.45 m³/s) July 23.

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	39	672	54	47	44	44	36	45	84	33	238	50
2	39	6630	54	46	44	44	35	46	161	32	932	59
3	40	2650	54	46	43	43	35	83	106	31	1270	42
4	61	604	52	47	43	41	34	66	121	30	493	49
5	51	429	52	48	42	40	34	56	115	31	354	41
6	43	337	51	47	42	41	34	45	91	29	284	36
7	43	279	49	47	47	45	34	41	1320	27	236	38
8	41	285	49	47	61	51	33	40	3080	26	196	113
9	40	1000	49	44	72	68	32	38	848	26	134	841
10	40	435	48	43	67	54	55	37	624	26	112	367
11	39	219	47	48	61	52	202	35	488	24	98	448
12	37	156	49	53	55	52	171	36	352	23	87	387
13	36	131	51	48	54	50	112	34	229	23	74	1010
14	36	118	52	46	86	50	79	32	152	23	62	1130
15	36	109	52	46	78	50	61	31	123	21	51	1190
16	35	100	50	48	71	49	50	31	103	19	41	380
17	35	93	50	56	63	47	43	30	91	19	34	254
18	35	85	49	51	77	46	39	30	81	20	31	209
19	36	80	48	49	85	46	36	30	72	19	29	161
20	36	75	46	47	66	46	33	31	64	19	28	119
21	36	71	45	47	55	47	31	49	59	20	27	99
22	50	64	44	48	49	47	106	61	53	18	26	88
23	65	62	45	45	46	46	1350	50	48	16	25	78
24	82	62	46	45	44	56	458	41	43	19	24	69
25	56	61	46	45	44	56	140	36	40	20	23	65
26	49	59	45	45	43	73	94	35	37	19	22	60
27	46	58	46	44	41	49	72	33	35	24	22	55
28	43	56	47	44	43	42	59	32	35	79	22	55
29	41	56	48	43	---	39	51	34	34	30	23	54
30	40	54	48	43	---	38	47	234	33	25	23	52
31	40	---	47	43	---	37	---	55	---	63	37	---
TOTAL	1346	15090	1513	1446	1566	1489	3596	1477	8722	834	5058	7599
MEAN	43.4	503	48.8	46.6	55.9	48.0	120	47.6	291	26.9	163	253
MAX	82	6630	54	56	86	73	1350	234	3080	79	1270	1190
MIN	35	54	44	43	41	37	31	30	33	16	22	36
AC-FT	2670	29930	3000	2870	3110	2950	7130	2930	17300	1650	10030	15070

CAL YR 1977 TOTAL 98453 MEAN 270 MAX 19800 MIN 26 AC-FT 195300
WTR YR 1978 TOTAL 49736 MEAN 136 MAX 6630 MIN 16 AC-FT 98650

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (1968-77): Maximum daily, 2,270 micromhos May 20, 21, 1971; minimum daily, 176 micromhos Sept. 28, 1973.
WATER TEMPERATURES (1968-77): Maximum daily, 33.0°C on several days during August 1969; minimum daily, 4.5°C Jan. 7, 1970.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 21...	0955	35	1490	7.5	21.5	6.9	80	.9	440	170
NOV 11...	1110	208	524	7.6	15.5	9.0	93	2.5	180	66
DEC 09...	1025	49	1430	7.6	12.0	9.1	88	.8	--	--
JAN 27...	0945	46	1470	8.2	10.0	11.4	105	4.1	--	--
FEB 17...	1025	62	1350	7.7	12.0	9.4	90	2.3	400	140
MAR 17...	0930	47	1560	7.6	15.0	8.3	86	1.0	470	200
APR 26...	0945	96	510	7.4	20.0	7.8	89	2.7	150	47
MAY 24...	1000	41	1280	7.6	26.0	5.6	70	1.3	370	180
JUN 27...	1145	35	1270	7.8	29.0	7.6	99	.8	390	180
JUL 19...	1030	19	1350	7.9	29.0	6.8	88	.9	420	200
AUG 24...	0950	24	1160	8.2	28.0	7.0	91	.7	350	160
SEP 25...	1245	65	780	8.0	25.5	8.0	100	.4	250	90

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 21...	130	27	150	3.1	6.9	320	0	270	170	.4
NOV 11...	59	8.1	38	1.2	5.1	140	0	83	41	.3
DEC 09...	--	--	--	--	--	--	--	--	--	--
JAN 27...	--	--	--	--	--	--	--	--	--	--
FEB 17...	120	24	120	2.6	6.0	310	0	180	150	.4
MAR 17...	140	28	140	2.8	5.3	320	0	250	170	.4
APR 26...	49	7.7	36	1.3	5.5	130	0	77	39	.4
MAY 24...	110	24	95	2.1	7.9	240	0	210	140	.4
JUN 27...	120	21	110	2.4	7.7	250	0	190	130	.4
JUL 19...	120	28	160	3.4	7.9	260	0	280	190	.4
AUG 24...	110	18	100	2.3	7.2	230	0	200	120	.4
SEP 25...	82	12	63	1.7	6.2	200	0	120	73	.3

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 21...	17	929	1.7	.01	1.7	.02	.58	.60	.06
NOV 11...	13	317	.77	.02	.79	.08	1.0	1.1	.36
DEC 09...	--	--	2.8	.02	2.8	.12	.05	.17	.06
JAN 27...	--	--	2.8	.01	2.8	.02	2.7	2.7	.17
FEB 17...	16	769	4.3	.03	4.3	.03	1.3	1.3	.42
MAR 17...	5.6	897	1.9	.03	1.9	.00	.62	.62	.20
APR 26...	11	290	.88	.06	.94	.18	.92	1.1	.34
MAY 24...	14	720	1.2	.03	1.2	.01	.74	.75	.11
JUN 27...	16	718	.83	.01	.84	.01	.38	.39	.10
JUL 19...	13	927	.36	.01	.37	.00	.51	.51	.07
AUG 24...	16	685	.60	.01	.61	.04	.48	.52	.10
SEP 25...	17	472	.99	.01	1.0	.03	.64	.67	.25

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	1346	1340	820	2960	150	538	220	816	400
NOV. 1977.....	15090	591	350	14200	54	2200	91	3700	180
DEC. 1977.....	1513	1450	880	3600	160	663	240	987	430
JAN. 1978.....	1446	1460	890	3460	160	634	240	948	430
FEB. 1978.....	1566	1390	840	3570	150	654	230	986	410
MAR. 1978.....	1489	1340	810	3270	150	594	230	907	400
APR. 1978.....	3596	932	560	5430	99	962	160	1570	280
MAY 1978.....	1477	1110	670	2650	120	480	190	754	330
JUNE 1978.....	8722	620	370	8630	58	1360	94	2230	200
JULY 1978.....	834	1200	730	1640	130	295	200	451	360
AUG. 1978.....	5058	490	280	3880	42	567	70	950	160
SEPT 1978.....	7599	563	330	6760	51	1040	88	1820	180
TOTAL	49736	**	**	60000	**	9990	**	16100	**
WTD.AVG.	136.26	751	450	**	74	**	120	**	230

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1490	1350	---	---	1400	1370	1350	---	987	1450	559	1120
2	1480	430	---	---	1410	1320	1360	---	1090	1430	371	978
3	1460	500	---	---	1410	1310	1370	---	1150	1240	319	987
4	1300	600	---	---	1390	1370	1380	---	1040	1320	453	970
5	1340	731	---	---	1410	1350	1380	---	1250	1490	440	1030
6	1400	761	---	---	1430	1310	1410	---	1400	1350	430	1100
7	1460	794	---	---	1420	1180	1390	---	1040	1260	428	1080
8	1410	767	---	---	1390	1250	1320	---	335	1350	616	750
9	1300	350	1430	---	1360	1370	1300	---	398	1450	645	404
10	1210	403	---	---	1400	1380	1250	---	393	1460	605	413
11	1460	447	---	---	1420	1370	700	---	442	1470	620	437
12	1330	904	---	---	1350	1280	800	---	500	1460	668	720
13	1340	857	---	---	1360	1370	944	---	719	1480	654	520
14	1300	897	---	---	1380	1420	1330	---	885	1460	640	532
15	1300	1000	---	---	1410	1400	1320	---	800	1310	633	526
16	1310	1200	---	---	1350	1380	1330	---	748	1400	950	532
17	1290	1320	---	---	1360	1360	1280	---	780	1470	1070	450
18	1300	1340	---	---	1450	1290	1320	---	806	1430	991	422
19	1250	1300	---	---	1410	1270	1310	---	868	1480	1070	466
20	1210	1290	---	---	1390	1250	1300	---	1050	1520	1240	534
21	1240	1200	---	---	1400	1390	1270	---	1100	1490	1150	593
22	1460	1340	---	---	1380	1380	1000	---	1190	1420	1060	841
23	1400	1300	---	---	1380	1410	825	---	1150	1470	1040	1030
24	1350	1340	---	---	1390	1380	800	1280	1270	1520	1020	915
25	1300	1350	---	---	1340	1450	782	---	1400	1300	1150	901
26	1460	1340	---	---	1370	1290	869	---	1220	1140	1160	910
27	1250	1400	---	1470	1390	1320	850	---	1240	1060	1150	950
28	1140	1440	---	---	1410	1470	844	---	1210	500	1160	1030
29	1300	1430	---	---	---	1310	1030	---	1220	600	1160	1020
30	1320	1450	---	---	---	1360	1110	---	1370	699	1170	1040
31	1350	---	---	---	---	1280	---	---	---	650	1140	---
MEAN	1340	1030	1430	1470	1390	1340	1150	1280	968	1290	831	773

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.5	25.5	---	---	26.0	28.0	28.0	---	28.5	28.5	25.5	27.5
2	---	24.0	---	---	28.0	27.5	28.5	---	29.5	27.5	26.0	27.5
3	29.5	26.5	---	---	29.0	29.0	29.0	---	---	28.0	25.5	27.0
4	30.0	26.0	---	---	28.5	28.0	---	---	29.0	---	26.0	28.5
5	31.0	27.5	---	---	29.0	27.0	29.0	---	27.5	28.5	27.5	28.0
6	30.5	26.0	---	---	---	28.0	28.0	---	27.0	27.5	---	27.5
7	29.5	24.5	---	---	29.0	28.0	29.0	---	---	28.5	26.0	---
8	30.0	24.0	---	---	29.5	28.0	28.0	---	24.0	---	28.5	26.0
9	---	25.5	12.0	---	29.0	29.0	27.5	---	---	29.5	28.5	25.5
10	29.5	26.0	---	---	28.5	---	---	---	26.5	27.5	26.5	26.5
11	30.0	24.5	---	---	28.5	28.0	29.0	---	26.0	---	27.0	28.5
12	28.5	25.0	---	---	27.5	28.0	28.0	---	26.0	29.0	27.5	27.0
13	29.0	26.0	---	---	---	28.0	28.0	---	27.5	---	28.0	27.5
14	29.5	25.5	---	---	28.0	27.5	27.5	---	27.5	28.5	---	27.0
15	---	---	---	---	27.5	---	---	---	---	28.5	27.5	26.0
16	30.5	24.0	---	---	26.5	---	28.0	---	28.5	28.5	28.0	27.5
17	29.0	23.5	---	---	27.5	27.5	29.0	---	---	29.5	28.5	---
18	29.5	23.0	---	---	28.5	28.0	29.0	---	28.0	28.5	27.5	28.0
19	---	---	---	---	28.0	---	---	---	28.5	---	27.0	27.5
20	29.0	25.5	---	---	27.5	28.0	29.5	---	28.5	27.5	27.5	26.5
21	27.0	26.0	---	---	27.5	27.5	27.5	---	---	28.0	---	27.0
22	26.5	23.5	---	---	27.5	28.5	28.5	---	29.0	29.5	26.5	27.5
23	---	24.0	---	---	---	---	27.5	---	29.0	---	---	28.0
24	27.0	25.5	---	---	27.5	28.0	---	26.0	29.5	28.5	28.5	28.5
25	28.5	---	---	---	27.5	27.0	27.5	---	28.5	---	28.0	27.0
26	24.0	26.0	---	---	27.0	29.0	29.5	---	27.5	27.5	27.5	---
27	---	---	---	10.0	27.0	---	---	---	28.5	28.0	28.5	28.5
28	25.5	24.0	---	---	28.5	28.0	27.5	---	29.0	26.5	28.0	27.5
29	26.0	---	---	---	---	27.0	28.0	---	28.5	---	28.5	---
30	---	---	---	---	---	27.5	29.5	---	27.5	27.5	27.5	28.0
31	26.0	---	---	---	---	28.0	---	---	---	26.0	---	---
MEAN	28.5	25.0	12.0	10.0	28.0	28.0	28.5	26.0	28.0	28.0	27.5	27.5

08186500 ECLETO CREEK NEAR RUNGE, TX

LOCATION.--Lat 28°55'12", long 97°46'19", Karnes County, Hydrologic Unit 12100303, on left bank 55 ft (17 m) downstream from Farm Road 81, 215 ft (66 m) left of left end of bridge, 2.6 mi (4.2 km) upstream from Salt Branch, 4.5 mi (7.2 km) northwest of Runge, and 5.2 mi (8.4 km) upstream from mouth.

DRAINAGE AREA.--239 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) Texas Department of Highways and Public Transportation datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years, 37.7 ft³/s (1.068 m³/s), 2.14 in/yr (54 mm/yr), 27,310 acre-ft/yr (33.7 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 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. 3	1330	700	19.8	8.00	2.438	Aug. 1	2130	510	14.4	6.90	2.103
June 8	0600	526	14.9	7.00	2.134	Sept. 13	2030	*2,120	60.0	13.64	4.157

Minimum discharge, no flow May 20, 21, 23-29.

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	.08	19	2.6	1.3	.91	1.7	1.6	3.7	35	.20	253	5.8
2	.06	220	2.0	1.7	.91	2.0	1.4	2.7	49	.16	298	.42
3	.04	581	2.4	1.3	.91	1.7	1.3	2.8	80	.13	51	.42
4	.04	101	2.2	1.5	.91	1.6	1.1	2.5	50	.13	18	.13
5	.03	35	2.1	1.6	1.0	1.6	.91	2.4	31	.13	8.4	.04
6	.03	19	1.6	1.4	1.0	2.1	.98	3.2	13	.10	4.8	.04
7	.03	13	1.6	1.4	1.3	3.1	1.0	3.5	124	.10	2.9	.03
8	.03	48	2.3	1.2	1.6	3.7	.88	2.7	466	.10	2.0	.06
9	.02	121	1.4	1.2	2.3	2.9	.69	2.1	188	.06	1.2	.06
10	.02	54	1.2	1.1	3.7	2.9	.79	1.8	46	.06	.69	.10
11	.02	26	1.5	1.6	5.0	5.9	.76	1.3	26	.06	.42	29
12	.02	14	1.7	1.9	6.4	4.2	.70	.83	15	.06	.29	13
13	.01	9.2	1.5	1.8	4.8	3.5	.60	.44	11	.06	.16	798
14	.01	6.7	1.2	1.5	3.5	2.6	3.4	.22	8.1	.07	.10	679
15	.02	5.9	1.3	1.3	3.1	2.2	4.5	.13	6.3	.08	.08	109
16	.01	5.3	1.3	1.6	2.9	1.9	4.0	.11	4.7	.08	.08	54
17	.01	4.4	1.4	1.4	2.7	1.8	3.8	.08	3.8	.08	.06	28
18	.01	4.0	1.1	1.3	2.8	1.5	3.3	.06	3.1	.08	.06	13
19	.01	3.6	1.5	1.4	3.1	1.3	2.4	.02	2.5	.08	.04	7.9
20	.02	3.5	1.2	1.4	6.6	1.3	1.7	.05	2.0	.09	.04	5.3
21	.02	3.2	1.1	1.6	11	1.3	1.2	.04	1.7	.10	.04	3.6
22	15	2.6	1.4	2.8	7.4	1.9	1.2	.19	1.3	.08	.04	2.5
23	11	2.7	1.5	2.9	5.2	1.9	6.1	.03	.91	.06	.03	2.1
24	4.1	2.9	1.3	2.3	4.0	1.8	159	.00	.69	.06	.03	1.7
25	4.9	3.4	1.2	2.0	3.4	1.9	75	.00	.50	.06	.02	1.3
26	4.5	3.0	1.1	1.7	2.8	1.8	28	.00	.35	.06	.02	.98
27	2.6	2.7	1.2	1.5	2.1	1.5	15	.00	.29	.06	.02	.80
28	1.7	2.6	1.2	1.2	1.6	1.7	8.6	.00	.24	.26	.02	.69
29	.72	2.6	1.0	.97	---	1.4	5.9	.00	.35	.28	.02	.64
30	.37	3.9	1.0	.91	---	1.3	4.5	14	.29	.16	.03	.47
31	.42	---	1.1	.91	---	1.3	---	17	---	.36	1.0	---
TOTAL	45.85	1323.2	46.2	47.69	92.94	67.3	340.31	61.90	1171.12	3.45	642.59	1758.08
MEAN	1.48	44.1	1.49	1.54	3.32	2.17	11.3	2.00	39.0	.11	20.7	58.6
MAX	15	581	2.6	2.9	11	5.9	159	17	466	.36	298	798
MIN	.01	2.6	1.0	.91	.91	1.3	.60	.00	.24	.06	.02	.03
CFSM	.006	.19	.006	.006	.01	.009	.05	.008	.16	.000	.09	.25
IN.	.01	.21	.01	.01	.01	.01	.05	.01	.18	.00	.10	.27
AC-FT	91	2620	92	95	184	133	675	123	2320	6.8	1270	3490

CAL YR 1977 TOTAL 24258.90 MEAN 66.5 MAX 4240 MIN .01 CFSM .28 IN 3.78 AC-FT 48120
WTR YR 1978 TOTAL 5600.63 MEAN 15.3 MAX 798 MIN .00 CFSM .06 IN .87 AC-FT 11110

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.--43 years (water years 1925-28, 1940-78), 652 ft³/s (18.46 m³/s), 472,400 acre-ft/yr (582 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1869, that of Sept. 23, 1967. Flood of July 9, 1942, reached a stage of 44.9 ft (13.69 m); floods in October 1913 and June 15, 1935, reached about the same stage. 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), 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	0600	6,770	192	23.99	7.312	Sept. 15	1500	*7,660	217	25.77	7.855

Minimum discharge, 146 ft³/s (4.13 m³/s) July 28.

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	462	572	585	558	514	524	469	536	499	267	434	669
2	441	735	611	559	515	517	469	526	514	259	872	704
3	401	2950	666	561	525	526	463	512	1800	252	1210	719
4	377	5900	620	556	530	525	458	524	1870	246	2910	756
5	377	6510	588	546	529	514	452	654	867	239	3620	779
6	561	3380	573	554	523	514	433	801	920	225	2900	658
7	478	1200	555	548	556	521	428	627	924	213	3250	624
8	402	1320	561	537	554	514	428	532	1330	211	4730	786
9	403	1490	562	533	541	558	427	502	3280	208	5680	763
10	380	1420	554	527	698	859	425	481	4100	211	5080	1820
11	371	1740	555	529	845	711	432	470	2090	204	2910	3170
12	371	1230	564	544	654	605	498	463	1010	192	2260	2570
13	358	875	564	547	593	567	1530	442	838	179	1790	1490
14	383	777	557	532	563	539	1210	440	739	169	1480	3910
15	392	735	593	541	632	529	740	502	660	171	1340	7200
16	383	707	599	515	794	516	626	439	611	172	1220	6130
17	390	699	578	482	711	507	579	405	567	170	1130	5180
18	406	692	570	481	617	499	549	389	527	169	1050	3440
19	400	664	568	478	628	494	525	334	501	170	990	1810
20	416	659	566	494	629	487	502	281	481	164	934	1510
21	458	651	552	499	656	484	493	280	460	153	883	1450
22	471	634	541	479	597	471	498	294	434	154	832	1350
23	520	622	547	477	558	459	493	474	428	161	790	1240
24	627	623	547	486	545	465	1110	499	415	164	757	1160
25	1360	631	549	481	536	458	2090	406	402	169	742	1100
26	1070	620	550	473	533	467	1570	346	394	166	725	1060
27	869	605	548	476	534	564	867	306	383	158	699	998
28	691	594	546	476	532	634	673	282	371	150	676	956
29	565	604	530	473	---	518	598	322	383	172	655	919
30	550	595	537	471	---	474	550	362	331	334	634	891
31	534	---	548	510	---	477	---	595	---	277	629	---
TOTAL	15867	40434	17584	15923	16642	16497	20585	14026	28129	6149	53812	55812
MEAN	512	1348	567	514	594	532	686	452	938	198	1736	1860
MAX	1360	6510	666	561	845	859	2090	801	4100	334	5680	7200
MIN	358	572	530	471	514	458	425	280	331	150	434	624
AC-FT	31470	80200	34880	31580	33010	32720	40830	27820	55790	12200	106700	110700

CAL YR 1977 TOTAL 497813 MEAN 1364 MAX 15200 MIN 358 AC-FT 987400
WTR YR 1978 TOTAL 301460 MEAN 826 MAX 7200 MIN 150 AC-FT 597900

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.

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, 1,580 micromhos July 22; minimum daily, 218 micromhos Sept. 15.
WATER TEMPERATURES: Maximum daily, 31.0°C Sept. 1; minimum daily, 0.0°C on several days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	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 19...	1415	398	1160	7.6	22.0	15	25	7.6	89	1.2	8000	170
NOV 09...	1615	1240	672	7.4	18.0	30	310	7.4	80	3.6	140000	12000
DEC 08...	1245	562	1080	7.7	17.0	10	25	8.3	88	1.1	72000	3100
JAN 25...	1440	481	1220	7.9	11.5	10	15	9.8	92	1.7	1700	160
FEB 16...	1530	788	1080	7.6	13.5	15	55	8.9	88	5.0	3400	130
MAR 15...	1455	532	1110	7.7	20.0	30	40	9.0	102	.8	380	290
APR 25...	1600	2080	535	7.4	22.5	90	140	6.1	72	7.7	230000	8400
MAY 23...	1300	532	1400	7.7	28.5	20	95	5.6	73	2.5	8400	200
JUN 28...	1000	371	1260	7.8	29.5	30	35	6.8	89	1.4	>150	150
JUL 19...	0815	168	1450	8.1	29.0	20	40	6.8	89	3.5	3600	120
AUG 23...	1215	787	819	8.2	29.5	10	80	7.0	92	1.3	--	480
SEP 28...	0900	957	730	8.1	24.0	20	90	7.6	93	.5	--	190

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	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 19...	450	400	150	120	25	100	2.2	5.9	310	0	140	140
NOV 09...	26000	220	67	68	11	53	1.6	6.3	180	0	65	72
DEC 08...	5700	370	120	110	23	91	2.1	5.7	310	0	120	120
JAN 25...	100	380	120	110	25	100	2.2	6.3	310	0	130	150
FEB 16...	380	340	110	100	22	85	2.0	6.5	280	0	120	120
MAR 15...	420	360	140	110	21	91	2.1	6.2	270	0	110	130
APR 25...	13000	140	22	42	7.7	51	1.9	5.5	140	0	51	58
MAY 23...	1400	460	220	140	27	130	2.6	8.1	290	0	190	180
JUN 28...	640	350	110	100	24	100	2.3	8.0	290	0	100	160
JUL 19...	580	450	180	130	30	170	3.5	8.1	330	0	190	230
AUG 23...	1200	290	75	84	19	57	1.5	5.1	260	0	89	72
SEP 28...	660	260	58	79	16	49	1.3	4.5	250	0	80	66

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 19...	.4	20	706	704	19	4	4.6	.06	4.7	.01	.83
NOV 09...	.3	15	412	379	1020	265	2.1	.08	2.2	.03	.97
DEC 08...	.5	19	647	642	66	9	4.9	.05	4.9	.12	.74
JAN 25...	.4	18	698	693	35	0	5.5	.10	5.6	.24	1.1
FEB 16...	.5	17	625	609	152	22	5.8	.14	5.9	.65	1.1
MAR 15...	.4	16	625	618	98	9	4.6	.01	4.6	.03	.94
APR 25...	.4	11	303	296	2860	496	2.0	.04	2.0	.11	1.4
MAY 23...	.4	18	843	837	279	37	4.9	.05	4.9	.03	1.3
JUN 28...	.5	17	711	652	80	8	5.3	.02	5.3	.01	1.6
JUL 19...	.5	21	944	942	95	12	1.5	.02	1.5	.00	1.3
AUG 23...	.4	16	483	471	190	8	3.3	.01	3.3	.02	.58
SEP 28...	.3	15	446	433	222	40	2.8	.01	2.8	.03	1.1

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 19...	.84	--	17	--	3.8	--	--	2	65	70	91
NOV 09...	1.0	.62	.75	.31	25	--	--	1	1240	4150	98
DEC 08...	.86	.80	.92	.81	4.3	--	--	3	61	93	95
JAN 25...	1.3	.75	1.7	.89	4.6	--	--	2	67	87	77
FEB 16...	1.7	1.2	2.2	.86	--	--	--	1	130	277	94
MAR 15...	.97	.84	1.4	1.3	6.3	--	--	0	78	112	96
APR 25...	1.5	.87	.53	.28	45	--	--	2	2450	13800	97
MAY 23...	1.3	1.1	.90	.80	--	--	--	1	295	424	92
JUN 28...	1.6	1.6	1.8	1.7	6.1	--	--	0	87	87	88
JUL 19...	1.3	.76	1.2	.96	7.0	--	--	0	84	38	99
AUG 23...	.60	.46	1.1	1.1	--	4.6	2.1	0	181	385	97
SEP 28...	1.1	1.3	.78	.46	8.4	--	--	1	265	685	85

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
FEB 16...	1530	3	1	2	100	0	200	0	0	0
MAY 23...	1300	5	1	4	200	200	10	0	--	1
AUG 23...	1215	4	0	4	300	100	200	0	0	0

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
FEB 16...	10	10	0	2	2	0	10	8	2	2200
MAY 23...	10	10	0	0	0	0	15	13	2	3200
AUG 23...	10	10	0	0	0	0	10	9	1	2800

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)
FEB 16...	--	0	18	15	3	120	120	0	.2	.2
MAY 23...	3100	80	8	4	4	170	120	50	.1	.1
AUG 23...	2800	20	11	11	0	220	220	0	.1	.1

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)
FEB 16...	.0	1	1	0	0	0	0	40	20	20
MAY 23...	.0	2	2	0	0	0	0	40	30	10
AUG 23...	.0	0	0	0	0	0	0	80	70	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)	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)
NOV 09...	1615	ND	--	--	ND	--	ND	ND	--	ND
JAN 25...	1440	.1	7	.00	.00	.0	--	.0	4	.00
FEB 16...	1530	ND	--	--	ND	--	--	ND	--	ND
APR 25...	1600	.0	--	.00	.00	--	--	.0	--	.00
MAY 23...	1300	ND	ND	--	ND	ND	ND	ND	3	ND
JUL 19...	0815	.0	0	.00	.00	.0	--	.0	0	.00
AUG 23...	1215	ND	--	--	ND	--	--	ND	--	ND

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)
NOV 09...	--	ND	--	ND	--	ND	--	ND	--	--
JAN 25...	1.3	.00	1.7	.00	.0	.10	--	.00	.2	.00
FEB 16...	--	ND	--	ND	--	2.3	--	ND	--	--
APR 25...	--	.01	--	.01	--	.05	--	.00	--	.00
MAY 23...	--	ND	ND	ND	ND	ND	ND	ND	ND	--
JUL 19...	.0	.00	.1	.00	.0	.07	--	.00	.0	.00
AUG 23...	--	ND	--	ND	--	ND	--	ND	--	--

DATE	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)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 09...	ND	--	ND	--	ND	--	ND	--	ND	--
JAN 25...	.00	.0	.00	--	.00	.0	.00	.0	.00	.0
FEB 16...	ND	--	ND	--	ND	--	ND	--	ND	--
APR 25...	.00	--	.00	--	.00	--	.00	--	.01	--
MAY 23...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUL 19...	.00	.0	.00	--	.00	.0	.00	.0	.00	.0
AUG 23...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	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)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)
NOV 09...	ND	--	ND	--	ND	--	ND	--	--	ND
JAN 25...	.00	--	--	--	.00	--	.00	--	--	.00
FEB 16...	ND	--	ND	--	ND	--	ND	--	--	ND
APR 25...	.00	--	--	--	.00	--	.00	--	--	.00
MAY 23...	ND	ND	ND	ND	ND	ND	ND	ND	--	ND
JUL 19...	.00	--	--	--	.00	--	.00	--	.00	.00
AUG 23...	ND	--	ND	--	ND	--	ND	--	--	ND

DATE	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	SIMAZINE TOTAL COULSON COND. (UG/L)	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 09...	--	ND	ND	--	ND	--	ND	ND	ND
JAN 25...	--	--	0	0	.00	--	.00	.01	.00
FEB 16...	--	--	ND	--	ND	--	--	--	--
APR 25...	--	--	0	--	.00	--	.08	.01	.00
MAY 23...	ND	ND	ND	ND	ND	ND	--	--	--
JUL 19...	--	--	0	0	.00	--	.00	.00	.00
AUG 23...	--	--	ND	--	ND	--	--	--	--

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	NOV 9,77		MAR 15,78		MAY 23,78		JUN 28,78		JUL 19,78		AUG 23,78	
TIME	1615		1455		1300		1000		0815		1215	
TOTAL CELLS/ML	3700		8000		2600		14000		180000		1300	
DIVERSITY: DIVISION	0.4		1.4		1.1		1.2		1.0		0.4	
.CLASS	0.4		1.4		1.1		1.2		1.0		0.4	
..ORDER	0.5		1.7		1.2		1.7		1.7		0.4	
...FAMILY	0.5		1.9		2.1		2.1		2.1		0.4	
....GENUS	0.5		1.9		2.7		2.4		2.5		0.4	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	3300	2	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	1000	1	--	-
....MICRACTINIUM	--	-	--	-	110	4	520	4	*	0	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	57	2	120	1	--	-	160	1	*	0	--	-
....CHODATELLA	--	-	120	1	--	-	*	0	*	0	--	-
....DICTYOSPHAERIUM	--	-	--	-	460#	18	300	2	2900	2	--	-
....KIRCHNERIELLA	--	-	--	-	29	1	140	1	*	0	--	-
....OOCYSTIS	--	-	--	-	110	4	72	1	6000	3	--	-
....QUADRIGULA	--	-	--	-	--	-	--	-	*	0	--	-
....SELENASTRUM	*	0	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	*	0	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	2200#	15	1700	1	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-	*	0	--	-
....SCENEDESMUS	--	-	240	3	1100#	42	430	3	24000	13	40	3
....TETRASTRUM	--	-	--	-	110	4	170	1	5000	3	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	--	-	29	1	*	0	1200	1	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	120	1	--	-	--	-	--	-	--	-
..CHLOROCOCCALES												
...OOCYSTACEAE												
....GLOEOACTINIUM	--	-	--	-	--	-	--	-	1000	1	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	*	0	4700#	59	--	-	500	4	1000	1	--	-
....MELOSIRA	29	1	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...CYMBELLACEAE												
....AMPHORA	--	-	120	1	--	-	--	-	--	-	--	-
....CYMBELLA	29	1	--	-	--	-	--	-	*	0	--	-
...FRAGILARIACEAE												
....SYNEDRA	--	-	--	-	--	-	--	-	--	-	7	1
...NAVICULACEAE												
....GYROSIGMA	--	-	120	1	--	-	--	-	--	-	--	-
....NAVICULA	43	1	--	-	29	1	*	0	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	29	1	350	4	--	-	370	3	1200	1	7	1
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	29	1	*	0	--	-	--	-
.XANTHOPHYCEAE												
..HETEROCOCCALES												
...CHLOROTHECIACEAE												
....OPHIOCYTIUM	*	0	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCOCCALES												
...CHROCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	1300	9	43000#	24	--	-
....ANACYSTIS	--	-	1800#	22	--	-	--	-	2900	2	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	3500#	93	--	-	170	7	7700#	55	80000#	45	1200#	95
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	*	0	--	-	260	10	*	0	--	-	13	1
....PHACUS	--	-	--	-	--	-	*	0	--	-	--	-
....TRACHELOMONAS	--	-	350	4	170	7	*	0	*	0	--	-

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

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	15867	1030	590	25300	120	5170	110	4740	330
NOV. 1977.....	40434	620	350	38200	60	6520	60	6520	230
DEC. 1977.....	17584	1080	620	29400	120	5700	120	5520	340
JAN. 1978.....	15923	1130	650	28000	130	5630	120	5260	360
FEB. 1978.....	16642	1070	610	27400	120	5490	110	5100	340
MAR. 1978.....	16497	1120	640	28600	130	5840	120	5320	350
APR. 1978.....	20585	872	490	27500	98	5430	91	5080	310
MAY 1978.....	14026	1100	630	23800	130	4930	120	4440	350
JUNE 1978.....	28129	649	370	27700	64	4860	64	4850	240
JULY 1978.....	6149	1490	860	14300	200	3320	160	2700	450
AUG. 1978.....	53812	548	310	44500	50	7240	53	7650	200
SEPT 1978.....	55812	466	260	39300	40	5960	42	6270	180
TOTAL	301460	**	**	354000	**	66100	**	63400	**
WTD.AVG.	825.92	766	440	**	81	**	78	**	280

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1160	978	1080	1090	1150	1150	1160	911	962	1270	1020	991
2	1170	942	1070	1070	1140	1160	1140	1030	809	1350	1110	974
3	1170	877	1050	1070	1160	1170	1150	1060	600	1380	596	1020
4	1200	308	1040	1080	1140	1180	1160	1110	361	1400	450	983
5	1240	271	1050	1090	1130	1150	1180	1120	550	1440	301	970
6	1260	335	1060	1100	1110	1130	1240	970	865	1480	348	934
7	1200	460	1070	1100	1140	1160	1250	941	678	1460	579	915
8	1170	592	1080	1100	1100	1170	1220	1040	692	1480	421	885
9	1150	576	1090	1080	1180	1180	1210	839	430	1510	419	926
10	1140	675	1090	1100	1150	1070	1200	991	400	1520	433	500
11	1170	536	1070	1130	1010	978	1210	1070	350	1510	484	317
12	1190	677	1080	1120	974	936	1210	1120	406	1520	533	381
13	1230	609	1090	1130	870	895	750	1160	482	1530	541	500
14	1250	729	1090	1150	1010	1000	575	1170	589	1540	554	422
15	1240	830	1110	1140	996	1070	714	1160	713	1550	596	218
16	1250	916	1090	1120	1020	1130	761	1130	830	1540	630	230
17	1180	958	1070	1150	1000	1140	803	1160	926	1550	640	248
18	1160	980	1030	1170	983	1160	932	1170	987	1560	657	345
19	1170	996	1050	1190	987	1190	1010	1140	1020	1570	677	452
20	1190	1000	1070	1210	1010	1150	1080	1240	1050	1560	709	527
21	1170	1040	1100	1190	1070	1160	1140	1310	1090	1570	734	625
22	1140	1070	1090	1170	1050	1190	1150	1290	1130	1580	777	592
23	996	1060	1110	1150	1110	1200	1150	1430	1160	1570	794	597
24	1030	1070	1110	1170	1060	1190	750	1170	1180	1560	814	636
25	1000	1050	1100	1160	1100	1200	600	933	1200	1550	851	670
26	633	1070	1090	1170	1110	1210	751	978	1210	1560	868	701
27	630	1060	1100	1190	1120	1180	541	933	1200	1570	875	712
28	628	1070	1100	1170	1140	1120	564	1220	1190	1550	888	750
29	803	1080	1110	1170	---	1100	623	1260	1220	1550	918	763
30	841	1090	1130	1160	---	1150	800	1200	1240	1520	933	784
31	908	---	1120	1160	---	1070	---	1180	---	1280	961	---
MEAN	1090	830	1080	1140	1070	1130	967	1110	851	1500	681	652

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.5	21.0	10.0	10.0	4.5	10.0	18.5	24.0	24.0	29.5	24.0	31.0
2	26.5	10.0	10.0	.0	4.5	15.5	21.0	21.0	26.5	26.5	24.0	29.5
3	21.0	7.0	18.5	.0	7.0	10.0	21.0	10.0	21.0	26.5	24.0	29.5
4	15.5	13.0	21.0	13.0	7.0	.0	24.0	15.5	21.0	29.5	24.0	26.5
5	18.5	13.0	10.0	18.5	13.0	1.5	24.0	18.5	24.0	26.5	24.0	24.0
6	18.5	13.0	4.5	18.5	10.0	15.5	21.0	21.0	26.5	29.5	26.5	29.5
7	24.0	18.5	4.5	18.5	10.0	15.5	21.0	24.0	18.5	26.5	24.0	21.0
8	21.0	13.0	15.5	7.0	1.5	4.5	24.0	26.5	24.0	26.5	24.0	24.0
9	18.5	10.0	4.5	1.5	4.5	10.0	21.0	24.0	21.0	26.5	24.0	24.0
10	21.0	4.5	4.5	4.5	.0	13.0	21.0	24.0	26.5	26.5	24.0	26.5
11	15.5	4.5	10.0	3.5	7.0	15.5	15.5	24.0	29.5	26.5	26.5	21.0
12	10.0	13.0	21.0	1.5	10.0	13.0	13.0	26.5	29.5	29.5	26.5	24.0
13	7.0	13.0	21.0	4.5	15.5	18.5	4.5	21.0	26.5	29.5	29.5	26.5
14	10.0	15.5	7.0	4.5	4.5	18.5	15.5	24.0	29.5	29.5	24.0	26.5
15	18.5	15.5	15.5	13.0	7.0	18.5	21.0	24.0	26.5	29.5	29.5	26.5
16	15.5	21.0	18.5	15.5	1.5	13.0	21.0	24.0	26.5	29.5	24.0	26.5
17	18.5	21.0	10.0	.0	4.5	18.5	21.0	26.5	29.5	29.5	24.0	26.5
18	21.0	21.0	10.0	4.5	.0	18.5	24.0	21.0	29.5	26.5	26.5	24.0
19	24.0	18.5	18.5	.0	10.0	18.5	15.5	24.0	29.5	29.5	29.5	24.0
20	24.0	24.0	10.0	.0	1.5	18.5	10.0	26.5	29.5	29.5	29.5	24.0
21	24.0	15.5	1.5	.0	.0	18.5	10.0	24.0	29.5	26.5	21.0	21.0
22	18.5	10.0	.0	4.5	7.0	21.0	21.0	26.5	26.5	26.5	21.0	21.0
23	21.0	18.5	10.0	7.0	13.0	21.0	18.5	24.0	29.5	29.5	29.5	21.0
24	18.5	18.5	15.5	10.0	13.0	10.0	15.5	26.5	26.5	26.5	21.0	24.0
25	18.5	15.5	15.5	7.0	15.5	15.5	21.0	26.5	29.5	26.5	29.5	21.0
26	15.5	15.5	4.5	10.0	15.5	18.5	13.0	26.5	29.5	26.5	29.5	18.5
27	18.5	21.0	10.0	13.0	15.5	18.5	13.0	26.5	29.5	26.5	29.5	21.0
28	15.5	18.5	10.0	4.5	15.5	18.5	21.0	26.5	29.5	26.5	29.5	18.5
29	18.5	10.5	10.0	7.0	---	15.5	21.0	29.5	26.5	26.5	24.0	18.5
30	18.5	7.0	13.0	4.5	---	13.0	24.0	26.5	26.5	29.5	29.5	21.0
31	21.0	---	13.0	4.5	---	15.5	---	26.5	---	18.5	24.0	---
MEAN	19.0	14.5	11.0	7.0	8.0	14.5	18.5	24.0	26.5	27.5	26.0	24.0

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.--9 years (water years 1969-78), 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 1977-78.

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	127	30	36	28	29	23	79	182	168	245	69	209
2	138	30	48	32	24	24	80	201	84	249	46	210
3	116	30	49	31	26	16	73	219	45	249	45	210
4	92	25	22	25	24	19	73	193	47	243	64	206
5	81	10	13	42	23	16	88	144	103	239	91	187
6	61	.00	15	37	25	24	123	104	152	242	100	188
7	61	5.0	15	29	39	17	129	201	177	256	100	226
8	63	25	35	37	33	12	117	209	188	257	110	226
9	65	26	36	44	30	9.3	115	194	191	247	116	226
10	85	35	34	31	28	36	98	175	190	229	145	223
11	110	65	35	25	27	39	104	160	188	231	172	171
12	84	65	40	25	30	45	76	163	217	220	170	122
13	79	65	51	23	25	29	79	168	258	200	172	81
14	67	65	62	24	34	43	96	166	246	218	171	32
15	50	65	61	21	25	45	95	190	233	233	171	32
16	45	65	36	25	31	53	95	223	233	220	172	42
17	40	65	22	24	34	40	92	236	263	213	198	48
18	24	65	18	29	30	45	104	241	264	185	219	70
19	80	45	14	17	34	23	156	244	266	149	222	88
20	80	.00	16	39	43	7.5	155	235	261	148	224	89
21	80	.00	23	43	61	25	143	227	250	151	238	125
22	80	2.9	24	42	75	42	153	239	257	150	228	145
23	55	26	22	40	69	47	130	251	252	149	243	145
24	40	48	23	47	31	82	98	236	233	141	222	146
25	30	49	18	52	26	95	94	237	234	146	204	148
26	15	50	24	28	12	93	95	231	239	147	236	145
27	25	39	25	23	2.6	95	93	234	255	116	221	143
28	15	33	26	23	1.9	94	128	242	255	102	208	142
29	15	16	32	23	---	94	152	242	247	99	198	142
30	15	14	24	29	---	82	168	248	242	98	193	141
31	25	---	26	21	---	72	---	247	---	103	192	---
TOTAL	1943	1058.90	925	959	872.5	1386.8	3281	6482	6238	5875	5160	4308
MEAN	62.7	35.3	29.8	30.9	31.2	44.7	109	209	208	190	166	144
MAX	138	65	62	52	75	95	168	251	266	257	243	226
MIN	15	.00	13	17	1.9	7.5	73	104	45	98	45	32
AC-FT	3850	2100	1830	1900	1730	2750	6510	12860	12370	11650	10230	8540

CAL YR 1977 TOTAL 38509.10 MEAN 106 MAX 301 MIN .00 AC-FT 76380
WTR YR 1978 TOTAL 38489.20 MEAN 105 MAX 266 MIN .00 AC-FT 76340

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 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 17,520 acre-ft (21.6 hm^3). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years, 82.0 ft^3/s (2.322 m^3/s), 59,410 acre-ft/yr (73.3 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 1972-78.

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	115	.00	.00	.00	.00	.00	70	136	157	234	65	190
2	112	.00	.00	.00	.00	.00	70	158	76	237	29	188
3	106	.00	.00	.00	.00	.00	69	175	26	237	28	187
4	92	.00	.00	.00	.00	.00	70	188	26	235	46	189
5	81	.00	.00	20	.00	.00	83	144	82	229	77	181
6	61	.00	.00	24	.00	.00	107	97	127	227	83	173
7	60	.00	.00	16	19	.60	114	183	156	238	92	173
8	60	9.2	.40	16	16	2.0	115	194	166	234	92	174
9	61	21	.00	26	16	3.0	115	176	167	215	98	176
10	59	.10	.00	12	16	2.0	96	154	168	197	124	175
11	34	.00	.00	.00	16	2.6	94	143	166	201	152	135
12	19	.00	.00	.00	16	3.0	63	147	201	196	148	74
13	12	.00	.00	.00	16	2.7	65	153	243	162	151	31
14	5.0	.00	.00	.00	16	2.5	83	151	236	183	151	32
15	.00	.00	.00	.00	16	1.6	80	176	233	196	151	32
16	.00	.00	.00	.00	16	2.7	82	214	222	179	151	32
17	.00	.00	.00	.00	16	2.0	84	231	250	186	159	32
18	.00	.00	.00	.00	16	2.8	89	232	259	170	167	54
19	.00	.00	.00	.00	16	2.0	111	233	255	127	169	81
20	.00	.00	.00	.00	26	2.4	110	223	249	128	169	80
21	.50	.00	.00	.00	32	3.2	100	215	242	128	187	85
22	.00	.00	.00	.00	32	3.4	113	227	247	127	191	105
23	.00	.00	.00	.00	31	39	86	240	235	124	219	113
24	.00	.00	.00	.00	.00	70	52	227	209	117	206	114
25	.00	.00	.00	.00	.00	87	48	228	210	118	188	111
26	.00	.00	.00	.00	.00	87	48	223	221	123	218	116
27	.00	.00	.00	.00	.00	88	47	226	241	98	213	123
28	.00	.00	.00	.00	.00	86	82	234	242	85	207	122
29	.00	.00	.00	.00	---	86	106	236	234	85	197	122
30	.00	.00	.00	.00	---	75	123	239	229	85	190	123
31	.00	---	.00	.00	---	61	---	241	---	66	180	---
TOTAL	877.50	30.30	.40	114.00	332.00	717.50	2575	6044	5775	5167	4498	3523
MEAN	28.3	1.01	.013	3.68	11.9	23.1	85.8	195	193	167	145	117
MAX	115	21	.40	26	32	88	123	241	259	238	219	190
MIN	.00	.00	.00	.00	.00	.00	47	97	26	66	28	31
AC-FT	1740	60	.8	226	659	1420	5110	11990	11450	10250	8920	6990

CAL YR 1977 TOTAL 28687.80 MEAN 78.6 MAX 271 MIN .00 AC-FT 56900
WTR YR 1978 TOTAL 29653.70 MEAN 81.2 MAX 259 MIN .00 AC-FT 58820

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.--WDR 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1936, that of Sept. 22, 1967. 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), 9.0 ft (2.74 m) Sept. 14, 15; minimum, 2.1 ft (0.64 m) July 9. Maximum gage height (downstream from barrier), 8.9 ft (2.71 m) Sept. 15; minimum, 1.1 ft (0.40 m) July 17.

MAXIMUM DAILY GAGE HEIGHT, IN FEET, UPSTREAM AND DOWNSTREAM FROM SALTWATER BARRIER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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	4.4	4.1	6.6	6.5	5.1	5.0	4.4	4.3	4.2	4.1	4.6	4.5	3.6	3.5	5.1	5.1	4.4	3.6	4.1	2.7	4.0	3.0	7.0	7.0
2	4.1	4.0	7.9	7.8	5.0	4.9	4.3	4.2	4.2	4.1	4.5	4.4	3.8	3.7	4.6	4.6	4.9	4.5	4.1	2.6	4.0	3.0	6.9	6.9
3	3.8	3.6	7.9	7.8	4.8	4.7	4.5	4.4	4.2	4.1	4.5	4.5	3.9	3.8	4.4	4.4	6.2	6.1	4.0	2.6	4.6	3.6	6.8	6.7
4	4.0	3.7	8.0	7.9	5.0	4.9	4.5	4.4	4.2	4.1	4.3	4.2	3.8	3.7	3.7	3.7	7.5	7.4	4.0	2.6	4.8	4.7	6.7	6.7
5	4.3	3.8	8.1	8.0	5.0	4.9	4.6	4.5	4.2	4.1	4.2	4.1	3.7	3.6	4.0	3.9	7.8	7.7	4.0	2.0	6.2	5.9	6.6	6.5
6	3.8	3.7	8.1	8.0	4.9	4.8	4.5	4.4	4.3	4.2	4.4	4.3	3.7	3.6	41.	4.0	7.8	7.7	4.0	1.9	6.8	6.7	6.6	6.5
7	4.1	4.0	8.2	8.0	4.6	4.5	4.4	4.3	5.3	5.2	4.3	4.2	3.6	3.5	4.2	4.1	7.5	7.4	4.0	1.8	7.6	7.4	6.5	6.4
8	4.1	4.0	8.2	8.1	4.5	4.4	4.3	4.2	6.4	6.4	4.1	4.0	3.8	3.7	4.2	4.1	7.3	7.2	4.0	1.8	7.8	7.7	6.4	6.4
9	4.0	3.9	8.2	8.1	4.5	4.4	4.2	4.1	6.6	6.5	5.1	5.0	4.0	3.9	4.0	4.0	7.6	7.5	3.8	1.8	8.0	7.9	6.5	6.4
10	4.1	4.0	8.0	7.9	4.5	4.4	4.2	4.1	6.5	6.4	5.2	5.1	4.0	3.9	3.8	3.7	7.9	7.8	4.0	1.8	8.0	7.9	6.9	6.8
11	4.1	4.0	7.9	7.8	4.7	4.6	4.4	4.3	6.5	6.4	5.5	5.3	3.3	3.2	4.0	3.9	8.0	7.9	3.9	1.8	8.0	7.9	7.9	7.9
12	3.7	3.6	7.9	7.8	4.6	4.5	4.7	4.6	6.8	6.7	5.5	5.3	3.4	3.3	3.7	3.7	8.1	7.9	3.9	1.8	8.0	7.9	8.7	8.5
13	3.5	3.4	7.9	7.8	4.6	4.5	4.7	4.6	6.7	6.6	5.2	5.1	3.8	3.6	3.6	3.5	8.0	7.9	3.9	1.9	8.0	7.9	8.7	8.5
14	3.4	3.3	7.8	7.7	4.5	4.4	4.6	4.5	6.3	6.2	4.8	4.6	5.4	5.2	3.3	3.1	7.7	7.6	3.9	2.2	8.0	7.9	9.0	8.8
15	3.4	3.2	7.5	7.4	4.4	4.3	4.6	4.5	5.8	5.7	4.5	4.4	5.7	5.5	3.3	3.2	7.4	7.2	3.9	2.3	7.9	7.8	9.0	8.9
16	3.2	3.1	7.2	7.1	4.5	4.4	4.4	4.3	5.6	5.5	4.1	3.9	5.6	5.5	4.0	3.2	6.9	6.8	3.9	2.1	7.9	7.8	8.9	8.8
17	3.2	3.1	6.9	6.8	4.5	4.4	4.3	4.2	6.0	5.9	3.8	3.7	5.0	5.0	4.0	3.2	6.3	6.2	3.9	1.9	7.8	7.7	8.7	8.6
18	3.1	3.0	6.7	6.6	4.3	4.2	4.3	4.2	6.7	6.6	3.8	3.6	4.6	4.5	4.0	3.3	5.6	5.6	4.0	2.5	7.7	7.6	8.4	8.4
19	3.2	3.0	6.6	6.5	4.3	4.2	5.0	4.9	6.7	6.6	3.6	3.4	4.1	4.0	4.0	3.0	5.2	5.2	4.0	2.4	7.6	7.5	8.4	8.3
20	3.2	3.0	6.5	6.4	4.2	4.1	5.3	5.2	6.4	6.3	3.6	3.4	3.5	3.4	4.0	3.0	4.8	4.7	4.0	2.4	7.6	7.4	8.3	8.2
21	3.4	3.3	6.3	6.2	4.2	4.1	5.3	5.2	6.1	6.1	3.5	3.4	3.5	3.4	4.0	2.7	4.4	4.3	4.0	2.2	7.5	7.4	8.2	8.1
22	4.1	3.9	6.0	5.9	4.0	3.9	4.9	4.9	6.1	6.0	3.5	3.3	3.8	3.7	3.9	2.8	4.0	4.0	4.0	2.3	7.5	7.4	8.1	8.0
23	4.7	4.6	5.9	5.8	4.0	3.9	4.7	4.6	5.9	5.8	3.7	3.6	5.0	4.8	4.0	2.7	3.8	3.7	4.0	2.4	7.4	7.3	8.0	8.0
24	5.1	5.0	5.7	5.6	4.0	3.9	4.6	4.5	5.6	5.5	3.8	3.7	6.0	5.8	4.1	3.2	3.6	3.5	4.0	2.5	7.4	7.3	8.0	7.9
25	5.2	5.1	5.5	5.4	3.9	3.8	4.4	4.3	5.2	5.1	3.5	3.4	6.5	6.4	3.9	3.4	4.1	3.4	4.0	2.6	7.3	7.2	7.9	7.9
26	5.9	5.8	5.3	5.2	3.9	3.9	4.1	4.0	4.9	4.8	3.3	3.2	7.2	7.1	3.8	3.4	4.1	3.4	4.0	2.6	7.3	7.3	7.8	7.8
27	6.2	6.1	5.4	5.3	4.3	4.2	4.0	3.9	4.7	4.6	3.5	3.4	7.4	7.3	3.6	3.4	4.1	3.0	4.0	2.5	7.3	7.2	7.8	7.7
28	6.2	6.1	5.3	5.2	4.3	4.2	4.0	3.9	4.6	4.5	3.6	3.5	7.4	7.3	4.1	3.4	4.1	2.7	4.0	2.6	7.3	7.2	7.7	7.6
29	5.8	5.8	5.2	5.1	4.4	4.3	4.0	4.9	---	---	3.7	3.6	6.9	6.9	4.1	2.8	4.0	2.6	4.0	2.5	7.3	7.2	7.6	7.6
30	5.5	5.4	5.1	5.0	4.4	4.3	4.0	3.9	---	---	3.7	3.6	5.8	5.8	4.0	2.6	4.0	2.6	4.0	2.9	7.2	7.2	7.6	7.5
31	5.1	5.0	---	---	4.4	4.3	4.1	4.0	---	---	3.5	3.4	---	---	4.2	2.7	---	---	4.1	3.7	7.1	7.1	---	---

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, 1,000 micromhos Aug. 3; minimum daily, 208 micromhos Sept. 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	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 10...	1500	434	7.2	17.5	70	310	7.4	80	2.8	150	26
JAN 26...	1348	864	7.9	10.5	20	30	9.8	91	1.4	300	73
MAY 23...	0825	822	7.8	28.0	20	40	5.3	68	1.7	300	76
JUN 19...	1520	602	--	31.0	--	--	--	--	--	190	27
JUL 18...	1220	870	7.9	31.0	10	35	5.7	77	1.8	300	76
SEP 27...	1300	470	7.7	26.0	40	90	5.8	72	1.1	190	32

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 10...	47	7.6	28	1.0	5.1	150	0	38	39	.2	13
JAN 26...	90	19	64	1.6	3.9	280	0	66	97	.6	4.6
MAY 23...	86	20	61	1.5	4.2	270	0	61	86	.2	13
JUN 19...	60	10	43	1.4	5.4	200	0	47	63	.3	17
JUL 18...	86	20	71	1.8	4.3	270	0	68	100	.4	20
SEP 27...	59	9.7	24	.8	3.9	190	0	34	34	.2	14

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 10...	252	850	190	.67	.01	.68	.02	.86	.88	.54	--
JAN 26...	483	59	10	1.8	.01	1.8	.03	.42	.45	.38	13
MAY 23...	465	88	11	1.5	.02	1.5	.03	.87	.90	.42	4.1
JUN 19...	344	--	--	--	--	--	--	--	--	--	--
JUL 18...	503	65	3	.35	.01	.36	.01	.69	.70	.34	3.1
SEP 27...	273	200	26	.93	.01	.94	.03	.82	.85	.46	1.5

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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...	0825	3	0	1	0	2	40
JUL 18...	1220	5	300	2	0	2	20
SEP 27...	1300	4	100	1	0	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)
MAY 23...	5	40	.0	0	0	10
JUL 18...	3	20	.0	0	0	20
SEP 27...	1	0	.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)
MAY 23...	0825	.0	--	.00	.00	--	.0	--	.00	--
JUL 18...	1220	.0	1	.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)
MAY 23...	.00	--	.00	--	.04	.00	--	.00	.00	--
JUL 18...	.00	.2	.00	.0	.02	.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)
MAY 23...	.00	.00	--	.00	--	.00	--	.00	.00
JUL 18...	.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)
MAY 23...	.00	--	.00	0	--	.00	.22	.01	.00
JUL 18...	.00	.00	.00	0	0	.00	.01	.00	.00

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	830	813	820	719	620	670	---	---	810	855	839	848
2	852	802	829	653	555	607	---	---	820	861	843	853
3	852	827	843	555	425	490	---	---	820	876	849	862
4	858	843	850	732	425	561	---	---	820	849	830	841
5	855	833	846	670	328	438	---	---	821	839	819	831
6	840	819	831	460	355	411	---	---	816	852	836	843
7	870	827	845	375	351	364	---	---	816	858	827	847
8	906	870	891	372	351	357	---	---	824	861	843	855
9	909	880	898	437	373	406	---	---	830	872	854	863
10	880	822	851	470	425	448	---	---	825	868	843	856
11	827	800	812	505	399	440	---	---	830	865	846	856
12	811	794	802	557	498	530	---	---	819	865	849	857
13	832	818	825	537	468	498	---	---	824	855	822	838
14	833	805	818	545	523	533	---	---	836	849	827	840
15	846	827	834	552	519	534	---	---	840	883	852	864
16	874	839	855	580	519	545	---	---	842	880	858	868
17	877	859	868	645	580	615	---	---	845	887	868	878
18	885	863	874	700	643	672	---	---	847	870	849	860
19	867	855	858	724	700	714	861	843	852	849	802	826
20	874	833	853	751	724	742	858	839	850	819	786	805
21	852	838	844	753	746	750	852	827	838	791	772	781
22	843	805	822	---	---	754	849	824	838	827	780	802
23	805	714	790	---	---	758	849	824	838	864	827	844
24	763	716	740	---	---	765	855	824	839	874	852	863
25	759	717	746	---	---	778	861	843	852	892	851	872
26	861	717	784	---	---	782	864	849	858	862	850	856
27	867	783	818	---	---	788	872	850	861	875	854	864
28	791	645	700	---	---	799	862	843	852	870	860	865
29	655	616	632	---	---	808	849	830	839	868	849	858
30	681	651	672	---	---	807	852	839	845	887	878	882
31	696	664	678	---	---	---	846	836	842	887	878	882
MONTH	909	616	811	753	328	612	872	824	835	892	772	850
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	891	882	886	879	866	872	854	833	844	624	587	603
2	887	875	881	886	874	880	858	839	849	693	628	657
3	896	878	887	906	887	896	858	816	830	756	693	726
4	896	878	887	901	889	895	891	847	869	780	711	746
5	893	878	886	906	875	890	886	874	879	825	708	766
6	884	875	880	906	886	896	896	870	879	816	761	790
7	886	843	861	886	874	886	881	819	852	861	789	822
8	874	775	815	904	846	875	864	835	850	893	815	854
9	833	679	732	852	783	818	889	845	867	818	796	807
10	712	657	680	813	785	799	917	873	895	822	794	803
11	724	672	700	852	783	822	910	857	884	839	805	824
12	819	724	784	819	791	801	920	880	900	805	751	767
13	843	791	817	791	730	760	900	860	880	816	783	805
14	783	767	775	789	748	776	930	877	904	852	822	836
15	797	773	785	783	778	780	879	839	859	890	862	876
16	773	700	736	819	778	797	839	640	740	899	858	875
17	794	722	763	855	822	834	724	705	714	909	864	884
18	800	769	791	874	855	866	751	724	743	903	867	885
19	769	618	662	896	870	880	790	728	759	892	858	875
20	681	622	649	926	902	917	803	754	778	889	861	876
21	746	713	730	912	889	902	817	733	775	877	855	866
22	787	750	768	902	886	895	813	761	789	864	816	848
23	840	788	814	891	861	880	816	759	778	861	783	822
24	870	836	853	874	858	863	824	557	642	858	775	816
25	849	836	843	896	870	878	746	670	713	919	858	894
26	867	843	856	896	880	890	860	571	716	969	909	939
27	879	853	868	899	877	889	585	435	506	936	813	877
28	879	841	860	877	855	866	632	438	552	867	794	842
29	---	---	---	922	897	910	616	525	556	824	751	798
30	---	---	---	925	890	908	585	546	570	800	710	777
31	---	---	---	890	854	872	---	---	---	827	751	795
MONTH	896	618	802	926	730	861	930	435	779	969	587	818

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	899	802	859	819	623	771	975	852	930	495	478	490
2	906	852	876	813	624	759	946	858	929	514	495	506
3	852	574	710	833	626	777	1000	906	956	527	505	518
4	626	456	541	849	761	822	982	851	931	546	525	538
5	456	331	394	846	790	818	946	555	692	563	527	545
6	425	325	355	864	769	817	722	412	487	585	550	577
7	655	431	559	858	783	827	433	364	398	587	557	572
8	671	580	642	877	797	829	628	424	526	557	534	545
9	599	528	566	880	805	833	628	472	550	564	528	544
10	637	457	564	889	830	863	486	471	481	580	545	562
11	457	386	416	874	849	862	471	454	462	608	545	576
12	478	424	451	899	846	852	482	468	475	593	281	361
13	424	406	415	889	824	856	505	482	495	281	208	228
14	443	416	430	904	669	786	514	506	511	251	211	231
15	466	444	455	861	677	800	516	500	508	291	251	265
16	498	465	478	880	827	853	512	507	510	297	280	287
17	539	500	519	890	829	860	513	509	512	287	283	284
18	589	539	564	892	822	857	512	501	507	320	283	304
19	624	589	606	906	836	877	508	489	498	330	316	322
20	670	640	655	899	808	859	490	476	484	351	318	334
21	705	670	687	892	830	861	484	463	474	403	352	375
22	719	705	713	902	830	871	467	459	462	432	405	421
23	740	694	717	902	827	866	462	452	456	460	432	454
24	732	684	710	891	830	860	452	435	443	467	456	460
25	743	670	714	874	813	848	441	432	438	467	447	457
26	771	659	715	925	856	890	440	431	434	467	451	459
27	809	710	760	956	899	928	432	425	430	482	465	472
28	802	696	749	947	880	914	430	419	423	497	482	488
29	831	693	762	923	852	891	424	410	417	505	490	499
30	839	651	745	916	852	894	451	421	431	523	505	513
31	---	---	---	926	843	884	481	452	470	---	---	---
MONTH	906	325	611	956	623	848	1000	364	539	608	208	440

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	24.0	17.0	---	10.0	17.0	---	25.0	28.0	---	29.0	29.0
2	---	20.0	18.0	---	9.0	17.0	---	25.0	28.0	---	28.0	---
3	27.0	19.0	---	12.0	9.0	16.0	22.0	23.0	---	31.0	29.0	---
4	27.0	20.0	---	12.0	---	---	23.0	23.0	---	---	28.0	---
5	27.0	---	20.0	14.0	---	---	23.0	24.0	27.0	30.0	---	29.0
6	27.0	---	17.0	15.0	11.0	15.0	24.0	---	27.0	31.0	---	28.0
7	26.0	20.0	17.0	---	11.0	16.0	24.0	---	27.0	31.0	28.0	27.0
8	---	20.0	18.0	---	10.0	15.0	---	26.0	28.0	---	28.0	27.0
9	---	18.0	15.0	13.0	9.0	16.0	---	27.0	28.0	---	28.0	---
10	26.0	17.0	---	13.0	9.0	16.0	23.0	26.0	---	31.0	28.0	---
11	23.0	16.0	---	12.0	---	---	21.0	27.0	---	31.0	28.0	26.0
12	22.0	---	15.0	11.0	---	---	20.0	27.0	28.0	31.0	---	26.0
13	22.0	---	17.0	10.0	11.0	19.0	20.0	---	28.0	31.0	---	26.0
14	22.0	18.0	16.0	---	12.0	20.0	20.0	---	29.0	31.0	28.0	26.0
15	---	19.0	16.0	---	11.0	20.0	---	27.0	29.0	---	28.0	26.0
16	---	20.0	17.0	14.0	11.0	18.0	---	27.0	29.0	---	28.0	---
17	22.0	20.0	---	11.0	12.0	19.0	23.0	27.0	---	31.0	28.0	---
18	22.0	20.0	---	10.0	---	---	24.0	27.0	---	31.0	28.0	27.0
19	22.0	---	17.0	9.0	---	---	24.0	28.0	30.0	31.0	---	28.0
20	22.0	---	15.0	9.0	11.0	18.0	23.0	---	30.0	31.0	---	28.0
21	23.0	20.0	14.0	---	11.0	18.0	23.0	---	30.0	30.0	---	28.0
22	---	19.0	13.0	---	11.0	20.0	---	28.0	30.0	---	---	27.0
23	---	20.0	---	8.0	13.0	20.0	---	28.0	30.0	---	26.0	---
24	22.0	---	---	9.0	13.0	---	21.0	28.0	---	30.0	28.0	---
25	22.0	19.0	---	10.0	---	---	23.0	28.0	---	29.0	---	26.0
26	23.0	---	---	10.0	---	---	22.0	28.0	30.0	30.0	---	26.0
27	22.0	---	14.0	10.0	17.0	19.0	21.0	---	30.0	30.0	---	26.0
28	23.0	21.0	13.0	---	18.0	18.0	22.0	---	30.0	30.0	29.0	24.0
29	---	18.0	13.0	---	---	19.0	---	---	31.0	---	29.0	25.0
30	---	18.0	13.0	10.0	---	20.0	---	28.0	31.0	---	29.0	---
31	24.0	---	---	10.0	---	21.0	---	28.0	---	28.0	27.0	---
MEAN	23.5	19.5	16.0	11.0	11.5	18.0	22.5	26.5	29.0	30.5	28.0	27.0

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.--8 years, 51.7 ft³/s (1.464 m³/s), 37,460 acre-ft/yr (46.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,300 ft³/s (178 m³/s) Sept. 12, 1971, gage height, 21.00 ft (6.401 m), from rating curve extended above 3,800 ft³/s (108 m³/s); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1921, 22 ft (6.7 m) in September 1967, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 4	1100	722	20.4	11.13	3.392	Sept. 14	1200	*2,690	76.2	16.12	4.913

Minimum discharge, no flow at times.

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	.01	2.8	.00	1.1	3.0	.00	.04	26	.00	3.8	.00
2	.00	28	2.0	.02	1.1	2.4	.00	.01	179	.00	6.7	.00
3	.00	70	1.7	.07	1.1	1.9	.00	.01	461	.00	5.4	.00
4	.00	64	1.5	.07	.88	1.5	.00	.00	705	.00	3.3	.00
5	.00	52	1.1	.07	.77	1.1	.00	.00	509	.00	1.9	.00
6	.00	53	.79	.10	.63	1.0	.00	.01	272	.00	1.1	.00
7	.00	55	.65	.10	23	.87	.00	.04	245	.00	.60	.00
8	.00	57	.48	.05	78	.70	.00	.05	264	.00	.31	.00
9	.00	50	.28	.02	80	.68	.00	.05	203	.00	.13	.00
10	.00	40	.17	.02	71	.50	.00	.02	154	.00	.29	.00
11	.00	30	.18	.50	65	.41	.00	.01	121	.00	.36	24
12	.00	22	.13	1.5	60	.29	.00	.00	89	.00	.11	990
13	.00	19	.09	1.5	49	.27	.00	.00	61	.00	.03	1870
14	.00	15	.05	.95	34	.23	.00	.00	44	.00	.00	2570
15	.00	11	.03	.56	20	.30	.00	.00	28	.00	.00	2030
16	.00	8.0	.03	.49	15	.36	.00	.00	16	.00	.00	1370
17	.00	6.2	.02	.30	17	.32	.00	.00	10	.00	.00	1050
18	.00	5.5	.00	.31	30	.22	.00	.00	7.0	.00	.00	891
19	.00	6.8	.00	.36	35	.11	.00	.00	5.0	.00	.00	782
20	.00	5.8	.00	.36	35	.07	.00	.00	3.7	.00	.00	708
21	.00	4.5	.00	.36	36	.05	.00	.00	2.8	.00	.00	661
22	.00	4.2	.00	.36	32	.03	.44	.00	2.0	.00	.00	628
23	.00	5.7	.00	2.5	20	.02	3.4	.00	1.4	.00	.00	856
24	.00	9.6	.00	5.2	13	.01	1.5	.00	.91	.00	.00	1300
25	.00	8.9	.00	4.8	9.5	.00	.94	.00	.55	12	.00	954
26	.00	7.2	.00	3.7	6.8	.00	.44	.00	.31	33	.00	655
27	.00	5.7	.00	2.9	4.9	.00	.18	.00	.15	15	.00	420
28	.00	4.6	.00	2.1	3.8	.00	.09	.00	.07	6.8	.00	246
29	.00	3.9	.00	1.6	---	.00	.05	.00	.02	3.9	.00	140
30	.00	3.5	.00	1.3	---	.00	.05	.00	.00	2.4	.00	71
31	.00	---	.00	1.1	---	.00	---	.00	---	2.1	.00	---
TOTAL	.00	656.11	12.00	33.27	743.58	16.34	7.09	.24	3410.91	75.20	24.03	18216.00
MEAN	.000	21.9	.39	1.07	26.6	.53	.24	.008	114	2.43	.78	607
MAX	.00	70	2.8	5.2	80	3.0	3.4	.05	705	33	6.7	2570
MIN	.00	.01	.00	.00	.63	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	1300	24	66	1470	32	14	.5	6770	149	48	36130

CAL YR 1977 TOTAL 5927.62 MEAN 16.2 MAX 195 MIN .00 AC-FT 11760
WTR YR 1978 TOTAL 23194.77 MEAN 63.5 MAX 2570 MIN .00 AC-FT 46010

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 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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											
29...	0810	3.6	270	7.0	20.5	190	5.4	61	2.5	34	0
JAN											
09...	1527	.05	450	6.8	10.5	240	7.2	67	7.7	--	--
FEB											
23...	1140	20	200	7.1	11.0	220	9.8	92	2.7	31	4
JUN											
22...	1045	1.9	325	7.2	28.5	55	4.2	55	4.5	62	0
AUG											
09...	1125	.18	414	6.7	26.5	95	3.5	45	5.1	50	0
SEP											
19...	0950	782	93	6.3	29.0	15	1.6	21	2.7	27	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											
29...	10	2.2	27	2.0	6.0	56	0	13	32	.0	.2
JAN											
09...	--	--	--	--	--	120	0	31	72	.2	25
FEB											
23...	9.1	2.1	24	1.9	4.9	34	0	--	--	--	8.8
JUN											
22...	19	3.5	38	2.1	7.9	98	0	14	38	.2	41
AUG											
09...	16	2.4	64	3.9	6.3	98	0	16	74	.1	25
SEP											
19...	7.9	1.7	5.5	.5	4.4	38	0	4.7	6.5	.0	19

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)
NOV										
29...	119	284	.14	.01	.15	.10	2.0	2.1	.20	25
JAN										
09...	--	120	.01	.02	.03	.24	1.2	1.4	.24	30
FEB										
23...	406	388	.24	.01	.25	.03	1.1	1.1	.12	10
JUN										
22...	210	70	.06	.02	.08	.04	2.5	2.5	.17	25
AUG										
09...	252	192	.00	.03	.02	.22	2.5	2.7	.16	30
SEP										
19...	69	80	.00	.01	.01	.06	.94	1.0	.09	16

08189200 COPANO CREEK NEAR REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 29...	0810	2	600	0	16	5	500
FEB 23...	1140	1	100	0	0	4	190
SEP 19...	0950	2	0	1	0	2	90

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 29...	3	20	.0	0	0	50
FEB 23...	0	10	.0	0	0	20
SEP 19...	0	20	.0	0	0	0

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 29...	0810	.0	0	.00	.00	.0	.0	0	.00	.0
FEB 23...	1140	.0	0	.00	.00	.0	.0	0	.00	.0
SEP 19...	0950	.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)
NOV 29...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
FEB 23...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
SEP 19...	.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)
NOV 29...	.00	.00	.0	.00	.0	.00	.0	.00	.00
FEB 23...	.00	.00	.0	.00	.0	.00	.0	.00	.00
SEP 19...	.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 29...	.00	--	.00	0	0	.00	.00	.00	.00
FEB 23...	.00	--	.00	0	0	.00	.00	.00	.00
SEP 19...	.00	.00	.00	0	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.--39 years (water years 1940-78), 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--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). Floods in August 1914 and May 17, 1938, reached a stage of 32.3 ft (9.85 m), from information by local residents. Flood of May 13, 1972, reached a stage of 28.25 ft (8.611 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,320 ft³/s (122 m³/s) June 4, gage height, 21.80 ft (6.645 m), no other peak above base of 3,000 ft³/s (85.0 m³/s), revised; minimum, 5.8 ft³/s (0.16 m³/s) Aug. 24, 27-30.

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	11	36	45	21	18	25	14	10	455	18	19	7.1
2	11	566	30	21	19	24	14	9.8	558	17	23	7.7
3	11	614	26	21	20	23	14	9.8	1070	17	17	7.9
4	11	186	25	21	19	22	14	9.8	3850	17	12	7.9
5	11	93	24	21	18	21	13	10	2830	16	10	8.0
6	11	58	22	21	18	21	13	10	535	15	9.1	9.4
7	11	42	20	21	30	21	13	10	510	14	8.7	9.7
8	11	36	20	20	85	22	13	10	1760	13	8.9	9.8
9	17	225	20	20	165	21	13	9.9	899	13	7.9	17
10	23	419	20	19	86	20	13	9.6	292	12	7.2	21
11	24	135	19	20	54	20	13	9.4	157	12	6.8	209
12	21	74	19	21	39	19	15	9.1	107	11	6.5	1380
13	18	53	19	21	33	19	15	8.7	79	11	6.5	915
14	15	42	20	20	28	19	16	7.5	64	11	6.5	600
15	15	38	20	19	26	18	15	7.2	53	11	6.8	527
16	14	35	20	18	25	18	13	7.2	46	11	6.7	612
17	14	33	20	18	36	17	13	7.2	40	11	6.2	328
18	14	31	19	19	769	17	12	7.2	36	10	6.2	129
19	14	30	19	32	365	17	12	7.2	33	19	7.4	78
20	14	29	18	68	131	17	11	6.9	29	13	6.6	54
21	13	29	18	41	74	17	11	6.8	27	13	6.9	42
22	16	30	18	29	50	17	21	7.4	25	10	6.2	36
23	19	28	18	24	38	17	19	16	24	9.1	6.2	78
24	29	27	18	22	33	17	16	16	23	12	6.4	240
25	33	26	18	21	30	17	14	11	22	11	6.8	125
26	24	26	18	21	28	17	12	8.5	21	9.0	6.4	60
27	23	25	19	19	27	16	11	7.6	20	8.6	5.9	36
28	19	25	19	18	26	15	10	7.6	19	8.3	5.8	27
29	17	25	19	18	---	15	10	7.2	18	8.3	5.8	24
30	16	29	20	17	---	14	10	6.5	18	8.5	6.0	21
31	15	---	20	17	---	15	---	6.1	---	17	8.5	---
TOTAL	515	3045	650	709	2290	578	403	277.2	13620	386.8	259.9	5626.5
MEAN	16.6	102	21.0	22.9	81.8	18.6	13.4	8.94	454	12.5	8.38	188
MAX	33	614	45	68	769	25	21	16	3850	19	23	1380
MIN	11	25	18	17	18	14	10	6.1	18	8.3	5.8	7.1
CFSM	.02	.15	.03	.03	.12	.03	.02	.01	.66	.02	.01	.27
IN.	.03	.16	.04	.04	.12	.03	.02	.01	.73	.02	.01	.30
AC-FT	1020	6040	1290	1410	4540	1150	799	550	27020	767	516	11160

CAL YR 1977	TOTAL	48004.0	MEAN	132	MAX	4160	MIN	11	CFSM	.19	IN	2.59	AC-FT	95220
WTR YR 1978	TOTAL	28360.4	MEAN	77.7	MAX	3850	MIN	5.8	CFSM	.11	IN	1.53	AC-FT	56250

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.

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, 3,790 micromhos May 31; minimum daily, 176 micromhos June 4.
WATER TEMPERATURES: Maximum daily, 31.5°C July 17; ;minimum daily, 5.5°C Jan. 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	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)
DEC 02...	1035	31	1520	7.9	16.0	--	--	--	--	--	--
JAN 26...	1200	21	1770	7.7	10.0	--	15	10.6	97	1.4	640
FEB 16...	1315	25	1850	7.6	12.5	--	20	10.0	97	1.5	740
MAR 16...	1345	18	2480	7.9	19.5	--	15	9.7	109	.6	660
APR 25...	1145	14	2560	7.8	25.0	--	20	8.0	99	2.9	6600
MAY 23...	1015	17	2830	7.7	26.5	--	20	5.7	72	2.0	3500
JUN 27...	1350	20	2260	7.8	30.5	30	15	7.5	101	1.6	>110
JUL 18...	1420	10	2710	7.7	31.5	--	15	7.8	107	1.4	4500
AUG 23...	0930	6.2	3140	8.0	28.5	--	15	6.3	83	1.5	--
SEP 27...	0930	38	755	7.7	24.0	--	40	6.8	83	1.4	--

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
DEC 02...	--	--	320	120	98	19	180	4.4	3.8	250	0
JAN 26...	220	120	340	140	100	21	220	5.2	4.2	240	0
FEB 16...	180	130	340	150	100	22	220	5.2	4.2	230	0
MAR 16...	160	120	530	260	160	31	310	5.9	4.2	330	0
APR 25...	370	1300	480	250	140	32	300	6.0	4.7	280	0
MAY 23...	220	1300	520	240	150	34	390	7.5	5.2	320	7
JUN 27...	110	180	480	180	150	25	280	5.6	4.2	360	0
JUL 18...	K20	210	470	210	140	29	380	7.6	4.1	320	0
AUG 23...	K3800	740	490	240	150	29	450	8.8	5.6	310	0
SEP 27...	1500	620	160	47	52	7.8	88	3.0	4.3	140	0

08189500 MISSION RIVER AT REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
DEC 02...	40	350	.3	32	--	846	--	--	--	--	--
JAN 26...	40	420	.2	27	1000	951	.08	.01	.09	.02	.56
FEB 16...	42	430	.3	27	1020	960	.15	.01	.16	.07	.48
MAR 16...	62	570	.3	36	1380	1340	.02	.01	--	.01	1.4
APR 25...	70	550	.4	37	1380	1270	.01	.01	.02	.01	.58
MAY 23...	61	740	.3	41	1580	1590	.01	.00	.01	.01	.98
JUN 27...	43	500	.3	--	1260	--	.02	.00	.02	.01	.58
JUL 18...	48	710	.4	43	1580	1510	.01	.00	.01	.00	.50
AUG 23...	44	830	.3	40	1680	1700	.02	.01	.03	.05	1.1
SEP 27...	16	160	.1	21	454	418	.07	.01	.08	.07	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
DEC 02...	--	--	--	--	--	--	--	--	--	--
JAN 26...	.58	.52	.03	.01	6.4	--	--	25	1.4	97
FEB 16...	.55	.44	.03	.02	--	--	--	21	1.4	98
MAR 16...	1.4	--	.07	.05	4.5	--	--	48	2.3	51
APR 25...	.59	.46	.03	.00	4.7	--	--	56	2.1	88
MAY 23...	.99	.35	.04	.00	--	--	--	48	2.2	79
JUN 27...	.59	.37	.03	.01	5.2	--	--	25	1.3	100
JUL 18...	.50	.40	.02	.00	4.3	--	--	23	.62	84
AUG 23...	1.1	.64	.03	.01	--	5.5	.3	43	.72	52
SEP 27...	1.2	.77	.05	.02	13	--	--	69	7.1	69

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
FEB 16...	1315	6	1	5	800	100	700	0	0	0
MAY 23...	1015	13	4	9	800	0	800	0	--	1
AUG 23...	0930	8	0	8	800	0	800	0	0	0

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
FEB 16...	10	0	10	2	2	0	5	4	1	580
MAY 23...	10	10	0	2	1	1	70	69	1	1800
AUG 23...	10	0	10	0	0	0	5	5	0	420

08189500 MISSION RIVER AT REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
FEB 16...	--	20	4	2	2	190	50	140	.0	.0
MAY 23...	1700	100	5	2	3	380	220	160	.1	.1
AUG 23...	320	100	2	2	0	400	190	210	.0	.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)
FEB 16...	.1	1	0	1	0	0	0	20	10	10
MAY 23...	.0	0	0	0	0	0	0	20	0	20
AUG 23...	.0	1	1	0	0	0	0	20	10	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)
APR 25...	1145	.0	1	.00	.00	.0	.0	2	.00	.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)
APR 25...	.00	.6	.00	.6	.00	.00	.1	.00	.00

DATE	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)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)
APR 25...	.0	.00	.00	.0	.00	.0	.00	.0	.00

DATE	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)
APR 25...	.00	.00	.00	0	0	.00	.00	.00	.00

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

DATE	LENGTH OF EXPOSURE (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)	SAMPLING METHOD
APR 25...	40	10.4	15.0	11.8	.000	POLYETHYLENE STRIP
AUG 23...	36	16.8	20.9	2.48	.390	POLYETHYLENE STRIP

08189500 MISSION RIVER AT REFUGIO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	MAR 16,78		MAY 23,78		JUN 27,78		JUL 18,78	
TIME	1345		1015		1350		1420	
TOTAL CELLS/ML	1400		230000		52000		59000	
DIVERSITY: DIVISION	1.8		1.4		0.7		0.6	
.CLASS	1.8		1.4		0.7		0.6	
..ORDER	2.1		1.8		1.0		1.1	
...FAMILY	2.2		2.0		1.1		1.2	
....GENUS	2.2		2.8		1.9		2.1	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...COELASTRACEAE								
....COELASTRUM	--	-	6000	3	--	-	--	-
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	*	0	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	23	2	1500	1	690	1	1100	2
....FRANCEIA	--	-	--	-	--	-	*	0
....KIRCHNERIELLA	23	2	--	-	--	-	460	1
....OOCYSTIS	--	-	6000	3	--	-	--	-
....TETRAEDRON	--	-	--	-	*	0	*	0
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	270	1	1500	2
....SCENEDESMUS	--	-	31000	13	1200	2	920	2
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	*	0	--	-
....CHLAMYDOMONAS	110	8	6700	3	*	0	820	1
...PHACOTACEAE								
....PHACOTUS	--	-	--	-	--	-	*	0
...VOLVOCACEAE								
....PANDORINA	--	-	--	-	550	1	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..PENNALES								
...NAVICULACEAE								
....ENTOMONEIS	--	-	*	0	--	-	--	-
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	150	10	6000	3	--	-	*	0
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	--	-	*	0
...CYMBELLACEAE								
....AMPHORA	--	-	*	0	--	-	--	-
....CYMBELLA	--	-	--	-	*	0	--	-
...NAVICULACEAE								
....DIPLONEIS	68	5	2200	1	--	-	--	-
....NAVICULA	--	-	--	-	*	0	--	-
....PINNULARIA	--	-	--	-	*	0	--	-
...NITZSCHIACEAE								
....DENTICULA	--	-	*	0	--	-	--	-
....NITZSCHIA	34	2	3000	1	1300	2	1000	2
.XANTHOPHYCEAE								
..HETEROCOCCALES								
...CENTRITRACTACEAE								
....CENTRITRACTUS	--	-	1500	1	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOMONODACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROCCOCCALES								
...CHROCCOCCACEAE								
....AGMENELLUM	--	-	43000#	18	19000#	36	23000#	39
....ANACYSTIS	350#	25	100000#	44	25000#	49	25000#	42
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	6000	3	2400	5	4500	8
..CHROCCOCCALES								
...CHROCCOCCACEAE								
....GOMPHOSPHAERIA	--	-	3000	1	--	-	--	-

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

08189500 MISSION RIVER AT REFUGIO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE TIME	MAR 16,78 1345		MAY 23,78 1015		JUN 27,78 1350		JUL 18,78 1420	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	2200	1	--	-	--	-
....TRACHELOMONAS	650#	46	9000	4	890	2	*	0
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...PERIDINIACEAE								
....PERIDINIUM	--	-	2200	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 1977 TO SEPTEMBER 1978

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. 1977.....	515	2420	1330	1850	610	846	51	70	470
NOV. 1977.....	3045	651	360	2950	130	1090	12	102	150
DEC. 1977.....	650	2130	1170	2060	530	933	45	79	410
JAN. 1978.....	709	1960	1080	2060	480	928	41	79	380
FEB. 1978.....	2290	663	370	2260	140	846	13	78	160
MAR. 1978.....	578	2250	1240	1930	560	879	47	74	430
APR. 1978.....	403	2510	1380	1500	630	689	53	58	480
MAY 1978.....	277.2	2900	1590	1190	740	550	61	45	560
JUNE 1978.....	13620	363	200	7330	58	2140	6	205	96
JULY 1978.....	386.8	2380	1310	1370	600	625	50	52	460
AUG. 1978.....	259.9	2490	1370	959	630	440	52	37	480
SEPT 1978.....	5626.5	348	190	2910	52	785	5	80	93
TOTAL	28360.39	**	**	28400	**	10800	**	959	**
WTD.AVG.	77.7	674	370	**	140	**	13	**	160

08189500 MISSION RIVER AT REFUGIO, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3590	1450	1750	2700	2180	1710	2500	2710	1500	2160	1850	2740
2	3480	356	1520	2950	2060	1890	2520	2770	1240	2170	1360	2680
3	3380	221	1350	2330	2000	1870	2640	2960	219	2180	1550	2560
4	3270	312	1480	2390	2230	1910	2630	2680	176	2270	1790	2530
5	3410	435	1670	2260	2140	2000	2620	2660	199	2300	2210	2810
6	3420	710	1760	2240	2340	2080	2720	2650	297	2270	2320	2560
7	3360	945	1900	2370	1890	2130	2590	2630	312	2340	2510	2270
8	3280	1240	1950	2250	1360	1980	2680	2610	200	2450	2420	2250
9	2560	700	2100	2360	382	2200	2670	2610	218	2470	2610	1820
10	2000	328	2230	2280	582	2130	2680	2730	400	2530	2680	1700
11	1890	380	2180	2100	787	2270	2600	2950	586	2500	2570	317
12	1970	670	1950	1990	900	2290	2670	3040	826	2620	2650	220
13	2240	983	2240	1940	1070	2290	2200	3100	865	2620	2700	232
14	2350	1260	2150	2100	1230	2350	2290	3190	1110	2450	2750	281
15	2480	1430	2190	2310	2020	2390	2350	3410	1250	2550	2790	391
16	2720	1590	2260	2340	1720	2360	2410	3400	1300	2660	2950	217
17	2450	1710	2220	2250	1530	2430	2630	3400	1500	2690	3000	301
18	2500	1870	2270	2350	250	2450	2660	3380	1600	2710	3040	391
19	2530	1710	2300	2080	289	2490	2650	3320	1650	2000	2900	524
20	2550	1790	2320	1430	315	2360	2690	3360	1730	2050	2860	700
21	2550	1800	2320	870	518	2450	2860	3440	1840	2080	2900	822
22	2450	1670	2390	1000	996	2360	2200	3400	1910	2350	3060	983
23	2390	1840	2500	1370	1220	2390	2000	2250	1960	2610	3100	781
24	2150	1920	2610	1550	1330	2440	1930	2000	2010	2270	3120	318
25	1650	1950	2630	1680	1450	2430	2320	2250	2030	2140	3030	297
26	1710	1970	2620	1750	1540	2410	2500	2710	2030	2430	3070	557
27	2020	2130	2470	1920	1630	2510	2670	3200	2150	2690	3100	882
28	2220	2670	2630	2030	1760	2420	2740	3290	2170	2760	3220	1100
29	2280	2190	2760	2100	---	2580	2810	3430	2200	2680	3300	1380
30	2380	2030	2570	2260	---	2640	2860	3610	2310	2700	3260	1500
31	2500	---	2420	2170	---	2560	---	3790	---	2390	2930	---
MEAN	2570	1340	2180	2060	1350	2280	2540	3000	1260	2420	2700	1200

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	21.0	---	---	10.0	18.0	20.5	26.0	27.0	29.0	26.0	29.0
2	---	19.0	15.0	9.0	9.0	16.5	21.0	26.0	25.0	28.5	26.5	23.5
3	---	16.5	20.5	10.5	---	13.5	25.0	21.0	26.5	31.0	29.5	27.0
4	23.0	16.5	21.0	14.0	10.0	13.0	22.0	25.0	26.5	29.5	27.0	29.5
5	21.5	19.5	21.5	17.0	13.0	---	24.0	23.5	28.5	31.0	31.0	27.0
6	23.5	21.0	15.0	19.0	9.5	16.5	24.5	---	29.5	31.0	29.0	26.5
7	25.5	20.5	16.0	20.5	12.0	19.5	25.0	27.0	25.0	31.0	30.5	24.5
8	25.5	21.0	20.0	---	8.5	14.0	24.5	28.5	---	31.0	29.5	---
9	25.0	20.0	---	13.0	7.0	18.0	---	29.5	30.0	28.5	30.0	26.5
10	26.5	14.5	11.0	11.0	9.5	16.0	23.0	28.5	---	31.0	30.0	---
11	24.5	14.5	15.0	9.5	10.0	19.0	18.5	28.5	29.5	31.0	30.5	25.5
12	21.5	16.0	18.0	9.5	---	18.5	15.5	30.0	30.5	29.0	---	26.5
13	21.0	16.0	19.0	10.0	14.5	19.5	21.5	---	28.5	29.0	28.5	27.0
14	---	18.5	17.0	---	11.5	---	23.5	24.5	28.5	29.5	30.5	28.0
15	20.0	18.0	16.0	12.0	10.5	22.0	---	28.0	27.0	---	30.5	28.5
16	19.5	19.5	20.0	15.0	12.0	19.5	23.0	28.5	27.0	31.0	30.5	28.5
17	22.0	20.0	18.0	12.0	14.5	18.0	25.0	27.0	---	31.5	---	29.5
18	---	21.0	11.0	9.0	---	---	28.0	26.0	28.0	29.0	31.0	29.0
19	24.5	23.0	---	8.5	9.0	17.0	26.5	29.5	26.5	27.0	---	30.0
20	24.5	23.0	14.5	6.5	10.0	21.0	21.5	---	26.5	30.5	29.0	---
21	21.5	23.5	12.0	5.5	10.0	24.0	23.5	---	26.0	30.5	27.0	29.0
22	---	18.0	10.0	---	14.0	23.5	23.5	25.5	26.0	---	29.0	25.5
23	22.0	17.0	---	7.0	16.0	22.0	19.5	25.5	26.5	28.5	29.5	26.0
24	21.5	20.0	14.5	9.0	16.5	24.0	25.5	25.5	27.0	28.5	29.5	26.5
25	23.5	20.0	---	10.5	---	---	25.5	26.5	28.5	27.0	26.5	26.5
26	22.0	19.0	---	11.0	---	22.0	---	26.5	30.5	30.5	29.0	26.5
27	21.5	19.5	12.0	14.0	18.0	21.5	21.0	30.5	29.0	30.5	28.5	25.5
28	22.0	23.0	14.0	10.0	18.5	21.5	24.5	30.0	31.0	29.0	30.5	23.5
29	21.5	18.5	15.0	10.0	---	17.0	23.5	26.5	31.0	31.0	30.0	29.0
30	21.5	15.0	16.0	9.5	---	23.0	23.5	26.0	29.0	---	29.5	---
31	21.5	---	15.5	9.0	---	19.0	---	26.5	---	24.5	29.5	---
MEAN	23.0	19.0	16.0	11.0	12.0	19.0	23.0	27.0	28.0	29.5	29.0	27.0

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.--14 years, 48.1 ft³/s (1.362 m³/s), 2.64 in/yr (67 mm/yr), 34,850 acre-ft/yr (43.0 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1914, that of Sept. 22, 1967. 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.--Maximum discharge, 945 ft³/s (26.8 m³/s) Sept. 14, gage height, 11.62 ft (3.542 m), no other peak above base of 500 ft³/s (14.2 m³/s); minimum, 1.1 ft³/s (0.031 m³/s) July 8.

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	3.4	6.6	5.4	5.6	5.1	5.3	3.7	4.3	2.2	3.2	21	5.3
2	3.5	25	4.7	5.7	5.7	5.4	3.7	4.4	4.2	4.2	27	4.7
3	3.4	20	4.7	5.7	5.7	5.4	3.8	4.7	87	14	12	5.4
4	3.1	8.9	4.7	5.7	4.7	5.5	3.8	4.2	88	5.3	6.2	5.0
5	3.0	7.3	4.8	5.9	4.4	5.1	3.9	3.9	21	3.2	4.9	3.5
6	3.2	6.4	4.8	5.9	4.0	5.3	4.1	4.1	11	2.4	3.9	4.3
7	3.3	6.1	4.6	5.9	5.0	5.9	4.4	4.6	110	2.0	3.2	6.4
8	3.4	6.6	4.6	5.9	11	6.1	4.7	4.5	169	1.8	2.9	7.6
9	4.4	40	4.7	5.7	9.6	5.5	4.4	4.2	35	1.8	2.9	15
10	5.0	30	4.7	5.5	5.8	5.3	4.5	4.3	15	1.7	3.1	41
11	5.0	12	4.7	5.5	5.1	5.2	4.4	3.9	9.5	1.8	3.0	41
12	4.4	7.3	4.9	5.8	5.3	4.3	5.4	3.7	7.1	1.7	2.6	46
13	4.1	6.4	5.1	6.8	5.1	3.9	15	3.8	6.2	1.7	2.6	23
14	4.0	6.2	5.2	5.8	4.9	3.7	11	3.6	5.4	1.7	2.6	199
15	4.0	5.9	5.2	5.3	4.9	3.7	6.5	3.0	4.8	1.7	2.3	199
16	3.9	5.7	5.1	5.4	5.0	3.6	5.5	2.6	4.3	1.6	2.0	29
17	3.5	5.6	5.1	5.6	12	3.5	5.1	2.9	4.8	1.6	2.0	14
18	3.5	5.4	5.0	5.4	38	3.6	5.1	2.7	4.1	1.5	1.9	8.1
19	3.5	5.1	4.9	5.7	12	3.7	4.8	2.6	3.7	1.5	2.1	6.0
20	3.5	4.9	4.9	6.8	6.3	3.8	4.3	2.4	3.2	2.3	1.8	5.1
21	3.7	4.7	4.9	6.5	5.3	3.9	4.1	2.6	3.2	8.4	1.7	5.1
22	4.1	4.6	5.0	5.8	5.0	4.0	4.6	3.3	3.2	3.5	2.1	4.9
23	5.0	6.1	4.9	5.4	4.5	4.0	5.3	9.8	3.0	2.2	2.2	5.1
24	8.0	6.9	5.1	5.2	4.7	4.4	5.9	5.3	2.9	13	1.9	5.7
25	7.4	5.9	5.3	5.2	4.6	3.7	6.1	3.5	2.8	15	1.8	6.5
26	7.9	5.4	5.4	5.2	4.9	3.8	4.6	2.8	2.3	6.0	1.6	4.3
27	6.1	5.2	5.4	5.1	5.1	3.7	3.9	2.3	2.2	3.4	1.8	4.0
28	5.5	5.6	5.4	5.1	5.2	3.7	3.7	2.2	2.5	2.6	1.6	3.9
29	5.4	5.7	5.4	5.0	---	3.7	3.9	1.9	2.8	2.4	2.1	3.5
30	5.3	5.9	5.6	4.9	---	3.7	4.2	1.8	3.0	2.2	2.5	3.4
31	5.1	---	5.6	5.0	---	3.7	---	1.8	---	5.5	3.7	---
TOTAL	138.6	277.4	155.8	174.0	198.9	136.1	154.4	111.7	623.4	120.9	133.0	714.8
MEAN	4.47	9.25	5.03	5.61	7.10	4.39	5.15	3.60	20.8	3.90	4.29	23.8
MAX	8.0	40	5.6	6.8	38	6.1	15	9.8	169	15	27	199
MIN	3.0	4.6	4.6	4.9	4.0	3.5	3.7	1.8	2.2	1.5	1.6	3.4
CFSM	.02	.04	.02	.02	.03	.02	.02	.02	.08	.02	.02	.10
IN.	.02	.04	.02	.03	.03	.02	.02	.02	.09	.02	.02	.11
AC-FT	275	550	309	345	395	270	306	222	1240	240	264	1420

CAL YR 1977	TOTAL	6777.5	MEAN	18.6	MAX	1170	MIN	3.0	CFSM	.08	IN	1.02	AC-FT	13440
WTR YR 1978	TOTAL	2939.0	MEAN	8.05	MAX	199	MIN	1.5	CFSM	.03	IN	.44	AC-FT	5830

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.--WDR 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. 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.--8 years, 50.9 ft³/s (1.441 m³/s), 5.40 in/yr (137 mm/yr), 36,880 acre-ft/yr (45.5 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.

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)
June 1	2200	1,160	32.9	7.79	2.374	Sept. 12	1400	*1,360	38.5	8.31	2.533

Minimum discharge, no flow for some days.

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	.26	12	.14	2.2	.37	.29	.04	.02	389	.04	210	2.5
2	.28	124	.14	3.1	.30	.33	.04	.02	580	.00	45	26
3	.26	39	.14	.26	.18	.40	.06	.28	290	.00	4.0	18
4	.24	10	.14	.14	.16	.29	.06	.03	121	.00	1.1	3.0
5	.19	3.8	.16	.16	.17	.30	.04	.02	55	.00	.39	19
6	.21	1.9	.16	.16	.22	.38	.05	.02	13	.00	.17	18
7	.25	1.0	.14	.14	7.1	.37	.08	.02	159	.00	3.0	18
8	.26	.56	.09	.16	1.1	.24	.07	.03	286	.00	11	76
9	43	.14	.07	.10	.91	.22	.08	.04	131	.00	104	148
10	.32	.09	.09	.10	.54	.33	.15	.02	33	.00	28	133
11	.15	.03	.11	2.1	.39	.19	.28	.02	7.1	.00	3.9	439
12	.07	.02	.14	.43	.48	.23	2.7	.04	2.8	.00	1.5	1160
13	.06	.02	.19	.23	.24	.28	.21	.02	1.2	.00	.65	694
14	.07	.04	.19	.19	.24	.26	.05	.01	.62	.00	.25	302
15	.04	.04	.11	.17	1.0	.22	.04	.02	.26	.00	.13	173
16	.04	.04	.09	.23	.44	.17	.03	.02	.09	.00	.12	101
17	.04	.04	.11	.21	3.5	.12	.02	.02	.02	.00	.13	47
18	.07	.02	.14	1.8	1.6	.11	.03	.04	.02	.00	.09	16
19	.11	.02	.11	.45	.90	.09	.03	.03	.07	.00	.08	6.3
20	.11	.02	.09	.12	.95	.10	.01	.02	.01	.00	.08	2.8
21	.06	.04	.07	.11	.47	.12	.02	.07	.16	.00	.31	1.5
22	15	.06	.07	.14	.17	.14	.05	.08	.01	.00	.09	3.3
23	19	.03	.09	.19	.17	.13	.06	27	.01	.00	.07	10
24	28	.04	.11	.19	.19	.13	.04	11	.01	.01	.07	77
25	19	.06	.14	.26	.28	.09	.01	2.2	.01	2.0	.07	62
26	5.7	.06	.09	.13	.27	.04	.02	.98	.01	.39	.06	20
27	1.4	.06	.11	.11	.32	.04	.01	.39	.00	.04	.06	6.1
28	.56	.09	.14	.14	.41	.03	.02	.17	.00	.00	.06	2.5
29	.16	.14	.26	.16	---	.03	.01	.09	.00	.00	1.6	1.3
30	.09	.14	.22	.23	---	.03	.03	.07	.00	.00	.14	.67
31	.09	---	.39	.45	---	.04	---	.05	---	36	.17	---
TOTAL	135.09	193.50	4.24	14.56	23.07	5.74	4.34	42.84	2069.40	38.48	416.29	3586.97
MEAN	4.36	6.45	.14	.47	.82	.19	.14	1.38	69.0	1.24	13.4	120
MAX	43	124	.39	3.1	7.1	.40	2.7	27	580	36	210	1160
MIN	.04	.02	.07	.10	.16	.03	.01	.01	.00	.00	.06	.67
CFSM	.03	.05	.001	.004	.006	.001	.001	.01	.54	.01	.11	.94
IN.	.04	.06	.00	.00	.01	.00	.00	.01	.60	.01	.12	1.04
AC-FT	268	384	8.4	29	46	11	8.6	85	4100	76	826	7110

CAL YR 1977 TOTAL 10814.30 MEAN 29.6 MAX 2960 MIN .01 CFSM .23 IN 3.14 AC-FT 21450
WTR YR 1978 TOTAL 6534.52 MEAN 17.9 MAX 1160 MIN .00 CFSM .14 IN 1.90 AC-FT 12960

08189800 CHILTIPIN CREEK AT SINTON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1968 to current year. Biochemical analyses: October 1969 to current year. Pesticide analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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 17...	1530	.04	7820	8.1	26.5	5	11.4	144	2.6	600	360
NOV 28...	1550	.09	33000	8.3	26.5	15	16.2	205	6.4	4400	4200
JAN 09...	1432	.10	24500	7.5	16.5	7	14.4	152	5.2	3700	3500
FEB 23...	1240	.17	13000	8.2	20.0	20	11.8	134	8.6	1600	1500
APR 03...	1450	.06	22000	8.2	30.0	8	14.5	193	6.1	2100	1800
MAY 15...	1500	.02	8770	8.3	29.0	15	11.9	157	7.4	450	120
JUN 22...	1307	.01	5900	8.2	35.0	7	10.4	149	4.1	640	430
AUG 09...	1330	121	284	6.7	31.5	350	4.4	60	7.0	57	20
SEP 18...	1535	15	579	7.8	33.0	140	6.9	96	3.1	88	30

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 17...	170	43	1400	25	9.1	290	0	27	2400	.9	9.0
NOV 28...	1200	330	6700	44	27	140	0	190	13000	.4	4.1
JAN 09...	1100	230	5500	39	24	260	0	83	11000	.7	7.9
FEB 23...	470	100	2700	30	16	150	0	82	5000	.3	8.5
APR 03...	590	140	4400	42	20	300	0	93	7600	1.2	7.1
MAY 15...	120	35	1600	33	7.8	390	6	24	2600	1.5	8.3
JUN 22...	180	46	980	17	13	260	0	36	1900	.6	22
AUG 09...	17	3.6	32	1.8	8.4	46	0	8.3	55	.1	15
SEP 18...	26	5.5	76	3.5	8.2	70	0	9.6	150	.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 17...	4200	13	.02	.00	.02	.04	.54	.58	.10	7.7
NOV 28...	21500	94	.01	.01	.02	.30	.70	1.0	.13	11
JAN 09...	18100	40	.05	.01	.06	.40	1.9	2.3	.09	6.5
FEB 23...	8460	40	.00	.01	.01	.19	2.9	3.1	.35	19
APR 03...	13000	52	.02	.01	.03	.01	.81	.82	.12	9.7
MAY 15...	4600	47	.00	.01	.01	.18	2.1	2.3	.16	12
JUN 22...	3310	27	.01	.00	.01	.01	1.5	1.5	.17	17
AUG 09...	162	910	.11	.05	.16	.22	1.7	1.9	.73	22
SEP 18...	340	196	.03	.02	.05	.07	1.3	1.4	.93	17

08189800 CHILTIPIN CREEK AT SINTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 28...	1550	2	4500	1	0	2	40
FEB 23...	1240	5	3600	0	10	3	40
MAY 15...	1500	10	2000	1	20	6	20
SEP 18...	1535	18	100	1	10	2	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)
NOV 28...	0	490	.0	0	0	50
FEB 23...	0	1700	.0	0	0	30
MAY 15...	0	310	.0	0	0	20
SEP 18...	0	40	.0	0	0	0

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 28...	1550	.0	0	.00	.00	.0	.0	0	.00	.0
FEB 23...	1240	.0	0	.00	.00	.0	.0	0	.00	.3
MAY 15...	1500	.0	0	.00	.00	.0	.0	0	.00	4.1
SEP 18...	1535	.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)
NOV 28...	.00	.1	.00	.0	.00	.00	.0	.00	.00	.0
FEB 23...	.00	.8	.00	.0	.00	.00	.0	.00	.00	.0
MAY 15...	.00	.2	.00	1.9	.00	.00	.0	.00	.00	.0
SEP 18...	.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)
NOV 28...	.00	.00	.0	.00	.0	.00	.0	.00	.00
FEB 23...	.00	.00	.0	.00	.0	.00	.0	.18	.18
MAY 15...	.00	.00	.0	.00	.0	.00	.0	.00	.00
SEP 18...	.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 28...	.00	--	.00	0	0	.00	.00	.00	.00
FEB 23...	.00	--	.40	0	0	.00	.16	.09	.00
MAY 15...	.00	--	.00	0	0	.00	.00	.00	.00
SEP 18...	.00	.00	.00	0	0	.00	.00	.08	.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.--55 years, 150 ft³/s (4.248 m³/s), 2.67 in/yr (68 mm/yr), 108,700 acre-ft/yr (134 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1866, that of Sept. 24, 1955. 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 8	0030	2,420	68.5	7.20	2.195	Aug. 1	1830	*6,700	190	8.70	2.652

Minimum discharge, 21 ft³/s (0.59 m³/s) July 26.

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	52	68	123	98	84	79	72	83	47	42	775	63
2	52	73	122	98	83	79	73	83	48	40	419	61
3	53	71	121	97	82	78	73	83	62	38	265	59
4	53	71	120	97	83	79	73	79	83	33	184	58
5	54	71	118	97	82	78	74	76	105	33	148	69
6	55	71	117	96	83	80	71	74	99	33	135	68
7	54	118	116	95	83	83	69	73	98	32	128	69
8	52	381	113	93	83	82	70	70	90	32	119	67
9	50	202	111	93	82	79	70	67	85	31	112	68
10	51	171	109	93	82	78	223	64	80	31	108	67
11	51	160	113	92	82	78	316	65	75	29	105	66
12	52	156	116	92	90	77	210	65	72	28	101	64
13	51	151	113	90	89	77	170	60	69	28	98	74
14	51	150	108	89	85	76	152	58	67	27	94	68
15	51	146	105	89	86	75	140	56	64	28	91	67
16	51	146	102	89	87	73	130	55	62	28	87	65
17	52	145	100	89	86	74	125	55	61	27	84	63
18	51	147	99	89	86	73	119	53	60	26	81	61
19	51	142	99	89	85	72	115	52	59	27	78	60
20	50	141	100	88	84	72	110	57	57	26	78	59
21	50	138	103	87	84	72	104	64	55	26	76	58
22	62	136	103	87	82	72	102	66	53	25	74	57
23	71	135	104	87	82	74	100	61	53	25	72	58
24	68	135	102	87	82	78	97	58	52	25	69	58
25	64	134	100	86	80	78	93	56	50	24	67	56
26	64	133	100	85	80	77	90	55	48	24	65	56
27	66	132	99	84	80	76	88	51	46	24	63	60
28	68	131	99	83	80	74	87	50	46	25	61	59
29	68	128	100	82	---	74	85	50	44	28	63	59
30	68	125	99	81	---	73	84	48	44	28	60	58
31	68	---	98	83	---	73	---	47	---	29	61	---
TOTAL	1754	4108	3332	2785	2337	2363	3385	1934	1934	902	4021	1875
MEAN	56.6	137	107	89.8	83.5	76.2	113	62.4	64.5	29.1	130	62.5
MAX	71	381	123	98	90	83	316	83	105	42	775	74
MIN	50	68	98	81	80	72	69	47	44	24	60	56
CFSM	.07	.18	.14	.12	.11	.10	.15	.08	.08	.04	.17	.08
IN.	.09	.20	.16	.14	.11	.12	.16	.09	.09	.04	.20	.09
AC-FT	3480	8150	6610	5520	4640	4690	6710	3840	3840	1790	7980	3720

CAL YR 1977	TOTAL	78523	MEAN	215	MAX	4500	MIN 50	CFSM .28	IN 3.82	AC-FT	155800
WTR YR 1978	TOTAL	30730	MEAN	84.2	MAX	775	MIN 24	CFSM .11	IN 1.50	AC-FT	60950

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 08...	1140	217	415	7.9	20.5	0	3	8.5	97	.2
JAN 17...	1105	90	432	7.7	13.0	0	0	9.8	96	.2
MAR 21...	1020	78	419	7.9	19.5	0	1	9.1	102	.2
MAY 31...	1230	50	411	7.6	25.0	0	1	8.4	105	.3
JUL 07...	0850	32	410	7.8	27.0	0	2	6.6	81	.7
SEP 07...	1245	73	422	7.9	25.0	15	20	8.7	110	.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 08...	5300	920	620	190	29	56	13	9.2	.3
JAN 17...	32	15	24	210	26	58	15	9.6	.3
MAR 21...	9	5	13	210	33	59	14	8.9	.3
MAY 31...	K48	11	5	190	28	54	14	8.9	.3
JUL 07...	--	--	--	190	18	53	14	8.9	.3
SEP 07...	--	320	56	210	19	60	14	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 08...	.9	200	0	12	18	.2	11	219	4
JAN 17...	.8	220	0	16	20	.2	11	239	1
MAR 21...	.8	210	0	14	20	.1	10	230	2
MAY 31...	.9	200	0	12	17	.1	11	216	0
JUL 07...	1.1	210	0	13	16	.1	13	223	4
SEP 07...	1.0	230	0	13	17	.1	13	240	30

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 08...	1	1.9	.00	1.9	.00	.50	.50	.01	1.9
JAN 17...	0	1.6	.01	1.6	.00	.00	.00	.01	1.0
MAR 21...	1	1.4	.01	1.4	.00	.30	.30	.00	.9
MAY 31...	0	1.2	.01	1.2	.00	1.4	1.4	.00	.8
JUL 07...	3	.87	.01	.88	.00	.00	.00	.01	.9
SEP 07...	7	1.1	.01	1.1	.00	.21	.21	.00	1.2

08190000 NUECES RIVER AT LAGUNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 17...	1105	1	100	0	10	1	20
SEP 07...	1245	1	100	0	0	1	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)
JAN 17...	1	0	.0	1	0	10
SEP 07...	0	0	.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)
JAN 17...	1105	.0	--	.00	.00	--	.0	--	.00	--
SEP 07...	1245	.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)
JAN 17...	.00	--	.00	--	.00	.00	--	.00	.00	--
SEP 07...	.00	2.7	.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)
JAN 17...	.00	.00	--	.00	--	.00	--	.00	.00
SEP 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)
JAN 17...	.00	--	.00	0	--	.00	.00	.00	.00
SEP 07...	.00	.00	.00	0	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 in 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.--33 years (water years 1940-50, 1957-78), 36.2 ft³/s (1.025 m³/s), 26,230 acre-ft/yr (32.3 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.--Maximum discharge, 3,340 ft³/s (94.6 m³/s) Aug. 1, gage height, 7.80 ft (2.377 m), from floodmarks, no other peak above base of 1,000 ft³/s (28.3 m³/s); no flow for many days.

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	.03	.12	.12	.20	.20	.02	.00	.00	.00	.00	427	.03
2	.04	.09	.13	.18	.14	.02	.00	.00	.00	.00	248	.01
3	.05	.10	.14	.18	.09	.01	.00	.00	.00	.00	84	.00
4	.05	.10	.14	.18	.07	.01	.00	.00	.00	.00	54	.00
5	.04	.12	.12	.18	.07	.01	.00	.00	.00	.00	28	.04
6	.05	.12	.12	.21	.06	.01	.00	.00	.01	.00	16	.01
7	.04	.13	.12	.20	.07	.01	.00	.00	.01	.00	11	.00
8	.04	.30	.14	.17	.07	.01	.00	.00	.04	.00	9.4	.00
9	.04	.19	.13	.16	.05	.01	.00	.00	.09	.00	8.0	.00
10	.05	.20	.13	.16	.05	.01	.01	.00	.04	.00	7.1	.00
11	.06	.22	.14	.20	.05	.01	.02	.00	.02	.00	6.4	.00
12	.05	.22	.18	.21	.07	.01	.05	.00	.01	.00	5.5	.00
13	.05	.22	.16	.21	.06	.00	.04	.00	.00	.00	4.7	.00
14	.05	.18	.15	.21	.04	.00	.03	.00	.00	.00	4.1	.00
15	.05	.18	.12	.23	.05	.00	.02	.00	.00	.00	3.4	.00
16	.05	.17	.12	.23	.04	.00	.02	.00	.00	.00	2.8	.00
17	.05	.16	.11	.21	.04	.00	.02	.00	.00	.00	2.5	.00
18	.05	.16	.11	.21	.03	.00	.01	.00	.00	.00	2.1	.00
19	.05	.16	.12	.21	.03	.00	.01	.00	.00	.00	1.8	.00
20	.05	.16	.12	.23	.03	.00	.01	.00	.00	.00	1.5	.00
21	.06	.14	.10	.24	.02	.00	.01	.00	.00	.00	1.2	.00
22	.28	.14	.10	.24	.02	.00	.00	.00	.00	.00	1.1	.00
23	.16	.14	.12	.24	.02	.00	.00	.00	.00	.00	.89	.00
24	.15	.11	.13	.30	.02	.00	.00	.00	.00	.00	.74	.00
25	.14	.10	.13	.27	.02	.00	.00	.00	.00	.00	.61	.00
26	.12	.10	.13	.26	.02	.00	.00	.00	.00	.00	.51	.00
27	.13	.10	.13	.25	.02	.00	.00	.00	.00	.00	.40	.00
28	.13	.12	.16	.27	.02	.00	.00	.00	.00	.00	.29	.00
29	.13	.11	.16	.27	---	.00	.00	.00	.00	.00	.35	.00
30	.14	.11	.16	.29	---	.00	.00	.00	.00	.00	.10	.00
31	.14	---	.18	.29	---	.00	---	.00	---	.00	.02	---
TOTAL	2.52	4.47	4.12	6.89	1.47	.14	.25	.00	.22	.00	933.51	.09
MEAN	.081	.15	.13	.22	.053	.005	.008	.000	.007	.000	30.1	.003
MAX	.28	.30	.18	.30	.20	.02	.05	.00	.09	.00	427	.04
MIN	.03	.09	.10	.16	.02	.00	.00	.00	.00	.00	.02	.00
AC-FT	5.0	8.9	8.2	14	2.9	.3	.5	.00	.4	.00	1850	.2

CAL YR 1977 TOTAL 1032.64 MEAN 2.83 MAX 71 MIN .00 AC-FT 2050
WTR YR 1978 TOTAL 953.68 MEAN 2.61 MAX 427 MIN .00 AC-FT 1890

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 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 obsevations of water temperature were made during the year.

AVERAGE DISCHARGE.--39 years, 118 ft³/s (3.342 m³/s), 85,490 acre-ft/yr (105 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 ft³/s (5,350 m³/s) Sept. 24, 1955, gage height, 24.61 ft (7.501 m), from floodmark, from rating curve extended above 34,000 ft³/s (963 m³/s) on basis of conveyance study and slope-area measurement of peak flow; no flow at times in 1951-57.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1836, 40.4 ft (12.31 m) June 14, 1935, from floodmarks, discharge at former site, 616,000 ft³/s (17,400 m³/s), by slope-area measurement. Large floods 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)
Nov. 8	1200	984	27.9	5.16	1.573	Aug. 2	0430	6,330	179	8.76	2.670
Aug. 1	2300	*8,270	234	a9.93	3.027						

a From floodmark.

Minimum discharge, 22 ft³/s (0.62 m³/s) July 20 to Aug. 1.

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	54	41	109	83	73	50	40	44	32	25	598	40
2	53	39	109	81	70	49	40	44	33	25	2670	38
3	51	39	108	81	69	49	40	42	55	25	275	38
4	51	39	106	81	69	46	40	43	34	25	109	38
5	51	39	106	80	68	47	41	42	32	24	75	39
6	51	39	104	81	66	47	42	43	32	24	59	38
7	50	40	101	81	66	45	40	42	32	24	52	37
8	50	340	101	81	65	44	41	41	33	24	48	36
9	48	244	100	81	64	45	41	41	33	24	44	36
10	49	174	98	79	62	45	43	42	33	24	42	36
11	47	150	98	79	62	44	40	42	31	24	41	36
12	46	136	99	78	61	44	39	40	31	24	41	36
13	46	129	99	77	60	43	39	39	31	23	44	39
14	45	127	98	78	59	44	42	39	31	23	39	36
15	45	126	96	77	59	43	52	39	30	23	38	35
16	45	125	94	78	59	42	59	39	30	23	36	35
17	45	124	92	77	56	43	57	36	30	23	36	35
18	44	124	91	78	55	43	56	36	30	23	36	34
19	44	127	90	77	56	43	55	36	28	23	36	34
20	43	121	88	77	55	43	54	44	28	22	36	33
21	43	120	86	77	54	43	53	42	28	22	35	33
22	51	118	86	75	54	42	52	38	27	22	35	32
23	47	118	85	75	54	43	50	36	27	22	35	33
24	45	117	85	75	53	41	48	36	27	22	35	32
25	43	116	85	72	51	42	47	35	27	22	35	31
26	42	115	83	76	51	42	46	35	26	22	35	31
27	42	115	85	75	52	40	47	35	26	22	34	32
28	42	114	85	75	49	36	46	34	26	22	34	31
29	41	115	84	75	---	45	45	33	25	22	43	30
30	41	114	83	73	---	42	44	32	25	22	39	31
31	40	---	83	73	---	41	---	32	---	22	39	---
TOTAL	1435	3485	2917	2406	1672	1356	1379	1202	913	717	4754	1045
MEAN	46.3	116	94.1	77.6	59.7	43.7	46.0	38.8	30.4	23.1	153	34.8
MAX	54	340	109	83	73	50	59	44	55	25	2670	40
MIN	40	39	83	72	49	36	39	32	25	22	34	30
AC-FT	2850	6910	5790	4770	3320	2690	2740	2380	1810	1420	9430	2070

CAL YR 1977 TOTAL 85693 MEAN 235 MAX 5140 MIN 39 AC-FT 170000
WTR YR 1978 TOTAL 23281 MEAN 63.8 MAX 2670 MIN 22 AC-FT 46180

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.--39 years, 183 ft³/s (5.183 m³/s), 132,600 acre-ft/yr (163 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,500 ft³/s (807 m³/s) Oct. 6, 1959, gage height, 30.88 ft (9.412 m); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 33 ft (10.1 m) June 17, 1935; flood of June 30, 1913, reached about same stage, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,060 ft³/s (58.3 m³/s) May 23, gage height, 14.97 ft (4.563 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	62	1.4	.02	.50	.31	.48	7.6	.00	.54	28
2	.00	.00	62	.84	.03	2.7	.14	1.3	3.6	.00	.08	17
3	.00	.00	58	.46	.05	2.8	.04	1.3	97	.00	.02	49
4	.00	.00	57	.32	.05	2.9	.01	1.2	246	.00	.00	35
5	.00	.00	60	.20	.10	2.6	.00	1.8	181	.00	.00	24
6	.00	.00	52	.14	.12	2.5	.00	1.1	105	.00	.00	28
7	.00	.00	48	.29	.12	3.5	.00	.81	749	.00	.00	31
8	.00	.00	47	.27	.12	2.3	.00	.59	1030	.00	.00	229
9	.00	.00	44	.22	.10	2.5	.00	.26	1380	.00	.00	677
10	.00	.00	43	.17	1.1	1.7	.00	.10	821	.00	.00	483
11	.00	.00	41	.42	1.4	1.9	.00	.04	337	.00	.00	256
12	.00	.00	44	1.1	.57	1.9	.00	.02	183	.00	2.9	159
13	.00	.00	51	.53	.27	3.3	.00	.10	110	.00	2.4	109
14	.00	.00	54	.29	.19	3.2	.00	1.4	69	.00	1.5	99
15	.00	.00	53	.13	.14	3.0	.00	1.2	43	.00	.68	83
16	.00	1.5	48	.06	.12	1.6	.00	.40	28	.00	.33	70
17	.00	57	44	.04	.12	.78	.00	.12	18	.00	.03	61
18	.00	52	43	.02	.06	.39	.00	.03	10	.00	.02	52
19	.00	51	37	.02	.64	.21	.00	.53	6.2	.00	.02	47
20	.00	51	31	.02	1.2	.11	.00	1.7	3.6	.00	.17	37
21	.00	52	24	.01	4.2	.05	.00	2.1	2.2	.00	.56	29
22	.00	55	16	1.7	1.3	.24	.00	763	1.4	.00	.48	21
23	.00	57	10	1.2	.32	.50	.00	1970	.73	.00	.39	17
24	.00	56	5.6	2.2	.15	.40	.00	1380	.71	.00	.03	18
25	.00	55	19	.90	.06	.24	.00	479	.16	.00	.32	16
26	.00	56	31	.26	.02	.15	.00	213	.07	.00	.67	12
27	.00	50	31	.15	.02	.24	.00	125	.04	.27	.57	9.8
28	.00	45	28	.07	.01	.88	.00	71	.02	.25	.39	11
29	.00	44	16	.03	---	.38	.00	42	.01	.00	.84	10
30	.00	51	4.5	.02	---	.36	.00	26	.00	2.5	20	9.4
31	.00	---	2.0	.02	---	.65	---	16	---	1.8	57	---
TOTAL	.00	733.50	1166.1	13.50	12.60	44.48	.50	5101.58	5433.34	4.82	89.94	2727.2
MEAN	.000	24.5	37.6	.44	.45	1.43	.017	165	181	.16	2.90	90.9
MAX	.00	57	62	2.2	4.2	3.5	.31	1970	1380	2.5	57	677
MIN	.00	.00	2.0	.01	.01	.05	.00	.02	.00	.00	.00	9.4
AC-FT	.00	1450	2310	27	25	88	1.0	10120	10780	9.6	178	5410

CAL YR 1977 TOTAL 63164.65 MEAN 173 MAX 2790 MIN .00 AC-FT 125300
WTR YR 1978 TOTAL 15327.56 MEAN 42.0 MAX 1970 MIN .00 AC-FT 30400

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. 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.--54 years (water years 1925-78), 277 ft³/s (7.845 m³/s), 200,700 acre-ft/yr (247 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,600 ft³/s (2,340 m³/s) June 18, 1935, gage height, 32.4 ft (9.88 m), from floodmarks, from rating curve extended above 43,000 ft³/s (1,220 m³/s) on basis of slope-area measurement of peak flow; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, that of June 18, 1935. 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, 1,620 ft³/s (45.9 m³/s) June 12, gage height, 11.51 ft (3.508 m), no 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	28	23	.32	.03	.00	.00	36	1.7	.90	120
2	.00	.00	28	22	.31	.03	.00	.00	26	1.4	48	68
3	.00	.00	38	19	.24	.03	.00	.00	82	1.2	17	69
4	.00	.00	43	16	.31	.01	.00	.00	42	1.0	15	39
5	.00	.00	45	13	.32	.00	.00	.00	97	.88	14	37
6	.00	.00	45	9.1	.25	.00	.00	.00	255	.41	15	42
7	.00	.00	45	6.4	.24	.00	.00	.00	518	.21	18	37
8	.00	.00	46	4.2	.24	.00	.00	.00	399	.10	15	31
9	.00	.00	40	3.1	.24	.00	.00	.00	935	.02	11	30
10	.00	.00	38	2.9	.21	.00	.00	.00	1300	.00	6.4	235
11	.00	.00	36	2.9	.18	.00	.00	.00	1520	.00	4.1	560
12	.00	.00	36	2.6	.25	.00	.00	.00	1580	.00	3.5	483
13	.00	.00	36	2.6	.26	.00	.00	.00	925	.00	3.2	278
14	.00	.00	36	2.6	.18	.00	.00	.00	325	.00	2.6	164
15	.00	.00	35	2.6	.13	.00	.00	.00	185	.00	2.5	118
16	.00	.00	41	2.3	.13	.00	.00	.00	120	.00	2.0	104
17	.00	.00	46	.94	.18	.00	.00	.00	80	.00	1.9	91
18	.00	.00	47	.77	.20	.00	.00	.00	53	.00	1.8	76
19	.00	.00	44	.75	.14	.00	.00	12	37	.00	1.5	68
20	.00	.00	40	.63	.13	.00	.00	104	26	.00	1.2	59
21	.00	.00	37	.63	.09	.00	.00	95	20	.00	.81	54
22	.00	.00	34	.63	.09	.00	.00	42	15	.00	.57	51
23	.00	.00	28	.63	.07	.00	.00	15	11	.00	.30	42
24	.00	.00	25	.63	.06	.00	.00	271	7.6	.00	.09	36
25	.00	22	23	.61	.06	.00	.00	1010	5.0	.00	.02	29
26	.00	33	18	.51	.05	.00	.00	1380	3.7	.00	.00	22
27	.00	35	15	.44	.04	.00	.00	974	2.9	.00	.00	21
28	.00	35	12	.34	.04	.00	.00	248	2.1	.00	.00	21
29	.00	35	9.4	.32	---	.00	.00	125	1.7	.00	.00	16
30	.00	34	9.1	.32	---	.00	.00	78	1.6	.00	.00	14
31	.00	---	18	.32	---	.00	---	51	---	.00	165	---
TOTAL	.00	194.00	1021.5	142.77	4.96	.10	.00	4405.00	8611.6	6.92	351.39	3015
MEAN	.000	6.47	33.0	4.61	.18	.003	.000	142	287	.22	11.3	101
MAX	.00	35	47	23	.32	.03	.00	1380	1580	1.7	165	560
MIN	.00	.00	9.1	.32	.04	.00	.00	.00	1.6	.00	.00	14
AC-FT	.00	385	2030	283	9.8	.2	.00	8740	17080	14	697	5980

CAL YR 1977 TOTAL 71194.32 MEAN 195 MAX 1970 MIN .00 AC-FT 141200
WTR YR 1978 TOTAL 17753.24 MEAN 48.6 MAX 1580 MIN .00 AC-FT 35210

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 State Highway 44, 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) Texas Department of Highways and Public Transportation datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years, 69.5 ft³/s (1.968 m³/s), 2.01 in/yr (51 mm/yr), 50,350 acre-ft/yr (62.1 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1946, that of Oct. 17, 1971. Second highest stage, 26 ft (7.9 m), discharge 65,200 ft³/s (1,850 m³/s), occurred in 1954, from information by Texas Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 25	unknown	688	19.5	a14.37	4.380	June 8	1700	696	19.7	14.42	4.395
June 3	1300	534	15.1	13.32	4.060	Sept. 14	0400	*947	26.8	15.61	4.758

a From floodmark.

Minimum discharge, no flow for many days.

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	.38	.02	.01	.02	.01	.00	.00	18	.00	.00	57
2	.00	.24	.02	.01	.02	.01	.00	.00	336	.00	21	13
3	.00	.18	.02	.01	.02	.00	.00	.00	447	.00	3.7	.26
4	.00	.15	.02	.01	.01	.00	.00	.00	319	.00	.08	.37
5	11	.12	.02	.01	.01	.00	.00	.00	170	.00	.01	42
6	2.0	.12	.01	.01	.01	.00	.00	.00	33	.00	.00	19
7	.96	.10	.01	.02	.03	.00	.00	.00	262	.00	.00	19
8	.49	.08	.02	.01	.01	.00	.00	.00	610	.00	6.1	88
9	.47	.06	.01	.00	.01	.00	.00	.00	176	.00	.02	31
10	.31	.04	.01	.00	.01	.00	.00	.00	37	.00	.00	13
11	.24	.03	.01	.01	.01	.00	.00	.00	23	.00	.00	1.4
12	.17	.03	.02	.01	.02	.00	.00	.00	7.2	.00	.00	5.6
13	.11	.03	.02	.01	.01	.00	.00	.00	3.5	.00	.00	43
14	.06	.03	.02	.01	.01	.00	.00	.00	1.7	.00	.00	699
15	.00	.03	.01	.01	.02	.00	.00	.00	1.0	.00	.00	164
16	.00	.03	.01	.01	.02	.00	.00	.00	.63	.00	.00	137
17	.00	.03	.01	.01	.02	.00	.00	.00	.36	.00	.00	29
18	.00	.03	.01	.01	.00	.00	.00	.00	.26	.00	.00	3.3
19	.00	.03	.01	.01	.00	.00	.00	.00	.15	.00	.00	.49
20	.00	.03	.01	.01	.00	.00	.00	.08	.10	.00	.00	.12
21	.00	.03	.01	.01	.00	.00	.00	7.9	.08	.00	.00	.08
22	.00	.03	.01	.02	.00	.00	.00	16	.03	.00	.00	.15
23	.00	.03	.01	.02	.00	.00	.00	55	.02	.00	.00	167
24	56	.03	.01	.02	.00	.00	.00	17	.00	.00	.00	349
25	571	.02	.01	.02	.00	.00	.00	1.2	.00	.00	.00	368
26	193	.02	.01	.02	.00	.00	.00	.25	.00	.00	.00	118
27	40	.02	.01	.01	.00	.00	.00	.06	.00	.00	.00	32
28	10	.02	.01	.00	.01	.00	.00	.02	.00	.00	.00	14
29	2.5	.02	.01	.00	---	.00	.00	.00	.00	.00	.00	10
30	1.1	.02	.02	.01	---	.00	.00	.00	.00	.00	.00	3.1
31	.58	---	.01	.02	---	.00	---	.00	---	.00	.27	---
TOTAL	889.99	2.01	.41	.34	.27	.02	.00	97.51	2446.03	.00	31.18	2426.87
MEAN	28.7	.067	.013	.011	.010	.001	.000	3.15	81.5	.000	1.01	80.9
MAX	571	.38	.02	.02	.03	.01	.00	55	610	.00	21	699
MIN	.00	.02	.01	.00	.00	.00	.00	.00	.00	.00	.00	.08
CFSM	.06	.000	.000	.000	.000	.000	.000	.007	.17	.000	.002	.17
IN.	.07	.00	.00	.00	.00	.00	.00	.01	.19	.00	.00	.19
AC-FT	1770	4.0	.8	.7	.5	.04	.00	193	4850	.00	62	4810

CAL YR 1977	TOTAL	7796.28	MEAN 21.4	MAX 1290	MIN .00	CFSM .05	IN .62	AC-FT 15460				
WTR YR 1978	TOTAL	5894.63	MEAN 16.1	MAX 699	MIN .00	CFSM .03	IN .47	AC-FT 11690				

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.--35 years (water years 1944-78), 453 ft³/s (12.83 m³/s), 328,200 acre-ft/yr (405 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--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). 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, 1,150 ft³/s (32.6 m³/s) June 12, gage height, 13.03 ft (3.972 m) no peak above base of 1,800 ft³/s (51.0 m³/s); no flow for many days.

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	2.5	20	1.9	15	.76	.57	.46	.00	125	5.1	25	51
2	2.5	13	1.8	12	.61	.51	.42	.00	80	4.0	293	32
3	2.6	7.8	1.8	10	.58	.36	.39	.00	659	3.2	181	48
4	2.7	5.7	1.9	8.7	.47	.33	.27	.00	685	2.6	425	180
5	2.7	4.7	1.9	7.8	.43	.37	.20	.00	611	1.8	692	90
6	2.7	4.0	1.7	8.6	.53	.48	.14	.00	674	1.3	408	99
7	3.1	3.6	1.6	12	.76	.66	.12	.00	667	1.3	97	103
8	3.5	3.3	3.0	13	.69	.66	.09	.00	660	1.2	49	241
9	3.6	3.0	31	12	.63	.56	.08	.00	815	1.1	28	449
10	5.1	2.6	34	9.8	.64	.52	.13	.00	931	1.1	68	498
11	2.6	2.4	38	8.1	.56	.55	.18	.00	1010	1.1	43	618
12	1.7	2.3	40	7.1	.80	.53	.38	.00	1120	1.0	17	364
13	1.4	2.2	39	6.1	1.0	.53	.58	.00	1110	1.0	10	359
14	1.4	2.1	37	5.3	1.0	.46	.58	.00	963	.91	6.4	479
15	1.4	2.0	36	4.7	1.3	.51	.53	.00	944	.84	4.2	564
16	1.3	2.0	36	4.3	1.3	.51	.00	.00	970	.82	2.9	718
17	1.3	1.9	36	3.9	1.2	.51	.00	.00	642	.82	3.4	665
18	1.4	1.8	33	3.4	1.0	.52	.00	.00	218	.67	3.1	341
19	1.5	1.9	32	3.2	.88	.49	.00	.00	124	.66	2.1	160
20	1.7	1.8	33	2.8	.82	.53	.00	7.9	82	.58	1.6	100
21	1.7	1.8	37	2.4	.82	.61	.00	69	61	.52	1.4	74
22	2.2	1.6	39	2.3	.74	.68	.00	13	44	.40	1.2	74
23	3.7	1.6	38	2.0	.82	.73	.00	215	32	.40	1.0	75
24	8.1	1.7	36	1.8	1.1	.62	.00	519	24	.28	.94	78
25	7.6	1.8	33	1.6	.97	.54	.00	270	18	.25	.91	252
26	167	1.8	30	1.4	.72	.48	.00	88	12	.17	.91	384
27	427	1.8	29	1.2	.60	.48	.00	252	8.7	.12	1.0	409
28	199	1.8	26	1.3	.57	.51	.00	544	7.2	.09	.96	204
29	74	2.0	23	1.2	---	.46	.00	644	6.6	.09	1.4	88
30	61	2.0	20	.94	---	.46	.00	680	5.9	.11	72	57
31	36	---	17	.91	---	.46	---	325	---	.30	14	---
TOTAL	1034.0	106.0	768.6	174.85	22.30	16.19	4.55	3626.90	13309.4	33.83	2455.42	7854
MEAN	33.4	3.53	24.8	5.64	.80	.52	.15	117	444	1.09	79.2	262
MAX	427	20	40	15	1.3	.73	.58	680	1120	5.1	692	718
MIN	1.3	1.6	1.6	.91	.43	.33	.00	.00	5.9	.09	.91	32
AC-FT	2050	210	1520	347	44	32	9.0	7190	26400	67	4870	15580

CAL YR 1977 TOTAL 81731.98 MEAN 224 MAX 1560 MIN .82 AC-FT 162100
WTR YR 1978 TOTAL 29406.04 MEAN 80.6 MAX 1120 MIN .00 AC-FT 58330

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.--53 years (water years 1925-29, 1931-78), 109 ft³/s (3.087 m³/s), 3.65 in/yr (93 mm/yr), 78,970 acre-ft/yr (97.4 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 56,000 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--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)
Oct. 22	1300	*20,800	589	13.62	4.151	Aug. 2	1700	3,350	94.9	6.90	2.103

Minimum discharge, 20 ft³/s (0.57 m³/s) July 26-28.

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	56	310	126	105	102	74	58	49	45	40	65	88
2	54	280	125	105	99	70	59	51	48	38	834	81
3	54	260	122	105	98	70	58	50	143	37	616	85
4	54	240	119	105	98	70	58	50	78	34	415	75
5	54	240	115	105	95	71	58	49	70	35	280	81
6	54	330	115	105	94	69	58	49	66	32	207	82
7	54	420	115	102	95	70	58	49	68	33	184	78
8	54	320	115	105	95	69	56	48	64	34	165	78
9	54	233	114	105	93	69	57	47	64	32	151	77
10	54	199	112	105	92	70	75	49	63	32	139	75
11	54	177	113	106	90	68	69	50	62	31	133	75
12	52	163	118	105	101	67	64	48	59	30	129	75
13	52	156	116	104	96	64	61	43	59	29	126	90
14	52	150	111	102	93	65	59	44	58	26	118	78
15	52	146	115	102	94	65	58	45	57	26	110	77
16	52	142	113	101	92	66	57	42	55	25	105	73
17	52	142	111	98	89	66	57	40	55	26	101	72
18	52	141	111	102	89	65	56	40	53	25	97	72
19	52	137	110	100	89	65	56	40	52	24	95	71
20	52	136	108	102	90	62	56	53	49	24	91	70
21	52	132	108	102	89	61	54	57	49	23	88	70
22	4090	130	107	102	89	63	53	52	47	23	86	69
23	1550	126	106	102	81	62	52	49	46	22	83	70
24	980	126	105	101	80	60	50	47	45	23	81	70
25	790	125	107	100	80	60	50	47	44	23	79	68
26	660	125	108	102	78	60	49	46	42	21	77	67
27	550	124	106	102	78	60	47	44	42	21	77	68
28	485	122	107	100	74	60	47	45	41	24	74	70
29	420	132	106	99	---	60	47	44	44	26	75	69
30	380	124	105	102	---	61	49	43	41	26	75	67
31	340	---	105	102	---	58	---	43	---	26	75	---
TOTAL	11361	5588	3474	3183	2533	2020	1686	1453	1709	871	5031	2241
MEAN	366	186	112	103	90.5	65.2	56.2	46.9	57.0	28.1	162	74.7
MAX	4090	420	126	106	102	74	75	57	143	40	834	90
MIN	52	122	105	98	74	58	47	40	41	21	65	67
CFSM	.90	.46	.28	.25	.22	.16	.14	.12	.14	.07	.40	.18
IN.	1.04	.51	.32	.29	.23	.19	.15	.13	.16	.08	.46	.21
AC-FT	22530	11080	6890	6310	5020	4010	3340	2880	3390	1730	9980	4450

CAL YR 1977 TOTAL 70822 MEAN 194 MAX 4090 MIN 52 CFSM .48 IN 6.51 AC-FT 140500
WTR YR 1978 TOTAL 41150 MEAN 113 MAX 4090 MIN 21 CFSM .28 IN 3.78 AC-FT 81620

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 08...	0925	420	373	7.9	17.0	5	60	9.1	97	.7
JAN 17...	0830	98	437	7.6	11.0	0	0	9.8	92	.1
MAR 21...	0810	61	419	7.9	18.0	0	0	8.8	96	.1
MAY 31...	1015	43	385	7.6	25.5	0	1	8.1	101	.6
JUL 06...	1355	32	390	7.9	29.0	0	1	8.1	102	.6
SEP 07...	0930	78	389	7.8	24.5	0	5	8.1	99	.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 08...	12000	5000	3700	180	10	53	12	5.9	.2
JAN 17...	40	26	150	220	31	63	15	7.5	.2
MAR 21...	110	40	44	210	31	60	15	7.4	.2
MAY 31...	1400	60	120	190	29	51	14	7.6	.2
JUL 06...	--	--	--	190	21	51	14	7.8	.3
SEP 07...	--	96	230	200	25	56	14	7.0	.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 08...	1.3	210	0	8.9	10	.1	9.5	204	98
JAN 17...	.8	230	0	16	15	.2	11	242	1
MAR 21...	.8	220	0	14	15	.1	9.9	231	0
MAY 31...	.9	190	0	12	16	.1	11	206	31
JUL 06...	1.0	200	0	15	15	.1	13	216	2
SEP 07...	.9	210	0	12	13	.1	12	219	1

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 08...	16	1.3	.00	1.3	.00	.60	.60	.04	3.0
JAN 17...	0	1.5	.01	1.5	.00	.00	.00	.01	1.0
MAR 21...	0	.39	.01	.40	.00	.25	.25	.00	1.0
MAY 31...	30	.64	.01	.65	.01	.35	.36	.00	1.0
JUL 06...	2	.23	.01	.24	.00	.10	.10	.01	1.9
SEP 07...	1	.54	.00	.54	.00	.30	.30	.00	1.6

08195000 FRIO RIVER AT CONCAN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 17...	0830	1	100	0	10	0	20
SEP 07...	0930	2	--	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)
JAN 17...	0	0	.0	1	0	10
SEP 07...	0	0	.0	0	0	0

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
JAN 17...	0830	.0	--	.00	.00	--	.0	--	.00	--
SEP 07...	0930	.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)
JAN 17...	.00	--	.00	--	.00	.00	--	.00	.00	--
SEP 07...	.00	.2	.00	.2	.00	.00	.1	--	.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)
JAN 17...	.00	.00	--	.00	--	.00	--	.00	.00
SEP 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)
JAN 17...	.00	--	.00	0	--	.00	.00	.00	.00
SEP 07...	.00	.00	.00	0	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) Texas Department of Highways and Public Transportation datum.

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

AVERAGE DISCHARGE.--26 years, 34.8 ft³/s (0.986 m³/s), 4.04 in/yr (103 mm/yr), 25,210 acre-ft/yr (31.1 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 8	0230	742	21.0	3.89	1.186	Aug. 1	1700	*1,640	46.4	a5.48	1.670

a From floodmark.

Minimum discharge, 0.14 ft³/s (0.004 m³/s) July 28.

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	5.9	30	24	16	15	14	9.5	9.0	4.1	8.4	334	11
2	6.0	31	23	16	15	14	9.5	8.9	5.6	8.2	136	12
3	6.0	33	23	16	15	14	9.6	9.9	59	8.1	68	11
4	6.0	31	22	16	15	13	9.4	8.7	27	7.3	46	9.7
5	5.9	29	21	16	15	13	9.0	8.0	23	6.6	36	11
6	6.0	28	20	16	15	14	9.0	8.2	22	5.9	32	11
7	6.2	30	20	16	15	16	9.0	8.8	26	6.0	32	11
8	6.1	328	20	15	15	14	8.5	8.2	21	5.6	29	11
9	5.5	140	20	15	15	13	8.6	7.4	18	5.2	27	9.9
10	5.7	87	19	15	14	13	14	6.9	16	4.7	25	9.1
11	6.5	69	20	16	15	13	12	7.3	16	4.7	22	8.8
12	6.2	60	23	16	20	13	12	7.5	14	4.5	18	8.3
13	6.0	54	22	16	19	13	11	6.9	13	4.5	15	14
14	5.9	50	20	15	17	12	9.5	6.1	12	4.2	15	12
15	6.2	47	19	15	18	12	8.8	5.7	10	3.8	15	9.8
16	6.2	44	19	15	17	12	9.0	5.7	8.2	3.6	16	9.0
17	6.2	41	18	15	17	12	11	5.7	9.2	3.4	15	8.3
18	6.2	39	17	15	16	11	11	5.8	11	3.0	14	7.7
19	6.5	37	17	15	16	11	10	5.6	15	2.8	12	7.7
20	6.6	36	17	15	15	12	9.4	7.1	14	2.6	9.8	8.3
21	6.6	34	17	15	15	12	9.3	9.5	12	2.3	12	8.2
22	40	32	16	15	14	11	9.4	9.5	11	2.1	8.8	7.8
23	54	31	16	15	14	12	9.3	8.0	12	1.5	8.1	7.0
24	45	29	16	15	14	12	9.3	7.1	14	1.0	7.6	7.0
25	38	28	16	15	14	8.9	8.8	6.9	12	1.1	7.2	6.7
26	34	26	16	14	14	11	7.9	7.3	11	1.1	5.6	6.1
27	33	25	16	14	14	9.9	8.1	6.2	11	.81	5.5	6.5
28	34	24	17	15	15	9.9	8.5	5.1	11	.72	6.2	7.5
29	32	26	17	14	---	9.8	8.9	4.6	9.9	.92	14	6.9
30	31	24	17	15	---	9.5	9.1	4.2	9.3	1.1	6.7	6.4
31	31	---	17	15	---	9.5	---	3.9	---	2.0	6.3	---
TOTAL	500.4	1523	585	472	433	374.5	288.4	219.7	457.3	117.75	1004.8	270.7
MEAN	16.1	50.8	18.9	15.2	15.5	12.1	9.61	7.09	15.2	3.80	32.4	9.02
MAX	54	328	24	16	20	16	14	9.9	59	8.4	334	14
MIN	5.5	24	16	14	14	8.9	7.9	3.9	4.1	.72	5.5	6.1
CFSM	.14	.43	.16	.13	.13	.10	.08	.06	.13	.03	.28	.08
IN.	.16	.48	.19	.15	.14	.12	.09	.07	.15	.04	.32	.09
AC-FT	993	3020	1160	936	859	743	572	436	907	234	1990	537

CAL YR 1977 TOTAL 12481.80 MEAN 34.2 MAX 328 MIN 5.5 CFSM .29 IN 3.97 AC-FT 24760
WTR YR 1978 TOTAL 6246.55 MEAN 17.1 MAX 334 MIN .72 CFSM .15 IN 1.99 AC-FT 12390

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 08...	1015	324	299	7.7	17.5	5	30	8.8	95	.7
JAN 17...	0935	15	411	7.9	10.0	0	0	10.4	95	.2
MAR 21...	0900	12	401	7.9	17.0	0	0	9.1	97	.2
MAY 31...	0850	3.9	351	7.7	23.5	0	1	7.9	95	.7
JUL 06...	1200	5.9	365	8.0	28.5	0	1	7.8	96	.6
SEP 07...	1045	11	388	7.6	25.5	0	0	7.6	95	.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 08...	11000	6600	3200	140	18	44	7.6	4.6	.2
JAN 17...	44	26	59	210	33	59	14	7.1	.2
MAR 21...	64	28	29	200	37	59	13	7.0	.2
MAY 31...	1900	29	170	190	31	55	12	7.3	.2
JUL 06...	--	--	--	190	23	55	12	7.1	.2
SEP 07...	--	43	150	190	--	58	12	6.7	.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 08...	1.0	150	0	7.6	8.9	.1	7.8	156	47
JAN 17...	.5	210	0	20	15	.1	8.8	228	1
MAR 21...	.5	200	0	17	16	.1	9.0	220	0
MAY 31...	.5	190	0	16	15	.1	11	210	0
JUL 06...	.7	200	0	14	13	.1	13	213	5
SEP 07...	.6	--	--	13	12	.1	12	--	1

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 08...	6	2.0	.01	2.0	.00	.60	.60	.03	4.3
JAN 17...	0	1.7	.01	1.7	.00	.10	.10	.01	1.0
MAR 21...	0	.94	.01	.95	.00	.40	.40	.00	.7
MAY 31...	0	.34	.01	.35	.00	.87	.87	.00	.9
JUL 06...	5	.19	.01	.20	.00	.20	.20	.00	1.6
SEP 07...	0	.32	.01	.33	.00	.26	.26	.00	1.9

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 17...	0935	1	100	0	0	0	20
SEP 07...	1045	2	0	0	0	1	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)
JAN 17...	0	0	.0	1	0	10
SEP 07...	0	0	.2	0	0	0

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
JAN 17...	0935	.0	--	.00	.00	--	.0	--	.00	--
SEP 07...	1045	.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)
JAN 17...	.00	--	.00	--	.00	.00	--	.00	.00	--
SEP 07...	.00	.3	.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)
JAN 17...	.00	.00	--	.00	--	.00	--	.00	.00
SEP 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)
JAN 17...	.00	--	.00	0	--	.00	.00	.00	.00
SEP 07...	.00	.00	.00	0	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.--26 years, 25.6 ft³/s (0.725 m³/s), 18,550 acre-ft/yr (22.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 88,500 ft³/s (2,510 m³/s) Aug. 13, 1966, gage height, 23.88 ft (7.279 m), from floodmark, from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of slope-area measurements of 24,400, 53,000, and 88,500 ft³/s (691, 1,500, and 2,510 m³/s); no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887, about 35 ft (10.7 m) in 1894. Flood of July 1, 1932, reached a stage of about 30 ft (9.1 m). A higher flood than that of 1894 occurred prior to 1887. Above information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 22	2000	*11,200	317	11.04	3.365	Aug. 2	0030	2,990	84.7	7.29	2.222

Minimum discharge, 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	.00	.00	.00	.00	.00	.00	.00	.00	.00	15	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	480	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	249	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	144	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	44	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.3	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.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	1220	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	956	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	49	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	4.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.52	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.12	.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	2400.44	.00	.00	.00	.00	.00	.00	.00	.00	.00	934.59	.00
MEAN	77.4	.000	.000	.000	.000	.000	.000	.000	.000	.000	30.1	.000
MAX	1220	.00	.00	.00	.00	.00	.00	.00	.00	.00	480	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	4760	.00	.00	.00	.00	.00	.00	.00	.00	.00	1850	.00

CAL YR 1977	TOTAL	8845.00	MEAN 24.2	MAX 1940	MIN .00	AC-FT	17540	
WTR YR 1978	TOTAL	3335.03	MEAN 9.14	MAX 1220	MIN .00	AC-FT	6620	

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.--36 years, 52.5 ft³/s (1.487 m³/s), 3.46 in/yr (88 mm/yr), 38,040 acre-ft/yr (46.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,200 ft³/s (1,560 m³/s) June 17, 1958, gage height, 28.3 ft (8.63 m), from floodmark at present site, from rating curve extended above 6,900 ft³/s (195 m³/s) on basis of slope-area measurement of 55,200 ft³/s (1,560 m³/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1892, about 33 ft (10.1 m) July 2, 1932, from information by local residents. There is a legend that a flood in the middle 1800's reached a stage of nearly 63 ft (19.2 m), see flood history for station 08198500.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 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)
Oct. 22	0800	17,700	501	16.72	5.096	June 6	2130	716	20.3	6.38	1.945
Nov.	0600	1,260	35.7	6.88	2.097	Aug.	0700	*23,200	657	19.43	5.922

Minimum discharge, 7.4 ft³/s (0.21 m³/s) July 12-16.

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	19	90	104	67	50	46	29	18	26	17	49	58
2	19	102	98	65	50	46	29	20	29	15	5710	87
3	19	86	95	66	50	44	29	19	176	12	1480	69
4	19	79	92	67	50	47	27	18	73	8.1	331	61
5	19	74	90	67	49	46	26	18	44	8.1	186	58
6	19	70	85	65	48	47	26	19	78	8.1	135	61
7	19	70	86	64	48	44	26	19	53	8.1	111	60
8	19	391	87	62	48	37	24	19	26	7.5	96	63
9	18	185	83	60	46	38	25	19	17	8.5	86	69
10	19	142	85	60	46	37	36	19	21	8.4	78	65
11	19	125	85	60	46	34	43	19	29	8.4	73	63
12	19	116	87	61	56	32	36	19	27	8.3	68	62
13	19	110	89	60	58	34	33	18	27	7.8	63	69
14	19	107	84	60	52	34	32	18	24	7.4	61	63
15	19	104	82	60	50	34	30	19	23	7.4	56	79
16	18	100	82	59	50	34	28	19	22	7.4	52	91
17	19	95	81	56	49	33	27	19	22	7.4	49	79
18	18	97	79	56	48	32	25	19	20	6.8	45	69
19	18	94	79	56	48	32	24	19	20	6.8	42	64
20	18	94	75	54	46	32	23	19	19	6.8	40	62
21	18	88	74	54	46	32	27	23	19	6.8	38	57
22	5300	88	73	54	44	32	24	22	19	6.8	37	58
23	295	90	73	54	46	32	24	22	18	6.8	35	58
24	151	87	73	54	45	29	22	20	17	6.8	36	55
25	112	85	73	52	44	29	20	19	17	6.8	29	56
26	92	83	69	51	44	29	18	19	15	6.8	32	56
27	84	81	69	52	43	29	19	25	14	6.8	48	54
28	81	81	69	50	45	29	19	26	17	6.8	46	56
29	77	108	70	50	---	29	18	27	22	6.8	49	53
30	71	127	71	50	---	29	18	26	17	6.8	52	50
31	71	---	70	50	---	29	---	24	---	8.8	52	---
TOTAL	6727	3249	2512	1796	1345	1091	787	629	951	252.1	9265	1905
MEAN	217	108	81.0	57.9	48.0	35.2	26.2	20.3	31.7	8.13	299	63.5
MAX	5300	391	104	67	58	47	43	27	176	17	5710	91
MIN	18	70	69	50	43	29	18	18	14	6.8	29	50
CFSM	1.05	.52	.39	.28	.23	.17	.13	.10	.15	.04	1.45	.31
IN.	1.21	.59	.45	.32	.24	.20	.14	.11	.17	.05	1.67	.34
AC-FT	13340	6440	4980	3560	2670	2160	1560	1250	1890	500	18380	3780

CAL YR 1977	TOTAL	43490.0	MEAN	119	MAX	5300	MIN	18	CFSM	.58	IN 7.85	AC-FT 86260
WTR YR 1978	TOTAL	30509.1	MEAN	83.6	MAX	5710	MIN	6.8	CFSM	.41	IN 5.51	AC-FT 60510

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 07...	1450	73	518	7.9	20.0	0	0	9.0	102	.2
JAN 16...	1550	64	485	7.8	15.0	0	0	10.0	102	.2
MAR 20...	1500	30	470	7.9	19.5	0	0	10.8	121	.2
MAY 30...	1630	25	423	7.7	27.5	5	1	9.9	127	.6
JUL 06...	1515	8.1	440	7.9	29.5	5	2	8.0	101	.8
SEP 08...	0945	64	451	8.1	24.0	5	7	8.6	105	.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 07...	180	110	100	260	38	79	15	7.5	.2
JAN 16...	15	8	43	250	33	74	15	8.2	.2
MAR 20...	28	14	37	240	46	74	14	8.3	.2
MAY 30...	1400	12	180	200	39	60	13	8.6	.3
JUL 06...	--	--	--	200	29	59	13	8.6	.3
SEP 08...	560	240	150	230	26	71	13	7.7	.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 07...	1.0	270	0	25	12	.1	13	286	0
JAN 16...	1.0	260	0	28	16	.2	12	283	1
MAR 20...	1.0	240	0	27	16	.2	10	269	1
MAY 30...	1.0	200	0	27	17	.2	11	236	1
JUL 06...	1.3	210	0	25	15	.2	13	239	5
SEP 08...	1.1	250	0	25	11	.2	13	265	1

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 07...	0	1.1	.00	1.1	.01	.29	.30	.01	1.5
JAN 16...	0	1.3	.01	1.3	.01	.00	.00	.01	.9
MAR 20...	1	.70	.01	.71	.00	.63	.63	.00	1.0
MAY 30...	0	.29	.01	.30	.00	.32	.32	.00	1.3
JUL 06...	3	.09	.00	.09	.00	.30	.30	.00	1.7
SEP 08...	1	.49	.01	.50	.00	.25	.25	.00	1.5

08198000 SABINAL RIVER NEAR SABINAL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 16...	1550	0	0	0	0	0	10
SEP 08...	0945	1	100	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)
JAN 16...	1	0	.0	1	0	10
SEP 08...	0	0	.2	0	0	0

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
JAN 16...	1550	.0	--	.00	.00	--	.0	--	.00	--
SEP 08...	0945	.0	0	.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)
JAN 16...	.00	--	.00	--	.00	.00	--	.00	.00	--
SEP 08...	.00	.6	.00	.0	.00	.00	.1	.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)
JAN 16...	.00	.00	--	.00	--	.00	--	.00	.00
SEP 08...	.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)
JAN 16...	.00	--	.00	0	--	.00	.00	.00	.00
SEP 08...	.00	.00	.00	0	0	.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.--26 years, 30.2 ft³/s (0.855 m³/s), 21,880 acre-ft/yr (27.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,300 ft³/s (2,080 m³/s) June 17, 1958, gage height, 33.3 ft (10.15 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 40 ft (12.2 m) Aug. 24, 1919, from information by local residents. Flood of July 2, 1932, reached a stage of 31 ft (9.4 m), discharge 60,000 ft³/s (1,700 m³/s), from information by Southern Pacific Lines. There is a legend that a flood in 1858 covered the townsite of Sabinal. The stage would have been 70 to 80 ft (21.3 to 24.4 m), which seems unlikely. However, it is possible that a flood occurred in 1858 that covered part of the townsite and was higher than any flood since that date.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 22	1300	18,400	521	a20.9	6.37	Aug. 2	1200	*26,300	745	a23.35	7.117
Nov. 8	1600	556	15.7	7.06	2.152	Aug. 3	1100	4,860	138	a12.97	3.953

a From floodmark.

Minimum discharge, 0.28 ft³/s (0.008 m³/s) July 12-16.

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	1.4	5.9	36	3.7	3.2	2.2	1.6	.96	.66	.49	4.2	2.7
2	1.5	5.2	26	3.6	3.1	2.1	1.5	.65	.78	.48	4590	2.6
3	1.7	4.6	22	3.6	2.9	2.0	1.5	.89	1.4	.48	1660	2.5
4	1.6	6.7	17	3.5	3.0	1.9	1.4	1.0	.92	.46	506	2.4
5	1.6	6.9	15	3.4	3.0	2.0	1.3	.92	.99	.46	209	2.4
6	1.6	5.9	12	3.2	3.0	2.1	1.2	.85	.92	.46	113	2.4
7	1.5	5.3	10	3.2	3.0	2.1	1.1	.92	1.1	.44	80	2.3
8	1.5	166	9.7	3.1	2.9	2.2	1.1	.99	1.0	.38	64	2.4
9	1.7	165	9.9	3.2	2.8	2.0	1.1	.99	.92	.35	53	2.3
10	1.7	84	9.3	3.3	2.7	2.0	1.1	.92	.96	.35	41	2.3
11	1.8	65	8.6	3.3	2.8	2.1	1.1	.92	.96	.35	32	2.4
12	1.9	54	9.7	3.7	3.0	2.0	1.1	.92	.94	.35	26	2.4
13	1.9	46	13	3.6	3.1	1.9	1.2	.85	.92	.33	19	7.6
14	1.9	39	13	3.5	3.1	1.9	1.1	.99	.87	.32	14	2.8
15	1.8	34	11	3.2	2.9	1.9	1.1	.99	.89	.32	11	2.6
16	1.7	30	8.9	3.3	2.9	1.8	1.0	.92	.89	.33	8.0	2.5
17	1.7	26	7.8	3.6	2.9	1.9	1.0	.85	.83	.39	6.1	2.5
18	1.7	23	7.1	4.4	2.7	1.9	1.1	.85	.76	.41	5.4	2.3
19	1.7	21	6.8	4.3	2.7	1.8	1.1	.85	.73	.39	4.7	2.2
20	1.7	19	6.1	3.9	2.5	1.8	1.1	1.1	.69	.38	4.2	2.1
21	1.7	16	5.4	4.1	2.5	1.8	1.0	1.1	.65	.36	3.7	2.1
22	4260	14	5.2	3.9	2.5	1.8	1.1	.92	.65	.36	3.3	2.0
23	565	12	4.9	3.9	2.4	1.8	1.1	.85	.62	.35	3.1	2.0
24	137	12	4.8	3.8	2.4	1.8	1.1	.78	.61	.39	3.0	2.0
25	67	11	4.4	3.8	2.2	1.8	1.1	.78	.59	.37	3.2	2.0
26	40	9.1	4.2	3.8	2.2	1.8	1.1	.72	.57	.34	3.1	2.0
27	23	8.4	4.2	3.6	2.0	1.7	1.1	.72	.55	.35	2.9	2.0
28	14	7.9	4.1	3.7	2.0	1.8	1.0	.66	.54	.92	2.7	2.1
29	9.8	7.9	4.1	3.4	---	1.8	.92	.66	.53	.74	2.7	2.0
30	7.7	27	4.1	3.4	---	1.7	.92	.66	.50	.55	2.7	1.9
31	6.5	---	4.0	3.2	---	1.7	---	.66	---	.56	2.7	---
TOTAL	5165.3	937.8	308.3	111.2	76.4	59.1	34.24	26.84	23.94	13.21	7483.7	73.8
MEAN	167	31.3	9.95	3.59	2.73	1.91	1.14	.87	.80	.43	241	2.46
MAX	4260	166	36	4.4	3.2	2.2	1.6	1.1	1.4	.92	4590	7.6
MIN	1.4	4.6	4.0	3.1	2.0	1.7	.92	.65	.50	.32	2.7	1.9
AC-FT	10250	1860	612	221	152	117	68	53	47	26	14840	146

CAL YR 1977 TOTAL 18434.40 MEAN 50.5 MAX 4260 MIN 1.4 AC-FT 36560
WTR YR 1978 TOTAL 14313.83 MEAN 39.2 MAX 4590 MIN .32 AC-FT 28390

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.--26 years, 37.9 ft³/s (1.073 m³/s), 5.97 in/yr (152 mm/yr), 27,460 acre-ft/yr (33.9 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, that of June 17, 1958. Flood in July 1932 reached a stage of about 26 ft (7.9 m), discharge 58,500 ft³/s (1,660 m³/s), from infromation 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)
June 6	2300	1,150	32.6	a4.18	1.274	Aug. 3	0500	1,240	35.1	a4.56	1.390
Aug. 2	0500	*13,700	388	a13.1	3.99	Sept. 13	0400	555	15.7	3.54	1.079

a From floodmark.

Minimum discharge, 0.19 ft³/s (0.005 m³/s) July 27.

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	4.7	60	7.2	3.3	3.3	3.3	2.3	1.7	1.0	1.9	84	37
2	4.4	12	6.8	2.9	3.3	3.3	2.7	2.9	2.0	1.7	3270	34
3	4.4	10	6.5	3.3	3.3	3.1	2.5	6.4	88	1.4	488	31
4	4.4	9.0	6.5	3.5	3.3	3.3	2.5	2.1	9.3	1.4	234	30
5	4.4	8.2	6.2	3.5	3.1	3.3	2.7	1.7	7.2	1.3	152	31
6	4.1	7.9	5.6	3.1	3.1	4.1	2.7	2.1	67	1.1	114	31
7	4.1	7.6	5.6	3.3	3.5	5.6	2.5	2.5	93	1.1	97	32
8	4.1	52	5.6	2.9	3.5	3.5	2.3	1.9	16	1.2	82	46
9	3.8	21	5.3	2.9	3.1	3.3	2.3	1.7	12	1.0	70	42
10	3.8	16	5.0	2.9	2.9	3.5	7.6	1.4	10	.80	62	40
11	3.8	14	5.3	2.9	3.1	3.5	2.7	1.4	8.6	.80	56	40
12	3.3	13	6.5	3.3	7.5	3.1	2.3	1.4	7.9	.70	53	39
13	3.3	12	5.9	3.1	4.7	3.1	2.7	1.3	7.2	.70	48	128
14	3.3	12	5.0	3.1	3.8	3.1	2.5	1.0	6.8	.60	46	64
15	3.3	12	5.0	3.1	5.3	2.9	2.5	.90	6.2	.50	42	88
16	3.3	11	5.0	3.3	4.7	2.7	2.5	1.0	5.6	.50	40	82
17	3.3	11	4.4	3.1	5.3	2.7	2.5	1.0	4.7	.50	39	70
18	2.7	10	4.1	3.1	4.7	2.5	2.3	.80	4.4	.50	37	64
19	2.7	10	4.1	3.1	4.7	2.3	1.9	.80	3.8	.41	37	59
20	2.7	9.6	3.8	3.1	4.4	2.5	1.7	1.0	3.8	.37	35	55
21	2.7	9.3	3.5	3.3	3.8	2.3	1.9	1.4	3.1	.32	34	52
22	6.8	8.6	3.5	3.3	3.8	2.5	2.1	1.4	2.7	.24	34	47
23	4.7	8.2	3.5	3.3	3.8	2.5	2.3	1.2	2.9	.24	31	46
24	4.4	8.2	3.3	3.3	3.8	2.5	2.3	1.0	2.7	.90	32	44
25	4.1	7.9	3.1	3.1	3.8	2.3	1.7	.90	2.5	.60	31	41
26	3.8	7.9	2.9	2.9	3.5	2.5	1.5	1.0	2.3	.32	31	39
27	4.1	7.6	3.3	3.1	3.5	2.3	1.5	1.2	2.1	.24	30	40
28	4.1	7.2	3.3	3.1	3.8	2.3	1.5	1.0	2.3	.28	28	39
29	3.5	8.6	3.5	3.1	---	2.3	1.7	2.4	2.5	.70	31	36
30	3.5	7.6	3.5	3.3	---	2.5	1.7	1.3	2.1	.50	35	34
31	3.8	---	3.5	3.3	---	2.3	---	1.0	---	.37	31	---
TOTAL	119.4	399.4	146.3	97.9	110.4	91.0	71.9	48.80	389.7	23.19	5434	1461
MEAN	3.85	13.3	4.72	3.16	3.94	2.94	2.40	1.57	13.0	.75	175	48.7
MAX	6.8	60	7.2	3.5	7.5	5.6	7.6	6.4	93	1.9	3270	128
MIN	2.7	7.2	2.9	2.9	2.9	2.3	1.5	.80	1.0	.24	28	30
CFSM	.05	.15	.06	.04	.05	.03	.03	.02	.15	.009	2.03	.57
IN.	.05	.17	.06	.04	.05	.04	.03	.02	.17	.01	2.35	.63
AC-FT	237	792	290	194	219	180	143	97	773	46	10780	2900

CAL YR 1977 TOTAL 21121.60 MEAN 57.9 MAX 1780 MIN 2.7 CFSM .67 IN 9.12 AC-FT 41890
WTR YR 1978 TOTAL 8392.99 MEAN 23.0 MAX 3270 MIN .24 CFSM .27 IN 3.62 AC-FT 16650

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 07...	1225	7.0	442	8.0	19.0	0	0	9.0	100	.2
JAN 16...	1325	3.1	455	7.9	15.0	0	0	10.0	102	.2
MAR 20...	1225	2.3	446	7.9	19.0	0	1	8.8	98	.3
MAY 30...	1330	1.0	385	7.6	27.0	5	3	8.8	111	.6
JUL 05...	1445	1.2	405	8.0	31.0	5	2	7.2	93	.7
SEP 06...	1540	28	374	7.9	27.5	0	0	8.6	110	.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 07...	220	40	64	210	50	66	12	8.2	.2
JAN 16...	13	13	10	220	50	69	12	8.9	.3
MAR 20...	40	28	41	210	58	66	12	8.9	.3
MAY 30...	1500	660	440	190	75	58	11	10	.3
JUL 05...	--	--	--	180	46	51	12	9.1	.3
SEP 06...	--	10	36	180	35	58	9.3	6.6	.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 07...	1.3	200	0	47	12	.2	10	255	1
JAN 16...	1.1	210	0	43	17	.2	10	265	1
MAR 20...	1.2	190	0	48	16	.3	9.6	256	2
MAY 30...	1.3	140	0	76	18	.2	13	257	6
JUL 05...	1.7	160	0	41	15	.2	14	223	4
SEP 06...	1.2	180	0	33	10	.2	11	218	1

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 07...	0	.51	.00	.51	.00	.20	.20	.01	.8
JAN 16...	0	.53	.01	.54	.01	.29	.30	.01	.8
MAR 20...	1	.24	.01	.25	.00	.20	.20	.00	1.1
MAY 30...	1	.18	.01	.19	.01	.39	.40	.00	1.6
JUL 05...	2	.07	.00	.07	.00	.20	.20	.01	1.4
SEP 06...	1	.20	.00	.20	.01	.36	.37	.00	1.7

08200000 HONDO CREEK NEAR TARPLEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 16...	1325	0	100	0	0	0	10
SEP 06...	1540	1	--	0	0	1	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)
JAN 16...	0	0	.0	0	0	10
SEP 06...	0	0	.0	1	0	0

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
JAN 16...	1325	.0	--	.00	.00	--	.0	--	.00	--
SEP 06...	1540	.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)
JAN 16...	.00	--	.00	--	.00	.00	--	.00	.00	--
SEP 06...	.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)
JAN 16...	.00	.00	--	.00	--	.00	--	.00	.00
SEP 06...	.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)
JAN 16...	.00	--	.00	0	--	.00	.00	.00	.00
SEP 06...	.00	.00	.00	0	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.--18 years, 13.9 ft³/s (0.394 m³/s), 10,070 acre-ft/yr (12.4 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)
Aug. 2	0700	*14,200	402	a9.65	2.941	Aug. 3	0930	704	19.9	4.36	1.329

a From floodmark.

Minimum discharge, 0.01 ft³/s (0.0003 m³/s) for several days.

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	.04	4.0	.13	.02	.01	.21	.04	.05	.50	.22	1.0	.07
2	.04	1.9	.11	.02	.01	.18	.05	.16	1.0	.15	2660	.06
3	.04	1.1	.10	.02	.01	.16	.04	.20	2.0	.11	348	.08
4	.04	.76	.09	.02	.01	.14	.03	.18	.82	.10	139	.05
5	.04	.54	.08	.02	.01	.13	.03	.15	.40	.08	52	.05
6	.03	.40	.07	.02	.01	.31	.03	.12	.23	.08	15	.05
7	.03	.30	.07	.02	1.0	.50	.03	.11	.70	.07	5.9	.10
8	.03	.86	.07	.02	.62	.32	.02	.09	.12	.06	.24	1.0
9	.03	.25	.06	.02	.50	.23	.02	.08	.10	.06	.16	.72
10	.03	.18	.06	.02	.42	.18	2.0	.07	.08	.06	.12	.56
11	.03	.15	.08	.02	.40	.15	1.8	.12	.12	.05	.10	.52
12	.03	.13	.05	.02	2.0	.13	.40	.10	.12	.05	.09	.45
13	.03	.11	.05	.02	1.4	.12	.22	.08	.10	.05	.08	2.0
14	.03	.10	.04	.02	.50	.10	.16	.07	.10	.05	.07	1.0
15	.03	.09	.04	.01	.90	.09	.12	.07	.09	.05	.07	.70
16	.03	.08	.04	.01	.60	.09	.09	.06	.08	.04	.06	.40
17	.03	.07	.04	.01	1.0	.08	.25	.05	.07	.17	.06	.20
18	.03	.07	.04	.01	.70	.07	.15	.05	.07	.14	.05	.13
19	.02	.06	.04	.01	.50	.07	.11	.05	.25	.11	.05	.10
20	.02	.06	.04	.01	.37	.06	.30	.11	.20	.08	.05	.08
21	.02	.05	.03	.01	.30	.06	.19	1.0	.16	.07	.04	.07
22	1.9	.05	.03	.01	.25	.06	.70	.70	.13	.06	.04	.06
23	1.3	.05	.03	.01	.21	.05	1.0	.58	.11	.10	.04	.12
24	2.2	.04	.03	.01	.18	.07	.20	.48	.10	.08	.04	.09
25	.90	.04	.03	.01	.16	.06	.11	.44	.09	.07	.03	.07
26	.80	.04	.03	.01	.15	.06	.08	.38	.09	.06	.03	.07
27	.70	.04	.03	.01	.13	.05	.06	.34	.08	.06	.03	.06
28	.90	.20	.03	.01	.24	.05	.05	.80	.50	.60	.03	.20
29	.56	.17	.02	.01	---	.05	.04	.50	.25	.20	.05	.11
30	.50	.14	.02	.01	---	.04	.04	.38	.19	.17	.12	.08
31	.48	---	.02	.01	---	.04	---	.30	---	.14	.08	---
TOTAL	10.89	12.03	1.60	.45	12.59	3.91	8.36	7.87	8.85	3.39	3222.63	9.25
MEAN	.35	.40	.052	.015	.45	.13	.28	.25	.30	.11	104	.31
MAX	2.2	4.0	.13	.02	2.0	.50	2.0	1.0	2.0	.60	2660	2.0
MIN	.02	.04	.02	.01	.01	.04	.02	.05	.07	.04	.03	.05
AC-FT	22	24	3.2	.9	25	7.8	17	16	18	6.7	6390	18

CAL YR 1977 TOTAL 1739.06 MEAN 4.76 MAX 1340 MIN .01 AC-FT 3450
WTR YR 1978 TOTAL 3301.82 MEAN 9.05 MAX 2660 MIN .01 AC-FT 6550

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 Sept. 1-30, which are fair. No known diversion above station.

AVERAGE DISCHARGE.--17 years , 18.4 ft³/s (0.521 m³/s), 5.80 in/yr (147 mm/yr), 13,330 acre-ft/yr (16.4 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 (14,90 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.--Maximum discharge, 10,600 ft³/s (300 m³/s) Aug. 2, gage height, 8.40 ft (2.560 m), from rating curve extended as explained above, no other peak above base of 600 ft³/s (17.0 m³/s); minimum daily, 0.09 ft³/s (0.003 m³/s) July 22.

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	1.5	21	5.3	4.5	3.4	3.8	2.4	1.8	1.9	1.3	28	13
2	1.6	7.9	5.0	4.1	3.4	3.6	2.6	2.1	1.7	1.3	1070	9.6
3	1.6	4.9	4.9	3.9	3.4	3.6	2.6	2.4	5.5	1.1	140	9.7
4	1.7	4.5	4.7	3.9	3.4	3.4	2.6	1.8	3.1	1.0	75	7.9
5	1.7	4.0	4.4	3.9	3.4	3.4	2.6	1.5	2.3	.90	53	10
6	1.7	3.9	4.0	3.9	3.4	5.1	2.6	1.4	37	.75	41	7.5
7	1.7	3.4	3.9	3.9	4.1	7.9	2.5	1.5	19	.67	36	7.8
8	1.7	36	3.9	3.8	3.8	4.6	2.4	1.5	6.8	.58	32	15
9	1.7	18	3.8	3.6	3.4	4.0	2.5	1.5	5.1	.56	26	11
10	1.7	14	3.6	3.6	3.4	3.8	6.6	1.4	4.0	.49	24	8.9
11	1.7	11	3.6	4.4	3.4	3.6	3.1	1.4	3.2	.42	22	8.9
12	1.7	9.6	4.5	4.6	8.3	3.4	2.8	1.4	2.7	.40	20	8.8
13	1.6	8.8	4.8	4.3	6.6	3.4	2.8	1.4	2.3	.36	18	37
14	1.5	7.8	4.0	4.2	4.7	3.1	2.6	1.3	2.1	.36	17	22
15	1.5	7.4	3.9	3.9	5.3	3.1	2.6	1.5	1.8	.36	16	53
16	1.5	6.9	3.8	4.3	5.3	2.9	2.5	1.5	1.5	.36	14	41
17	1.5	6.1	3.4	4.1	6.4	2.7	2.4	1.5	1.4	.34	13	31
18	1.5	6.1	3.4	3.9	5.2	2.6	2.4	1.3	1.4	.27	13	24
19	1.5	6.0	3.4	3.9	4.9	2.6	2.1	1.3	1.4	.21	11	22
20	1.5	5.7	3.3	3.8	4.9	2.6	2.0	1.5	1.3	.15	11	21
21	1.5	5.5	3.1	3.6	4.3	2.7	2.0	1.6	1.3	.11	10	19
22	7.5	4.9	2.9	3.6	3.9	2.8	2.0	1.7	1.2	.09	9.5	17
23	2.8	4.9	3.1	3.6	4.3	2.9	2.3	1.7	1.2	.11	8.8	17
24	2.2	4.9	3.1	3.8	4.3	2.9	2.1	1.7	1.2	.11	7.9	16
25	2.0	4.6	3.1	3.7	4.2	2.6	1.8	1.7	1.1	.11	7.4	14
26	1.8	4.6	2.9	3.4	3.7	2.6	1.6	1.5	1.0	.11	7.4	13
27	1.8	4.6	2.8	3.4	3.7	2.6	1.5	1.4	.89	.11	7.0	13
28	2.0	4.3	2.8	3.4	3.9	2.5	1.4	1.4	1.3	.15	6.8	13
29	2.0	6.0	3.4	3.4	---	2.3	1.5	3.3	4.4	.29	7.3	11
30	2.0	6.8	4.6	3.4	---	2.6	1.8	2.4	1.5	.41	7.8	11
31	2.0	---	4.6	3.4	---	2.6	---	2.0	---	.42	6.9	---
TOTAL	59.7	244.1	118.0	119.2	122.4	102.3	72.7	51.4	120.59	13.90	1766.8	513.1
MEAN	1.93	8.14	3.81	3.85	4.37	3.30	2.42	1.66	4.02	.45	57.0	17.1
MAX	7.5	36	5.3	4.6	8.3	7.9	6.6	3.3	37	1.3	1070	53
MIN	1.5	3.4	2.8	3.4	3.4	2.3	1.4	1.3	.89	.09	6.8	7.5
CFSM	.05	.19	.09	.09	.10	.08	.06	.04	.09	.01	1.32	.40
IN.	.05	.21	.10	.10	.11	.09	.06	.04	.10	.01	1.52	.44
AC-FT	118	484	234	236	243	203	144	102	239	28	3500	1020

CAL YR 1977 TOTAL 7526.80 MEAN 20.6 MAX 401 MIN 1.5 CFSM .48 IN 6.50 AC-FT 14930
WTR YR 1978 TOTAL 3304.19 MEAN 9.05 MAX 1070 MIN .09 CFSM .21 IN 2.85 AC-FT 6550

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 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
NOV 07...	1400	3.1	414	7.9	20.5	0	0	9.6	109	.2
JAN 16...	1430	4.3	431	7.9	18.0	0	1	10.0	109	.6
MAR 20...	1345	2.4	429	8.0	24.5	0	0	9.8	120	.3
MAY 30...	1455	2.6	382	7.9	32.0	5	2	10.2	140	.5
JUL 05...	1615	.90	390	8.3	34.5	0	2	7.8	106	.6
SEP 08...	1155	13	381	8.2	24.5	0	0	9.2	112	.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 07...	240	150	68	200	51	58	13	7.4	.2
JAN 16...	37	21	23	210	61	62	13	7.4	.2
MAR 20...	120	96	18	210	75	61	13	7.4	.2
MAY 30...	1400	170	144	180	83	53	12	7.9	.3
JUL 05...	--	--	--	170	64	50	11	7.8	.3
SEP 08...	460	200	80	190	53	59	11	6.1	.2

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
NOV 07...	1.0	180	0	50	14	.1	10	242	0
JAN 16...	1.0	180	0	58	15	.2	10	255	3
MAR 20...	1.0	160	0	62	14	.2	9.8	247	0
MAY 30...	1.3	120	0	61	16	.2	11	222	2
JUL 05...	1.4	130	0	55	13	.2	14	216	5
SEP 08...	1.0	170	0	44	9.9	.2	11	226	2

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 07...	0	.66	.00	.66	.00	.20	.20	.01	1.0
JAN 16...	0	.75	.01	.76	.02	.08	.10	.01	1.2
MAR 20...	0	.13	.01	.14	.00	.30	.30	.00	1.6
MAY 30...	1	.26	.01	.27	.01	.39	.40	.00	1.6
JUL 05...	4	.11	.01	.12	.00	.10	.10	.00	2.0
SEP 08...	1	.32	.00	.32	.00	.31	.31	.00	1.5

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 16...	1430	0	100	0	0	0	10
SEP 08...	1155	2	--	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)
JAN 16...	0	0	.0	1	0	0
SEP 08...	0	10	.1	0	0	0

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...	1430	.0	--	.00	.00	--	.0	--	.00	--
SEP 08...	1155	.0	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	--	.00	--	.00	.00	--	.00	.00	--
SEP 08...	.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	--	.00	--	.00	--	.00	.00
SEP 08...	.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)
JAN 16...	.00	--	.00	0	--	.00	.00	.00	.00
SEP 08...	.00	.00	.00	0	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.--17 years (water years 1962-78), 8.59 ft³/s (0.243 m³/s), 6,220 acre-ft/yr (7.67 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.--Maximum discharge, 8,690 ft³/s (246 m³/s) Aug. 2, gage height, 15.83 ft (4.825 m), from floodmark, no other peak above base of 600 ft³/s (17.0 m³/s); no flow most of year.

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	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	652	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	54	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.8	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.77	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.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	.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	.00	.00	.00	713.97	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	23.0	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	652	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1420	.00

CAL YR 1977 TOTAL 113.89 MEAN .31 MAX 104 MIN .00 AC-FT 226
WTR YR 1978 TOTAL 713.97 MEAN 1.96 MAX 652 MIN .00 AC-FT 1420

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) downsream 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.--63 years, 137 ft³/s (3.880 m³/s), 99,260 acre-ft/yr (122 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, that of July 4, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft³/s (31.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 24	1600	3,300	93.5	7.82	2.384	Aug. 4	1330	*4,580	130	9.01	2.746

Minimum discharge, no flow July 13-31.

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	42	147	96	102	76	57	48	27	22	8.8	13	26
2	42	149	107	101	77	57	48	24	21	8.1	257	28
3	42	148	115	100	67	57	45	26	341	7.5	1500	28
4	42	101	121	100	74	57	42	25	49	5.2	4130	28
5	44	90	121	95	73	57	45	23	134	4.8	2970	28
6	41	88	116	95	70	55	44	23	188	4.8	970	28
7	40	83	115	95	70	55	41	22	391	4.3	480	28
8	39	89	111	95	70	56	39	20	400	3.9	346	28
9	42	91	106	92	70	56	39	19	218	2.5	260	25
10	48	171	100	92	68	56	38	18	121	1.3	179	25
11	44	251	100	92	68	54	38	16	70	.80	136	25
12	40	201	100	93	68	53	67	16	50	.42	108	25
13	42	172	104	95	66	53	76	16	45	.00	92	28
14	43	157	108	95	62	52	58	14	42	.00	76	28
15	46	141	108	92	65	51	50	13	38	.00	64	28
16	55	141	107	90	67	52	48	14	38	.00	58	31
17	52	132	107	87	63	50	47	11	36	.00	55	49
18	51	125	105	85	59	48	47	12	33	.00	50	64
19	46	119	105	85	60	51	45	13	29	.00	43	46
20	45	116	102	84	59	50	48	20	26	.00	40	40
21	45	112	102	83	57	49	43	15	24	.00	37	37
22	45	107	99	82	57	48	42	16	23	.00	33	34
23	644	110	95	81	57	46	40	37	22	.00	33	30
24	2900	106	97	81	57	48	38	56	18	.00	33	28
25	1530	102	105	82	57	48	39	40	15	.00	30	28
26	513	95	103	83	57	46	41	32	13	.00	28	28
27	301	92	102	83	55	45	36	27	13	.00	25	23
28	192	91	102	78	56	45	32	26	12	.00	25	28
29	150	92	102	74	---	47	30	24	12	.00	25	28
30	124	92	102	74	---	48	29	23	11	.00	25	24
31	111	---	102	74	---	47	---	23	---	.00	25	---
TOTAL	7441	3711	3265	2740	1805	1594	1323	691	2455	52.42	12146	924
MEAN	240	124	105	88.4	64.5	51.4	44.1	22.3	81.8	1.69	392	30.8
MAX	2900	251	121	102	77	57	76	56	400	8.8	4130	64
MIN	39	83	95	74	55	45	29	11	11	.00	13	23
AC-FT	14760	7360	6480	5430	3580	3160	2620	1370	4870	104	24090	1830

CAL YR 1977 TOTAL 74917.00 MEAN 205 MAX 2900 MIN 39 AC-FT 148600
WTR YR 1978 TOTAL 38147.42 MEAN 105 MAX 4130 MIN .00 AC-FT 75670

08206600 FRIO RIVER AT TILDEN, TX

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 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	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)
JUL 13...	1500	2.6	2300	7.8	29.5	35	10	6.9	90	.8	460	240
AUG 16...	1515	76	783	7.8	30.0	40	65	6.6	88	.8	270	100
SEP 14...	1320	620	219	7.5	27.0	140	280	6.9	87	3.8	66	2

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)
JUL 13...	130	32	300	6.1	8.0	260	0	300	430	.5	11
AUG 16...	83	14	54	1.4	4.6	200	0	63	110	.1	15
SEP 14...	23	2.0	13	.7	4.3	78	0	16	16	.1	14

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)
JUL 13...	1340	18	1	.15	.01	--	.01	.60	--	.04	6.3
AUG 16...	443	131	8	1.7	.02	--	.02	.86	--	.10	7.1
SEP 14...	127	568	68	.34	.02	.36	.03	1.1	1.1	.78	14

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
AUG 16...	1515	2	300	0	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)
AUG 16...	2	0	.1	0	0	10

08206600 FRIO RIVER AT TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
AUG 16...	1515	.0	8	.00	.00	.0	.0	0	.00	.2

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)
AUG 16...	.00	.7	.00	.0	.00	.00	.1	.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)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)
AUG 16...	.00	.00	.0	.00	.0	.00	.0	.00	.00

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG 16...	.00	.0	.00	0	0	.00	.00	.00	.00

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX

LOCATION.--Lat 28°35'14", long 98°32'44", McMullen County, Hydrologic Unit 12110109, on left bank 25 ft (8 m) downstream from State Highway 16, 0.3 mi (0.5 km) upstream from mouth of Bruce Branch, 0.9 mi (1.4 km) downstream from mouth of Far Live Oak Creek, 3 mi (5 km) upstream from San Patricio Creek, 7 mi (11 km) downstream from Clear Creek, 8.7 mi (14.0 km) north of Tilden, and 13 mi (21 km) upstream from mouth.

DRAINAGE AREA.--793 mi² (2,054 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. 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.--14 years, 68.6 ft³/s (1.943 m³/s), 49,700 acre-ft/yr (61.3 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 and 1969-74.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1919, 32.6 ft (9.94 m) in 1942; stage of 1919 flood not known, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 ft³/s (25.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 3	0800	*8,680	246	22.51	6.861	Aug. 31	2000	2,690	76.2	15.70	4.785
July 28	1600	975	27.6	10.67	3.252	Sept. 13	2200	966	27.4	10.63	3.240
Aug. 2	1000	7,780	220	21.80	6.645						

Minimum discharge, 0.02 ft³/s (0.001 m³/s) May 16, 17.

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	.09	53	3.5	2.7	5.7	5.9	.55	.20	2.2	1.6	916	975
2	.08	493	3.0	2.5	5.2	5.8	.49	.31	79	1.4	6060	101
3	.07	113	2.6	4.0	4.1	6.0	.46	.43	5240	1.4	1460	40
4	.06	36	2.3	5.1	4.3	6.0	.36	.20	1390	1.4	114	24
5	.06	11	2.5	4.9	5.7	5.7	.32	.55	115	1.1	87	81
6	.06	4.3	5.6	5.8	6.9	6.9	.57	.64	40	1.2	51	123
7	.05	2.4	4.6	6.0	6.3	6.4	.85	.30	369	1.2	36	96
8	.05	1.7	4.0	8.8	5.3	5.2	.64	3.5	546	1.0	28	549
9	.05	1.1	3.2	7.7	4.1	5.2	.53	3.4	219	.98	24	99
10	.06	.73	2.3	5.8	3.5	5.1	.45	1.8	78	.85	21	73
11	.07	.83	1.9	5.5	5.8	3.9	1.1	.94	46	.75	19	58
12	.07	1.8	2.6	5.5	8.8	3.0	5.1	.43	28	.72	16	46
13	.07	2.0	4.7	9.8	8.0	3.2	83	.20	19	.63	16	431
14	.07	1.5	6.9	12	6.5	13	35	.10	13	.63	15	377
15	.07	1.6	7.7	9.7	5.5	8.8	18	.07	9.5	.55	13	106
16	.07	1.3	8.1	8.9	6.2	5.3	11	.05	7.2	.55	11	50
17	.07	1.1	9.0	8.7	6.8	3.4	8.2	.39	6.1	.44	9.7	31
18	.06	.85	8.7	7.1	6.0	2.8	5.9	5.4	5.1	.39	9.3	21
19	.05	.85	8.6	6.7	5.3	2.3	4.3	4.9	4.4	.35	8.2	15
20	.05	.84	8.1	6.3	4.3	1.9	2.7	51	3.9	.31	6.0	12
21	.05	.68	5.7	6.0	3.5	1.8	1.7	81	3.9	.31	6.2	11
22	.05	.55	4.0	5.2	2.8	1.6	1.2	52	3.5	.31	6.7	9.1
23	.69	.50	5.0	6.1	2.5	1.5	1.2	13	3.5	.28	6.1	9.2
24	17	.48	6.7	8.1	3.6	1.1	1.3	7.1	3.5	.27	5.6	7.7
25	7.5	.48	7.6	7.9	5.8	.88	1.2	11	3.2	.20	5.3	6.9
26	1.7	.46	9.3	8.9	5.8	.64	.80	7.3	2.7	.20	5.2	5.8
27	20	.41	9.0	9.5	5.2	.63	.55	4.5	2.5	.20	4.9	5.5
28	15	.41	6.7	9.1	6.0	.63	.42	3.5	2.1	578	6.7	5.5
29	8.0	1.4	5.1	7.8	---	.63	.33	2.2	1.9	224	7.9	5.2
30	4.9	3.5	3.9	6.4	---	.63	.27	1.4	1.7	29	14	4.9
31	3.4	---	3.3	5.1	---	.55	---	.74	---	8.2	1480	---
TOTAL	79.57	737.77	166.2	213.6	149.5	116.39	188.49	258.55	8248.9	858.42	10468.8	3378.8
MEAN	2.57	24.6	5.36	6.89	5.34	3.75	6.28	8.34	275	27.7	338	113
MAX	20	493	9.3	12	8.8	13	83	81	5240	578	6060	975
MIN	.05	.41	1.9	2.5	2.5	.55	.27	.05	1.7	.20	4.9	4.9
AC-FT	158	1460	330	424	297	231	374	513	16360	1700	20760	6700

CAL YR 1977 TOTAL 38930.21 MEAN 107 MAX 7730 MIN .03 AC-FT 77220
WTR YR 1978 TOTAL 24864.99 MEAN 68.1 MAX 6060 MIN .05 AC-FT 49320

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: July to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
DEC 07...	1615	4.3	1590	--	13.0	--	--	--	--	--	--	--
JUL 13...	1615	.63	2600	7.7	31.5	50	7	7.5	100	2.2	700	410
AUG 16...	1625	11	1990	7.7	29.5	35	5	9.1	120	1.5	590	280
SEP 14...	1515	230	231	7.2	27.0	240	220	6.0	76	4.2	78	8

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
DEC 07...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	210	43	290	4.8	15	350	0	470	420	.4	22	1640
AUG 16...	180	35	200	3.6	10	380	0	330	280	.3	20	1240
SEP 14...	26	3.2	12	.6	6.5	86	0	25	12	.1	12	139

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, AMMONIA + 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)
DEC 07...	--	--	--	--	--	--	--	--	--	--	29	.34
JUL 13...	16	1	.02	.00	.02	.00	.63	.63	.05	8.1	--	--
AUG 16...	9	0	.06	.01	.07	.00	.54	.54	.04	6.2	--	--
SEP 14...	344	0	.22	.02	.24	.10	1.0	1.1	.28	16	--	--

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
AUG 16...	1625	3	200	1	0	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)
AUG 16...	2	110	.1	0	0	10

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
AUG 16...	1625	.0	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)
AUG 16...	.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)
AUG 16...	.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)
AUG 16...	.00	.00	.00	0	0	.00	.00	.00	.00

08207000 FRIO RIVER AT CALLIHAM, TX

LOCATION.--Lat 28°29'31", long 98°20'47", McMullen County, Hydrologic Unit 12110108, on right bank at upstream side of county bridge, 0.6 mi (1.0 km) upstream from bridge on Farm Road 99, 0.8 mi (1.3 km) north of Calliham, 10.7 mi (17.2 km) downstream from San Miguel Creek, and 20.8 mi (33.5 km) upstream from mouth.

DRAINAGE AREA.--5,491 mi² (14,222 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1924 to April 1926 (monthly discharge only), April 1932 to 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.--47 years (water years 1925, 1933-78), 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of July 6, 1932, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,700 ft³/s (76.5 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 4	1500	*7,970	226	28.76	8.766	Aug. 3	2400	7,250	205	27.99	8.531

Minimum discharge, 1.1 ft³/s (0.031 m³/s) July 27.

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	40	212	92	102	89	63	42	28	27	18	154	2040
2	44	680	92	99	87	64	43	26	63	17	2080	1130
3	41	537	94	99	87	64	44	25	1900	17	5660	325
4	39	287	95	102	87	63	42	23	7040	16	6240	122
5	38	191	103	99	87	61	43	23	5630	16	3110	79
6	39	158	107	99	82	61	43	22	4850	14	952	171
7	40	122	114	99	86	61	42	21	3330	13	809	120
8	40	107	116	97	85	58	38	19	2390	11	1170	621
9	39	101	107	94	81	57	39	18	1430	9.5	1830	1320
10	41	93	104	97	79	56	37	16	1120	8.3	2030	594
11	38	92	100	95	79	54	35	15	1110	7.4	1330	233
12	36	96	97	92	81	55	35	15	805	6.7	429	190
13	37	134	94	94	81	54	45	13	294	6.1	207	238
14	39	209	94	95	80	51	93	11	165	5.6	159	1330
15	38	181	95	97	81	55	63	9.8	123	5.2	132	846
16	36	158	100	99	78	55	75	8.8	96	4.8	111	471
17	37	144	104	98	76	52	69	8.0	80	4.2	95	152
18	38	135	107	101	75	49	56	6.6	70	3.9	80	115
19	36	131	106	102	77	47	47	5.9	64	3.5	72	90
20	40	126	103	98	74	47	42	54	59	3.0	67	73
21	41	121	102	97	69	46	39	311	53	2.5	60	80
22	41	115	100	97	66	44	38	91	47	2.2	54	503
23	44	112	98	97	66	45	37	85	42	2.1	51	225
24	85	110	97	95	65	46	36	78	37	1.8	45	91
25	66	107	97	97	64	45	34	38	34	1.7	42	69
26	168	105	95	96	66	46	30	28	31	1.5	40	63
27	405	103	97	96	65	47	31	34	27	1.4	38	62
28	624	98	102	97	63	47	28	56	22	50	35	55
29	869	94	105	98	---	46	26	44	23	588	34	54
30	982	92	102	96	---	44	30	33	21	123	38	50
31	370	---	102	94	---	43	---	27	---	99	344	---
TOTAL	4471	4951	3121	3018	2156	1626	1302	1193.1	30983	1063.4	27498	11512
MEAN	144	165	101	97.4	77.0	52.5	43.4	38.5	1033	34.3	887	384
MAX	982	680	116	102	89	64	93	311	7040	588	6240	2040
MIN	36	92	92	92	63	43	26	5.9	21	1.4	34	50
AC-FT	8870	9820	6190	5990	4280	3230	2580	2370	61450	2110	54540	22830

CAL YR 1977 TOTAL 121062.0 MEAN 332 MAX 7960 MIN 36 AC-FT 240100
WTR YR 1978 TOTAL 92894.5 MEAN 255 MAX 7040 MIN 1.4 AC-FT 184300

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.

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.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,720 micromhos July 27; minimum daily, 150 micromhos Aug. 4.
WATER TEMPERATURES: Maximum daily, 31.0°C on many days during summer months; minimum daily, 8.0°C on several days during January and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)	SODIUM AD-SORP-TION RATIO
OCT											
31...	1600	238	730	7.9	23.0	230	100	73	11	59	1.7
NOV											
30...	--	92	1240	8.1	--	380	270	110	25	110	2.5
DEC											
08...	1310	114	1330	--	--	--	--	--	--	--	--
31...	1600	102	1570	8.1	14.0	490	300	150	28	130	2.6
MAR											
31...	1800	43	1780	8.0	23.0	480	310	140	31	170	3.4
APR											
30...	1800	30	1820	--	--	510	330	150	34	180	3.5
MAY											
24...	1244	78	1040	--	26.0	260	140	77	16	100	2.7
JUL											
31...	1900	61	1250	--	27.0	280	160	85	16	140	3.7
AUG											
31...	1645	570	1430	--	29.0	370	200	110	23	150	3.4
SEP											
30...	1700	50	1460	--	25.0	360	160	110	21	150	3.4

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)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
OCT										
31...	4.8	150	0	72	110	.2	13	417	--	--
NOV										
30...	3.3	130	0	170	220	.2	14	717	--	--
DEC										
08...	--	--	--	--	--	--	--	--	128	39
31...	3.5	230	0	210	270	.2	14	919	--	--
MAR										
31...	4.6	200	0	210	350	.3	8.5	1010	--	--
APR										
30...	5.6	220	0	200	350	.3	16	1040	--	--
MAY										
24...	6.6	140	0	120	170	.3	11	570	--	--
JUL										
31...	10	150	0	150	220	.2	11	706	--	--
AUG										
31...	8.8	210	0	210	230	.2	17	853	--	--
SEP										
30...	7.8	240	0	180	250	.2	16	853	--	--

08207000 FRIO RIVER AT CALLIHAM, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 25...	1230	.0	0	.00	.00	.0	.0	0	.00	.2
APR 20...	1120	.0	0	.00	.00	.0	.0	0	.00	.0
JUL 13...	1355	.0	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 25...	.00	.7	.00	.0	.00	.00	.0	.00	.00	.0
APR 20...	.00	.1	.00	.4	.02	.00	.0	.00	.00	.0
JUL 13...	.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)
JAN 25...	.00	.00	.0	.00	.0	.00	.0	.00	.00
APR 20...	.00	.00	.0	.00	.0	.00	.0	.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)
JAN 25...	.00	--	.00	0	0	.00	.00	.00	.00
APR 20...	.00	--	.00	0	0	.00	.00	.00	.00
JUL 13...	.00	.00	.00	0	0	.00	.00	.00	.00

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	4471	796	460	5600	120	1430	89	1070	240
NOV. 1977.....	4951	974	560	7530	160	2080	110	1480	290
DEC. 1977.....	3121	1500	880	7430	270	2280	200	1670	410
JAN. 1978.....	3018	1580	930	7590	290	2360	210	1720	430
FEB. 1978.....	2156	1600	940	5480	290	1700	210	1250	430
MAR. 1978.....	1626	1650	970	4270	300	1330	220	978	450
APR. 1978.....	1302	1890	1120	3940	350	1250	270	935	500
MAY 1978.....	1193.1	1380	810	2610	240	780	180	567	380
JUNE 1978.....	30983	340	200	16400	30	2490	29	2450	120
JULY 1978.....	1063.4	859	500	1440	130	382	100	288	260
AUG. 1978.....	27498	354	200	15100	34	2540	31	2310	120
SEPT 1978.....	11512	434	250	7750	46	1430	38	1190	160
TOTAL	92894.43	**	**	85100	**	20100	**	15900	**
WTD.AVG.	254.51	584	340	**	80	**	63	**	190

08207000 FRIO RIVER AT CALLIHAM, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1660	746	1340	1570	1550	1620	1800	1850	2240	1580	1150	277
2	1670	400	1390	1550	1580	1650	1840	1830	1880	1620	223	365
3	1690	446	1410	1520	1550	1630	1880	1720	304	1670	192	450
4	1660	842	1420	1540	1540	1620	1860	1690	220	1700	150	595
5	1720	855	1440	1570	1570	1600	1850	1810	278	1730	421	683
6	1670	900	1470	1580	1590	1590	1820	1860	286	1750	550	650
7	1700	922	1480	1560	1620	1580	1810	1870	307	1810	615	772
8	1740	1000	1500	1570	1580	1590	1800	1880	378	1860	414	500
9	1750	1060	1500	1580	1610	1570	1820	1900	385	1900	395	265
10	1760	1100	1490	1570	1600	1580	1830	1890	508	1940	350	400
11	1750	1150	1470	1600	1590	1590	1850	1980	510	1950	520	556
12	1720	1190	1440	1640	1620	1580	1860	1960	514	1970	809	705
13	1730	1300	1450	1620	1640	1590	1840	2010	662	2040	810	650
14	1740	1390	1470	1640	1610	1600	1800	2020	804	2090	806	250
15	1760	1300	1460	1630	1590	1610	1850	2030	865	2130	889	307
16	1770	1230	1490	1620	1620	1620	2000	2070	918	2200	918	468
17	1750	1410	1520	1590	1610	1640	2080	2100	983	2210	1030	600
18	1740	1370	1540	1580	1580	1670	1930	2120	1050	2220	1020	775
19	1750	1340	1550	1590	1600	1700	1880	2130	1110	2250	1070	978
20	1730	1300	1550	1580	1610	1720	1900	1500	1160	2330	1100	1220
21	1720	1280	1540	1570	1640	1710	1950	741	1200	2390	1160	1180
22	1730	1230	1530	1580	1660	1700	1960	869	1240	2410	1210	595
23	1690	1180	1540	1560	1640	1690	1970	890	1270	2480	1270	556
24	1260	1200	1560	1570	1620	1670	1960	1040	1330	2540	1310	750
25	1670	1230	1550	1560	1570	1710	1930	1740	1350	2590	1340	982
26	1300	1260	1560	1570	1560	1740	1950	1900	1390	2680	1390	1220
27	501	1290	1560	1580	1550	1760	1930	1880	1430	2720	1420	1450
28	496	1320	1570	1590	1590	1750	1850	1920	1490	1750	1450	1480
29	453	1340	1590	1580	---	1730	1830	1970	1510	388	1710	1500
30	400	1350	1600	1590	---	1710	1820	2100	1580	750	1700	1460
31	734	---	1580	1600	---	1720	---	2220	---	1250	1000	---
MEAN	1500	1130	1500	1580	1600	1650	1880	1790	972	1960	916	755

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.0	23.0	15.0	---	8.0	17.0	23.0	26.0	---	30.0	27.0	27.0
2	---	---	17.0	11.0	8.0	20.0	---	26.0	28.0	---	28.0	28.0
3	26.0	20.0	19.0	10.0	9.0	---	24.0	24.0	25.0	30.0	27.0	---
4	26.0	20.0	---	12.0	10.0	---	24.0	24.0	---	31.0	27.5	29.0
5	27.0	20.0	17.0	12.0	---	---	24.0	26.0	28.0	31.0	28.5	29.0
6	27.0	---	15.0	15.0	10.0	17.0	24.0	26.0	28.0	31.0	---	26.0
7	28.0	21.0	15.0	15.0	9.0	17.0	24.0	---	27.0	31.0	28.5	27.0
8	28.0	19.0	17.0	---	8.0	17.0	24.0	27.0	28.0	31.0	29.0	27.0
9	---	19.0	---	11.0	9.0	17.0	---	27.0	28.0	---	29.0	27.0
10	28.0	---	12.0	11.0	9.0	18.0	25.0	27.0	28.0	31.0	30.0	---
11	24.0	---	---	---	10.0	19.0	21.0	28.0	---	31.0	30.0	27.0
12	20.0	15.0	14.0	11.0	---	---	19.0	28.0	30.0	31.0	30.0	28.5
13	20.0	---	---	10.0	13.0	20.0	20.0	28.0	30.0	31.0	---	---
14	22.0	18.0	13.0	10.0	12.0	20.0	21.0	---	31.0	31.0	30.0	27.0
15	22.0	19.0	14.0	---	11.0	20.0	23.0	28.0	31.0	31.0	30.0	28.0
16	---	19.0	15.0	14.0	11.0	20.0	---	28.0	30.0	---	30.0	29.0
17	22.0	20.0	14.0	11.0	12.0	18.0	25.0	28.0	31.0	31.0	30.0	---
18	23.0	20.0	---	---	11.0	17.0	25.0	28.0	---	31.0	30.0	29.0
19	23.0	---	15.0	9.0	---	---	25.0	29.0	31.0	31.0	30.0	29.0
20	24.0	---	13.0	8.0	---	21.0	23.0	---	30.0	31.0	---	29.0
21	24.0	---	12.0	8.0	12.0	22.0	22.0	25.0	30.0	31.0	30.0	28.0
22	24.0	20.0	10.0	---	12.0	23.0	24.0	26.0	30.0	30.0	30.0	25.5
23	---	20.0	12.0	9.0	13.0	23.0	---	27.0	30.0	---	30.0	26.0
24	24.0	20.0	12.0	10.0	14.0	24.0	24.0	27.0	30.0	30.0	30.0	---
25	23.0	20.0	---	10.0	17.0	21.0	24.0	28.0	---	30.0	30.0	26.0
26	23.0	19.0	11.0	11.0	---	---	24.0	28.0	30.0	30.0	29.0	26.0
27	15.0	19.0	11.0	11.0	17.0	21.0	23.0	30.0	30.0	30.0	---	24.5
28	15.0	19.0	12.0	9.5	19.5	21.0	24.0	---	30.0	28.0	30.0	---
29	24.0	17.0	12.0	---	---	22.0	24.0	30.0	30.0	27.0	28.0	25.0
30	---	---	14.0	9.0	---	21.0	---	30.0	30.0	---	29.0	25.0
31	23.0	---	14.0	8.0	---	23.0	---	29.0	---	27.0	29.0	---
MEAN	23.5	19.5	14.0	10.5	11.5	20.0	23.5	27.5	29.5	30.5	29.0	27.0

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).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1924 to May 1926, May 1932 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 159.04 ft (48.475 m) National Geodetic Vertical Datum of 1929. Prior to May 8, 1926, nonrecording gage at bridge 1,200 ft (366 m) downstream at datum 1.38 ft (0.421 m) higher.

REMARKS.--Water-discharge records good. Considerable loss of flow into various permeable formations occurs upstream from station. Records from the Lower Nueces River Water Supply District indicate that during the current year the Campbellton water wells discharge 43.2 acre-ft (53,300 m³) into the Atascosa River 12 mi (19 km) upstream from this station. Small diversions above station.

AVERAGE DISCHARGE.--47 years (water years 1925, 1933-78), 137 ft³/s (3.880 m³/s), 99,260 acre-ft/yr (122 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1881, that of Sept. 23, 1967. 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)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Aug. 3	1500	*9,110	258	28.65	8.733	Sept. 14	0700	3,360	95.2	22.93	6.989

Minimum discharge, no flow for several days.

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	8.7	16	7.1	8.6	6.4	8.2	6.0	3.3	3.1	.89	190	269
2	7.7	81	8.4	8.6	7.0	7.7	6.0	2.9	2.8	.78	1500	572
3	6.9	292	9.5	8.7	7.6	8.0	5.7	4.3	403	.54	6820	311
4	6.4	135	8.2	9.0	7.3	8.7	5.6	18	1190	.14	4020	115
5	6.2	50	7.9	9.0	7.0	8.9	5.4	36	361	.07	873	96
6	6.3	29	6.9	8.8	6.4	8.0	5.4	25	53	.03	149	129
7	6.2	21	6.9	9.2	7.3	8.1	5.4	16	269	.04	92	217
8	6.1	17	7.0	8.5	9.0	7.9	5.6	11	737	.00	69	644
9	5.6	21	6.7	8.1	9.6	7.6	5.6	8.3	401	.00	59	794
10	5.5	16	6.1	7.8	11	7.8	5.6	6.8	77	.00	50	488
11	5.3	15	6.0	7.7	11	8.1	5.1	5.6	37	.00	42	323
12	4.6	15	6.4	7.4	11	7.2	5.0	4.7	24	.00	37	522
13	4.3	13	6.6	7.7	11	6.4	6.3	4.0	17	.00	34	1070
14	4.2	11	6.9	7.3	10	6.9	20	3.6	15	.00	31	3180
15	4.4	10	7.2	7.1	10	6.9	21	3.1	13	.00	27	2270
16	4.3	9.8	7.3	7.7	10	6.2	13	2.6	10	.00	23	374
17	4.0	8.9	7.1	7.7	9.9	5.9	9.1	2.6	9.5	.00	21	115
18	4.0	8.4	6.1	7.0	12	5.9	7.8	2.6	8.2	.00	19	69
19	4.1	8.1	5.6	6.7	11	5.7	6.0	2.7	7.4	.00	19	52
20	4.0	8.0	5.6	5.9	11	6.1	4.7	4.6	6.2	.00	17	43
21	3.9	7.6	5.4	5.6	10	5.7	4.5	9.1	4.6	.00	17	37
22	4.5	7.1	5.7	6.4	8.8	5.4	4.4	29	3.3	.00	16	32
23	4.5	6.8	5.9	7.0	8.9	5.1	4.3	46	3.3	.00	15	62
24	18	6.7	5.6	7.0	8.8	5.4	3.7	29	2.9	.00	14	60
25	24	7.2	5.2	6.7	9.1	6.4	3.7	16	2.2	.00	13	39
26	50	7.0	5.1	6.4	9.0	6.4	2.9	9.9	1.9	.13	12	30
27	31	8.7	4.9	6.4	8.8	6.4	2.7	7.2	1.4	.05	11	24
28	18	8.1	6.1	6.7	8.6	6.3	2.6	5.5	1.0	141	10	22
29	12	7.7	6.9	6.7	---	6.1	2.5	4.5	.89	744	10	21
30	9.7	8.0	8.0	6.4	---	5.9	3.1	7.7	.95	1090	9.4	20
31	8.4	---	8.6	5.9	---	5.9	---	5.8	---	117	202	---
TOTAL	292.8	860.1	206.9	229.7	257.5	211.2	188.7	337.4	3666.64	2094.67	14421.4	12000
MEAN	9.45	28.7	6.67	7.41	9.20	6.81	6.29	10.9	122	67.6	465	400
MAX	50	292	9.5	9.2	12	8.9	21	46	1190	1090	6820	3180
MIN	3.9	6.7	4.9	5.6	6.4	5.1	2.5	2.6	.89	.00	9.4	20
AC-FT	581	1710	410	456	511	419	374	669	7270	4150	28600	23800

CAL YR 1977 TOTAL 85801.10 MEAN 235 MAX 13200 MIN 2.9 AC-FT 170200
WTR YR 1978 TOTAL 34767.01 MEAN 95.3 MAX 6820 MIN .00 AC-FT 68960

08208000 ATASCOSA RIVER AT WHITSETT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Sediment records: September 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
DEC 08...	1535	7.0	16.0	36	.68

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.--63 years, 862 ft³/s (24.41 m³/s), 624,500 acre-ft/yr (770 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1875, that of Sept. 23, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s (170 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 5	1900	7,930	225	28.06	8.553	Aug. 5	0800	*10,800	306	31.83	9.702

Minimum discharge, 1.3 ft³/s (0.037 m³/s) July 28, 29.

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	50	299	100	126	100	71	52	39	334	43	202	1540
2	48	653	100	123	96	71	52	37	206	37	1350	2190
3	51	894	101	121	96	72	53	39	1130	34	4650	1250
4	45	622	102	119	97	72	53	33	5710	32	8220	457
5	44	339	105	118	96	72	52	47	7570	26	10400	382
6	44	207	110	115	95	74	52	61	7120	21	6310	296
7	44	160	113	112	93	74	52	51	5970	17	1530	431
8	45	134	121	111	96	70	50	40	4910	15	1170	691
9	45	124	117	110	94	68	48	33	3580	13	1620	1990
10	45	116	110	112	90	67	49	28	2180	11	2150	2090
11	44	107	129	116	91	65	47	23	2030	9.7	1900	1230
12	41	108	134	110	91	64	46	20	1960	8.7	929	1200
13	40	112	134	108	90	66	47	19	1630	7.6	386	1120
14	41	188	133	107	90	63	75	15	1380	6.4	266	3480
15	43	198	133	108	91	63	102	13	1190	6.2	206	5510
16	42	169	135	109	90	66	87	12	1130	5.6	169	3520
17	39	152	137	107	88	64	91	10	1120	5.3	142	1270
18	41	143	139	107	86	62	77	8.6	721	5.0	124	856
19	41	136	139	110	88	59	64	7.6	331	4.4	106	499
20	40	134	135	108	88	57	55	33	234	4.2	98	327
21	44	128	133	105	84	58	51	398	186	3.8	89	248
22	46	125	133	105	79	56	63	362	153	3.2	81	372
23	47	119	135	105	77	53	199	170	131	2.7	74	570
24	82	116	135	104	76	55	72	315	111	2.7	69	303
25	112	112	133	103	74	54	49	561	94	2.8	61	233
26	105	111	130	103	73	54	42	285	81	2.4	60	366
27	439	110	127	102	75	56	40	137	70	1.8	55	487
28	868	109	129	102	73	56	39	294	60	1.6	52	489
29	875	103	132	104	---	57	37	589	51	585	56	273
30	999	100	129	103	---	55	37	682	48	1300	51	175
31	757	---	126	102	---	53	---	698	---	776	85	---
TOTAL	5247	6128	3869	3395	2457	1947	1833	5060.2	51421	2994.1	42661	33845
MEAN	169	204	125	110	87.8	62.8	61.1	163	1714	96.6	1376	1128
MAX	999	894	139	126	100	74	199	698	7570	1300	10400	5510
MIN	39	100	100	102	73	53	37	7.6	48	1.6	51	175
AC-FT	10410	12150	7670	6730	4870	3860	3640	10040	102000	5940	84620	67130

CAL YR 1977 TOTAL 305033.0 MEAN 836 MAX 19100 MIN 39 AC-FT 605000
WTR YR 1978 TOTAL 160857.3 MEAN 441 MAX 10400 MIN 1.6 AC-FT 319100

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (1974-78): Maximum daily, 4,310 micromhos Jan. 17, 1977; minimum daily, 157 micromhos May 26, 1975.
WATER TEMPERATURES (1975-78): Maximum daily, 32.0°C July 31, Aug. 8, 22, 1977, July 16, 1978; minimum daily, 8.0°C Jan. 2, 1977, Jan. 23, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,350 micromhos July 28; minimum daily, 178 micromhos Aug. 4.
WATER TEMPERATURES: Maximum daily, 32.0°C July 16; minimum daily, 8.0°C Jan. 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 (JTU)	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												
19...	1100	41	1860	7.5	21.0	15	15	7.3	84	1.6	2800	120
NOV												
09...	1200	125	985	7.5	19.0	40	30	8.7	97	1.4	3300	360
DEC												
07...	1407	113	1500	7.9	15.0	15	15	9.1	93	.7	600	170
JAN												
25...	1110	103	1700	8.0	9.5	0	5	11.1	100	.8	700	32
FEB												
15...	1205	91	1820	7.9	10.5	15	8	10.1	94	.5	280	39
MAR												
15...	1155	63	1790	7.8	19.0	20	20	9.6	107	1.0	72	16
APR												
20...	1000	55	2350	7.8	22.0	20	20	7.8	92	5.2	1200	55
MAY												
11...	1045	23	1620	7.6	26.5	30	15	6.5	82	1.7	740	260
JUN												
08...	1315	4860	382	7.0	26.5	180	280	6.5	82	3.8	120000	30000
JUL												
13...	1130	7.6	1900	7.9	30.5	30	10	7.0	93	.4	190	28
AUG												
16...	1030	176	937	8.0	28.5	45	25	6.8	88	2.0	7700	370
SEP												
14...	1015	2470	320	7.6	25.0	80	640	6.0	74	3.0	--	48000

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											
19...	540	500	310	150	31	190	3.7	5.1	230	0	250
NOV											
09...	140	300	150	92	16	87	2.2	5.3	180	0	120
DEC											
07...	280	470	270	140	28	130	2.6	4.3	240	0	180
JAN											
25...	64	500	300	150	30	150	2.9	3.8	240	0	210
FEB											
15...	23	470	280	140	30	190	3.8	4.1	230	0	200
MAR											
15...	32	480	310	140	31	180	3.6	4.5	200	0	190
APR											
20...	3000	640	420	180	46	250	4.3	8.4	270	0	340
MAY											
11...	60	380	210	110	25	180	4.0	8.8	210	0	180
JUN											
08...	8400	110	36	40	3.5	33	1.3	5.7	96	0	44
JUL											
13...	16	470	260	150	22	200	4.0	11	250	0	190
AUG											
16...	210	280	83	89	14	83	2.2	7.4	240	0	97
SEP											
14...	28000	85	23	30	2.5	24	1.1	5.8	76	0	38

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 19...	330	.3	14	1110	1080	27	5	1.8	.02	1.8	.14
NOV 09...	150	.2	14	600	573	59	14	2.1	.01	2.1	.06
DEC 07...	250	.3	15	933	866	31	5	4.1	.01	4.1	.10
JAN 25...	300	.3	12	1020	974	9	0	4.8	.02	4.8	.04
FEB 15...	340	.2	10	1040	1030	19	2	4.6	.02	4.6	.01
MAR 15...	330	.3	6.0	1010	980	44	4	1.7	.00	1.7	.01
APR 20...	420	.4	14	1480	1390	48	6	1.5	.05	1.5	.19
MAY 11...	300	.3	15	957	923	12	4	1.4	.09	1.5	.19
JUN 08...	48	.2	9.7	226	231	724	112	.28	.02	.30	.05
JUL 13...	370	.3	25	1140	1090	24	2	.15	.02	.17	.03
AUG 16...	120	.2	21	565	550	45	0	.88	.02	.90	.03
SEP 14...	31	.2	15	195	184	1640	200	.29	.01	.30	.07

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 19...	.47	.61	--	.11	--	3.7	--	--	33	3.7	86
NOV 09...	.63	.69	.61	.11	.03	6.4	--	--	52	18	96
DEC 07...	.31	.41	.20	.06	.02	3.4	--	--	61	19	84
JAN 25...	.42	.46	.39	.04	.03	2.5	--	--	47	13	64
FEB 15...	.60	.61	.60	.05	.01	--	--	--	18	4.4	65
MAR 15...	.76	.77	.46	.12	.07	3.7	--	--	44	7.5	89
APR 20...	.79	.98	.78	.10	.05	4.6	--	--	56	8.3	88
MAY 11...	.74	.93	.96	.15	.10	--	--	--	31	1.9	100
JUN 08...	1.4	1.4	.76	.13	.12	18	--	--	572	7510	97
JUL 13...	.63	.66	.63	.15	.12	6.6	--	--	17	.35	94
AUG 16...	.62	.65	.57	.09	.08	--	6.3	.6	51	24	98
SEP 14...	1.0	1.1	.68	.26	.12	30	--	--	1260	8400	88

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
FEB 15...	1205	1	0	1	100	0	100	0	0	0
MAY 11...	1045	4	3	1	300	0	300	0	0	0
AUG 16...	1030	5	1	4	300	200	100	0	0	<1

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
FEB 15...	10	10	0	2	2	0	6	6	0	330
MAY 11...	0	0	10	3	2	1	3	3	0	480
AUG 16...	0	0	10	0	0	<1	9	8	1	790

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)
FEB 15...	--	0	4	2	2	40	30	10	.3	.3
MAY 11...	--	0	3	0	4	100	40	60	.0	.0
AUG 16...	780	<10	6	6	0	50	40	8	.0	.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)
FEB 15...	.0	1	0	2	0	0	0	20	10	10
MAY 11...	.0	1	1	0	0	0	0	20	10	10
AUG 16...	.0	1	1	0	0	0	0	30	30	<3

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)	ATRAZINE, TOTAL (UG/L)	ATRAZINE, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL (UG/L)
NOV 09...	1200	ND	--	--	ND	ND	ND	ND	ND	5	ND
JAN 25...	1110	.0	0	.00	.00	.0	--	--	.0	0	.00
FEB 15...	1205	ND	--	--	ND	--	ND	--	ND	--	ND
APR 20...	1000	.0	0	.00	.00	.0	--	--	.0	0	.00
MAY 11...	1045	ND	ND	--	ND	ND	ND	--	ND	ND	ND

DATE	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)	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)
NOV 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND
JAN 25...	.2	.00	1.1	.00	.0	.00	--	.00	.0	.00	.00
FEB 15...	--	ND	--	ND	--	ND	--	ND	--	--	ND
APR 20...	.0	.00	.2	.00	.0	.01	--	.00	.0	.00	.00
MAY 11...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND

DATE	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)	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)
NOV 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN 25...	.0	.00	--	.00	.0	.00	.0	.00	.0	.00	--
FEB 15...	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR 20...	.0	.00	--	.00	.0	.00	.0	.00	.0	.00	--
MAY 11...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	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)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	SIMAZINE TOTAL COULSON COND. (UG/L)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS)
NOV 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN 25...	--	--	.00	--	.00	--	.00	--	--	--
FEB 15...	ND	--	ND	--	ND	--	ND	--	ND	--
APR 20...	--	--	.00	--	.00	--	.00	--	--	--
MAY 11...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--

DATE	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-D, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN 25...	0	0	.00	--	.00	--	.00	--	.00	--
FEB 15...	ND	--	ND	--	ND	--	ND	--	ND	--
APR 20...	0	0	.00	--	.00	--	.01	--	.00	--
MAY 11...	ND	ND	ND	ND	--	--	--	--	--	--

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	NOV 9,77	MAR 15,78	MAY 11,78	JUN 8,78	JUL 13,78	AUG 16,78
TIME	1200	1155	1045	1315	1130	1030
TOTAL CELLS/ML	190	12000	300	3700	4200	47
DIVERSITY: DIVISION	1.4	0.2	1.1	0.6	0.1	1.0
.CLASS	1.4	0.2	1.1	0.6	0.1	1.0
..ORDER	1.4	0.2	1.4	0.7	0.8	1.4
...FAMILY	2.0	0.2	2.0	0.8	0.8	1.6
....GENUS	2.4	0.2	2.0	0.9	1.0	2.5

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	110	3	--	-	--	-
...MICRACTINIACEAE												
....MICRACTINIUM	--	-	--	-	--	-	57	2	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	*	0	--	-	29	1	--	-	1	3
....CHODATELLA	--	-	--	-	--	-	--	-	--	-	1	3
....DICTYOSPHAERIUM	--	-	--	-	--	-	*	0	--	-	--	-
...SCENEDESMACEAE												
....SCENEDESMUS	--	-	--	-	--	-	57	2	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	5	11
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	*	0	76#	25	29	1	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....COSCINODISCUS	--	-	--	-	--	-	--	-	--	-	1	3
....CYCLOTELLA	--	-	*	0	19	6	*	0	--	-	15#	31
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-	15#	31
..PENNALES												
...CYMBELLACEAE												
....AMPHORA	19	10	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	19	10	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	58#	30	*	0	57#	19	--	-	43	1	--	-
....PLEUROSIGMA	--	-	--	-	--	-	--	-	*	0	--	-
...NITZSCHIACEAE												
....HANTZSCHIA	--	-	--	-	--	-	*	0	--	-	--	-
....NITZSCHIA	--	-	63	1	130#	44	86	2	--	-	5	11
...SURIRELLACEAE												
....SURIRELLA	--	-	*	0	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	19	10	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCOCCALES												
...CHROCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	3200#	76	--	-
....ANACYSTIS	--	-	12000#	98	--	-	--	-	110	3	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	3300#	88	830#	20	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	58#	30	--	-	19	6	*	0	*	0	1	3
....PHACUS	--	-	--	-	--	-	--	-	--	-	1	3
....TRACHELOMONAS	19	10	*	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

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

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)	SAMPLING METHOD
OCT 19...	35	93.1	102	10.5	2.59	POLYETHYLENE STRIP
DEC 07...	28	.177	.472	.080	.000	POLYETHYLENE STRIP
APR 20...	36	79.7	98.3	90.9	18.9	POLYETHYLENE STRIP

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	5247	1040	600	8530	170	2400	120	1690	290
NOV. 1977.....	6128	964	560	9250	150	2510	110	1780	270
DEC. 1977.....	3869	1770	1020	10600	320	3350	210	2190	480
JAN. 1978.....	3395	1660	960	8820	300	2730	190	1780	450
FEB. 1978.....	2457	1710	990	6560	310	2050	200	1320	470
MAR. 1978.....	1947	1760	1010	5320	320	1670	210	1080	480
APR. 1978.....	1833	1950	1120	5550	360	1780	230	1150	530
MAY 1978.....	5060.2	1150	670	9120	190	2640	130	1800	320
JUNE 1978.....	51421	402	230	32100	49	6840	46	6350	110
JULY 1978.....	2994.1	451	260	2080	61	495	52	421	130
AUG. 1978.....	42661	395	230	26400	48	5550	45	5180	110
SEPT 1978.....	33845	428	250	22700	53	4850	49	4460	120
TOTAL	160857.25	**	**	147000	**	36900	**	29200	**
WTD.AVG.	440.7	586	340	**	85	**	67	**	170

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1670	799	1410	1670	1650	1710	1930	2050	639	1280	454	526
2	1670	723	1420	1670	1670	1720	1900	2080	718	1290	400	400
3	1720	550	1430	1660	1680	1700	1850	2010	1060	1330	214	385
4	1730	631	1450	1640	1650	1710	1880	1990	400	1370	178	450
5	1730	709	1480	1650	1690	1770	1910	1980	260	1470	224	502
6	1740	823	1500	1640	1680	1760	1950	1970	275	1530	699	590
7	1750	848	1510	1640	1690	1750	1960	2160	336	1550	702	830
8	1740	925	1530	1650	1670	1740	1960	1610	434	1580	610	667
9	1750	974	1540	1660	1700	1730	1950	1500	404	1650	427	657
10	1760	1000	1550	1650	1710	1730	1940	1440	462	1710	410	392
11	1800	1080	1660	1640	1730	1730	1950	1610	491	1750	483	429
12	1810	1090	1770	1640	1740	1730	1930	1700	455	1810	581	451
13	1830	1160	1760	1660	1740	1730	1950	1740	451	1870	386	423
14	1860	1210	1760	1670	1730	1740	1930	1800	430	1880	829	379
15	1870	1370	1900	1680	1730	1740	1900	1890	419	1900	901	251
16	1880	1400	2050	1680	1730	1730	1950	1940	414	1950	950	250
17	1830	1380	2180	1670	1730	1730	2000	1990	414	2000	1000	462
18	1840	1300	2160	1690	1730	1730	1950	2030	515	2070	1050	488
19	1860	1260	2140	1680	1740	1730	2100	2080	655	2110	1060	585
20	1840	1440	2120	1680	1730	1730	2290	2020	708	2130	1140	619
21	1830	1490	2120	1670	1700	1750	2140	1700	762	2150	1230	681
22	1840	1450	1980	1670	1710	1780	2120	1460	806	2170	1280	600
23	1830	1420	1900	1650	1710	1790	2010	1370	853	2200	1310	500
24	1700	1350	1830	1650	1720	1800	1910	1650	856	2210	1330	643
25	1410	1260	1800	1640	1750	1810	1340	1450	973	2200	1350	651
26	1770	1270	1730	1650	1720	1830	1640	1040	1030	2230	1430	619
27	1640	1270	1710	1660	1720	1820	1900	1020	1090	2270	1450	702
28	900	1340	1680	1650	1710	1810	1930	855	1140	2350	1480	530
29	750	1400	1670	1640	---	1830	1950	800	1170	400	1460	703
30	523	1400	1680	1650	---	1870	2000	682	1250	250	1490	709
31	667	---	1680	1680	---	1890	---	518	---	350	1190	---
MEAN	1630	1140	1750	1660	1710	1760	1940	1620	662	1710	893	536

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.0	24.5	17.0	11.5	9.0	17.0	23.0	26.0	29.0	30.5	26.5	26.5
2	31.0	21.5	17.0	10.5	8.5	17.5	23.5	25.0	29.0	30.0	27.0	26.0
3	28.0	20.0	17.0	10.5	9.0	16.0	24.0	23.5	27.0	31.0	26.0	28.0
4	27.0	19.0	18.0	11.0	9.0	14.0	24.0	23.0	28.0	31.0	27.0	---
5	26.5	19.0	18.0	14.0	9.5	12.5	25.0	25.0	25.0	31.5	28.0	28.0
6	26.0	20.0	16.0	15.0	10.0	15.5	24.0	25.5	27.5	31.0	28.0	27.0
7	25.5	20.0	15.0	16.0	9.5	18.0	24.5	25.0	27.0	31.0	29.0	---
8	25.5	20.0	17.0	14.0	9.0	16.5	25.0	27.0	27.0	30.5	29.0	26.0
9	26.0	19.0	13.0	12.5	9.0	16.5	24.5	27.0	27.5	31.5	29.5	26.0
10	26.0	17.5	13.0	12.0	8.5	17.5	24.0	27.0	28.0	30.5	30.0	27.0
11	24.0	16.5	12.0	10.0	9.0	18.0	21.0	28.0	29.0	30.0	30.0	27.0
12	22.0	17.0	12.5	10.5	9.5	19.5	19.5	29.0	30.0	30.0	29.0	27.5
13	21.5	16.5	15.0	10.0	13.5	21.0	20.0	29.5	30.0	30.0	30.0	27.0
14	21.5	17.0	15.0	9.5	12.5	20.0	21.0	28.0	30.5	30.5	30.0	26.0
15	21.0	18.0	14.5	10.0	11.0	20.0	22.0	27.0	30.5	31.5	30.5	27.5
16	21.5	19.0	15.0	13.0	11.0	18.5	21.5	29.5	30.5	32.0	30.5	28.0
17	20.5	19.5	15.0	12.0	12.5	18.5	23.5	28.5	30.0	31.5	30.5	28.0
18	22.0	20.0	14.0	10.0	13.5	19.0	25.5	28.5	30.0	31.0	30.5	29.0
19	22.0	20.0	15.0	9.5	10.5	20.5	24.5	29.0	30.0	30.0	30.0	29.0
20	23.0	22.0	13.5	10.0	11.5	20.5	23.0	29.5	30.0	29.0	29.0	29.0
21	23.5	20.5	11.0	8.5	11.5	21.5	23.0	27.0	30.0	29.5	29.5	29.0
22	23.0	19.5	9.5	8.5	14.0	22.0	23.5	24.0	30.0	---	29.5	28.0
23	23.0	19.5	11.5	8.0	12.5	23.0	24.0	26.5	30.5	---	30.0	28.0
24	23.0	---	12.5	9.0	13.5	22.5	24.5	27.0	30.0	---	30.0	26.0
25	23.0	18.5	---	10.0	14.5	22.0	25.0	27.0	30.0	---	29.5	27.0
26	24.0	18.5	11.0	10.0	16.0	20.5	24.0	28.0	30.0	---	29.5	26.5
27	23.0	18.5	11.5	11.0	17.0	20.0	23.0	27.0	30.5	---	30.0	25.5
28	23.5	18.5	12.5	12.0	18.0	20.5	24.5	29.0	30.5	---	30.0	24.5
29	23.0	17.5	13.0	9.5	---	21.0	24.5	30.0	30.0	---	29.5	25.0
30	24.0	17.0	13.5	9.0	---	22.0	23.5	28.5	30.0	---	29.5	26.0
31	24.5	---	14.0	9.0	---	22.0	---	29.5	---	---	28.5	---
MEAN	24.0	19.0	14.0	11.0	11.5	19.0	23.5	27.0	29.0	30.5	29.0	27.0

08210400 LAGARTO CREEK NEAR GEORGE WEST, TX

LOCATION.--Lat 28°03'34", long 98°05'48", Live Oak County, Hydrologic Unit 12110111, near right bank 75 ft (23 m) downstream from bridge on U.S. Highway 281, 0.6 mi (1.0 km) upstream from Dix Hollow, and 19.3 mi (31.1 km) south of George West.

DRAINAGE AREA.--155 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. An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--6 years, 0.33 ft³/s (0.009 m³/s), 239 acre-ft/yr (295,000 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, 6.6 ft³/s (0.19 m³/s) Aug. 31, gage height, 5.10 ft (1.554 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 1977 TO SEPTEMBER 1978
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	.40	.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	.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	.05	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	1.6	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.40	.00	1.65	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.013	.000	.053	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.40	.00	1.6	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.8	.00	3.3	.00

CAL YR 1977 TOTAL 1.06 MEAN .003 MAX .22 MIN .00 AC-FT 2.1
WTR YR 1978 TOTAL 2.05 MEAN .006 MAX 1.6 MIN .00 AC-FT 4.1

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 because of sedimentation to 39,400 acre-ft (48.6 hm³). 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 ft (400 m) north spillway has 33 gates that are operated by movable hydraulic lifts. The 1,080 ft (330 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 4,630 acre-ft (5.71 hm³) of water 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, 276,200 acre-ft (341 hm³) Aug. 7, Sept. 4, 22, elevation, 94.2 ft (28.71 m); minimum, 207,900 acre-ft (256 hm³) May 21, elevation, 90.4 ft (27.55 m).

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

90.0	201,400	93.0	253,400
91.0	217,900	94.0	272,400
92.0	235,300	95.0	292,100

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231700	238800	238800	238800	237000	235300	228200	219600	214600	264700	247900	266600
2	233500	237000	240600	237000	237000	235300	224800	217900	214600	262800	247900	270400
3	231700	238800	240600	235300	237000	237000	224800	219600	216200	262800	251600	272400
4	230000	238800	240600	235300	237000	235300	224800	216200	224800	260900	262800	274300
5	230000	238800	240600	237000	237000	233500	224800	216200	235300	260900	274300	274300
6	230000	238800	238800	237000	235300	235300	224800	216200	238800	259000	274300	272400
7	230000	238800	237000	237000	238800	237000	224800	217900	266600	259000	272400	272400
8	230000	240600	237000	237000	237000	235300	223000	217900	272400	257100	272400	272400
9	231700	240600	238800	237000	237000	235300	221300	216200	274300	257100	272400	272400
10	231700	238800	237000	237000	237000	233500	228200	214600	272400	257100	272400	272400
11	231700	238800	237000	237000	235300	235300	224800	216200	272400	255300	272400	272400
12	230000	238800	237000	237000	237000	233500	224800	214600	272400	253400	272400	272400
13	230000	238800	237000	237000	237000	233500	224800	214600	272400	253400	270400	272400
14	230000	238800	237000	237000	237000	233500	224800	214600	272400	253400	270400	274300
15	231700	238800	237000	237000	237000	235300	224800	212900	272400	251600	270400	272400
16	228200	238800	237000	238800	237000	233500	223000	212900	274300	251600	270400	272400
17	228200	238800	237000	238800	240600	231700	224800	212900	272400	249700	268500	272400
18	228200	238800	237000	240600	238800	231700	223000	211200	272400	249700	268500	272400
19	228200	238800	237000	238800	237000	230000	223000	211200	272400	249700	268500	272400
20	226500	238800	237000	237000	238800	231700	223000	211200	272400	247900	268500	272400
21	226500	240600	237000	237000	237000	231700	221300	211200	270400	247900	268500	272400
22	228200	238800	237000	237000	235300	230000	223000	211200	270400	247900	268500	272400
23	228200	238800	237000	237000	237000	230000	221300	211200	270400	247900	266600	272400
24	228200	240600	237000	237000	237000	231700	221300	211200	268500	246100	266600	272400
25	228200	238800	237000	235300	237000	231700	221300	211200	268500	246100	266600	272400
26	228200	238800	235300	235300	235300	230000	221300	211200	266600	244200	266600	272400
27	228200	238800	235300	237000	235300	228200	219600	211200	266600	244200	266600	272400
28	230000	238800	235300	237000	235300	228200	219600	211200	266600	244200	266600	272400
29	231700	238800	235300	237000	---	228200	219600	212900	266600	244200	266600	272400
30	231700	238800	237000	237000	---	228200	219600	212900	264700	246100	264700	270400
31	233500	---	235300	237000	---	226500	---	212900	---	247900	264700	---
MAX	233500	240600	240600	240600	240600	237000	228200	219600	274300	264700	274300	274300
MIN	226500	237000	235300	235300	235300	226500	219600	211200	214600	244200	247900	266600
(†)	91.9	92.2	92.0	92.1	92.0	91.5	91.1	90.7	93.6	92.7	93.6	93.9
(‡)	+1800	+5300	-3500	+1700	-1700	-8800	-6900	-6700	+51800	-16800	+16800	+5700

CAL YR 1977 MAX 276200 MIN 226500 ‡ -37100
WTR YR 1978 MAX 274300 MIN 211200 ‡ +38700

† 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.--39 years, 860 ft³/s (24.36 m³/s), 623,100 acre-ft/yr (768 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1888, that of Sept. 24, 1967. 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, 8,700 ft³/s (246 m³/s) Aug. 6, gage height, 25.78 ft (7.858 m); minimum daily, 72 ft³/s (2.04 m³/s) Dec. 13.

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	112	102	104	104	92	92	101	103	136	132	108	103
2	88	85	104	79	86	100	101	110	94	132	353	124
3	122	102	91	82	86	91	118	118	125	132	1140	250
4	146	102	81	98	86	91	172	99	123	131	1280	310
5	102	101	109	99	98	89	134	116	123	146	1850	471
6	99	100	105	92	98	99	134	127	166	171	7690	571
7	108	101	100	87	94	107	134	116	324	184	4960	494
8	129	119	101	100	88	113	119	98	2940	161	1120	298
9	143	124	103	101	88	113	101	115	4210	140	1130	1100
10	105	110	100	100	87	102	117	186	2360	140	1590	2620
11	112	105	101	95	86	102	131	141	1670	162	1990	1890
12	118	101	84	90	109	111	116	96	2340	170	1190	1130
13	114	96	72	90	107	136	100	95	2100	160	387	1100
14	107	87	109	90	92	116	100	115	988	160	187	1850
15	120	117	123	90	83	104	109	171	673	160	150	5610
16	120	128	100	104	82	101	129	115	685	160	147	5380
17	120	118	100	103	89	104	128	142	723	159	144	1960
18	125	102	100	104	87	116	113	173	762	159	143	1070
19	134	102	100	120	84	132	102	146	524	158	149	279
20	115	102	87	88	84	148	116	128	289	164	155	265
21	103	100	98	85	93	133	129	162	238	168	143	289
22	108	99	149	93	102	142	124	124	219	156	148	353
23	97	99	112	99	103	137	99	121	208	156	120	494
24	75	92	105	105	98	134	99	160	205	155	120	540
25	108	85	105	155	92	133	98	222	203	151	126	286
26	147	100	105	84	92	131	98	179	201	156	132	222
27	119	114	97	86	91	132	113	128	179	184	127	277
28	99	111	91	79	90	128	129	128	163	105	133	298
29	105	114	91	73	---	130	129	156	145	145	134	217
30	105	98	98	93	---	136	121	174	132	171	121	185
31	107	---	102	101	---	125	---	176	---	125	114	---
TOTAL	3512	3116	3127	2969	2567	3628	3514	4240	23248	4753	27281	30036
MEAN	113	104	101	95.8	91.7	117	117	137	775	153	880	1001
MAX	147	128	149	155	109	148	172	222	4210	184	7690	5610
MIN	75	85	72	73	82	89	98	95	94	105	108	103
AC-FT	6970	6180	6200	5890	5090	7200	6970	8410	46110	9430	54110	59580

CAL YR 1977	TOTAL	266578	MEAN 730	MAX	15600	MIN 44	AC-FT	528800
WTR YR 1978	TOTAL	111991	MEAN 307	MAX	7690	MIN 72	AC-FT	222100

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.

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, 1,060 micromhos May 30, 31; minimum daily, 760 micromhos Oct. 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 26...	1600	155	807	8.1	220	100	68	12	78
DEC 25...	1600	105	889	8.2	240	110	73	13	83
FEB 26...	1600	93	930	--	240	120	74	14	85
APR 20...	1600	128	991	--	260	140	80	15	99
JUN 29...	1600	132	1040	--	260	130	80	14	99
JUL 16...	1600	160	1000	--	240	120	72	14	100
AUG 17...	1630	145	897	--	220	110	65	13	95
SEP 25...	1600	263	794	--	190	76	60	10	72

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 26...	2.3	7.2	140	0	64	150	.2	43	491
DEC 25...	2.4	7.1	150	0	75	160	.2	15	500
FEB 26...	2.4	7.3	150	0	77	170	.2	14	515
APR 20...	2.7	7.9	150	0	86	190	.2	14	566
JUN 29...	2.7	7.4	150	0	92	200	.2	14	581
JUL 16...	2.8	7.3	140	0	87	190	.2	14	554
AUG 17...	2.8	8.1	130	0	84	170	.2	15	514
SEP 25...	2.3	7.9	140	0	66	130	.2	14	429

08211000 NUECES RIVER NEAR MATHIS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	3512	788	450	4290	130	1190	62	588	220
NOV. 1977.....	3116	839	480	4040	140	1210	67	566	230
DEC. 1977.....	3127	883	500	4250	160	1330	72	606	230
JAN. 1978.....	2969	915	520	4170	170	1360	75	602	240
FEB. 1978.....	2567	927	530	3660	170	1180	76	529	240
MAR. 1978.....	3628	956	540	5320	180	1780	80	780	240
APR. 1978.....	3514	986	560	5300	190	1820	83	784	250
MAY 1978.....	4240	1030	580	6680	210	2360	87	1000	250
JUNE 1978.....	23248	1030	580	36600	210	13100	87	5470	250
JULY 1978.....	4753	999	570	7250	200	2520	84	1080	250
AUG. 1978.....	27281	905	510	37900	160	12100	74	5480	240
SEPT 1978.....	30036	820	470	38200	140	11200	65	5280	220
TOTAL	111991	**	**	158000	**	51100	**	22800	**
WTD.AVG.	306.82	916	520	**	170	**	75	**	240

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	767	815	862	895	926	940	965	1000	1010	1000	957	875
2	760	821	859	902	922	940	969	987	973	1010	957	865
3	768	821	859	902	926	940	961	1010	1020	1010	940	862
4	763	827	859	902	926	944	965	1010	1030	1030	940	858
5	768	824	859	902	922	944	974	1010	1020	1030	928	868
6	768	824	866	906	926	948	982	1010	1030	1020	902	839
7	777	827	866	906	922	948	982	1020	1000	1020	880	852
8	777	833	866	906	926	948	982	1020	1010	1020	898	862
9	768	827	873	908	929	953	978	1010	1030	1010	898	858
10	786	833	880.	908	929	948	987	1020	1040	1010	891	852
11	789	827	876	910	926	948	991	1010	1030	1010	913	858
12	793	828	877	913	926	948	987	1010	1040	1010	913	846
13	780	831	874	917	926	948	987	1020	1030	1010	924	840
14	791	834	881	917	934	953	987	1040	1030	1000	924	830
15	778	834	881	917	926	948	982	1020	1030	1000	917	818
16	783	837	888	913	922	953	991	1020	1050	1000	917	792
17	787	834	888	917	926	953	991	1020	1040	991	917	789
18	783	834	888	913	930	953	969	1030	1040	996	909	789
19	791	850	891	913	930	957	991	1050	1040	987	905	798
20	801	863	894	917	929	961	991	1050	1040	991	898	798
21	806	859	894	917	926	961	991	1050	1040	987	905	797
22	809	853	892	917	926	961	991	1050	1040	996	917	797
23	806	856	892	951	926	957	996	1050	1040	987	901	786
24	801	853	892	921	930	961	996	1050	1040	987	909	792
25	807	853	892	921	930	965	996	1050	1040	991	905	794
26	807	850	895	924	930	965	996	1050	1040	991	905	794
27	807	853	899	943	930	965	1000	1050	1040	996	901	792
28	804	853	902	921	930	974	996	1050	1040	987	894	780
29	804	853	902	924	---	974	1000	1050	1040	991	898	776
30	809	863	902	921	---	974	1000	1060	1030	996	898	772
31	814	---	906	917	---	974	---	1060	---	888	891	---
MEAN	789	839	882	915	927	955	986	1030	1030	998	911	821

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.--6 years, 34.2 ft³/s (0.969 m³/s), 24,780 acre-ft/yr (30.6 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1919, that of Oct. 12, 1973. 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 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)
June 2	2200	1,160	32.9	15.86	4.834	Sept. 11	2400	*2,290	64.9	20.74	6.322
June 7	2200	1,660	47.0	18.38	5.602	Sept. 24	0800	2,110	59.8	20.16	6.145
Sept. 6	2000	642	18.2	12.35	3.764						

Minimum discharge, 0.88 ft³/s (0.025 m³/s) Apr. 18-21.

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	2.2	9.2	1.9	1.9	2.0	2.3	1.9	1.9	66	1.8	17	4.4
2	1.7	13	1.8	3.5	2.0	3.0	3.8	1.8	865	1.9	12	4.2
3	1.9	25	1.8	2.4	2.1	2.1	6.3	1.8	832	1.9	9.0	7.0
4	1.9	13	1.8	2.2	2.0	1.7	3.1	2.0	328	1.7	4.9	8.1
5	1.8	6.3	1.8	2.3	2.0	1.5	2.9	2.6	90	2.0	3.0	31
6	1.8	3.8	1.7	2.2	1.9	2.3	2.0	2.3	25	2.1	2.2	222
7	1.7	2.8	1.6	2.1	2.9	1.6	2.1	2.0	856	2.3	2.2	454
8	1.7	3.1	1.7	1.9	2.8	1.6	3.2	1.8	993	1.8	2.1	235
9	3.8	2.3	1.6	1.9	2.8	1.6	3.8	1.9	215	1.7	2.1	217
10	5.4	2.2	1.6	1.9	2.5	1.6	3.0	1.9	55	1.6	2.1	110
11	18	2.3	1.9	3.6	2.7	1.6	1.3	2.0	24	1.6	2.2	523
12	12	2.2	1.8	3.0	2.6	1.4	4.2	1.9	12	1.7	2.3	1460
13	9.9	2.1	1.8	2.8	2.0	1.7	2.4	1.7	6.7	1.6	2.6	431
14	5.9	2.0	1.8	2.4	1.8	1.4	1.8	1.5	4.6	1.6	2.9	112
15	3.8	1.9	1.8	2.3	2.3	1.3	1.3	1.4	3.4	1.6	2.8	34
16	2.7	1.7	1.9	2.3	2.2	1.2	1.1	1.5	2.6	1.5	2.4	14
17	2.2	2.0	2.1	2.0	2.3	1.2	1.4	1.7	2.2	1.4	2.2	8.0
18	2.0	2.4	2.1	2.3	1.9	1.3	.92	1.8	2.0	1.3	2.3	5.2
19	2.0	2.2	1.9	2.1	1.9	1.5	.92	1.6	2.0	1.2	1.7	3.7
20	2.2	1.9	1.8	2.0	1.8	2.6	.90	2.0	2.0	1.3	1.7	2.9
21	2.2	6.3	1.7	2.0	1.7	1.7	.90	1.5	1.9	1.3	3.1	2.6
22	8.0	2.8	1.6	2.0	1.7	1.5	8.7	1.5	1.8	1.3	1.7	2.9
23	24	2.7	1.6	2.0	1.7	2.9	38	1.4	1.8	1.2	1.8	572
24	26	2.8	1.7	2.0	1.7	1.6	29	1.6	1.7	1.2	2.2	1380
25	14	2.3	1.7	2.0	1.8	1.2	12	2.0	1.9	1.6	2.3	320
26	17	2.0	1.7	1.9	1.6	1.1	5.2	1.7	2.6	1.5	2.3	83
27	9.5	2.0	1.7	1.9	1.8	1.1	2.5	1.6	2.1	1.3	2.1	29
28	5.6	2.0	1.7	1.7	1.8	1.3	2.3	1.2	1.8	1.3	2.0	16
29	3.5	2.0	1.7	1.7	---	1.3	2.2	1.2	1.8	1.2	1.9	13
30	2.6	1.9	1.8	1.8	---	1.3	2.0	1.1	1.8	1.6	2.1	9.4
31	2.2	---	1.8	1.9	---	1.1	---	1.1	---	39	3.9	---
TOTAL	199.2	128.2	54.9	68.0	58.3	50.6	151.14	53.0	4405.7	86.1	105.1	6314.4
MEAN	6.43	4.27	1.77	2.19	2.08	1.63	5.04	1.71	147	2.78	3.39	210
MAX	26	25	2.1	3.6	2.9	3.0	38	2.6	993	39	17	1460
MIN	1.7	1.7	1.6	1.7	1.6	1.1	.90	1.1	1.7	1.2	1.7	2.6
AC-FT	395	254	109	135	116	100	300	105	8740	171	208	12520

CAL YR 1977 TOTAL 6143.08 MEAN 16.8 MAX 1600 MIN .62 AC-FT 12180
WTR YR 1978 TOTAL 11674.64 MEAN 32.0 MAX 1460 MIN .90 AC-FT 23160

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 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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 17...	1350	2.0	4450	7.7	23.5	35	8.2	99	3.1	700	580
NOV 28...	1315	2.0	5850	7.7	22.5	50	7.8	92	2.5	920	810
JAN 09...	1250	1.9	4380	7.6	10.0	40	11.5	106	6.7	790	670
FEB 23...	1400	1.7	6000	8.3	15.5	20	13.1	135	4.3	950	800
APR 03...	1340	6.3	6200	8.3	25.5	45	11.7	146	15	920	770
MAY 15...	1315	1.4	3170	8.2	26.5	35	9.7	123	11	750	600
JUN 22...	1445	1.8	7200	8.4	32.0	20	10.5	144	5.4	1200	1000
AUG 09...	1630	2.2	4700	7.8	30.5	40	4.4	60	7.8	710	550
SEP 18...	1330	4.8	4190	7.7	29.0	25	7.4	9	3.2	780	600

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 17...	220	37	630	10	13	150	0	170	1200	.2	17
NOV 28...	280	54	880	13	18	140	0	220	1700	.2	16
JAN 09...	240	47	740	11	18	150	0	330	1400	.3	14
FEB 23...	290	55	900	13	19	180	0	250	1800	.3	8.9
APR 03...	280	54	1100	16	24	190	0	260	2000	.5	10
MAY 15...	230	43	640	10	20	180	0	240	1300	.4	14
JUN 22...	360	67	1100	14	21	190	4	280	2200	.3	13
AUG 09...	230	32	690	11	16	190	0	200	1300	.3	19
SEP 18...	250	37	560	8.7	13	210	0	160	1200	.2	27

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 17...	2360	83	1.7	.04	1.7	.19	.75	.94	4.0	9.2
NOV 28...	3240	97	9.1	.13	9.2	.31	.79	1.1	5.6	9.2
JAN 09...	2860	126	14	.17	14	.18	1.2	1.4	5.3	12
FEB 23...	3410	48	1.9	.16	2.1	.30	1.5	1.8	4.6	15
APR 03...	3820	102	1.3	.33	1.6	.41	2.5	2.9	3.9	14
MAY 15...	2580	94	3.7	.90	4.6	.25	2.5	2.7	3.1	16
JUN 22...	4140	40	.21	.06	.27	.12	1.7	1.8	.52	11
AUG 09...	2580	89	1.2	.17	1.4	.10	1.9	2.0	2.9	16
SEP 18...	2350	60	.74	.04	.78	.15	1.1	1.2	.72	8.0

08211520 OSO CREEK AT CORPUS CHRISTI, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 28...	1315	14	1000	2	0	5	30
FEB 23...	1400	8	400	0	0	2	20
MAY 15...	1315	17	300	0	20	2	30
SEP 18...	1330	59	200	0	10	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)
NOV 28...	1	580	.0	0	0	20
FEB 23...	0	720	.0	0	0	10
MAY 15...	0	400	.0	0	0	20
SEP 18...	0	850	.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)
FEB 23...	1400	.0	0	.00	.00	.0	.0	0	.00	2.7

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)
FEB 23...	.00	2.9	.00	1.0	.12	.00	.2	.00	.00

DATE	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)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)
FEB 23...	.0	.00	.00	.0	.00	.0	.14	.3	.00

DATE	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)
FEB 23...	.00	.00	.00	0	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.--WDR 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.--15 years, 11.3 ft³/s (0.320 m³/s), 8,190 acre-ft/yr (10.1 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, 80 ft³/s (2.27 m³/s) June 8, gage height, 4.75 ft (1.448 m), no peak above base of 250 ft³/s (7.08 m³/s); no flow at times.

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	5.4	.45	.38	.13	.27	.00	.00	.00	.02	.00	2.9
2	.00	6.6	.40	.65	.14	.25	.00	.01	.01	.02	9.6	2.4
3	.14	2.5	.35	.39	.12	.22	.00	.04	3.3	.00	15	.43
4	.04	.45	.33	.64	.12	.23	.00	.01	15	.00	3.4	.11
5	.03	.13	.29	.52	.14	.19	.00	.01	2.5	.00	1.3	.11
6	.02	.08	.27	.41	.15	.31	.00	.00	.88	.00	.55	.44
7	.01	.06	.33	.41	.34	.29	.00	.00	23	.00	.25	.40
8	.01	.09	.34	.35	.28	.17	.00	.00	52	.00	1.1	5.0
9	.12	.05	.25	.34	.25	.16	.00	.00	19	.00	.99	2.7
10	.08	.05	.26	.38	.23	.19	.01	.05	5.9	.00	.20	5.9
11	.12	.07	.31	.78	.23	.19	.00	.04	1.6	.00	.09	19
12	.09	.05	.33	.74	.22	.16	.14	.01	.83	.00	.03	17
13	.05	.07	.29	.63	.17	.15	.05	.00	.47	.00	.00	6.6
14	.06	.12	.30	.66	.15	.13	.21	.00	.27	.00	.00	2.1
15	.04	.12	.31	.87	.23	.17	.14	.00	.20	.00	.00	.78
16	.03	.10	.34	.90	.25	.16	.15	.00	.15	.00	.00	.41
17	.04	.10	.33	.96	.31	.13	.09	.00	.13	.00	.00	.26
18	.05	.12	.28	1.2	.24	.06	.05	.00	.07	.00	.00	.15
19	.04	.08	.32	.99	.24	.03	.03	.00	.08	.00	.00	.07
20	.03	.09	.23	.87	.26	.05	.02	.00	.11	.00	.00	.04
21	.06	.10	.24	.53	.24	.05	.01	.00	.06	.00	.00	.19
22	.04	.09	.24	.30	.23	.02	.01	.15	.07	.00	.00	.24
23	1.7	.10	.22	.23	.23	.01	.02	.33	.07	.00	.00	.78
24	2.2	.15	.22	.18	.18	.00	.01	.11	.06	.00	.00	5.2
25	1.2	.14	.24	.16	.28	.00	.01	.04	.05	.00	.00	13
26	1.8	.16	.23	.09	.20	.00	.00	.02	.02	.00	.00	7.8
27	.65	.20	.27	.07	.25	.00	.00	.01	.01	.00	.00	2.6
28	.37	.16	.28	.07	.28	.00	.00	.00	.00	.00	.00	1.5
29	.14	1.1	.31	.09	---	.00	.00	.00	.00	.00	.00	.76
30	.09	.36	.32	.08	---	.00	.00	.00	.00	.00	.30	.33
31	.23	---	.35	.11	---	.00	---	.00	---	.00	1.5	---
TOTAL	9.48	18.89	9.23	14.98	6.09	3.59	.95	.83	125.84	.04	34.31	99.20
MEAN	.31	.63	.30	.48	.22	.12	.032	.027	4.19	.001	1.11	3.31
MAX	2.2	6.6	.45	1.2	.34	.31	.21	.33	52	.02	15	19
MIN	.00	.05	.22	.07	.12	.00	.00	.00	.00	.00	.00	.04
AC-FT	19	37	18	30	12	7.1	1.9	1.6	250	.08	68	197

CAL YR 1977 TOTAL 453.92 MEAN 1.24 MAX 18 MIN .00 AC-FT 900
WTR YR 1978 TOTAL 323.43 MEAN .89 MAX 52 MIN .00 AC-FT 642

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. Records furnished by the city of Alice show that 5,440 acre-ft (6.71 hm³) was diverted during the current year for municipal use. Records furnished by the city of Corpus Christi show that 4,630 acre-ft (5.71 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, 754 acre-ft (0.930 hm³) Jan. 16, 18, 19, elevation, 192.00 ft (58.522 m); minimum, 61.2 acre-ft (0.075 hm³) Aug. 30, elevation, 188.62 ft (57.491 m).

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

188.5	56.2	190.5	288
189.0	82.2	191.0	423
189.5	127	192.0	754
190.0	195	193.0	1,160

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	189	519	598	669	532	423	305	256	180	239.0	79.2	73.2
2	186	561	598	676	513	429	303	256	195	235.0	81.0	76.8
3	192	565	604	680	497	429	295	254	211	230.0	82.2	79.2
4	197	561	611	687	481	432	295	250	210	225.0	84.3	78.0
5	200	565	608	694	466	423	286	248	206	221.0	87.1	73.2
6	202	565	608	697	447	432	288	252	192	213.0	85.7	72.6
7	205	565	604	708	438	438	279	258	535	206.0	87.8	78.0
8	203	575	611	697	426	426	273	256	673	202.0	96.4	79.8
9	205	568	604	694	412	417	277	250	676	195.0	101.0	85.7
10	200	565	604	708	391	389	282	241	652	186.0	104.0	110.0
11	203	558	614	722	369	391	291	241	621	179.0	104.0	117.0
12	202	558	621	729	366	369	310	241	598	166.0	103.0	121.0
13	202	561	628	736	352	366	320	232	571	159.0	103.0	122.0
14	208	568	628	740	352	347	320	230	539	152.0	102.0	125.0
15	215	565	628	736	363	352	328	220	507	147.0	99.0	125.0
16	208	545	638	751	361	344	320	215	472	136.0	94.8	126.0
17	197	529	631	743	375	338	325	208	444	126.0	91.6	127.0
18	183	516	635	751	377	333	325	203	414	121.0	87.8	128.0
19	183	523	635	736	377	333	320	194	386	113.0	85.7	128.0
20	183	529	631	718	389	330	312	200	361	109.0	83.6	128.0
21	183	542	628	701	389	338	307	208	336	105.0	87.1	131.0
22	179	542	628	687	391	333	307	211	298	103.0	85.7	138.0
23	375	551	635	669	403	330	293	215	273	102.0	82.9	147.0
24	406	558	641	655	403	336	279	211	271	106.0	81.6	154.0
25	400	558	635	638	409	333	279	210	262	104.0	81.6	161.0
26	383	561	638	618	409	323	266	210	252	105.0	76.8	165.0
27	375	565	641	601	412	325	260	203	248	99.0	70.2	166.0
28	380	565	645	581	420	320	254	198	248	94.8	67.7	165.0
29	383	584	648	568	---	320	258	195	241	84.3	68.2	170.0
30	383	591	648	548	---	320	260	191	235	76.8	67.7	176.0
31	389	---	659	539	---	312	---	182	---	73.8	72.6	---
MAX	406	591	659	751	532	438	328	258	676	239	104	176
MIN	179	516	598	539	352	312	254	182	180	73	67	72
(†)	190.88	191.53	191.73	191.37	190.99	190.60	190.37	189.91	190.24	188.86	188.84	189.87
(‡)	+197	+202	+68	-120	-119	-108	-52	-78	+53	-161.2	-1.2	+103.4

CAL YR 1977 MAX 2760 MIN 179 ‡ -2061
WTR YR 1978 MAX 751 MIN 67 ‡ -16

† 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 San Diego Creek at Alice (station 08211800). Records furnished by city of Alice show that 3,260 acre-ft (4.02 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.--13 years (water years 1966-78), 29.3 ft³/s (0.830 m³/s), 21,230 acre-ft/yr (26.2 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1949, that of Sept. 12, 1971. Other high stages for this period are 15.86 ft (4.834 m) Sept. 23, 1967, discharge 16,900 ft³/s (479 m³/s); 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, 195 ft³/s (5.52 m³/s) June 7, gage height, 3.69 ft (1.125 m); no flow Sept. 17, 18.

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	1.5	1.8	2.4	2.0	1.3	1.7	1.6	1.7	1.9	1.5	1.0	1.9
2	1.5	40	2.1	2.0	1.4	1.7	1.7	1.9	1.8	1.3	1.6	2.1
3	2.0	8.6	2.0	2.8	1.5	1.7	1.6	2.0	2.1	1.4	18	2.5
4	1.8	3.9	1.9	2.6	1.2	1.5	2.1	1.9	5.7	1.4	5.7	2.1
5	1.8	2.9	2.0	2.4	1.5	1.5	1.8	1.8	3.8	1.3	3.3	1.8
6	1.7	1.8	2.3	2.6	1.2	1.8	2.1	2.0	2.7	1.4	2.5	1.9
7	1.8	1.7	1.8	2.2	1.5	1.7	1.6	1.7	60	1.4	2.3	1.9
8	1.6	1.8	2.4	2.0	1.4	1.8	1.8	2.0	103	1.3	2.6	1.9
9	1.7	1.7	2.0	2.1	1.3	1.7	2.0	1.9	23	.99	2.8	3.0
10	1.6	1.8	1.9	2.2	1.2	1.9	1.8	1.9	5.2	1.2	2.3	4.2
11	1.7	1.9	2.2	2.2	1.4	2.1	2.2	1.9	2.8	.90	1.3	6.1
12	1.6	2.0	2.2	2.0	1.5	1.8	2.8	1.8	2.1	1.2	1.8	9.8
13	1.7	1.9	2.3	1.9	1.4	1.8	2.5	1.9	1.9	1.1	1.7	3.9
14	1.7	1.8	2.3	1.7	1.4	1.8	2.2	1.8	1.7	1.1	1.8	2.0
15	1.6	2.0	2.2	1.7	1.4	1.4	2.3	2.0	2.0	1.4	1.6	1.2
16	1.6	1.8	2.3	2.0	1.6	1.3	2.4	1.8	1.6	1.5	1.4	.75
17	1.5	2.0	2.1	1.6	2.1	1.4	1.8	1.8	1.4	1.4	1.7	.34
18	1.4	1.9	2.0	1.7	2.3	1.6	1.9	1.7	1.3	1.0	1.7	.53
19	1.4	1.8	2.2	1.6	2.2	1.7	1.7	1.9	1.2	.92	1.4	1.9
20	1.4	2.1	2.0	1.6	2.1	1.4	1.6	2.0	1.2	1.2	1.8	1.9
21	1.5	2.3	2.2	1.5	2.2	1.3	1.7	1.9	1.2	1.2	1.8	1.5
22	1.5	6.2	2.1	1.5	2.0	1.2	2.1	1.8	1.2	1.4	1.5	2.0
23	6.2	3.0	2.1	1.6	1.5	1.1	1.9	1.9	1.2	1.5	1.2	3.0
24	10	2.2	2.2	1.5	2.0	1.2	1.8	2.2	1.4	1.5	1.8	3.0
25	4.0	2.2	2.2	1.6	1.5	1.1	2.2	2.1	1.2	1.2	1.6	7.4
26	2.6	2.2	1.9	1.6	1.3	1.1	2.1	1.8	1.0	1.1	1.3	8.4
27	2.2	2.0	2.2	1.3	1.6	1.0	1.9	1.6	1.2	1.4	1.8	4.8
28	1.7	1.9	2.1	1.3	1.7	1.1	1.9	1.7	1.1	1.5	1.6	3.3
29	1.5	2.3	2.4	1.3	---	1.1	1.9	1.7	.97	1.5	1.3	2.7
30	1.3	2.7	2.3	1.4	---	1.3	2.0	1.7	1.3	1.5	1.9	2.3
31	1.2	---	2.2	1.5	---	1.9	---	1.9	---	1.2	2.0	---
TOTAL	66.3	112.2	66.5	57.0	44.7	46.7	59.0	57.7	238.17	39.91	76.1	90.12
MEAN	2.14	3.74	2.15	1.84	1.60	1.51	1.97	1.86	7.94	1.29	2.45	3.00
MAX	10	40	2.4	2.8	2.3	2.1	2.8	2.2	103	1.5	18	9.8
MIN	1.2	1.7	1.8	1.3	1.2	1.0	1.6	1.6	.97	.90	1.0	.34
AC-FT	132	223	132	113	89	93	117	114	472	79	151	179

CAL YR 1977 TOTAL 1161.92 MEAN 3.18 MAX 40 MIN .54 AC-FT 2300
WTR YR 1978 TOTAL 954.40 MEAN 2.61 MAX 103 MIN .34 AC-FT 1890

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.--11 years, 5.69 ft³/s (0.161 m³/s), 0.16 in/yr (4 mm/yr), 4,120 acre-ft/yr (5.08 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 ft); 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 Texas Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 118 ft³/s (3.34 m³/s) Sept. 26, 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.52
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.0
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	50
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	100
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	29
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	14
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	9.1
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	2.1
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	208.72
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	6.96
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	100
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.02
IN.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	414

CAL YR 1977 TOTAL 106.30 MEAN .29 MAX 71 MIN .00 CFSM .001 IN .01 AC-FT 211
WTR YR 1978 TOTAL 208.73 MEAN .57 MAX 100 MIN .00 CFSM .001 IN .02 AC-FT 414

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,380 micromhos July 5, 1976; minimum daily, 69 micromhos July 16, 1975.
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, 5,000 micromhos June 1; minimum daily, 125 micromhos Sept. 25.

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	0	*******	*******	0	*******	0	*******	0	****
NOV. 1977.....	0	*******	*******	0	*******	0	*******	0	****
DEC. 1977.....	0	*******	*******	0	*******	0	*******	0	****
JAN. 1978.....	0	*******	*******	0	*******	0	*******	0	****
FEB. 1978.....	0	*******	*******	0	*******	0	*******	0	****
MAR. 1978.....	0	*******	*******	0	*******	0	*******	0	****
APR. 1978.....	0	*******	*******	0	*******	0	*******	0	****
MAY 1978.....	0	*******	*******	0	*******	0	*******	0	****
JUNE 1978.....	0	5000	3530	0.09	840	0.02	1290	0.03	880
JULY 1978.....	0	*******	*******	0	*******	0	*******	0	****
AUG. 1978.....	0	*******	*******	0	*******	0	*******	0	****
SEPT 1978.....	208.72	153	97	55	13	7.4	18	9.8	33
TOTAL	208.73	**	**	55.1	**	7.42	**	9.83	**
WTD.AVG.	0.57	153	97	**	13	**	18	**	33

08212400 LOS OLMOS CREEK NEAR FALFURRIAS, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									5000			---
2									---			---
3									---			---
4									---			---
5									---			---
6									---			---
7									---			---
8									---			---
9									---			---
10									---			---
11									---			---
12									---			---
13									---			---
14									---			---
15									---			---
16									---			---
17									---			---
18									---			---
19									---			---
20									---			---
21									---			---
22									---			---
23									---			750
24									---			250
25									---			125
26									---			150
27									---			179
28									---			165
29									---			152
30									---			156
31									---			---
MEAN									5000			241

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1												---
2												---
3												---
4												---
5												---
6												---
7												---
8												---
9												---
10												---
11												---
12												---
13												---
14												---
15												---
16												---
17												---
18												---
19												---
20												---
21												---
22												---
23												---
24												26.0
25												29.0
26												30.0
27												25.0
28												---
29												23.0
30												24.0
31												---
MEAN												26.0

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 mi^2 (75,802 km^2).

PERIOD OF RECORD.--Chemical analyses: February 1930 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. 47 and 48.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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										
17...	0800	575	2340	8.2	12.0	--	--	--	--	440
NOV										
18...	0810	47	2430	8.3	9.5	--	--	--	--	460
DEC										
19...	0800	48	2960	8.1	6.5	--	--	--	--	490
JAN										
16...	0810	43	2780	8.0	6.5	--	--	--	--	470
19...	1111	37	3200	8.2	2.0	15	12.7	270	2800	470
FEB										
15...	1551	26	3160	8.1	13.5	10	10.6	77	260	480
21...	0800	16	3220	8.1	5.5	--	--	--	--	510
MAR										
20...	0800	483	1540	7.5	9.0	--	--	--	--	340
21...	1634	490	1370	8.4	17.5	140	9.2	270	1600	340
APR										
17...	0800	208	1380	7.9	14.5	--	--	--	--	280
18...	1618	140	1400	8.4	22.0	40	9.2	30	160	310
MAY										
15...	0900	18	4040	8.0	18.0	--	--	--	--	510
16...	1551	20	4200	8.3	26.5	--	10.2	130	130	540
JUN										
13...	1313	500	1220	8.4	25.0	--	8.9	300	330	290
19...	0900	562	1150	7.6	21.0	--	--	--	--	250
JUL										
17...	0900	527	1010	8.0	28.0	--	--	--	--	240
19...	1234	572	1010	8.4	26.0	--	7.3	350	200	250
AUG										
14...	0825	858	867	7.6	25.5	--	--	--	--	210
15...	1415	719	820	8.4	27.5	--	7.3	470	380	230
SEP										
12...	1712	315	969	8.4	26.5	--	8.1	790	920	240
18...	0905	147	1630	8.0	21.0	--	--	--	--	300

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT									
17...	170	120	33	350	7.3	12	320	0	540
NOV									
18...	190	130	34	370	7.5	10	340	0	590
DEC									
19...	190	140	34	510	10	11	370	0	700
JAN									
16...	170	130	36	470	9.4	11	370	0	650
19...	170	130	35	470	9.4	10	370	0	670
FEB									
15...	160	130	37	540	11	9.0	390	0	680
21...	170	140	39	560	11	8.9	410	0	730
MAR									
20...	160	100	23	200	4.7	10	220	0	260
21...	160	100	23	200	4.7	9.8	220	0	270
APR									
17...	86	82	19	180	4.7	10	240	0	310
18...	110	88	21	180	4.5	9.0	230	7	310
MAY									
15...	200	140	39	720	14	12	380	0	860
16...	230	150	39	740	14	9.5	--	--	880
JUN									
13...	110	84	19	160	4.1	9.4	--	--	260
19...	75	71	17	130	3.6	8.9	210	0	240
JUL									
17...	66	69	16	120	3.4	8.0	210	0	210
19...	88	73	16	120	3.3	7.9	--	--	220
AUG									
14...	58	64	13	93	2.8	6.8	190	0	170
15...	79	67	15	110	3.2	9.9	--	--	190
SEP									
12...	74	73	15	140	3.9	2.6	--	--	230
18...	88	86	21	250	6.3	11	260	0	370

08364000 RIO GRANDE NEAR EL PASO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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, 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)
OCT									
17...	280	--	30	--	1520	--	--	--	--
NOV									
18...	300	--	34	--	1640	--	--	--	--
DEC									
19...	390	--	39	--	2010	--	--	--	--
JAN									
16...	380	--	35	--	1890	--	--	--	--
19...	350	1.0	34	1850	1880	.20	.08	--	--
FEB									
15...	410	.9	37	2070	2040	.17	.10	.35	.45
21...	440	--	36	--	2160	--	--	--	--
MAR									
20...	250	--	14	--	965	--	--	--	--
21...	210	.9	13	928	935	.19	.08	1.7	1.8
APR									
17...	140	--	14	--	873	--	--	--	--
18...	150	.9	16	882	895	.05	.09	1.0	1.1
MAY									
15...	560	--	41	--	2560	--	--	--	--
16...	710	1.2	45	2620	2760	.15	.03	--	--
JUN									
13...	120	.9	8.9	755	770	.01	.01	1.2	1.2
19...	100	--	10	--	680	--	--	--	--
JUL									
17...	82	--	12	--	621	--	--	--	--
19...	85	.8	12	623	631	.05	.01	.80	.81
AUG									
14...	68	--	13	--	521	--	--	--	--
15...	80	.7	13	574	576	.03	.09	.73	.82
SEP									
12...	100	.7	17	711	681	.04	.01	.90	.91
18...	190	--	23	--	1080	--	--	--	--

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									
17...	--	--	--	--	--	--	--	--	--
NOV									
18...	--	--	--	--	--	--	--	--	--
DEC									
19...	--	--	--	--	--	--	--	--	--
JAN									
16...	--	--	--	--	--	--	--	--	--
19...	.30	.16	.13	4.5	--	--	56	5.6	43
FEB									
15...	.46	.23	.19	--	3.6	.5	45	3.2	54
21...	--	--	--	--	--	--	--	--	--
MAR									
20...	--	--	--	--	--	--	--	--	--
21...	.50	.42	.08	8.7	--	--	347	459	72
APR									
17...	--	--	--	--	--	--	--	--	--
18...	.56	.25	.12	4.0	--	--	72	27	90
MAY									
15...	--	--	--	--	--	--	--	--	--
16...	.41	.37	.28	--	4.1	1.0	83	4.5	33
JUN									
13...	.49	.31	.06	8.4	--	--	331	447	67
19...	--	--	--	--	--	--	--	--	--
JUL									
17...	--	--	--	--	--	--	--	--	--
19...	.52	.28	.08	1.2	--	--	292	451	61
AUG									
14...	--	--	--	--	--	--	--	--	--
15...	.34	.31	.07	--	3.5	>5.0	291	565	65
SEP									
12...	.28	.27	.09	6.3	--	--	183	156	87
18...	--	--	--	--	--	--	--	--	--

08370500 RIO GRANDE BELOW OLD FORT QUITMAN, TX
(National stream-quality accounting network)

LOCATION.--Lat 31°05'05", long 105°36'25", Hudspeth County, Hydrologic Unit 13040201, at gaging station on the rectified channel of the Rio Grande, 1.5 mi (2.4 km) downstream from Old Fort Quitman, and 81.1 mi (130.5 km) downstream from the American Dam at El Paso.

DRAINAGE AREA.--31,944 mi² (82,735 km²), United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: February 1930 to December 1977. Chemical and biochemical analyses: October 1974 to December 1977.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to January 1978.
WATER TEMPERATURES: October 1974 to January 1978.

REMARKS.--Records of discharge for water year 1978 are given in International Boundary and Water Commission Water Bulletins Nos. 47 and 48.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 13,000 micromhos May 18, 1977; minimum daily, 1,500 micromhos July 15, 1976.
WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 10, 1976; minimum daily, 0.5°C Jan. 25, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 10,200 micromhos Jan. 20; minimum daily, 3,870 micromhos Nov. 22.
WATER TEMPERATURES: Minimum daily, 0.5°C Jan. 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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											
10...	1030	1.5	9310	8.1	22.0	85	12.5	151	6.0	1700	260
NOV											
09...	0800	24	5130	8.2	8.0	30	12.6	112	7.5	52000	540
DEC											
13...	0815	14	6020	8.2	5.0	60	11.7	97	19	15000	30
JAN											
18...	1700	7.0	10800	8.2	13.5	10	17.2	--	--	--	7
FEB											
15...	1121	6.0	9560	7.9	10.0	30	14.5	--	--	--	63
MAR											
21...	1123	2.6	10300	7.9	17.0	30	12.0	--	--	--	150
APR											
18...	1224	2.0	11200	7.8	23.5	25	11.4	--	--	--	57

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										
10...	250	1700	1500	440	150	1600	17	19	230	0
NOV										
09...	500	880	620	230	74	800	12	15	320	0
DEC										
13...	300	1000	740	270	85	970	13	17	350	0
JAN										
18...	22000	1800	1500	430	170	1700	18	18	280	0
FEB										
15...	97	1800	1600	460	160	1600	16	17	290	0
MAR										
21...	180	2100	1900	540	180	1900	18	20	250	0
APR										
18...	120	2000	1800	500	180	1800	18	41	270	0

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										
10...	1500	2400	.7	21	6310	6240	.03	.00	.03	.04
NOV										
09...	800	1100	.8	25	3270	3200	.66	.25	.91	3.1
DEC										
13...	1000	1300	.9	26	3840	3840	.52	.13	.65	4.9
JAN										
18...	1500	2600	.8	21	6650	6580	--	--	.02	.02
FEB										
15...	1500	2500	.7	21	6420	6400	--	--	.01	.01
MAR										
21...	1700	3000	.7	15	7480	7480	--	--	.01	.01
APR										
18...	1700	2900	.9	16	7140	7270	--	--	.04	.09

08370500 RIO GRANDE BELOW OLD FORT QUITMAN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
10...	1.3	1.3	.67	.15	.00	11	--	30	.12	93
NOV										
09...	1.7	4.8	3.3	3.8	.89	11	--	44	2.9	93
DEC										
13...	3.2	8.1	4.7	2.9	.58	12	--	82	3.1	97
JAN										
18...	--	--	.30	.05	.06	9.6	--	37	.70	40
FEB										
15...	1.5	1.5	.61	.21	.04	--	7.5	74	1.2	59
MAR										
21...	1.9	1.9	.75	.17	.02	9.1	--	89	.62	72
APR										
18...	1.3	1.4	.92	.20	.02	12	--	94	.51	87

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										
10...	1030	4	1	3	700	500	200	10	10	0
FEB										
15...	1121	3	1	2	200	0	300	0	0	2

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										
10...	10	0	10	50	50	0	20	18	2	250
FEB										
15...	10	0	10	1	1	0	6	5	1	930

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)
OCT										
10...	10	100	100	0	170	0	170	.0	.0	.0
FEB										
15...	70	16	11	5	550	0	560	.3	.3	.0

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)
OCT									
10...	0	0	0	10	10	0	20	10	10
FEB									
15...	0	0	0	0	0	0	30	0	30

08370500 RIO GRANDE BELOW OLD FORT QUITMAN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ATRAZINE, TOTAL (UG/L)	ATRAZINE, 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 10...	1030	ND	--	ND	--	ND	--	ND	--	ND	--
NOV 09...	0800	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 21...	1123	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDE, TOTAL (UG/L)	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)
OCT 10...	ND	--	ND	--	ND	--	ND	--	ND	--
NOV 09...	ND	1.5	ND	ND	.12	ND	ND	ND	ND	ND
MAR 21...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)
OCT 10...	ND	--	ND	--	ND	--	ND	--	ND	--
NOV 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 21...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	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)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	SIMAZINE TOTAL COULSON COND. (UG/L)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS)
OCT 10...	ND	--	ND	--	ND	--	ND	--	ND	--
NOV 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 21...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	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-D, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 10...	ND	--	ND	--	ND	--	ND	--	ND	--
NOV 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 21...	ND	--	ND	--	ND	--	ND	--	ND	--

08370500 RIO GRANDE BELOW OLD FORT QUITMAN, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO MARCH 1978

DATE	MAR 21,78
TIME	1123
TOTAL CELLS/ML	40000
DIVERSITY: DIVISION	0.4
.CLASS	0.4
..ORDER	1.3
...FAMILY	1.5
....GENUS	1.5

ORGANISM	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	3400	9
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..PENNALES		
...NAVICULACEAE		
....ENTOMONEIS	380	1
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	19000#	47
..PENNALES		
...NAVICULACEAE		
....NAVICULA	760	2
...NITZSCHIACEAE		
....NITZSCHIA	17000#	42

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

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	6780	9500								
2	---	---	6640	9720								
3	---	6860	5050	9200								
4	---	---	4720	8710								
5	---	---	4900	8540								
6	---	---	4110	8710								
7	---	---	4480	9210								
8	---	6310	6390	9380								
9	---	4420	7520	9090								
10	9310	5050	8370	9140								
11	---	5770	8620	9170								
12	---	6220	5030	8370								
13	---	4160	6250	9090								
14	---	4000	7410	9380								
15	---	4910	4470	9860								
16	---	4650	5950	9060								
17	---	4850	7040	9680								
18	5830	4740	7690	9810								
19	5250	4980	7870	10000								
20	4730	4420	7720	10200								
21	7730	4550	6830	10100								
22	---	3870	8850	9910								
23	---	4740	8300	10000								
24	---	4780	8740	9860								
25	---	5690	8750	10000								
26	---	6010	8780	9860								
27	---	7040	8890	10000								
28	---	6250	8700	10100								
29	---	7200	6020	10100								
30	---	6950	7590	10100								
31	---	---	9260	10000								
MEAN	6570	5350	7020	9540								

08370500 RIO GRANDE BELOW OLD FORT QUITMAN, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	10.5	9.0								
2	---	---	11.5	9.5								
3	---	---	12.0	12.0								
4	---	---	16.0	15.0								
5	---	---	16.0	13.5								
6	---	---	11.0	15.0								
7	---	---	6.0	13.0								
8	---	15.0	13.5	11.0								
9	---	16.5	8.0	12.0								
10	---	16.0	5.0	11.5								
11	---	16.0	13.0	13.0								
12	---	16.0	14.0	14.0								
13	---	15.0	4.0	10.0								
14	---	14.5	4.0	4.0								
15	---	17.5	13.5	8.0								
16	---	16.5	9.5	15.0								
17	---	17.5	11.5	12.5								
18	13.5	17.0	11.0	13.5								
19	16.0	10.0	12.5	6.5								
20	24.0	17.0	3.0	10.0								
21	20.5	18.0	8.5	11.0								
22	---	17.5	10.0	7.0								
23	---	10.0	12.0	12.0								
24	---	10.0	16.0	6.0								
25	---	15.0	12.5	.5								
26	---	15.5	12.5	10.5								
27	---	15.0	12.5	3.0								
28	---	15.5	13.0	7.0								
29	---	15.0	7.0	15.5								
30	---	12.0	13.0	9.0								
31	---	---	13.0	18.5								
MEAN	18.5	15.0	11.0	10.5								

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 1978 are given in International Boundary and Water Commission Water Bulletins Nos. 47 and 48.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 17...	1145	2780	1380	8.0	18.0	340	200	110	17
NOV 16...	1200	2.0	1330	8.0	--	330	170	100	19
JAN 16...	1325	4.0	1360	7.9	13.0	320	150	98	18
FEB 21...	0943	6.2	1360	7.9	8.0	300	140	90	18
APR 20...	1100	2.5	1220	7.9	18.5	290	120	88	16
MAY 17...	0940	7.5	1290	7.6	21.0	280	130	85	16
JUN 26...	0955	6.4	1360	7.5	28.0	290	140	90	15
JUL 20...	0855	6.6	1330	7.9	25.0	270	120	83	16
AUG 14...	0940	151	731	7.9	20.0	200	59	70	5.8
SEP 21...	1400	3.0	1230	7.8	--	300	160	100	13

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 17...	170	4.0	7.8	180	0	420	89	28	931
NOV 16...	170	4.1	6.8	190	0	420	89	28	926
JAN 16...	180	4.4	7.3	200	0	400	96	28	926
FEB 21...	180	4.5	7.1	190	0	380	88	23	880
APR 20...	160	4.1	8.4	200	0	380	53	28	832
MAY 17...	190	5.0	8.3	180	0	400	100	28	916
JUN 26...	180	4.6	8.3	180	0	410	74	28	894
JUL 20...	180	4.7	7.9	190	0	400	72	29	882
AUG 14...	74	2.3	6.1	170	0	180	30	15	465
SEP 21...	150	3.7	7.5	180	0	390	74	25	848

08376300 SANDERSON CANYON AT SANDERSON, TX

LOCATION (revised).--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. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--10 years, 9.43 ft³/s (0.267 m³/s), 0.66 in/yr (17 mm/yr), 6,830 acre-ft/yr (8.42 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.

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. The next highest flood was that of Sept. 18, 1969. 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.--Maximum discharge, 2,200 ft³/s (62.3 m³/s) May 29, gage height, 3.88 ft (1.183 m), from rating curve extended above 1,100 ft³/s (31.2 m³/s) on basis of slope-area measurement of 15,800 ft³/s (447 m³/s) for flood of Nov. 5, 1978, no other peak above base of 1,500 ft³/s (42.5 m³/s); 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	.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	74	.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	.01
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	1.6
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	24
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	124
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	96
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	.02
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	14
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.5	.10
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12	5.1
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	11
28	.00	.00	.00	.00	.00	.00	.00	32	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	225	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.91	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	257.00	74.00	.00	5.53	275.83
MEAN	.000	.000	.000	.000	.000	.000	.000	8.29	2.47	.000	.18	9.19
MAX	.00	.00	.00	.00	.00	.00	.00	225	74	.00	4.5	124
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.000	.000	.000	.000	.000	.000	.04	.01	.000	.001	.05
IN.	.00	.00	.00	.00	.00	.00	.00	.05	.01	.00	.00	.05
AC-FT	.00	.00	.00	.00	.00	.00	.00	510	147	.00	11	547

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 CFSM .000 IN .00 AC-FT .00
WTR YR 1978 TOTAL 612.36 MEAN 1.68 MAX 225 MIN .00 CFSM .009 IN .12 AC-FT 1210

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. 47 and 48.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,110 micromhos Dec. 4, 1974; minimum daily, 395 micromhos May 3, 1976.
WATER TEMPERATURES: Maximum daily, 32.0°C June 13, 1977; minimum daily, 9.0°C Jan. 12, 1975, Jan. 8, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,520 micromhos Apr. 14; minimum daily, 422 micromhos May 29.
WATER TEMPERATURES: Maximum daily, 31.0°C July 16, 17, Aug. 17; minimum daily, 9.5°C Jan. 20, 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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											
18...	1130	453	1180	8.2	21.0	50	8.7	100	1.0	320	60
NOV											
09...	1055	499	1020	8.2	16.0	140	9.7	101	.4	800	200
DEC											
06...	1130	521	1100	8.0	14.0	80	9.6	96	.6	170	20
JAN											
18...	1200	466	1080	7.8	10.0	65	10.4	95	.5	100	24
FEB											
15...	1115	491	1090	7.9	13.0	80	10.0	98	.7	52	23
MAR											
22...	1105	399	1100	7.9	21.0	68	8.7	100	.6	220	52
APR											
12...	1200	904	946	7.9	21.5	240	8.4	98	1.2	3100	700
MAY											
03...	1230	1330	1180	8.2	22.5	320	9.0	106	.3	600	180
JUN											
07...	1430	2040	780	7.4	26.5	3800	8.5	108	.8	3500	3000
JUL											
12...	1205	664	900	8.1	27.5	420	7.6	97	1.1	12000	920
AUG											
09...	1430	11600	760	7.6	26.0	4200	8.4	105	3.4	12000	6000
SEP											
14...	1330	1050	889	7.8	29.0	800	7.8	103	.4	--	8000

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											
18...	68	300	160	83	23	130	3.3	6.3	170	0	330
NOV											
09...	400	280	130	78	21	110	2.9	5.3	190	0	280
DEC											
06...	80	310	150	87	22	120	3.0	5.7	190	0	320
JAN											
18...	68	300	140	84	22	130	3.3	5.3	200	0	300
FEB											
15...	120	260	110	81	15	120	3.2	5.3	190	0	270
MAR											
22...	140	300	150	82	23	120	3.0	5.9	180	0	280
APR											
12...	1500	280	130	75	23	94	2.4	5.4	190	0	230
MAY											
03...	320	320	170	98	19	150	3.6	7.9	190	0	340
JUN											
07...	1800	270	120	96	8.4	60	1.6	5.9	184	0	230
JUL											
12...	740	270	120	88	12	86	2.3	5.9	180	0	230
AUG											
09...	7600	280	--	99	8.5	41	1.1	4.9	--	--	220
SEP											
14...	4800	280	160	98	9.6	74	1.9	4.9	156	0	260

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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...	89	1.4	24	805	771	.51	.01	.52	.00	.40
NOV 09...	69	1.3	25	689	683	.66	.00	.66	.00	.70
DEC 06...	77	1.4	24	731	751	.80	.00	.80	.07	.73
JAN 18...	75	1.5	24	714	740	.74	.01	.75	.02	.00
FEB 15...	74	1.4	24	704	685	.79	.01	.80	.02	.18
MAR 22...	77	1.3	19	686	697	.67	.01	.68	.00	.50
APR 12...	62	1.4	20	600	604	.70	.01	.71	.01	.72
MAY 03...	62	2.0	29	781	802	.89	.01	.90	.06	.94
JUN 07...	18	.6	14	532	524	.84	.04	.88	.19	3.6
JUL 12...	45	1.2	24	595	581	.97	.01	.98	.01	1.4
AUG 09...	17	.7	16	461	--	1.4	.10	1.5	.45	6.3
SEP 14...	40	1.0	17	599	581	.27	.00	.27	.00	1.5

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...	.40	.26	.05	.00	2.7	--	--	90	110	100
NOV 09...	.70	.46	.11	.01	2.2	--	--	338	455	87
DEC 06...	.80	.67	.07	.00	2.1	--	--	175	246	100
JAN 18...	.00	.45	.07	.01	1.4	--	--	119	150	100
FEB 15...	.20	.21	.08	.01	--	1.7	.1	181	240	99
MAR 22...	.50	.54	.05	.00	2.5	--	--	145	156	99
APR 12...	.73	.33	.31	.00	5.7	--	--	595	1450	99
MAY 03...	1.0	.37	.41	.01	6.6	--	--	690	2480	98
JUN 07...	3.8	.88	1.3	.36	--	4.5	2.4	7280	40100	99
JUL 12...	1.4	.49	.54	.01	8.6	--	--	803	1440	100
AUG 09...	6.7	.93	2.0	.22	--	5.1	2.0	12000	376000	97
SEP 14...	1.5	.41	.50	.03	12	--	--	2880	8170	100

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT 18...	1130	4	0	4	0	0	0	<10	<8	2
FEB 15...	1115	8	1	7	100	0	100	0	0	2
JUN 07...	1430	8	6	2	1000	800	200	10	--	0
AUG 09...	1430	40	39	1	1600	1500	100	4	3	<1

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
OCT 18...	10	0	10	<50	<50	0	<10	<9	1	1100
FEB 15...	0	0	10	0	0	0	11	11	0	1700
JUN 07...	85	85	0	38	38	0	5	3	2	75000
AUG 09...	110	110	0	61	56	5	100	--	2	130000

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 18...	--	90	<100	<100	0	40	30	10	.0	.0
FEB 15...	--	10	1	0	1	40	40	0	.0	.0
JUN 07...	75000	10	81	81	0	2700	2700	5	.3	.0
AUG 09...	130000	1000	210	200	6	6600	6600	50	.9	.9

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 18...	.0	2	2	0	<10	<10	0	20	10	10
FEB 15...	.0	1	0	1	0	0	0	20	20	0
JUN 07...	.6	0	0	1	0	0	0	450	430	20
AUG 09...	.0	4	3	1	1	1	0	710	700	10

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ATRA-ZINE, 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 09...	1055	--	ND	ND	ND	ND	ND	ND	ND
FEB 15...	1115	ND	ND	ND	ND	ND	ND	ND	ND
MAY 03...	1230	--	--	ND	--	--	--	--	--
AUG 09...	1430	ND	ND	ND	ND	ND	ND	ND	ND

DATE	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)	METHYL PARA-THION, TOTAL (UG/L)
NOV 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 15...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 03...	--	--	--	--	--	--	--	--	--
AUG 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	SIMA-ZINE TOTAL COUL-SON COND. (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 09...	ND	ND	ND	ND	ND	ND	ND	ND
FEB 15...	ND	ND	ND	ND	ND	ND	ND	ND
MAY 03...	--	--	ND	--	--	--	--	--
AUG 09...	ND	ND	ND	ND	ND	--	--	--

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

DATE	LENGTH OF EXPOSURE (DAYS)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	SAMPLING METHOD
NOV 09...	22	.580	.000	POLYETHYLENE STRIP

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	NOV 9,77		MAR 22,78		MAY 3,78		JUN 7,78	
TIME	1055		1105		1230		1430	
TOTAL CELLS/ML	2500		420		1200		440	
DIVERSITY: DIVISION	0.7		0.9		1.0		0.9	
.CLASS	0.7		0.9		1.0		0.9	
..ORDER	1.0		1.1		1.0		0.9	
...FAMILY	2.3		2.0		1.4		0.9	
....GENUS	2.9		2.6		1.9		0.9	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	170	7	*	0	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	68	3	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	68	3	27	6	54	5	--	-
....OOCYSTIS	930#	38	--	-	760#	64	--	-
....TREUBARIA	68	3	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	450#	18	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-
....SCENEDESMUS	240	10	110#	26	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	79	3	--	-	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	--	-	--	-	150#	33
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	56	2	14	3	--	-	--	-
..PENNALES								
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	27	2	--	-
....EPITHEMIA	--	-	--	-	54	5	--	-
....RHOPALODIA	--	-	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	95#	23	--	-	--	-
....SYNEDRA	160	6	54	13	54	5	--	-
...NAVICULACEAE								
....CALONEIS	--	-	--	-	27	2	--	-
....GYROSIGMA	*	0	14	3	41	3	--	-
....NAVICULA	68	3	95#	23	140	11	290#	67
....PINNULARIA	--	-	14	3	--	-	--	-
...NITZSCHIACEAE								
....DENTICULA	--	-	--	-	--	-	--	-
....HANTZSCHIA	--	-	--	-	--	-	--	-
....NITZSCHIA	90	4	--	-	14	1	--	-
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	*	0	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	14	1	--	-

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 1977 TO SEPTEMBER 1978

DATE	JUL 12,78	AUG 9,78	SEP 14,78
TIME	1205	1430	1330
TOTAL CELLS/ML	110	690	72
DIVERSITY: DIVISION	1.1	0.0	1.4
.CLASS	1.1	0.0	1.4
..ORDER	1.1	0.0	1.4
...FAMILY	2.0	1.5	1.4
....GENUS	2.4	2.3	1.4

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	--	-	--	-
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	--	-
....OOCYSTIS	14	13	--	-	--	-
....TREUBARIA	--	-	--	-	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	43#	60
....SCENEDESMUS	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	--	-
..PENNALES						
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-
....RHOPALODIA	14	13	--	-	--	-
...DIATOMACEAE						
....DIATOMA	--	-	--	-	14#	20
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-
...NAVICULACEAE						
....CALONEIS	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-
....NAVICULA	14	13	140#	20	--	-
....PINNULARIA	--	-	140#	20	--	-
...NITZSCHIACEAE						
....DENTICULA	--	-	140#	20	--	-
....HANTZSCHIA	14	13	--	-	--	-
....NITZSCHIA	43#	38	140#	20	--	-
...SURIRELLACEAE						
....SURIRELLA	--	-	140#	20	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	--	-
....TRACHELOMONAS	14	13	--	-	14#	20

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 1977 TO SEPTEMBER 1978

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. 1977.....	16201	1040	670	29300	62	2710	290	12700	290
NOV. 1977.....	15326	1080	690	28800	66	2730	300	12600	300
DEC. 1977.....	16146	1110	720	31200	71	3080	320	13800	310
JAN. 1978.....	15802	1120	720	30800	72	3070	320	13600	310
FEB. 1978.....	13713	1090	710	26100	69	2540	310	11500	300
MAR. 1978.....	13211	1090	700	25000	68	2410	310	11000	300
APR. 1978.....	25636	1150	740	51500	79	5480	320	22300	310
MAY 1978.....	65250	958	620	109000	55	9760	260	46000	280
JUNE 1978.....	47534	744	480	61700	34	4310	190	24000	240
JULY 1978.....	39534	867	560	59700	41	4350	230	24700	260
AUG. 1978.....	99200	835	540	145000	36	9670	220	58300	260
SEPT 1978.....	114930	807	520	162000	32	9830	210	64600	250
TOTAL	482483	**	**	760000	**	59900	**	315000	**
WTD.AVG.	1321.87	903	580	**	46	**	240	**	270

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1050	850	1080	1080	1110	1080	1000	1180	895	898	750	1130
2	1060	953	1090	1110	1100	1090	991	1180	759	857	1110	1190
3	1080	1110	1120	1120	1100	1100	982	1190	508	809	801	914
4	1070	1130	1110	1130	1100	1100	957	1180	500	795	837	828
5	1090	1070	1100	1220	1090	1090	940	1160	661	970	934	1090
6	1070	1080	1110	1140	1090	1100	917	1150	449	804	510	1000
7	1080	1060	1110	1130	1100	1100	921	1170	833	609	575	1050
8	1070	1030	1110	1140	1100	1090	924	1180	978	578	819	1000
9	1080	1050	1100	1130	1100	1110	905	1190	952	701	760	914
10	1140	1070	1100	1130	1100	1110	791	1200	940	780	698	735
11	1100	1060	1100	1110	1100	1120	909	1180	859	850	764	864
12	1150	1040	1090	1110	1090	1120	957	850	1000	900	869	874
13	1170	1020	1090	1110	1100	1120	1470	982	1050	881	954	965
14	975	1070	1110	1110	1090	1120	1520	1060	1080	979	908	841
15	1150	1090	1130	1100	1080	1140	1260	1110	1040	1000	796	892
16	1240	1100	1180	1110	1080	1100	1210	1130	1020	1040	775	750
17	1260	1120	1210	1110	1090	1090	1180	1150	1040	1060	863	559
18	1210	1110	1180	1100	1080	1080	1160	1170	1070	1070	954	987
19	1150	1120	1150	1100	1080	1090	1160	1180	1110	1080	975	854
20	1140	1120	1140	1100	1080	1090	1160	1190	1120	1080	987	1090
21	1090	1110	1120	1090	1090	1100	1160	958	1120	1090	1090	742
22	1010	1110	1100	1100	1110	1080	1150	437	1120	1090	1120	800
23	1100	1100	1090	1090	1110	1070	1150	664	1130	1090	1230	1050
24	1050	1090	1070	1100	1100	1060	1150	1120	1130	1090	1070	742
25	626	1100	1100	1090	1090	1060	1150	1020	1150	1100	1280	784
26	1110	1100	1110	1100	1090	1050	1150	1110	1140	1110	1300	612
27	688	1100	1090	1130	1090	1040	1150	1060	1150	1120	1140	625
28	1150	1100	1080	1150	1090	1040	1150	1010	1150	1100	1000	867
29	793	1090	1070	1160	---	1030	1150	422	1140	947	1120	709
30	798	1100	1050	1130	---	1030	1150	813	1000	1190	915	710
31	1080	---	1060	1120	---	1020	---	1020	---	460	1180	---
MEAN	1060	1080	1110	1120	1090	1080	1090	1050	970	940	938	872

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.0	24.0	15.5	---	13.0	20.0	25.0	28.5	28.0	28.0	28.0	26.5
2	28.0	20.0	15.0	11.5	12.0	20.0	25.0	25.0	27.5	28.0	26.0	26.0
3	---	20.5	17.0	13.0	12.0	17.5	26.0	24.0	24.0	29.0	28.0	27.5
4	25.5	20.5	17.0	12.5	13.5	16.5	24.0	25.0	22.5	29.0	28.0	26.0
5	23.5	20.0	16.0	15.5	14.0	15.0	23.0	25.5	22.5	29.5	28.0	26.0
6	24.5	20.5	15.0	14.0	---	16.5	26.0	26.0	24.0	29.0	24.0	28.0
7	27.0	---	15.0	16.0	14.5	17.0	24.0	26.0	26.5	28.0	26.0	25.5
8	27.0	20.0	15.0	15.0	12.5	15.0	26.0	24.0	30.0	29.0	27.0	27.0
9	25.5	---	12.0	13.0	13.5	17.0	25.0	26.0	29.0	29.0	25.0	27.0
10	27.0	14.0	12.5	10.5	12.5	19.5	23.0	26.0	29.0	29.0	26.0	28.0
11	23.5	14.0	12.0	11.5	12.0	20.0	23.0	26.5	27.0	29.5	27.0	29.0
12	22.0	17.5	14.0	13.0	14.5	18.0	24.0	30.0	29.0	30.0	26.0	28.0
13	21.5	18.0	16.5	14.5	15.5	18.5	22.5	25.0	30.0	29.0	28.0	27.0
14	21.5	19.0	15.0	14.0	15.0	19.5	23.0	26.0	28.0	29.0	29.0	29.5
15	22.0	20.5	13.0	13.0	16.0	17.5	24.0	24.5	30.0	30.0	29.5	30.0
16	22.0	20.5	16.5	15.5	15.5	19.5	25.0	28.0	29.5	31.0	30.0	30.0
17	20.0	19.0	15.0	11.5	14.0	18.5	26.0	28.5	29.5	31.0	31.0	28.5
18	24.0	18.0	15.5	11.5	14.0	19.5	25.0	28.5	29.0	30.5	30.5	28.0
19	24.0	19.0	15.5	10.0	12.0	19.5	24.0	28.5	30.0	30.5	30.0	27.5
20	21.5	21.0	14.0	9.5	14.0	22.0	22.5	26.0	30.0	30.0	30.0	27.5
21	23.5	17.0	13.0	9.5	10.0	22.0	22.0	26.5	26.0	29.0	30.0	26.0
22	23.5	18.0	12.0	11.0	15.0	24.0	22.0	24.0	30.5	30.0	29.0	24.0
23	22.0	17.5	13.0	11.5	14.0	25.0	25.5	24.5	29.5	28.0	29.0	22.5
24	23.5	---	14.5	13.5	17.0	23.5	27.0	27.0	27.5	30.0	28.5	22.5
25	24.0	18.0	---	11.5	16.5	22.5	25.0	27.0	30.0	30.5	27.0	22.0
26	23.0	18.0	14.0	11.0	17.0	23.0	24.0	27.5	27.0	30.0	27.0	21.5
27	22.0	18.0	14.0	13.0	18.0	23.0	24.0	---	29.0	30.0	29.5	20.5
28	24.0	18.0	15.0	13.0	19.0	21.0	26.0	25.0	29.5	30.0	29.5	20.0
29	25.0	15.0	16.0	13.0	---	21.0	27.0	23.0	29.5	27.0	28.0	19.0
30	24.0	15.5	16.0	11.0	---	21.5	27.0	26.0	28.0	26.5	27.0	19.5
31	24.5	---	17.0	11.0	---	---	---	27.5	---	26.5	26.0	---
MEAN	24.0	18.5	14.5	12.5	14.5	20.0	24.5	26.0	28.0	29.0	28.0	25.5

08407500 PECOS RIVER AT RED BLUFF, NM

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 (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 fair. 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.--41 years, 177 ft³/s (5.013 m³/s), 128,200 acre-ft/yr (158 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Aug. 23, 1966, exceeded all floods at this location. 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, 29,400 ft³/s (833 m³/s) Sept. 26, gage height, 20.57 ft (6.270 m); minimum, 0.42 ft³/s (0.012 m³/s) Mar. 28.

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	1.4	8.6	3.6	8.6	15	11	7.1	6.2	20	5.5	6.5	6.8
2	1.2	8.2	4.4	9.0	16	11	9.4	50	1800	6.0	6.2	6.8
3	1.1	7.4	7.8	10	17	13	9.0	10	1870	6.0	133	7.8
4	2.6	7.1	8.6	11	17	13	8.6	12	273	5.5	13	8.6
5	6.2	7.1	8.6	12	16	13	6.8	13	102	5.5	11	13
6	9.9	6.5	5.9	11	17	12	6.2	8.6	44	5.5	9.4	9.9
7	12	6.8	5.6	12	19	12	5.6	7.1	25	5.3	7.8	11
8	9.9	6.5	8.2	12	16	10	5.0	7.4	5.0	5.0	7.1	10
9	8.6	7.4	9.0	12	13	9.0	4.4	6.8	5.0	4.7	7.1	7.1
10	7.8	7.4	8.6	12	14	9.0	5.9	5.0	5.0	4.4	6.8	6.2
11	8.6	7.4	9.0	12	14	10	6.5	4.0	5.0	5.3	4.2	5.9
12	8.2	7.8	9.0	11	17	9.9	7.8	4.0	5.0	5.9	3.4	6.2
13	7.1	7.8	9.4	13	18	9.9	9.4	6.5	5.0	7.1	7.8	6.8
14	6.5	8.2	8.6	13	16	9.9	10	6.5	5.0	7.4	8.2	7.1
15	6.2	8.2	7.1	14	16	9.4	8.2	5.9	5.0	7.1	7.8	7.8
16	5.9	8.2	6.2	15	16	9.0	6.8	5.0	5.0	7.4	7.1	8.2
17	5.9	6.8	8.6	14	17	6.8	5.9	4.0	5.0	7.4	6.2	7.4
18	5.9	4.7	7.4	12	16	6.8	6.5	3.4	5.0	7.1	6.5	6.8
19	5.9	4.0	9.9	16	16	8.2	5.3	6.7	5.0	6.8	8.8	6.5
20	5.6	4.4	12	16	16	9.0	4.2	9.4	5.0	5.9	8.6	6.2
21	5.6	6.2	9.9	12	16	7.8	4.2	7.4	5.0	5.9	7.4	27
22	59	7.8	8.2	11	16	7.8	5.0	8.6	5.0	7.4	6.8	32
23	13	7.8	9.9	9.4	20	3.6	5.3	9.0	5.0	52	6.9	29
24	14	6.5	13	9.0	23	1.4	7.1	7.1	5.0	43	13	143
25	26	5.0	12	8.6	22	.91	7.1	6.5	5.0	29	5.0	1730
26	15	5.9	9.9	8.6	16	.64	5.0	7.8	5.0	18	5.6	17100
27	11	5.3	9.0	8.6	13	.50	4.2	7.1	5.0	12	5.6	6160
28	11	4.4	7.8	8.6	13	1.1	4.0	7.4	5.0	6.5	6.5	951
29	9.9	6.8	8.6	10	---	4.2	5.0	9.0	14	5.9	6.5	342
30	9.9	5.0	9.9	14	---	4.7	5.9	9.0	5.0	5.9	9.0	220
31	9.4	---	9.9	15	---	5.9	---	26	---	5.9	7.4	---
TOTAL	310.3	201.2	265.6	360.4	461	240.45	191.4	286.4	4258.0	312.3	356.2	26890.1
MEAN	10.0	6.71	8.57	11.6	16.5	7.76	6.38	9.24	142	10.1	11.5	896
MAX	59	8.6	13	16	23	13	10	50	1870	52	133	17100
MIN	1.1	4.0	3.6	8.6	13	.50	4.0	3.4	5.0	4.4	3.4	5.9
AC-FT	615	399	527	715	914	477	380	568	8450	619	707	53340

CAL YR 1977 TOTAL 5247.7 MEAN 14.4 MAX 81 MIN 1.1 AC-FT 10410
WTR YR 1978 TOTAL 34133.35 MEAN 93.5 MAX 17100 MIN .50 AC-FT 67700

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, 46,500 micromhos Oct. 3; minimum daily, 693 micromhos Sept. 26.
WATER TEMPERATURES: Maximum daily, 32.5°C June 25, 28; minimum daily, 5.0°C Jan. 21, 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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												
07...	0800	13	36000	8.1	22.0	4	6.4	86	2000	3800	3700	740
NOV												
03...	1030	7.1	31000	8.2	15.5	9	10.3	3	90	3100	3000	650
DEC												
08...	1000	8.2	29500	8.2	9.5	6	10.2	0	12	3300	3200	670
JAN												
11...	0918	12	21500	8.3	3.5	2	11.6	0	14	2800	2700	650
FEB												
09...	1050	13	17500	8.4	8.5	3	13.3	0	15	2300	2200	490
MAR												
08...	1415	9.9	21300	8.3	14.5	4	13.6	0	3	2600	2400	530
APR												
06...	1500	6.2	30800	8.1	23.0	8	9.7	10	65	3400	3200	690
MAY												
04...	1600	14	21500	8.2	21.5	10	12.1	35	880	2300	2200	470
JUN												
14...	1230	5.0	15000	8.0	28.5	--	8.9	6	65	2100	--	560
JUL												
19...	0900	7.8	24200	7.5	26.5	--	6.5	4	920	3800	--	800
AUG												
16...	1100	7.1	17100	7.9	26.5	--	8.4	14	460	2000	--	420
SEP												
27...	1130	4840	525	7.2	16.0	--	7.1	3400	13000	240	--	77

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
OCT											
07...	470	6000	42	310	120	0	660	12000	1.1	11	26000
NOV											
03...	370	6700	52	250	150	0	2900	9900	.8	8.1	21700
DEC											
08...	400	6400	48	250	150	0	3000	9700	.9	4.8	21000
JAN											
11...	290	4200	34	160	160	0	2600	6600	.9	9.8	14800
FEB											
09...	270	3700	33	140	160	1	2400	5700	.8	9.7	12600
MAR											
08...	300	4600	40	170	140	0	2300	7100	.8	6.3	12300
APR											
06...	400	7100	53	280	150	0	2800	11000	.9	2.5	21100
MAY											
04...	270	4100	37	8.2	100	0	2000	6300	.8	2.0	13400
JUN											
14...	160	2900	28	94	--	--	1700	4400	.4	6.4	10500
JUL											
19...	430	7900	56	140	--	--	3000	13000	.6	2.6	26500
AUG											
16...	230	3200	31	110	--	--	1700	5300	.6	10	11600
SEP											
27...	12	24	.7	4.0	--	--	130	35	.1	8.9	382

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, 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)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 07...	20300	--	--	.09	.07	1.2	.05	13	29	1.0	86
NOV 03...	20900	25000	14	.02	.30	.90	.07	6.2	6	.12	94
DEC 08...	20500	--	--	.16	.23	.97	.04	--	7	.15	35
JAN 11...	14600	--	--	1.4	.27	.58	.04	2.9	30	.97	67
FEB 09...	12800	--	--	.92	.14	.61	.02	4.0	30	1.1	99
MAR 08...	15100	--	--	.34	.11	.75	.12	--	26	.69	69
APR 06...	22400	22000	10	.04	.19	1.0	.04	10	26	.44	54
MAY 04...	13200	--	--	.67	.25	1.8	.12	15	23	.87	90
JUN 14...	--	--	--	.03	.17	1.1	.00	--	53	.72	61
JUL 19...	--	--	--	.06	.00	1.2	.03	--	66	1.4	36
AUG 16...	--	--	--	.03	.00	1.7	.05	17	48	.92	37
SEP 27...	--	--	--	.44	.19	2.3	.03	--	821	10700	97

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 07...	0800	1	1	0	600	--	--	30	30	0
NOV 03...	1030	--	--	--	--	--	--	--	--	--
DEC 08...	1000	1	0	1	600	0	600	0	0	0
JAN 11...	0918	--	--	--	--	--	--	--	--	--
FEB 09...	1050	--	--	--	--	--	--	--	--	--
MAR 08...	1415	0	0	0	200	100	100	1	0	1
APR 06...	1500	--	--	--	--	--	--	--	--	--
MAY 04...	1600	--	--	--	--	--	--	--	--	--
JUN 14...	1230	1	0	1	50	0	300	2	1	1
JUL 19...	0900	4	2	2	300	0	300	1	1	0
AUG 16...	1100	--	--	--	--	--	--	--	--	--
SEP 27...	1130	4	--	1	0	0	0	1	0	1

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 07...	20	0	20	150	150	0	30	30	0	220
NOV 03...	--	--	--	--	--	--	--	--	--	--
DEC 08...	30	0	40	0	0	0	6	4	2	160
JAN 11...	--	--	--	--	--	--	--	--	--	--
FEB 09...	--	--	--	--	--	--	--	--	--	--
MAR 08...	20	0	20	1	1	0	4	2	2	170
APR 06...	--	--	--	--	--	--	--	--	--	--
MAY 04...	--	--	--	--	--	--	--	--	--	--
JUN 14...	10	0	15	2	2	0	6	4	2	230
JUL 19...	30	10	20	0	0	0	5	3	2	180
AUG 16...	--	--	--	--	--	--	--	--	--	--
SEP 27...	20	20	0	8	7	1	31	30	1	14000

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	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)
OCT 07...	--	70	--	--	3	1000	950	50	.0	.0
NOV 03...	--	30	--	--	--	--	--	--	--	--
DEC 08...	--	20	3	0	4	40	0	60	.0	.0
JAN 11...	--	70	--	--	--	--	--	--	--	--
FEB 09...	--	10	--	--	--	--	--	--	--	--
MAR 08...	--	0	14	4	10	60	10	50	.0	.0
APR 06...	--	20	--	--	--	--	--	--	--	--
MAY 04...	--	10	--	--	--	--	--	--	--	--
JUN 14...	210	20	10	6	4	170	110	60	.0	.0
JUL 19...	130	50	12	12	0	120	30	90	.0	.0
AUG 16...	--	30	--	--	--	--	--	--	--	--
SEP 27...	14000	140	21	20	1	480	400	80	.0	.0

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 07...	.0	1	1	0	30	30	0	40	20	20
NOV 03...	--	--	--	--	--	--	--	--	--	--
DEC 08...	.2	2	0	2	0	0	0	60	30	30
JAN 11...	--	--	--	--	--	--	--	--	--	--
FEB 09...	--	--	--	--	--	--	--	--	--	--
MAR 08...	.0	4	0	4	1	1	0	30	0	30
APR 06...	--	--	--	--	--	--	--	--	--	--
MAY 04...	--	--	--	--	--	--	--	--	--	--
JUN 14...	.3	1	0	1	0	0	0	30	0	30
JUL 19...	.0	0	0	0	0	0	0	70	0	70
AUG 16...	--	--	--	--	--	--	--	--	--	--
SEP 27...	.0	1	1	0	0	0	0	80	70	10

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)
NOV 03...	1030	ND	ND	ND	ND	ND	ND	ND	ND
FEB 09...	1148	ND	ND	ND	ND	ND	ND	ND	ND
MAY 04...	1600	ND	ND	ND	ND	ND	ND	ND	ND
AUG 16...	1100	ND	ND	ND	ND	ND	ND	ND	ND

DATE	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)
NOV 03...	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 04...	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 16...	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	ATRA-ZINE, TOTAL (UG/L)	SIMA-ZINE TOTAL COUL-SON COND. (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 03...	ND	ND	ND	ND	ND	ND	ND	ND
FEB 09...	ND	ND	ND	--	--	--	--	--
MAY 04...	ND	ND	ND	ND	ND	--	--	--
AUG 16...	ND	ND	ND	ND	ND	--	--	--

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46100	32000	31500	30100	21000	24500	24500	30000	6190	20200	26500	24600
2	46100	31600	32000	28800	21100	23300	24900	28500	6560	20700	27000	24400
3	46500	32800	31500	26400	20500	22700	25500	26800	3620	20900	25800	24700
4	37700	32800	31200	26800	20900	22200	26200	24200	4680	21300	19300	25100
5	37200	32800	31000	25200	21600	21200	28100	20400	19500	21200	16500	24900
6	37100	32700	30900	25200	21300	20500	28200	20600	7770	21500	13100	25200
7	37200	32100	30800	24500	21200	21000	30200	21800	8630	21700	11000	25300
8	40000	31900	30900	24700	21400	21000	29400	22800	9270	22000	10900	25500
9	40500	31800	30800	24800	21400	21300	29700	24000	10100	22200	9370	24800
10	38600	31200	31100	25500	20100	21600	30200	24700	10800	22700	8520	24500
11	38900	31200	31100	26100	20100	21800	30400	25100	11600	22900	8000	24600
12	38500	31000	31000	24800	19600	22100	30600	25600	12700	23600	9540	23900
13	38500	30500	31000	23300	20600	22600	31000	26000	12400	24300	8140	22600
14	38000	29800	30700	21800	20600	23800	31500	26300	13400	25500	7550	21600
15	38000	29800	31800	21500	21600	23800	31500	26500	14000	26400	7500	21300
16	38900	29900	32100	21500	23300	24200	31300	26500	14600	27400	9050	21300
17	38200	30000	32900	24300	23300	24600	31000	26500	15100	29700	9210	21600
18	38600	30100	33600	24300	22500	24600	31000	27100	15400	29900	10900	21700
19	39900	30300	35200	25100	22500	24600	30800	26800	16000	30800	10900	21900
20	40100	30500	35200	24100	22100	24600	30700	22100	16400	31700	13300	22100
21	40200	30600	35000	24100	22100	24100	30700	25500	16800	32300	14700	19700
22	39900	30800	31800	23800	22300	23800	30700	26100	17100	33100	15800	20000
23	20500	31200	31800	23300	24600	23800	30500	26800	17400	19200	17000	18800
24	18600	31500	31600	23600	24800	23600	30400	27200	17600	30100	18600	11500
25	16700	31700	31300	23500	25900	23900	30000	27700	17800	24700	20000	2100
26	19400	31900	31200	23400	26100	23900	29900	26500	18000	25600	21600	693
27	23000	32300	32000	23200	25000	24400	29900	28600	18200	25400	22400	1070
28	26100	32200	32400	23200	24900	24300	30000	28900	15300	24400	23300	3660
29	28500	32500	32800	23000	---	24400	30100	29100	17500	25200	24000	9120
30	31000	32400	32800	22900	---	24500	30300	29500	19400	25600	24500	5570
31	30800	---	31900	22800	---	24600	---	29600	---	26000	24200	---
MEAN	35100	31400	32000	24400	22200	23300	29600	26100	13500	25100	15700	18800

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	17.0	12.0	6.5	6.5	13.5	22.0	24.5	20.0	31.5	30.5	26.0
2	20.0	17.0	10.0	6.0	6.0	13.5	21.0	20.0	20.5	32.0	30.5	25.0
3	20.0	16.0	11.5	6.0	8.5	10.0	21.5	22.0	20.0	31.5	27.5	27.0
4	21.0	16.0	11.5	6.5	9.0	10.0	21.0	24.5	23.5	30.5	25.5	26.0
5	21.5	15.5	13.0	8.0	9.5	11.0	21.5	23.5	26.0	31.0	25.5	27.0
6	22.0	17.0	10.5	8.5	9.5	13.0	22.5	28.0	24.5	30.5	28.5	27.5
7	22.0	15.5	10.0	8.0	10.0	13.0	22.5	20.5	26.5	29.0	30.5	26.0
8	22.5	15.0	12.5	8.0	9.5	13.5	22.0	24.5	28.0	30.0	28.0	27.0
9	19.5	14.0	9.5	7.5	9.0	14.5	19.5	25.0	26.0	29.5	28.5	27.5
10	22.0	13.0	9.0	6.0	9.0	15.0	18.0	22.0	27.5	28.5	28.5	28.0
11	18.5	13.0	8.5	6.5	9.5	15.5	19.0	26.5	30.0	29.5	29.0	28.0
12	19.0	13.0	10.0	8.0	10.0	14.5	19.5	26.0	29.0	30.0	30.0	28.0
13	19.0	13.5	10.0	7.5	10.0	15.0	20.0	25.0	29.5	31.0	30.0	28.5
14	21.0	14.0	9.5	7.5	9.0	15.0	22.0	26.5	28.0	30.0	27.5	28.0
15	19.0	15.0	9.5	8.5	10.0	14.5	22.0	27.0	29.0	31.0	26.0	28.0
16	18.5	14.0	9.5	9.0	10.0	15.0	23.0	27.0	30.0	32.0	28.0	28.0
17	20.5	13.5	9.0	6.0	9.0	15.0	23.0	26.0	29.5	31.0	30.0	28.5
18	20.5	14.0	9.0	7.0	8.5	15.5	22.0	26.5	29.5	30.5	30.0	27.5
19	20.0	14.0	9.5	6.5	7.0	15.5	21.0	25.0	28.5	29.5	30.5	27.0
20	20.0	14.0	9.0	6.0	8.0	18.0	22.0	27.0	30.5	30.0	30.5	24.0
21	19.0	13.0	8.0	5.0	8.0	18.0	22.5	26.5	30.0	27.0	29.0	20.0
22	21.5	13.0	7.5	5.5	9.5	20.0	22.5	27.0	29.5	31.0	29.0	19.0
23	20.0	12.0	7.5	6.0	10.0	20.0	22.5	26.5	27.5	26.0	29.0	19.0
24	20.0	12.0	9.0	5.0	11.5	20.0	22.0	28.0	29.5	30.0	30.0	19.0
25	20.0	11.5	9.0	6.0	12.5	16.5	22.0	28.0	32.5	31.0	30.0	17.5
26	20.0	12.5	7.0	7.0	12.5	18.5	22.0	27.0	32.0	32.0	30.5	17.0
27	19.0	12.5	6.0	6.5	13.0	22.0	22.0	29.0	24.5	30.0	30.5	17.0
28	21.0	13.5	8.0	7.0	14.0	18.0	24.5	29.0	32.5	28.0	27.0	19.0
29	21.0	12.0	9.0	6.0	---	18.0	24.5	26.0	26.0	30.0	26.0	21.0
30	20.0	12.0	10.0	6.0	---	22.0	24.0	27.0	28.5	28.5	26.5	22.5
31	20.5	---	9.5	5.5	---	24.5	---	26.0	---	28.0	25.5	---
MEAN	20.5	14.0	9.5	6.5	9.5	16.0	22.0	25.5	27.5	30.0	28.5	24.5

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.--41 years (water years 1938-78), 13.5 ft³/s (0.382 m³/s), 9,780 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 8.23 m); no flow for many days most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1911, that of Oct. 2, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,000 ft³/s (481 m³/s) Sept. 25, gage height, 14.61 ft (4.453 m); no flow for many days.

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	.67	1.7	2.1	2.2	1.9	1.7	.15	.00	.00	.00	.00
2	.00	.67	1.7	2.0	2.1	1.9	1.6	.93	510	.00	.03	1.9
3	.00	.67	1.7	2.0	2.1	1.9	1.3	.33	450	5.0	35	74
4	.00	.81	1.7	2.1	2.0	1.9	1.3	.68	21	2.0	1.6	154
5	.00	1.0	1.7	2.1	2.0	1.9	1.2	.92	6.0	.20	.22	18
6	.00	1.0	1.6	2.1	2.0	1.7	1.2	.65	3.0	.00	.00	4.0
7	.00	1.1	1.6	2.1	2.0	1.6	1.2	.40	2.0	17	.00	1.3
8	.01	1.1	1.6	2.0	2.0	1.6	1.3	.15	1.0	23	.00	.67
9	.45	1.0	1.6	2.0	2.0	1.6	1.3	.07	.70	5.1	.00	.38
10	.54	1.1	1.6	2.0	1.9	1.9	1.2	.05	.40	1.2	3.3	.15
11	.49	1.2	1.6	2.1	2.0	1.8	1.3	.06	.20	.50	2.7	.08
12	.48	1.4	1.7	2.1	2.3	1.7	1.3	.04	.10	.28	.22	.00
13	.42	1.4	1.8	2.1	2.1	1.6	1.2	.03	.00	.13	.00	.00
14	.43	1.5	1.9	2.1	2.1	1.6	1.3	.03	.00	.15	.00	.00
15	.44	1.5	1.9	2.1	1.9	1.6	1.3	.00	.00	.02	.00	.00
16	.45	1.5	1.7	2.1	1.9	1.7	1.2	.00	.00	.00	.00	.00
17	.46	1.4	1.7	2.1	1.9	1.6	.85	.00	.00	.00	.00	.00
18	.44	1.5	1.7	2.1	1.9	1.7	.73	.00	.00	.00	.00	.00
19	.47	1.5	1.7	2.0	1.8	1.7	.68	.00	.00	.00	.00	.00
20	.47	1.5	1.8	2.1	1.8	1.8	.69	.00	.00	.00	.00	.00
21	.47	1.4	1.8	2.1	1.8	1.7	.73	.00	.00	.00	.00	9.9
22	.52	1.4	1.8	2.1	1.8	1.8	.84	.00	.00	.00	.00	9.1
23	4.7	1.5	1.9	2.1	1.8	1.7	.85	.00	.00	.39	.00	.34
24	1.7	1.5	1.9	2.1	1.9	1.7	.56	.00	.00	17	.00	81
25	.84	1.6	1.9	2.1	1.8	1.7	.46	9.3	.00	6.2	.00	4960
26	.74	1.6	1.9	2.1	1.8	1.7	.58	11	.00	.91	.00	3180
27	.81	1.5	1.9	2.1	1.9	1.8	.52	1.1	.00	.04	.00	269
28	1.0	1.6	2.0	2.1	1.9	1.7	.54	.00	.00	.00	.00	135
29	1.0	1.6	2.0	2.0	---	1.6	.60	.00	.00	.00	.00	104
30	.95	1.7	2.1	2.0	---	1.6	.43	.00	.00	.00	.00	86
31	.74	---	2.1	2.1	---	1.5	---	.00	---	.80	.00	---
TOTAL	19.02	38.92	55.3	64.3	54.7	53.2	29.96	25.89	994.40	79.92	43.07	9088.82
MEAN	.61	1.30	1.78	2.07	1.95	1.72	1.00	.84	33.1	2.58	1.39	303
MAX	4.7	1.7	2.1	2.1	2.3	1.9	1.7	11	510	23	35	4960
MIN	.00	.67	1.6	2.0	1.8	1.5	.43	.00	.00	.00	.00	.00
AC-FT	38	77	110	128	108	106	59	51	1970	159	85	18030

CAL YR 1977 TOTAL 832.97 MEAN 2.28 MAX 139 MIN .00 AC-FT 1650
WTR YR 1978 TOTAL 10547.50 MEAN 28.9 MAX 4960 MIN .00 AC-FT 20920

08410000 RED BLUFF RESERVOIR NEAR ORLA, TX

LOCATION (revised).--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, 96,500 acre-ft (119 hm³) Sept. 30, gage height, 2,815.5 ft (858.16 m); minimum observed, 20,960 acre-ft (25.8 hm³) Oct. 2, gage height, 2,790.4 ft (850.51 m).

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

2,790.0	20,400	2,810.0	71,500
2,796.0	30,300	2,816.0	99,000
2,803.0	47,000		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21100	22160	22280	22880	23760	25070	25240	24710	24520	34400	33560	32720
2	20960	22040	22280	22880	23950	25070	25240	24710	24520	34400	33560	32720
3	21100	22040	22400	22880	23950	25070	25240	24710	31300	34400	33560	32720
4	21100	22040	22400	22880	23950	25070	25240	24710	35060	34400	33560	32720
5	21100	22040	22400	22880	23950	25240	25240	24710	35280	34190	33770	32930
6	21100	22040	22400	23000	24140	25240	25240	24520	35500	34190	33770	32930
7	21100	22040	22400	23000	24140	25240	25070	24520	35500	34190	33770	33140
8	21100	22160	22400	23000	24140	25240	25070	24520	35500	34190	33770	33140
9	21100	22160	22400	23000	24330	25240	25070	24520	35500	34190	33770	32930
10	21100	22160	22400	23000	24330	25240	25070	24520	35500	33980	33560	32930
11	21100	22160	22400	23000	24330	25240	25070	24520	35500	33980	33560	32930
12	21100	22160	22400	23190	24330	25240	25070	24520	35500	33980	33560	32930
13	21100	22160	22520	23190	24520	25240	25070	24520	35280	33770	33350	32930
14	21240	22160	22520	23190	24520	25240	25070	24330	35280	33770	33350	32930
15	21240	22160	22520	23190	24520	25240	25070	24330	35280	33770	33350	32930
16	21240	22160	22520	23190	24520	25240	25070	24330	35280	33560	33350	32930
17	21240	22160	22520	23190	24520	25240	25070	24330	35060	33560	33350	32930
18	21240	22160	22520	23190	24520	25240	24900	24330	35060	33560	33140	32930
19	21240	22160	22640	23380	24710	25240	24900	24140	35060	33350	33140	32930
20	21240	22280	22640	23380	24710	25240	24900	24520	34840	33350	32930	32720
21	21240	22280	22640	23380	24710	25240	24900	24710	34840	33350	32930	32930
22	21240	22280	22640	23380	24710	25410	24900	24710	34840	33350	32930	33140
23	21520	22280	22640	23380	24900	25410	24900	24710	34620	33350	33140	33350
24	21800	22280	22640	23570	24900	25410	24900	24710	34620	33770	32930	33350
25	21920	22280	22640	23570	24900	25410	24710	24710	34400	33770	32930	35940
26	21920	22280	22640	23570	24900	25410	24710	24710	34400	33770	32930	61400
27	21920	22280	22640	23570	24900	25240	24710	24710	34400	33770	32930	89000
28	22040	22280	22760	23570	24900	25240	24710	24520	34190	33770	32930	95000
29	22040	22280	22760	23760	---	25240	24710	24520	34400	33560	32930	96000
30	22040	22280	22760	23760	---	25240	24710	24520	34400	33560	32720	96500
31	22040	---	22880	23760	---	25240	---	24520	---	33560	32720	---
MAX	22040	22280	22880	23760	24900	25410	25240	24710	35500	34400	33770	96500
MIN	20960	22040	22280	22880	23760	25070	24710	24140	24520	33350	32720	32720
(†)	2791.2	2791.4	2791.9	2792.4	2793.0	2793.2	2792.9	2792.8	2798.0	2797.6	2797.2	2815.5
(‡)	+940	+240	+600	+880	+1140	+340	-530	-190	+9880	-840	-840	+63780

CAL YR 1977 MAX 70700 MIN 20960 ‡ -45820
WTR YR 1978 MAX 96500 MIN 20960 ‡ +75400

† 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.--41 years (water years 1938-78), 173 ft³/s (4.899 m³/s), 125,300 acre-ft/yr (154 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, 19,000 ft³/s (538 m³/s) Sept. 26, gage height, 24.64 ft (7.510 m), from rating curve extended above 5,100 ft³/s (144 m³/s); minimum, 1.5 ft³/s (0.042 m³/s) June 27.

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	11	11	7.2	10	8.6	6.0	8.6	5.6	2.3	20	18	8.0
2	11	10	7.2	9.7	9.7	6.0	9.2	5.1	17	12	15	7.5
3	12	9.8	7.2	9.2	9.7	5.6	8.6	6.0	531	8.6	14	7.5
4	13	9.8	7.7	9.2	9.2	6.0	7.5	6.0	112	7.0	19	27
5	14	9.8	6.7	9.4	9.2	6.5	7.5	6.0	22	6.0	21	14
6	14	9.8	6.2	9.4	9.2	7.0	7.0	5.6	14	5.6	17	9.2
7	14	10	6.1	8.6	9.0	7.0	7.0	5.1	10	5.1	16	8.6
8	14	10	6.2	8.6	8.6	6.0	6.5	4.4	8.6	4.7	15	8.6
9	14	10	6.6	8.6	9.2	6.0	6.5	4.0	10	4.4	14	8.0
10	14	10	6.5	8.6	9.0	7.5	7.0	4.4	9.7	4.0	13	8.0
11	15	8.6	8.5	8.6	8.0	8.0	7.5	4.7	6.5	4.0	12	8.0
12	15	8.6	7.6	9.2	11	7.5	8.0	4.7	5.6	3.6	13	7.5
13	15	8.6	8.3	9.7	13	8.0	8.0	4.4	8.6	3.6	12	7.5
14	9.1	9.1	8.1	9.2	8.3	7.5	7.5	4.0	19	2.9	12	7.5
15	8.7	8.6	8.2	9.2	6.5	8.0	7.0	4.0	11	2.9	12	7.0
16	9.2	8.2	9.7	8.5	5.1	8.0	7.5	3.6	5.6	2.9	14	6.5
17	9.2	8.6	8.5	8.1	5.6	7.5	6.5	3.2	4.4	2.9	26	7.0
18	9.7	8.6	8.0	8.3	5.6	7.5	6.0	2.9	4.0	2.9	12	7.5
19	9.7	8.2	6.9	8.1	5.6	8.6	5.1	3.6	3.6	3.2	11	8.0
20	9.7	9.1	6.8	8.3	5.1	9.2	5.1	25	3.2	3.6	10	10
21	9.7	8.2	7.5	8.1	5.6	9.2	5.6	29	2.9	3.6	10	976
22	9.8	8.2	7.7	8.1	4.7	8.6	5.1	12	2.9	3.6	10	302
23	181	9.1	8.6	8.9	4.7	8.6	5.6	5.6	2.6	340	11	69
24	35	7.2	8.7	9.4	4.4	8.0	5.6	4.4	2.6	896	21	100
25	21	6.2	8.6	9.7	4.7	8.0	5.1	3.2	2.0	32	15	4490
26	15	6.2	8.6	9.7	5.1	8.6	6.0	2.9	2.3	20	10	11400
27	12	6.2	8.6	9.8	5.6	9.2	7.0	2.9	2.0	16	7.0	2120
28	13	6.7	8.7	8.6	5.1	8.6	7.5	2.6	17	15	7.0	316
29	14	7.2	9.6	8.5	---	9.2	6.5	2.3	20	14	7.0	122
30	13	6.7	11	8.1	---	9.2	6.0	2.3	49	14	7.0	79
31	11	---	12	8.1	---	9.2	---	2.3	---	14	8.0	---
TOTAL	575.8	258.3	247.8	275.5	205.1	239.8	203.6	181.8	911.4	1478.1	409.0	20156.9
MEAN	18.6	8.61	7.99	8.89	7.33	7.74	6.79	5.86	30.4	47.7	13.2	672
MAX	181	11	12	10	13	9.2	9.2	29	531	896	26	11400
MIN	8.7	6.2	6.1	8.1	4.4	5.6	5.1	2.3	2.0	2.9	7.0	6.5
AC-FT	1140	512	492	546	407	476	404	361	1810	2930	811	39980

CAL YR 1977 TOTAL 25378.4 MEAN 69.5 MAX 336 MIN 4.3 AC-FT 50340
WTR YR 1978 TOTAL 25143.1 MEAN 68.9 MAX 11400 MIN 2.0 AC-FT 49870

NOTE.--No gage-height record Sept. 24-30.

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.

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, 1968-78): Maximum daily, 31.0°C Aug. 13, 1978; minimum daily, 0.5°C Jan. 6, 1971, Jan. 11, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 29,400 micromhos May 16; minimum daily, 1,730 micromhos Sept. 26.
WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 13; minimum daily, 2.0°C Jan. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
DEC 31...	0830	8.0	25500	7.7	8.5	3700	3600	950	330	4900
FEB 14...	1530	8.5	24100	7.7	9.0	3600	3400	880	330	4500
MAR 29...	0915	9.3	26000	7.3	15.0	4000	3900	1000	360	5400
APR 19...	0820	7.6	27200	--	16.0	4600	4500	1200	390	5400
JUN 13...	1525	13	19400	--	27.0	3400	3300	930	260	3700
JUL 25...	1600	28	8880	--	26.5	1500	1400	420	110	1600
AUG 19...	0830	6.6	12500	--	25.0	1900	1900	490	170	2300
SEP 06...	1450	9.2	21000	--	28.5	2900	2900	830	210	4400

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)
DEC 31...	35	48	140	0	3200	8100	--	5.5	17600
FEB 14...	33	47	140	0	2900	7600	--	11	16300
MAR 29...	37	55	140	0	3500	8400	--	1.3	18800
APR 19...	35	110	150	0	4000	8500	--	3.6	19700
JUN 13...	28	58	130	0	3000	5800	1.1	6.7	13800
JUL 25...	18	24	110	0	1300	2400	.7	13	5920
AUG 19...	23	36	88	0	1900	3400	.7	3.4	8340
SEP 06...	35	52	94	0	3000	6800	1.1	1.8	15300

08412500 PECOS RIVER NEAR ORLA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	575.8	15400	10400	16200	4440	6900	2250	3500	****
NOV. 1977.....	258.3	24000	16600	11600	7590	5290	3260	2270	****
DEC. 1977.....	247.8	24900	17300	11600	7970	5340	3370	2250	****
JAN. 1978.....	275.5	24700	17200	12800	7890	5870	3340	2490	****
FEB. 1978.....	205.1	23600	16300	9050	7420	4110	3210	1780	****
MAR. 1978.....	239.8	25300	17600	11400	8120	5260	3410	2210	****
APR. 1978.....	203.6	26600	18500	10200	8640	4750	3550	1950	****
MAY 1978.....	181.8	22600	15600	7680	7070	3470	3100	1520	****
JUNE 1978.....	911.4	9530	6350	15600	2510	6160	1590	3920	1820
JULY 1978.....	1478.1	7140	4710	18800	1760	7030	1310	5240	1480
AUG. 1978.....	409	19900	13600	15100	5980	6600	2780	3070	****
SEPT 1978.....	20156.89	2560	1680	91700	460	25200	690	37700	820
TOTAL	25143.09	**	**	232000	**	86000	**	67900	**
WTD.AVG.	68.89	5070	3400	**	1300	**	1000	**	1200

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18500	24500	23800	25900	23800	24800	26200	28300	22100	13600	17200	22000
2	18400	25400	24600	25600	23500	24600	26100	28200	18000	11900	18100	23600
3	18300	24900	24700	25400	23600	24800	26200	27900	5700	11800	20600	23200
4	18100	25000	24600	25200	23900	24700	26300	27600	11200	12600	20700	21400
5	18000	24600	24500	25100	23800	24600	26200	27300	13000	13200	26000	22000
6	20800	24200	24700	25400	23600	24100	26300	27700	13600	14400	23100	21600
7	21000	24500	24900	25400	23500	24300	26100	27800	15000	14700	23500	21500
8	20300	24100	24900	26500	23300	24400	26200	27900	16400	15700	24200	21400
9	21000	23800	24600	24900	23200	24800	26300	28000	17400	16200	24500	20900
10	20900	23600	24800	24600	23400	24700	26100	28100	17900	16700	24300	20400
11	20700	23700	24700	24500	23600	24700	26000	28300	18000	17600	22800	20000
12	20500	23500	24900	24700	23300	25200	26100	28500	18300	18300	21300	20500
13	20900	23300	24400	24800	23200	25100	26200	29000	19400	19300	21500	20300
14	20700	23500	24700	24700	23900	25100	26300	28100	17500	19200	21600	20200
15	20400	23400	25000	24600	23400	24800	26400	29100	18500	19900	21700	20300
16	22800	23300	25100	24600	23700	27700	26700	29400	18700	20300	21800	20400
17	21800	24600	25500	24400	22900	26000	26800	29200	19900	20800	12000	21000
18	22100	24100	24900	24500	22400	25200	27000	29100	21600	17500	12100	20900
19	22200	23800	25500	24400	23300	25100	27100	29000	22100	21400	12200	21700
20	22500	23500	25800	24300	23500	25000	27200	16500	22300	21600	13000	20000
21	22700	23400	25700	24500	23700	25200	26900	15000	22600	19900	17300	3860
22	22400	23300	25700	24800	23900	25300	26800	18200	22800	22200	20100	6310
23	9000	23400	25300	24300	23800	25700	27000	19600	22700	10000	21400	9850
24	9190	23000	24700	23700	23900	25900	27100	19800	22200	4180	18000	9700
25	12500	22800	24600	24300	24400	25800	27200	20200	21700	9310	22500	2120
26	14300	25300	24700	24400	24500	25900	27000	20400	21300	10700	17900	1730
27	17600	23500	24800	24400	24600	25800	26800	20600	21200	12500	18100	3300
28	20400	24900	24700	24300	24600	25700	26600	21200	17000	14200	16800	6450
29	21200	24500	25500	24200	---	25900	27700	21400	15000	14800	17900	10000
30	21500	24000	25100	24100	---	25800	28300	21600	12500	15500	19500	12500
31	23400	---	25300	24000	---	26000	---	21900	---	16100	21200	---
MEAN	19500	24000	24900	24700	23700	25200	26600	25000	18200	15700	19800	16300

08412500 PECOS RIVER NEAR ORLA, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	---	8.0	8.5	6.0	13.5	25.0	18.5	23.5	28.5	30.0	21.0
2	---	12.0	9.5	4.5	7.0	15.0	20.0	18.5	27.0	26.0	27.0	23.5
3	19.5	---	10.0	3.0	7.0	11.0	23.5	15.0	18.5	26.0	26.0	22.0
4	21.0	---	9.5	4.0	6.0	7.0	18.5	---	25.0	26.0	26.0	22.0
5	20.5	---	9.5	5.0	7.0	13.0	19.0	19.5	26.0	25.0	26.0	23.5
6	23.0	---	8.5	6.0	8.5	14.5	22.0	19.5	25.0	30.0	23.5	23.0
7	22.0	---	8.0	8.5	8.0	11.0	19.5	19.5	24.5	25.0	25.0	---
8	21.0	---	7.0	6.0	8.5	15.0	19.0	18.5	24.5	30.0	26.0	20.5
9	19.5	---	9.0	5.0	8.0	10.0	20.0	25.0	29.5	24.5	30.0	22.0
10	17.0	---	5.0	4.0	6.0	17.0	16.0	21.0	25.0	24.5	25.0	23.5
11	18.5	---	9.5	3.5	6.0	17.0	20.0	20.0	27.0	30.0	30.5	22.0
12	15.5	---	5.0	4.0	9.0	16.5	15.5	19.5	26.0	30.0	25.0	26.0
13	15.0	10.0	6.0	5.0	9.0	12.0	22.0	20.0	29.5	30.0	31.0	23.5
14	15.0	9.5	6.0	5.5	9.5	17.0	18.5	---	27.0	25.0	27.0	23.5
15	15.5	10.0	5.5	5.5	8.5	12.0	22.0	---	30.0	25.0	26.5	23.0
16	15.0	10.0	8.5	7.0	---	14.5	22.0	---	27.0	25.0	26.0	---
17	15.5	13.5	7.0	6.0	8.5	10.0	19.5	---	27.0	25.0	25.0	---
18	16.0	9.5	8.5	4.5	9.5	18.5	23.5	---	26.0	30.0	---	---
19	16.5	10.5	7.0	4.5	8.0	13.5	16.0	---	26.5	25.0	25.0	---
20	16.0	12.0	6.0	4.0	---	14.5	16.0	---	26.0	25.0	28.5	---
21	18.0	11.0	3.5	3.5	10.0	17.0	16.5	---	26.0	24.0	23.5	---
22	18.5	---	3.0	2.0	5.0	17.0	16.0	---	30.0	26.0	25.5	---
23	15.0	10.0	5.0	3.5	13.0	22.0	23.5	---	26.0	25.0	29.5	---
24	15.0	9.5	7.0	3.0	8.5	---	17.0	---	26.5	20.0	26.0	12.0
25	15.5	9.0	8.5	3.0	15.0	15.0	23.0	27.0	26.0	27.0	25.0	18.5
26	16.0	13.5	7.0	3.0	12.0	14.5	18.5	25.0	26.5	28.5	24.5	17.0
27	18.5	9.0	6.0	6.0	11.0	15.0	25.0	24.5	24.5	29.5	25.0	16.0
28	17.0	9.5	6.0	5.0	12.0	19.5	21.0	26.0	19.5	30.0	24.5	16.0
29	19.5	9.5	7.0	---	---	16.5	20.0	24.5	---	---	21.0	20.0
30	19.0	8.5	8.0	5.5	---	17.0	19.5	23.5	23.5	26.0	21.5	20.0
31	19.5	---	8.5	6.0	---	18.5	---	24.5	---	25.0	20.0	---
MEAN	18.0	10.5	7.0	5.0	8.5	15.0	20.0	21.5	26.0	26.5	26.0	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.--32 years (water years 1923-24, 1940, 1943-57, 1965-78), 8.89 ft^3/s (0.252 m^3/s), 6,440 acre-ft/yr (7.94 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.34	.00
2	.02	.00	.00	.00	.00	.00	.00	.00	.00	15	.34	.00
3	.02	.00	.00	.00	.00	.00	.00	.00	.00	17	.34	.00
4	.02	.00	.00	.00	.00	.00	.00	.00	3.1	3.8	.34	.00
5	.02	.00	.00	.00	.00	.00	.00	.00	24	.34	.34	.00
6	.02	.00	.00	.00	.00	.00	.00	.00	18	.14	.24	.00
7	.02	.00	.00	.00	.00	.00	.00	.00	12	.24	.24	.46
8	.01	.00	.00	.00	.00	.00	.00	.00	7.4	.24	.24	.70
9	.02	.00	.00	.00	.00	.00	.00	.00	.34	.24	.24	.70
10	.02	.00	.00	.00	.00	.00	.00	.00	.14	.20	.24	.70
11	.02	.00	.00	.00	.00	.00	.00	.00	.14	.04	.24	.56
12	.02	.00	.00	.00	.00	.00	.00	.00	.14	.00	.34	.56
13	.02	.00	.00	.00	.00	.00	.00	.00	.02	.00	.34	.56
14	.02	.00	.00	.00	.00	.00	.00	.00	.02	.00	.24	.56
15	.01	.00	.00	.00	.00	.00	.00	.00	.01	.00	.14	.56
16	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.14	.56
17	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.64	.56
18	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	1.2	.44
19	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	4.2	.34
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.5	.34
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24	.34
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24	.14
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.9	.02	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	41	.00	.02
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	22	.01	.07
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.1	1.4	.07
28	.00	.00	.00	.00	.00	.00	.00	.00	.05	1.2	1.4	.07
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.44	.70	.02
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.34	.34	.02
31	.00	---	.00	.00	---	.00	---	.00	---	.34	.06	---
TOTAL	.28	.00	.00	.00	.00	.00	.00	.00	65.42	115.56	16.43	8.35
MEAN	.009	.000	.000	.000	.000	.000	.000	.000	2.18	3.73	.53	.28
MAX	.02	.00	.00	.00	.00	.00	.00	.00	24	41	4.2	.70
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.6	.00	.00	.00	.00	.00	.00	.00	130	229	33	17

CAL YR 1977 TOTAL 595.46 MEAN 1.63 MAX 29 MIN .00 AC-FT 1180
WTR YR 1978 TOTAL 206.04 MEAN .56 MAX 41 MIN .00 AC-FT 409

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.--30 years (water years 1940, 1943-57, 1965-78), 8.89 ft³/s (0.252 m³/s), 6,440 acre-ft/yr (7.94 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 189 ft³/s (5.35 m³/s) Sept. 28, 1978; no flow at times each year.

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	14	12	2.6	.00	.00	.00	.00	.00	.00	.00	1.5	.00
2	8.9	11	2.7	.00	.00	.00	.00	.00	.00	.00	.90	.00
3	5.3	9.1	2.6	.00	.00	.00	.00	.00	.00	.00	.65	.00
4	4.3	7.2	2.2	.00	.00	.00	.00	.00	.07	.00	1.4	.00
5	4.4	6.1	1.9	.00	.00	.00	.00	.00	5.8	.00	2.0	.00
6	4.6	5.4	1.3	.00	.00	.00	.00	.00	12	.00	1.6	.00
7	6.5	5.3	.07	.00	.00	.00	.00	.00	11	.00	1.4	.00
8	8.7	5.6	.04	.00	.00	.00	.00	.00	3.4	.00	1.6	.00
9	9.0	5.7	.03	.00	.00	.00	.00	.00	.10	.00	1.1	.00
10	11	6.2	.02	.00	.00	.00	.00	.00	.07	.00	.62	.00
11	10	6.2	.02	.00	.00	.00	.00	.00	.07	.00	.22	.00
12	9.6	6.4	.02	.00	.00	.00	.00	.00	.04	.00	.06	.00
13	9.7	6.8	.01	.00	.00	.00	.00	.00	.04	.00	.00	.00
14	9.3	6.5	.00	.00	.00	.00	.00	.00	.02	.00	.68	.00
15	8.6	6.3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	8.4	6.2	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	7.0	5.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	5.0	5.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	4.2	5.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	4.0	5.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	3.8	5.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	3.4	4.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	10
23	4.7	4.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	17
24	20	4.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	12
25	27	4.8	.00	.00	.00	.00	.00	.00	.00	46	.00	20
26	24	4.5	.00	.00	.00	.00	.00	.00	.00	33	.00	59
27	21	4.3	.00	.00	.00	.00	.00	.00	.00	15	.00	186
28	18	3.9	.00	.00	.00	.00	.00	.00	.00	10	.00	189
29	16	3.4	.00	.00	---	.00	.00	.00	.00	6.9	.00	184
30	15	2.9	.00	.00	---	.00	.00	.00	.00	3.4	.00	168
31	13	---	.00	.00	---	.00	---	.00	---	2.2	.00	---
TOTAL	318.4	178.6	13.52	.00	.00	.00	.00	.00	32.61	116.50	13.73	845.00
MEAN	10.3	5.95	.44	.000	.000	.000	.000	.000	1.09	3.76	.44	28.2
MAX	27	12	2.7	.00	.00	.00	.00	.00	12	46	2.0	189
MIN	3.4	2.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	632	354	27	.00	.00	.00	.00	.00	65	231	27	1680

CAL YR 1977 TOTAL 1440.68 MEAN 3.95 MAX 30 MIN .00 AC-FT 2860
WTR YR 1978 TOTAL 1518.36 MEAN 4.16 MAX 189 MIN .00 AC-FT 3010

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.--34 years (water years 1923-25, 1940, 1942-57, 1965-78), 29.5 ft^3/s (0.835 m^3/s), 21,370 acre-ft/yr (26.3 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	2.6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.02	2.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	2.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	2.4	.00	.00	.00	.00	.00	.00	76	.00	.00	.00
5	.00	2.2	.00	.00	.00	.00	.00	.00	152	.00	.00	.00
6	.00	2.2	.00	.00	.00	.00	.00	.00	43	.00	.00	.00
7	.00	2.1	.00	.00	.00	.00	.00	.00	5.5	.00	.00	.00
8	.00	1.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	1.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	1.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	1.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	1.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	1.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.02	.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	24
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	221
24	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	108
25	71	.00	.00	.00	.00	.00	.00	.00	.00	189	.00	.42
26	19	.00	.00	.00	.00	.00	.00	.00	.00	210	.00	.08
27	6.7	.00	.00	.00	.00	.00	.00	.00	.00	15	.00	.00
28	5.0	.00	.00	.00	.00	.00	.00	.00	.00	6.9	.00	.00
29	4.0	.00	.00	.00	---	.00	.00	.00	.00	4.3	.00	70
30	3.4	.00	.00	.00	---	.00	.00	.00	.00	2.1	.00	186
31	2.9	---	.00	.00	---	.00	---	.00	---	.77	.00	---
TOTAL	124.12	27.42	.00	.00	.00	.00	.00	.00	276.50	428.07	.00	609.50
MEAN	4.00	.91	.000	.000	.000	.000	.000	.000	9.22	13.8	.000	20.3
MAX	71	2.6	.00	.00	.00	.00	.00	.00	152	210	.00	221
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	246	54	.00	.00	.00	.00	.00	.00	548	849	.00	1210

CAL YR 1977 TOTAL 2787.51 MEAN 7.64 MAX 71 MIN .00 AC-FT 5530
WTR YR 1978 TOTAL 1465.61 MEAN 4.02 MAX 221 MIN .00 AC-FT 2910

08431700 LIMPIA CREEK ABOVE FORT DAVIS, TX
(Hydrologic bench-mark station)

LOCATION.--Lat 30°36'55", long 104°00'10", Jeff Davis County, Hydrologic Unit 13070005, on left bank about 600 ft (180 m) upstream from bridge on State Highway 118, about 2,000 ft (610 m) upstream from Jones Creek, and 6.8 mi (10.9 km) west of Fort Davis.

DRAINAGE AREA.--52.4 mi² (135.7 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 5,178.71 ft (1,578.471 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. No diversion above station. Recording rain gage at station.

AVERAGE DISCHARGE.--13 years, 3.08 ft³/s (0.0872 m³/s), 0.80 in/yr (20 mm/yr), 2,230 acre-ft/yr (2.75 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,420 ft³/s (96.9 m³/s) Sept. 25, 1978, gage height, 8.92 ft (2.719 m), 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 10 ft (3.0 m) in 1939, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,420 ft³/s (96.9 m³/s) Sept. 25, gage height, 8.92 ft (2.719 m), from rating curve extended as explained above, no other 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	96
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.7	1440
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.7	1350
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	275
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	105
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	64
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	42
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	10.40	3372.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.34	112
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.7	1440
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.006	2.14
IN.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	2.39
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	21	6690

CAL YR 1977 TOTAL 0.01 MEAN .000 MAX .01 MIN .00 CFSM .000 IN .00 AC-FT .02
WTR YR 1978 TOTAL 3382.40 MEAN 9.27 MAX 1440 MIN .00 CFSM .18 IN 2.40 AC-FT 6710

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 1977 TO SEPTEMBER 1978

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)
SEP 27...	1210	246	213	16.0	75	3	25	3.1	9.5

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
SEP 27...	.5	3.9	88	0	20	5.8	.6	31	142

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 fair. Considerable diversion for irrigation by spreader dams above station.

GAGE.--Water-stage recorder. Datum of gage is 3,078.36 ft (938.284 m), revised, National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1975, water-stage recorder at site 600 ft (180 m) upstream at 6.07 ft (1.850 m) higher datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft³/s (439 m³/s) Aug. 30, 1932, gage height, 15.45 ft (4.709 m), site and datum then in use; no flow most of times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,600 ft³/s (385 m³/s) Sept. 26, gage height, 12.75 ft (3.886 m); no flow most of year.

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	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	34	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	1.7	.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	3.2	.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	343
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
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	33
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4260
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2720
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	738
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	304
30	.00	.00	.00	.00	---	.00	.00	.00	.00	3.6	.00	136
31	.00	---	.00	.00	---	.00	---	.42	---	.08	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.42	35.70	3.68	3.20	8534.02
MEAN	.000	.000	.000	.000	.000	.000	.000	.014	1.19	.12	.10	284
MAX	.00	.00	.00	.00	.00	.00	.00	.42	34	3.6	3.2	4260
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.8	71	7.3	6.3	16930

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT 0
WTR YR 1978 TOTAL 8577.02 MEAN 23.5 MAX 4260 MIN .00 AC-FT 17010

NOTE.--No gage-height record Sept. 26-28.

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. An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--33 years (water years 1924, 1940-57, 1965-78), 31.6 ft^3/s (0.895 m^3/s), 22,890 acre-ft/yr (28.2 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 1977 TO SEPTEMBER 1978
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	.41	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.0
6	.00	.00	.00	.00	.00	.00	.00	.00	19	.00	.00	.06
7	.00	.00	.00	.00	.00	.00	.00	.00	149	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	25	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	6.5	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	1.4	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.01	.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	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.5
26	.03	.00	.00	.00	.00	.00	.00	77	.00	.00	.00	163
27	.00	.00	.00	.00	.00	.00	.00	98	.00	.00	.00	214
28	.00	.00	.00	.00	.00	.00	.00	62	.00	.00	.00	195
29	.00	.00	.00	.00	---	.00	.00	3.3	.00	.00	12	239
30	.00	.00	.00	.00	---	.00	.00	.09	.00	.00	2.8	268
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.10	---
TOTAL	35.93	.00	.00	.00	.00	.00	.00	240.39	201.37	.00	14.90	1085.56
MEAN	1.16	.000	.000	.000	.000	.000	.000	7.75	6.71	.000	.48	36.2
MAX	29	.00	.00	.00	.00	.00	.00	98	149	.00	12	268
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	71	.00	.00	.00	.00	.00	.00	477	399	.00	30	2150

CAL YR 1977 TOTAL 7256.73 MEAN 19.9 MAX 194 MIN .00 AC-FT 14390
WTR YR 1978 TOTAL 1578.15 MEAN 4.32 MAX 268 MIN .00 AC-FT 3130

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), revised, 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 171 acre-ft (211,000 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.--29 years (water years 1943-57, 1965-78), 12.7 ft^3/s (0.360 m^3/s), 9,200 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 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	30	.00	.00	.00	.00	.00	.00	.92	.00	.00	.00
4	.00	26	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00
5	.00	23	.00	.00	.00	.00	.00	.00	27	.00	.00	.00
6	.00	15	.00	.00	.00	.00	.00	.00	23	.00	.00	.00
7	.00	4.4	.00	.00	.00	.00	.00	.00	25	.00	.00	.00
8	.00	1.6	.00	.00	.00	.00	.00	.00	31	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	27	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	24	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	21	.00	.00	.00
12	25	.00	.00	.00	.00	.00	.00	.00	17	.00	.00	.00
13	30	.00	.00	.00	.00	.00	.00	.00	2.5	.00	.00	.00
14	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	34	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	8.1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	35	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	37	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	35	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	35	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	33	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	33	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	32	.00	.00	.00	.00	.00	.00	11	.00	.00	.00	.00
29	31	.00	.00	.00	---	.00	.00	13	.00	.00	.00	.00
30	30	.00	.00	.00	---	.00	.00	4.7	.00	.00	.00	.00
31	29	---	.00	.00	---	.00	---	.26	---	.00	.00	---
TOTAL	588.10	158.00	.00	.00	.00	.00	.00	28.96	198.54	.00	.00	.00
MEAN	19.0	5.27	.000	.000	.000	.000	.000	.93	6.62	.000	.000	.000
MAX	37	31	.00	.00	.00	.00	.00	13	31	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	1170	313	.00	.00	.00	.00	.00	57	394	.00	.00	.00

CAL YR 1977 TOTAL 4369.88 MEAN 12.0 MAX 62 MIN .00 AC-FT 8670
WTR YR 1978 TOTAL 973.60 MEAN 2.67 MAX 37 MIN .00 AC-FT 1930

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 m) upstream, for irrigation in the vicinity of Imperial, and at times includes water diverted from the Pecos River by Cut Around Canal.

AVERAGE DISCHARGE.--30 years (water years 1941, 1943-57, 1965-78), 9.82 ft³/s (0.278 m³/s), 7,110 acre-ft/yr (8.77 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 175 ft³/s (4.96 m³/s) Aug. 11, 1940; no flow at times each year.

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	.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	2.3	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	20	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	17	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.05	.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	1.9	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	24	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	14	.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	.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	.00	79.53	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	2.65	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	24	.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	.00	158	.00	.00	.00

CAL YR 1977 TOTAL 1006.91 MEAN 2.76 MAX 47 MIN .00 AC-FT 2000
WTR YR 1978 TOTAL 79.53 MEAN .22 MAX 24 MIN .00 AC-FT 158

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.--30 years (water years 1940, 1943-57, 1965-78), 20.0 ft^3/s (0.566 m^3/s), 14,490 acre-ft/yr (17.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 198 ft^3/s (5.61 m^3/s) Apr. 9, 10, 1947; no flow at times each year.

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	1.2	1.3	1.9	.20	.09	.00	.19	.08	.06	.03	.00	3.6
2	1.2	1.3	1.9	.22	.09	.00	.23	.08	1.3	.08	.00	.65
3	1.2	1.3	1.9	.26	.09	.00	.29	.13	1.9	1.3	.00	.09
4	1.3	1.3	2.0	.27	.10	.05	.30	.13	1.8	.84	.00	.00
5	1.8	1.4	2.3	.21	.11	.09	.35	.10	2.1	.39	.00	.00
6	2.1	1.4	1.8	.18	.14	.08	.33	.11	17	.10	.00	7.5
7	19	1.5	1.4	.14	.17	.03	.31	.09	24	.00	.00	3.3
8	11	1.5	1.3	.09	.10	.03	.32	.07	15	.00	.00	1.9
9	6.4	1.3	1.4	.04	.06	.04	.38	.05	4.9	.00	.00	1.1
10	6.3	1.3	1.1	.04	.04	.03	14	.02	3.6	.00	.00	.77
11	4.2	1.2	.94	.06	.05	.00	4.6	.04	6.1	.00	.00	.29
12	1.1	1.3	.93	.03	.08	.00	1.9	.00	5.3	.00	.00	.10
13	1.1	1.3	.91	.02	.03	.00	1.7	.00	4.1	.00	.00	.07
14	1.1	1.3	.81	.04	.02	.00	1.5	.00	3.2	.00	.00	.00
15	1.2	1.3	.82	.07	.00	.00	1.6	.00	2.7	.00	.00	.00
16	1.2	1.3	.70	.05	.00	.00	1.5	.00	2.3	.00	.00	.00
17	1.6	1.6	.49	.00	.00	.00	1.5	.00	2.0	.00	.00	.00
18	1.8	1.6	.44	.00	.00	.00	1.3	.00	1.6	.00	.00	.00
19	1.8	1.7	.50	.00	.00	.01	.32	.00	1.3	.00	.00	.00
20	1.7	1.8	.64	.00	.00	.18	.23	.00	.99	.00	.00	.00
21	1.7	1.7	.70	.05	.00	.25	.29	.00	.51	.00	.00	.00
22	1.7	1.7	.50	.07	.00	.24	.29	.00	.65	.00	.00	5.8
23	8.3	1.8	.37	.05	.00	.21	.29	.00	.58	.00	.00	4.4
24	6.9	1.8	.30	.03	.00	.14	.26	.00	.25	.00	.00	8.9
25	1.8	1.8	.22	.00	.00	.17	.23	.00	.03	.00	.00	73
26	1.4	1.9	.20	.04	.00	.16	.18	38	.00	.00	.00	80
27	1.3	1.8	.11	.02	.00	.15	.17	106	.00	.00	.00	70
28	1.8	1.8	.12	.00	.00	.16	.16	66	.03	.00	.00	74
29	1.5	1.9	.24	.08	---	.18	.12	16	.09	.00	4.1	82
30	1.3	1.9	.33	.10	---	.20	.10	5.1	.10	.00	30	91
31	1.3	---	.31	.09	---	.22	---	1.1	---	.00	15	---
TOTAL	97.3	46.1	27.58	2.45	1.17	2.62	34.94	233.10	103.49	2.74	49.10	508.47
MEAN	3.14	1.54	.89	.079	.042	.085	1.16	7.52	3.45	.088	1.58	16.9
MAX	19	1.9	2.3	.27	.17	.25	14	106	24	1.3	30	91
MIN	1.1	1.2	.11	.00	.00	.00	.10	.00	.00	.00	.00	.00
AC-FT	193	91	55	4.9	2.3	5.2	69	462	205	5.4	97	1010

CAL YR 1977 TOTAL 2756.11 MEAN 7.55 MAX 107 MIN .00 AC-FT 5470
WTR YR 1978 TOTAL 1109.06 MEAN 3.04 MAX 106 MIN .00 AC-FT 2200

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) and reservoirs above Carlsbad, N. Mex. Numerous diversions above station for irrigation.

AVERAGE DISCHARGE.--39 years, 90.6 ft³/s (2.566 m³/s), 65,640 acre-ft/yr (80.9 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1932, that of Oct. 5, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 405 ft³/s (11.5 m³/s) Sept. 21, gage height, 2.94 ft (0.896 m); minimum daily, 6.3 ft³/s (0.18 m³/s) May 19.

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	15	22	20	19	23	23	15	8.0	161	8.7	6.8	12
2	15	21	20	24	23	23	15	8.3	75	8.7	6.8	11
3	14	20	20	24	23	22	15	8.0	76	17	8.0	9.4
4	13	19	19	22	23	23	14	8.2	100	20	8.7	27
5	14	18	19	20	23	21	14	8.5	60	14	37	24
6	14	17	19	19	23	22	14	7.7	42	12	43	12
7	13	18	18	18	23	23	13	7.8	46	12	27	10
8	13	18	19	18	23	22	13	7.8	38	11	12	10
9	12	18	18	20	23	21	13	7.8	28	11	10	12
10	12	18	19	29	23	20	14	7.1	21	10	9.4	13
11	11	17	19	26	22	21	14	7.2	17	9.4	11	15
12	12	17	18	21	23	20	14	7.4	16	8.0	9.4	14
13	12	17	19	20	23	20	13	6.8	16	8.0	8.7	11
14	13	17	19	19	23	20	12	6.9	15	8.0	8.7	10
15	13	17	19	19	22	20	12	6.9	16	8.0	9.4	8.8
16	13	18	20	21	22	19	11	6.6	14	8.0	9.4	8.7
17	13	18	21	21	22	19	11	6.9	13	8.0	9.4	7.6
18	13	27	20	21	22	18	11	6.7	12	8.0	9.4	7.4
19	12	26	20	21	22	18	10	6.3	11	7.4	9.4	7.4
20	13	21	19	21	22	19	9.7	12	11	7.4	11	7.4
21	13	20	19	22	36	19	9.7	47	10	7.4	12	228
22	13	19	19	22	33	18	9.4	26	9.3	6.8	11	93
23	17	18	19	23	27	18	9.4	14	8.9	6.8	10	29
24	30	18	19	23	25	18	9.3	9.9	7.9	7.4	9.4	24
25	19	18	19	23	24	17	9.1	10	7.9	10	9.4	30
26	16	18	19	23	24	17	8.8	13	7.9	10	11	40
27	74	19	19	22	23	17	8.7	26	7.4	9.4	11	63
28	69	18	23	22	23	16	8.7	22	8.0	9.4	12	81
29	43	21	24	22	---	16	8.7	14	8.0	7.4	12	131
30	29	21	21	22	---	16	8.0	13	8.7	6.8	12	195
31	25	---	19	23	---	16	---	229	---	8.0	12	---
TOTAL	608	574	605	670	668	602	347.5	576.8	872.0	294.0	386.3	1151.7
MEAN	19.6	19.1	19.5	21.6	23.9	19.4	11.6	18.6	29.1	9.48	12.5	38.4
MAX	74	27	24	29	36	23	15	229	161	20	43	228
MIN	11	17	18	18	22	16	8.0	6.3	7.4	6.8	6.8	7.4
AC-FT	1210	1140	1200	1330	1320	1190	689	1140	1730	583	766	2280

CAL YR 1977 TOTAL 8055.1 MEAN 22.1 MAX 90 MIN 7.1 AC-FT 15980
WTR YR 1978 TOTAL 7355.3 MEAN 20.2 MAX 229 MIN 6.3 AC-FT 14590

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.

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, 1970-78): Maximum daily, 35.0°C July 26, Aug. 18, 27, 1978; minimum daily, 3.0°C Feb. 3, 4, 1956.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 27,400 micromhos May 21; minimum daily, 5,250 micromhos June 5.
WATER TEMPERATURES: Maximum daily, 35.0°C July 26, Aug. 18, 27; minimum daily, 6.0°C Jan. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 31...	1630	72	19600	7.6	25.0	3300	3300	710	380	3200
DEC 31...	1900	66	20400	7.7	15.0	3900	3700	810	450	3800
FEB 15...	1225	23	20600	7.6	11.5	4100	3900	790	520	3600
MAR 30...	0845	18	23800	--	17.0	4500	4400	820	600	4600
APR 30...	1800	75	26500	--	28.0	5400	5300	940	730	5400
JUN 12...	1300	19	9040	--	28.0	1600	1600	340	190	1500
JUL 27...	1030	12	21900	--	24.0	3700	3600	490	600	4400
AUG 31...	1800	11	18000	--	26.0	3000	3000	410	480	3300
SEP 30...	0945	204	11900	--	21.0	2100	2000	430	260	2200

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)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT 31...	24	61	56	0	3200	4900	--	2.4	12500	.18
DEC 31...	27	54	170	0	3400	6100	--	7.0	14700	.21
FEB 15...	24	50	210	0	3500	5900	--	6.4	14500	--
MAR 30...	30	63	150	0	3900	6800	--	.9	16900	--
APR 30...	32	61	56	0	5200	8000	--	3.3	20400	.11
JUN 12...	16	21	70	0	1600	2400	1.3	2.7	6090	.06
JUL 27...	32	56	61	0	4200	6700	2.2	8.4	16500	.26
AUG 31...	26	41	51	0	3600	4600	2.1	9.0	12500	.14
SEP 30...	21	31	120	0	2000	3200	1.3	4.8	8190	.00

08446500 PECOS RIVER NEAR GIRVIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	608	19300	13500	22200	5520	9050	3330	5470	****
NOV. 1977.....	574	17100	11700	18100	4800	7440	2960	4580	****
DEC. 1977.....	605	19300	13600	22100	5510	9000	3330	5440	****
JAN. 1978.....	670	20700	14700	26600	5980	10800	3570	6460	****
FEB. 1978.....	668	20700	14700	26500	5960	10700	3560	6430	****
MAR. 1978.....	602	22800	16400	26600	6650	10800	3930	6380	****
APR. 1978.....	347.5	24800	18000	16900	7310	6850	4270	4010	****
MAY 1978.....	576.8	22000	15700	24500	6390	9950	3790	5900	****
JUNE 1978.....	871	10600	7210	17000	2760	6510	1880	4440	****
JULY 1978.....	293	19700	13900	11100	5660	4490	3410	2700	****
AUG. 1978.....	386.3	17000	11800	12300	4780	4990	2950	3080	****
SEPT 1978.....	1151.7	14900	10300	32200	4100	12800	2590	8060	****
TOTAL	7355.29	**	**	256000	**	103000	**	62900	**
WTD.AVG.	20.15	18300	13000	**	5200	**	3200	**	*****

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20400	18600	17400	20700	20600	22400	23800	26400	17800	17100	21900	18100
2	20800	18700	17500	20500	20500	22100	24500	25800	10900	17400	21300	18000
3	20400	18100	17600	20700	20400	22300	24600	27000	10000	17400	21400	18000
4	20600	17500	17900	20700	20300	22200	24400	26800	5530	18900	19800	17800
5	20400	17000	18300	20400	20400	22000	24400	26200	5250	18500	12200	22700
6	20200	17400	18500	20200	20400	22300	24600	26500	6130	18600	11000	22500
7	20000	17300	17700	20300	20300	22200	24800	27000	5950	18700	21500	22000
8	19800	17200	17600	20200	20200	22200	24700	27100	6830	19000	22300	22300
9	19900	17300	18300	20800	20400	22200	24300	26800	7830	18900	23600	22400
10	19800	17400	18100	21600	20500	22300	24300	26500	8650	18900	19700	22500
11	20000	17400	18100	21100	20600	22400	24500	25700	8960	18500	20100	22700
12	20300	17300	18400	20600	20500	22500	24400	25500	9000	18700	20500	23100
13	20500	17100	18800	20700	20700	22600	24100	26700	9290	19400	20700	22900
14	20900	17000	19100	20900	20700	22700	24300	25800	9470	18900	20600	23000
15	21100	16900	19400	21000	20600	22600	25100	24800	10100	19400	20100	23200
16	21400	16800	19300	21300	20500	22800	25000	24600	11100	19800	19400	23300
17	21300	16800	19600	20700	20700	22900	24900	24500	11600	19300	18500	23400
18	21400	16700	19800	20300	20500	23000	24800	24300	11900	20100	17500	22500
19	21500	16700	20000	20400	20500	23100	24900	24800	12400	19600	16800	21800
20	21100	16500	20100	20600	20700	23300	24900	25100	12900	20000	15900	22100
21	21300	16500	20400	21200	20800	23200	24600	27400	13800	20600	15400	19000
22	21100	16500	20200	21600	20900	23100	25500	25000	14000	20700	14800	17700
23	20500	16600	20300	21200	20500	23200	25600	24000	14700	20700	14700	13300
24	19900	16300	20200	20700	20700	23500	25500	23600	15100	21000	14600	9190
25	20300	16300	20400	20500	20800	23400	25000	23300	15500	21300	15100	6770
26	19900	16600	20600	20100	20900	23400	25900	19100	16100	21400	15300	6880
27	17000	17000	20500	20200	21500	23400	25300	22900	16600	23100	15700	7300
28	16800	17400	20700	20400	22000	23400	25500	20400	16900	23300	16200	9490
29	18600	17200	20600	20600	---	23700	25700	20700	16900	23300	17000	11500
30	18000	17000	20900	20400	---	23600	26500	20300	16700	23200	17700	11700
31	17400	---	20300	20600	---	23400	---	18000	---	22700	17800	---
MEAN	20100	17100	19200	20700	20600	22800	24900	24600	11600	19900	18000	18200

08446500 PECOS RIVER NEAR GIRVIN, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	19.0	12.0	8.0	12.0	17.0	20.0	27.0	28.0	31.0	32.0	26.0
2	23.0	17.0	15.0	8.0	10.0	17.0	25.0	23.0	28.0	30.0	32.0	27.0
3	21.0	16.0	16.0	10.0	9.0	12.0	27.0	21.0	---	32.0	30.0	30.0
4	23.0	19.0	16.0	12.0	16.0	11.0	26.0	25.0	28.0	33.0	28.0	26.0
5	24.0	19.0	14.0	12.0	13.0	12.0	23.0	28.0	28.0	33.0	21.0	28.0
6	25.0	---	10.0	12.0	9.0	11.0	28.0	27.0	25.0	28.0	26.0	28.0
7	24.0	19.0	14.0	13.0	13.0	12.0	26.0	27.0	29.0	33.0	27.0	24.0
8	26.0	15.0	13.0	11.0	9.0	13.0	28.0	27.0	30.0	29.0	28.0	28.0
9	22.0	17.0	9.0	9.0	8.0	20.0	24.0	23.0	32.0	32.0	31.0	30.0
10	21.0	15.0	9.0	7.0	11.0	12.0	20.0	27.0	29.0	33.0	29.0	27.0
11	22.0	15.0	12.0	7.0	11.0	20.0	19.0	29.0	30.0	34.0	33.0	30.0
12	22.0	16.0	9.0	9.0	12.0	17.0	18.0	25.0	27.0	32.0	30.0	30.0
13	23.0	17.0	---	9.0	10.0	14.0	23.0	28.0	31.0	27.0	---	31.0
14	23.0	17.0	10.0	13.0	11.0	12.0	25.0	28.0	29.0	32.0	33.0	30.0
15	21.0	17.0	11.0	11.0	12.0	16.0	26.0	25.0	25.0	34.0	31.0	32.0
16	21.0	17.0	14.0	11.0	12.0	14.0	27.0	25.0	31.0	30.0	26.0	28.0
17	19.0	18.0	13.0	11.0	8.0	15.0	23.0	26.0	31.0	34.0	33.0	27.0
18	19.0	18.0	15.0	11.0	10.0	20.0	20.0	30.0	32.0	34.0	35.0	30.0
19	23.0	18.0	15.0	6.0	11.0	21.0	18.0	30.0	28.0	28.0	29.0	29.0
20	25.0	18.0	12.0	8.0	11.0	20.0	15.0	21.0	28.0	33.0	32.0	26.0
21	22.0	15.0	9.0	7.0	9.0	22.0	27.0	25.0	29.0	29.0	32.0	20.0
22	20.0	18.0	12.0	9.0	14.0	19.0	26.0	---	26.0	27.0	27.0	20.0
23	19.0	17.0	15.0	10.0	14.0	19.0	---	31.0	32.0	28.0	27.0	19.0
24	23.0	16.0	15.0	10.0	19.0	22.0	29.0	31.0	33.0	29.0	27.0	21.0
25	24.0	16.0	14.0	11.0	18.0	22.0	25.0	30.0	33.0	27.0	31.0	21.0
26	21.0	17.0	11.0	11.0	15.0	23.0	26.0	24.0	31.0	35.0	32.0	20.0
27	19.0	18.0	10.0	12.0	15.0	19.0	27.0	25.0	31.0	33.0	35.0	20.0
28	20.0	15.0	11.0	12.0	17.0	17.0	27.0	25.0	32.0	33.0	32.0	23.0
29	20.0	14.0	12.0	9.0	---	22.0	28.0	22.0	31.0	30.0	27.0	20.0
30	23.0	14.0	11.0	9.0	---	19.0	28.0	26.0	28.0	28.0	27.0	21.0
31	25.0	---	15.0	8.0	---	24.0	---	27.0	---	24.0	26.0	---
MEAN	22.0	17.0	12.5	10.0	12.0	17.0	24.5	26.5	29.5	31.0	29.5	25.5

08447020 INDEPENDENCE CREEK NEAR SHEFFIELD, TX

LOCATION.--Lat 30°27'07", long 101°43'58", Terrell County, Hydrologic Unit 13070010, on left bank 0.5 mi (0.8 km) downstream from Joe Chandler Ranch Headquarters, 1.0 mi (1.6 km) upstream from mouth, 6 mi (10 km) downstream from bridge on Farm Road 1217, and 17 mi (27 km) southeast of Sheffield.

DRAINAGE AREA.--763 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.

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.--Maximum discharge, 1,390 ft³/s (39.4 m³/s) June 2, gage height, 3.98 ft (1.213 m), no other peak above base of 700 ft³/s (19.8 m³/s); minimum, 13 ft³/s (0.37 m³/s) Nov. 16.

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	23	23	23	21	21	22	20	23	29	22	24	21
2	22	23	23	21	22	22	20	21	124	22	23	19
3	23	23	23	22	23	22	20	20	174	22	23	20
4	23	21	23	23	23	22	20	21	40	22	23	19
5	23	22	23	24	23	22	20	21	31	21	23	21
6	24	23	22	24	23	22	20	20	31	21	24	21
7	25	22	22	24	23	22	20	20	30	21	24	29
8	25	25	21	24	24	22	20	20	29	21	22	28
9	24	23	21	24	24	22	21	20	26	22	22	24
10	25	23	20	23	23	22	24	21	26	22	22	22
11	23	23	20	23	23	22	23	23	25	21	23	22
12	23	23	20	22	25	22	22	21	25	20	22	23
13	23	23	20	21	25	22	22	20	25	20	21	21
14	21	23	21	21	23	21	21	19	25	20	21	22
15	22	21	21	22	23	20	22	19	25	20	21	22
16	23	19	21	22	23	20	22	20	25	20	20	28
17	23	21	20	23	23	20	22	19	24	20	20	28
18	24	22	19	23	23	19	20	20	24	20	20	23
19	25	23	19	23	23	20	21	20	24	20	19	24
20	24	23	21	23	24	20	22	20	24	20	20	22
21	21	23	22	23	24	19	20	23	23	21	20	27
22	28	23	21	23	24	19	20	23	24	20	19	26
23	30	23	20	23	24	20	19	23	21	21	19	26
24	28	23	21	23	24	20	19	21	21	22	19	28
25	25	24	22	23	23	20	20	19	20	20	19	28
26	23	24	23	23	22	20	20	18	21	19	22	29
27	23	24	23	24	22	20	20	19	22	21	21	42
28	24	24	23	24	22	20	21	21	22	23	19	32
29	24	23	21	24	---	20	22	22	22	24	22	28
30	24	23	20	22	---	20	23	20	22	28	22	26
31	24	---	20	21	---	20	---	19	---	26	21	---
TOTAL	742	683	659	706	649	644	626	636	1004	662	660	751
MEAN	23.9	22.8	21.3	22.8	23.2	20.8	20.9	20.5	33.5	21.4	21.3	25.0
MAX	30	25	23	24	25	22	24	23	174	28	24	42
MIN	21	19	19	21	21	19	19	18	20	19	19	19
AC-FT	1470	1350	1310	1400	1290	1280	1240	1260	1990	1310	1310	1490

CAL YR 1977 TOTAL 10706 MEAN 29.3 MAX 926 MIN 19 AC-FT 21240
WTR YR 1978 TOTAL 8422 MEAN 23.1 MAX 174 MIN 18 AC-FT 16710

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 1978 are given in International Boundary and Water Commission Water Bulletins Nos. 47 and 48.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	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											
18...	0845	175	2060	8.1	20.0	10	8.5	97	.5	50	8
NOV											
09...	0830	221	2320	7.9	15.0	5	8.9	92	.2	92	30
DEC											
06...	0830	195	2590	7.6	14.0	5	9.6	97	.4	25	2
JAN											
18...	0905	195	2830	7.9	9.0	4	10.6	95	.2	4	2
FEB											
15...	0830	189	3130	8.0	10.5	4	10.1	94	.6	21	1
MAR											
22...	0830	175	3360	8.0	20.5	6	8.3	95	.5	38	5
APR											
12...	0900	175	2920	8.0	20.0	10	8.6	98	.7	40	2
MAY											
03...	0930	137	3200	8.2	23.5	10	7.5	91	.8	44	10
JUN											
07...	1040	5520	960	7.7	22.0	300	8.1	95	2.9	>130	130
JUL											
12...	0925	150	3200	8.3	28.0	7	7.5	97	.8	130	78
AUG											
09...	1100	145	1760	7.9	29.5	15	8.6	113	1.0	--	270
SEP											
14...	0940	215	1800	7.6	28.5	2	8.2	101	.1	--	130

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											
18...	76	430	290	96	46	270	5.7	5.7	170	0	240
NOV											
09...	120	510	370	110	58	290	5.6	5.9	170	0	280
DEC											
06...	26	570	420	130	60	350	6.4	6.8	180	0	340
JAN											
18...	9	610	460	140	63	380	6.7	6.6	180	0	350
FEB											
15...	32	630	480	140	68	420	7.3	7.1	180	0	290
MAR											
22...	14	680	550	150	74	450	7.5	8.3	160	0	430
APR											
12...	6	580	470	130	63	390	7.0	7.5	140	0	360
MAY											
03...	24	560	460	120	64	410	7.5	8.8	130	0	360
JUN											
07...	74	210	22	58	16	110	3.3	4.5	230	0	100
JUL											
12...	28	500	380	110	54	320	6.2	7.0	146	0	300
AUG											
09...	37	340	220	79	35	220	5.2	5.4	150	0	200
SEP											
14...	24	360	220	86	36	220	5.0	5.1	170	0	210

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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...	420	.8	16	1290	1180	1.3	.01	1.3	.00	.30
NOV 09...	510	.6	16	1430	1350	1.2	.01	1.2	.00	.30
DEC 06...	570	.8	14	1620	1560	1.6	.01	1.6	.08	.32
JAN 18...	640	.7	13	1710	1680	1.5	.01	1.5	.02	.08
FEB 15...	810	.8	12	1880	1840	1.5	.01	1.5	.01	.19
MAR 22...	730	.8	7.5	2030	1930	.80	.01	.81	.03	.84
APR 12...	660	.8	8.2	1790	1690	.85	.02	.87	.04	.42
MAY 03...	690	.8	8.4	1800	1730	.51	.02	.53	.08	.43
JUN 07...	170	.2	8.3	541	581	1.6	.03	1.6	.12	1.8
JUL 12...	550	.9	17	1510	1430	.80	.01	.81	.01	.49
AUG 09...	370	.7	13	1040	997	.84	.01	.85	.02	.48
SEP 14...	370	.7	15	1070	1030	.51	.01	.52	.03	.48

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...	.30	.24	.00	.00	1.5	--	--	18	8.5	99
NOV 09...	.30	.18	.01	.01	1.5	--	--	24	14	84
DEC 06...	.40	.44	.00	.00	1.2	--	--	16	8.4	77
JAN 18...	.10	.10	.01	.01	1.0	--	--	9	4.7	93
FEB 15...	.20	.15	.01	.01	--	1.3	.0	22	11	51
MAR 22...	.87	.89	.00	.00	1.7	--	--	17	8.0	91
APR 12...	.46	.38	.01	.00	3.0	--	--	12	5.7	91
MAY 03...	.51	.11	.02	.00	2.5	--	--	11	4.1	92
JUN 07...	1.9	.83	.20	.18	--	7.9	>10	543	8090	98
JUL 12...	.50	.45	.00	.00	2.2	--	--	14	5.7	97
AUG 09...	.50	.54	.01	.01	--	3.7	1.0	15	5.9	98
SEP 14...	.51	.55	.02	.04	2.6	--	--	25	15	93

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 18...	0845	2	0	2	0	0	100	<10	<10	0
FEB 15...	0830	2	1	1	200	100	100	0	0	2
JUN 07...	1040	2	1	1	200	0	200	0	--	0
AUG 09...	1100	2	1	1	200	100	70	0	0	<1

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 18...	5	5	0	50	50	0	<10	<10	0	70
FEB 15...	0	0	10	0	0	0	9	9	0	80
JUN 07...	10	5	5	2	1	1	9	6	3	4300
AUG 09...	0	0	0	0	0	<1	4	3	1	420

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 18...	--	10	<100	<100	0	0	0	4	.0	.0
FEB 15...	--	10	0	0	1	10	0	10	.0	.0
JUN 07...	4300	10	10	10	0	190	190	5	.2	.2
AUG 09...	410	<10	7	7	0	20	20	<1	.2	.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 18...	.0	1	0	1	<10	<10	0	10	4	6
FEB 15...	.0	1	0	1	0	0	0	20	10	10
JUN 07...	.0	0	0	0	0	0	0	40	20	20
AUG 09...	.3	0	0	1	0	0	0	10	7	<3

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ATRA-ZINE, 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 09...	0830	ND	ND	ND	ND	ND	ND	ND	ND
FEB 15...	0830	ND	ND	ND	ND	ND	ND	ND	ND
MAY 03...	0930	ND	ND	ND	ND	ND	ND	ND	ND
AUG 09...	1100	ND	ND	ND	ND	ND	ND	ND	ND

DATE	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)	METHYL PARA-THION, TOTAL (UG/L)
NOV 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 15...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 03...	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	SIMA-ZINE TOTAL COUL-SON COND. (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 09...	ND	ND	ND	ND	ND	ND	ND	ND
FEB 15...	ND	ND	ND	ND	ND	--	--	--
MAY 03...	ND	ND	ND	ND	ND	--	--	--
AUG 09...	ND	ND	ND	ND	ND	--	--	--

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

DATE	LENGTH OF EXPOSURE (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)	SAMPLING METHOD
NOV 09...	22	--	--	.560	.260	POLYETHYLENE STRIP
JAN 18...	43	3.62	4.57	.470	.000	POLYETHYLENE STRIP
MAR 22...	35	4.17	4.96	1.56	.000	POLYETHYLENE STRIP

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE / TIME	NOV 9,77 0830		MAR 22,78 0830		MAY 3,78 0930		JUN 7,78 1040	
TOTAL CELLS/ML	580		67000		500		9100	
DIVERSITY: DIVISION	1.4		0.0		1.2		0.8	
.CLASS	1.4		0.0		1.2		0.8	
..ORDER	1.9		0.0		1.2		1.6	
...FAMILY	2.4		0.0		1.7		2.0	
....GENUS	2.7		0.0		2.3		2.0	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	--	-	*	0
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	83	14	--	-	--	-	58	1
..VOLVOCALES								
...CHLAMYDOMONADACEAE	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	*	0	--	-	*	0
...PHACOTACEAE								
....PHACOTUS	--	-	--	-	--	-	*	0
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	--	-	29	6	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..PENNALES								
...NAVICULACEAE								
....ENTOMONEIS	--	-	--	-	--	-	--	-
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	100#	18	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	*	0	--	-	--	-
...CYMBELLACEAE								
....AMPHORA	--	-	--	-	160#	31	190	2
....CYMBELLA	--	-	--	-	43	9	160	2
....EPITHEMIA	--	-	--	-	29	6	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	14	3	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	--	-	1000	11
....SYNEDRA	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	42	7	--	-	--	-	*	0
...NAVICULACEAE								
....CALONEIS	--	-	--	-	--	-	*	0
....DIPLONEIS	62	11	--	-	14	3	--	-
....GYROSIGMA	--	-	--	-	--	-	--	-
....NAVICULA	83	14	--	-	--	-	86	1
...NITZSCHIACEAE								
....NITZSCHIA	42	7	--	-	14	3	260	3
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOMONODACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROCCOCCALES								
...CHROCCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-	3600#	39
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	170#	29	67000#	100	--	-	--	-
....OSCILLATORIA	--	-	--	-	200#	40	3600#	40
...RIVULARIACEAE								
....RAPHIDIOPSIS	--	-	--	-	--	-	72	1
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	--	-	--	-

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

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	JUL 12,78		AUG 9,78		SEP 14,78	
TIME	0925		1100		0940	
TOTAL CELLS/ML	2200		1700		3300	
DIVERSITY: DIVISION	1.0		1.6		0.7	
.CLASS	1.0		1.6		0.7	
..ORDER	1.2		1.9		1.1	
...FAMILY	2.3		3.0		1.4	
....GENUS	2.4		0.0		1.9	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...MICRACTINIACEAE						
....GOLENKINIA	--	-	--	-	22	1
...OOCYSTACEAE						
....ANKISTRODESMUS	29	1	43	3	--	-
....DICTYOSPHAERIUM	--	-	87	5	--	-
....KIRCHNERIELLA	14	1	130	8	--	-
....SELENASTRUM	--	-	22	1	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	43	2	43	3	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE	--	-	110	6	--	-
....CHLAMYDOMONAS	--	-	65	4	--	-
...PHACOTACEAE						
....PHACOTUS	--	-	--	-	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..PENNALES						
...NAVICULACEAE						
....ENTOMONEIS	43	2	--	-	--	-
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	110	5	--	-	44	1
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	14	1	43	3	22	1
...CYMBELLACEAE						
....AMPHORA	--	-	87	5	180	5
....CYMBELLA	29	1	65	4	22	1
....EPITHEMIA	--	-	--	-	--	-
...DIATOMACEAE						
....DIATOMA	--	-	--	-	22	1
...FRAGILARIACEAE						
....FRAGILARIA	72	3	220	13	180	5
....SYNEDRA	--	-	22	1	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
....CALONEIS	--	-	--	-	--	-
....DIPLONEIS	--	-	43	3	22	1
....GYROSIGMA	14	1	--	-	--	-
....NAVICULA	72	3	200	11	22	1
...NITZSCHIACEAE						
....NITZSCHIA	130	6	110	6	44	1
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONIDALES						
...CRYPTOMONODACEAE						
....CRYPTOMONAS	14	1	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROCCOCCALES						
...CHROCCOCCACEAE						
....AGMENELLUM	--	-	--	-	440	14
....ANACYSTIS	--	-	410#	24	2100#	64
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	650#	29	--	-	--	-
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	--	-
....OSCILLATORIA	980#	44	--	-	180	5
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	22	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

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 to September 1978.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February to September 1978.
WATER TEMPERATURES: February to September 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 422 micromhos Feb. 18; minimum daily, 241 micromhos Apr. 11.
WATER TEMPERATURES: Maximum daily, 30.0°C many days during summer months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN											
17...	1510	330	417	7.9	10.5	0	10.8	100	.4	8	0
FEB											
14...	1600	330	416	7.9	14.0	1	10.4	104	6.0	10	0
MAR											
21...	1345	319	406	8.0	22.5	2	9.7	114	.2	2	<1
APR											
11...	1000	454	246	7.7	17.5	35	9.0	97	2.5	5600	3900
MAY											
02...	1330	314	370	8.1	25.5	1	9.0	112	.8	1	1
JUN											
06...	1200	547	320	7.4	26.0	65	8.5	106	1.2	3400	560
JUL											
11...	1125	310	370	8.1	26.5	5	8.7	110	1.2	1100	80
AUG											
08...	1300	320	300	7.9	28.0	7	8.4	108	1.0	480	20
SEP											
13...	1210	341	366	7.8	26.5	1	8.8	111	.0	--	30

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)
JAN											
17...	4	200	14	58	14	7.8	.2	1.3	230	0	11
FEB											
14...	4	190	10	53	14	7.8	.2	1.3	220	0	10
MAR											
21...	<1	200	22	58	14	7.7	.2	1.3	220	0	9.0
APR											
11...	10000	120	13	38	5.9	3.3	.1	2.1	130	0	5.9
MAY											
02...	<1	180	10	50	14	7.9	.3	1.4	210	0	9.6
JUN											
06...	360	150	2	48	7.2	4.5	.2	2.6	180	0	6.7
JUL											
11...	19	180	19	47	14	7.8	.3	1.4	190	0	12
AUG											
08...	10	170	3	46	13	7.8	.3	1.4	202	0	8.8
SEP											
13...	28	170	18	48	13	7.9	.3	1.4	190	0	11

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)
JAN										
17...	22	.3	14	219	242	2.2	.01	2.2	.01	.29
FEB										
14...	15	.3	14	212	224	2.2	.01	2.2	.01	.00
MAR										
21...	17	.3	13	196	229	.70	.01	.71	.01	.49
APR										
11...	6.9	.1	7.9	152	134	1.6	.03	1.6	.08	.70
MAY										
02...	11	.3	15	205	213	1.7	.03	1.7	.04	.37
JUN										
06...	7.9	.2	13	183	179	1.5	.02	1.5	.09	.73
JUL										
11...	15	.3	18	196	209	1.6	.02	1.6	.01	.49
AUG										
08...	15	.3	16	186	208	1.7	.02	1.7	.02	1.9
SEP										
13...	13	.3	15	203	203	1.6	.02	1.6	.03	.64

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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
JAN 17...	.30	.20	.01	.01	.6	--	--	5	4.5	36
FEB 14...	.00	.00	.01	.01	--	1.4	.0	6	5.3	16
MAR 21...	.50	.51	.00	.00	.2	--	--	4	3.4	78
APR 11...	.78	.62	.05	.00	9.0	--	--	35	43	98
MAY 02...	.41	.17	.01	.00	1.0	--	--	5	4.2	71
JUN 06...	.82	.64	.06	.09	--	4.3	1.5	95	140	99
JUL 11...	.50	.41	.00	.00	1.3	--	--	10	8.4	92
AUG 08...	1.9	1.4	.01	.00	--	1.6	--	16	14	98
SEP 13...	.67	.61	.01	.01	1.2	--	--	9	8.3	84

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)
FEB 14...	1600	2	1	1	200	100	100	1	0	2
JUN 06...	1200	2	0	2	300	100	200	0	--	0
AUG 08...	1300	2	1	1	300	200	100	1	0	<1

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)
FEB 14...	10	10	0	0	0	0	6	6	0	10
JUN 06...	5	0	5	0	0	1	6	4	2	1500
AUG 08...	0	0	0	1	0	<1	6	6	0	200

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	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)
FEB 14...	--	0	0	0	0	0	0	0	.2	.2
JUN 06...	--	0	5	3	2	60	60	5	.1	.1
AUG 08...	190	<10	6	6	0	20	20	<1	.4	.1

DATE	MERCURY DISSOLVED (UG/L AS HG)	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)
FEB 14...	.0	0	0	0	0	0	0	10	10	0
JUN 06...	.0	0	0	0	0	0	0	20	10	10
AUG 08...	.3	1	0	1	0	0	0	10	7	3

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

DATE	LENGTH OF EXPOSURE (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)	SAMPLING METHOD
MAY 02...	21	1.42	1.65	.000	.000	POLYETHYLENE STRIP

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	MAR 21,78	MAY 2,78	JUN 6,78	JUL 11,78	AUG 8,78	SEP 13,78
TIME	1345	1330	1200	1125	1300	1210
TOTAL CELLS/ML	270	450	650	130	1600	4300
DIVERSITY: DIVISION	0.7	1.2	1.2	0.0	1.0	0.6
.CLASS	0.7	1.2	1.2	0.0	1.0	0.6
..ORDER	0.9	1.4	2.1	0.9	1.6	0.9
...FAMILY	2.6	2.7	2.7	1.2	1.9	1.2
....GENUS	2.8	2.7	2.8	1.4	1.9	1.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....CHODATELLA	14	5	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....SCENEDESMUS	27	10	29	6	15	2	--	-	55	4	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....COSMARIUM	14	5	--	-	--	-	--	-	--	-	--	-
....SPONDYLOSIUM	--	-	--	-	15	2	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	14	3	--	-	--	-	--	-	--	-
....MELOSIRA	--	-	--	-	100#	16	88#	67	--	-	110	3
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	72#	16	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....AMPHORA	--	-	14	3	15	2	--	-	--	-	--	-
....CYMBELLA	14	5	--	-	44	7	15	11	83	5	150	4
....EPITHEMIA	*	0	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	14	3	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	15	2	--	-	--	-	--	-
....SYNEDRA	81#	30	--	-	29	5	--	-	42	3	28	1
...GOMPHONEMATACEAE												
....GOMPHONEMA	14	5	14	3	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....CALONEIS	14	5	--	-	--	-	--	-	--	-	28	1
....MASTOGLOIA	--	-	--	-	--	-	--	-	--	-	*	0
....NAVICULA	68#	25	72#	16	180#	27	15	11	220	14	110	3
....PINNULARIA	--	-	--	-	--	-	15	11	--	-	--	-
...NITZSCHIACEAE												
....DENTICULA	27	10	--	-	--	-	--	-	--	-	--	-
....NITZSCHIA	--	-	58	13	--	-	--	-	--	-	220	5
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCOCCALES												
...CHROCOCCACEAE												
....AGMENELLUM	--	-	--	-	120#	18	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-	--	-	330#	21	170	4
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	160#	35	120#	18	--	-	830#	53	3400#	80
....SPIRULINA	--	-	--	-	--	-	--	-	--	-	*	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 1977 TO SEPTEMBER 1978

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. 1977.....	0	*******	*******	0	*******	0	*******	0	****
NOV. 1977.....	0	*******	*******	0	*******	0	*******	0	****
DEC. 1977.....	0	*******	*******	0	*******	0	*******	0	****
JAN. 1978.....	0	*******	*******	0	*******	0	*******	0	****
FEB. 1978.....	9050	407	230	5630	15	369	10	249	200
MAR. 1978.....	9676	389	220	5730	14	378	10	257	190
APR. 1978.....	10721	347	190	5630	13	373	9	256	170
MAY 1978.....	10688	367	210	5940	14	392	9	269	180
JUNE 1978.....	14209	333	190	7170	12	476	8	325	160
JULY 1978.....	9691	346	200	5110	13	337	9	228	170
AUG. 1978.....	9441	343	190	4920	13	323	9	220	160
SEPT 1978.....	10437	352	200	5590	13	367	9	250	170
TOTAL	83913	**	**	45700	**	3010	**	2050	**
WTD.AVG.	347	359	200	**	13	**	9.1	**	170

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					419	407	370	354	295	312	342	335
2					394	400	377	325	310	328	351	328
3					400	391	380	354	319	341	357	350
4					404	410	391	380	328	326	352	370
5					401	421	333	314	260	341	307	351
6					398	415	343	363	308	323	325	357
7					413	410	344	358	344	354	331	365
8					405	403	345	396	393	317	348	356
9					407	385	304	356	341	315	313	365
10					403	365	268	381	357	345	335	360
11					394	349	241	366	375	334	323	351
12					406	375	343	395	299	358	331	355
13					400	398	364	389	325	334	335	349
14					390	384	359	377	310	366	338	338
15					400	342	357	385	307	357	340	350
16					386	370	360	392	357	354	290	345
17					408	393	392	393	350	349	338	343
18					422	380	393	366	349	350	347	353
19					418	381	380	373	347	360	350	341
20					408	400	396	344	319	338	355	347
21					413	396	364	308	344	336	360	335
22					415	349	361	375	357	343	364	326
23					420	396	360	393	367	357	344	349
24					417	384	353	375	350	355	327	362
25					418	390	378	389	333	359	358	357
26					415	390	358	378	350	355	361	353
27					407	391	356	385	346	359	359	370
28					412	381	388	378	358	368	356	366
29					---	402	354	385	356	365	362	353
30					---	400	370	373	340	368	359	362
31					---	393	---	350	---	369	366	---
MEAN					407	389	356	369	336	346	343	351

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					10.0	17.0	19.0	24.0	27.0	27.0	25.0	26.0
2					10.0	19.0	19.0	25.0	---	27.0	25.0	26.0
3					11.0	15.0	---	22.0	23.0	29.0	25.0	26.0
4					10.0	---	22.0	20.0	24.0	27.0	25.0	---
5					10.0	15.0	21.0	19.0	25.0	28.0	30.0	26.0
6					10.0	17.0	21.0	22.0	26.0	25.0	30.0	25.0
7					11.0	14.0	24.0	27.0	24.0	26.0	30.0	25.0
8					12.0	12.0	17.0	23.0	28.0	28.0	25.0	27.0
9					10.0	16.0	24.0	26.0	25.0	29.0	30.0	25.0
10					9.0	14.0	17.0	23.0	24.0	27.0	26.0	---
11					8.0	15.0	18.0	25.0	25.0	30.0	29.0	27.0
12					11.0	---	16.0	21.0	27.0	26.0	30.0	27.0
13					13.0	18.0	20.0	23.0	29.0	30.0	30.0	25.0
14					11.0	15.0	23.0	21.0	29.0	29.0	30.0	28.0
15					11.0	15.0	23.0	24.0	24.0	28.0	29.0	30.0
16					10.0	18.0	23.0	25.0	23.0	30.0	30.0	30.0
17					10.0	16.0	21.0	25.0	---	28.0	30.0	30.0
18					7.0	14.0	18.0	24.0	25.0	27.0	28.0	25.0
19					11.0	14.0	19.0	24.0	25.0	27.0	---	25.0
20					10.0	18.0	19.0	24.0	24.0	28.0	---	26.0
21					9.0	20.0	23.0	25.0	25.0	27.0	---	---
22					12.0	20.0	26.0	26.0	25.0	26.0	26.0	25.0
23					14.0	21.0	27.0	25.0	26.0	26.0	26.0	25.0
24					15.0	19.0	29.0	24.0	---	26.0	25.0	25.0
25					15.0	17.0	25.0	23.0	29.0	27.0	25.0	26.0
26					---	---	23.0	24.0	27.0	27.0	26.0	26.0
27					15.0	17.0	23.0	23.0	27.0	26.0	---	20.0
28					19.0	20.0	20.0	23.0	28.0	26.0	28.0	24.0
29					---	16.0	25.0	23.0	25.0	25.0	25.0	25.0
30					---	18.0	26.0	26.0	29.0	25.0	26.0	21.0
31					---	19.0	---	27.0	---	25.0	26.0	---
MEAN					11.5	17.0	22.0	23.5	26.0	27.0	27.5	26.0

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 1978 are given in International Boundary and Water Commission Water Bulletins Nos. 47 and 48.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 19...	0720	892	1090	8.0	17.0	270	130	75	20
NOV 16...	0715	897	1070	8.0	17.0	270	150	74	21
DEC 21...	0820	971	1060	8.0	13.0	260	140	71	20
JAN 18...	0825	971	1060	8.0	10.5	260	150	70	21
FEB 15...	0820	944	1050	8.1	10.0	260	140	69	21
MAR 15...	0800	3070	1040	7.8	--	270	150	75	20
APR 19...	0815	1230	1060	8.1	18.0	240	120	63	20
MAY 17...	0725	6640	1100	7.8	26.5	260	140	70	21
JUN 21...	0720	5090	1090	8.0	22.0	250	120	66	20
JUL 19...	0720	4450	1080	8.2	--	250	130	66	20
AUG 16...	0720	2480	1070	7.8	26.0	250	130	67	19
SEP 20...	0725	2430	1030	7.9	26.0	250	140	68	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 19...	120	3.2	4.9	170	0	210	130	18	662
NOV 16...	110	2.9	5.1	150	0	220	130	18	652
DEC 21...	120	3.2	4.9	140	0	210	130	18	643
JAN 18...	120	3.2	5.2	140	0	220	130	18	653
FEB 15...	110	3.0	5.1	150	0	220	120	16	635
MAR 15...	120	3.2	5.1	150	0	220	130	15	659
APR 19...	120	3.4	5.3	150	0	210	120	16	628
MAY 17...	120	3.2	5.3	150	0	200	130	16	636
JUN 21...	120	3.3	5.2	150	0	210	130	17	642
JUL 19...	130	3.6	5.3	140	0	210	130	17	647
AUG 16...	110	3.1	4.9	140	0	210	130	16	626
SEP 20...	120	3.3	5.1	140	0	240	120	18	660

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. 47 and 48.

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, 1,230 micromhos Apr. 11-12, 14; minimum daily, 533 micromhos Oct. 27.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
17...	1315	1570	1000	7.9	22.0	15	8.4	99	1.1	67000	7500
NOV											
07...	1415	1740	947	7.9	24.5	25	8.7	106	.8	5600	2400
DEC											
05...	1515	1620	910	7.9	20.5	15	9.7	110	.7	840	390
JAN											
23...	1615	1320	1050	8.0	9.5	6	11.0	99	1.4	7800	4600
FEB											
13...	1245	1230	1050	7.9	14.0	15	10.3	103	1.4	8600	1400
MAR											
13...	1255	2670	1060	7.8	20.5	55	8.5	97	.2	21000	1600
APR											
17...	1630	1700	1110	8.1	27.5	50	8.0	102	1.5	14000	2000
MAY											
08...	1530	780	1150	8.0	28.5	30	8.2	106	3.1	170000	16000
JUN											
05...	1630	8330	1000	7.6	29.0	--	7.4	97	1.0	47000	7600
JUL											
10...	1630	4270	1200	8.0	31.0	30	8.0	108	.4	1400	290
AUG											
14...	1310	2540	1070	8.0	30.0	40	7.3	97	1.0	2900	840
SEP											
11...	1510	3570	757	8.1	28.5	90	7.0	91	.8	--	19000

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...	3300	270	140	77	20	110	2.9	4.1	170	0	230
NOV											
07...	4200	280	130	83	18	96	2.5	3.7	180	0	200
DEC											
05...	270	280	150	80	20	100	2.6	3.9	160	0	190
JAN											
23...	4200	290	150	83	21	110	2.8	4.0	170	0	220
FEB											
13...	5200	300	160	84	21	100	2.5	4.0	170	0	200
MAR											
13...	2300	310	190	88	21	100	2.5	3.9	140	0	180
APR											
17...	3700	310	170	88	22	110	2.7	4.8	170	0	220
MAY											
08...	47000	280	160	76	22	130	3.4	5.3	150	0	230
JUN											
05...	3200	280	160	73	23	110	2.9	5.2	140	0	220
JUL											
10...	350	270	150	70	22	120	3.2	4.9	140	0	230
AUG											
14...	K160	260	130	70	20	110	3.0	4.9	150	0	210
SEP											
11...	2700	220	100	64	14	74	2.2	4.0	140	0	150

08459000 RIO GRANDE AT LAREDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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...	100	.7	18	622	644	.34	.00	.34	.03	.24
NOV										
07...	100	.7	17	592	607	.53	.01	.54	.01	.53
DEC										
05...	110	.7	15	608	598	.42	.01	.43	.06	.27
JAN										
23...	120	.4	15	648	657	.20	.01	.21	.01	.50
FEB										
13...	110	.7	15	634	619	.58	.01	.59	.01	.40
MAR										
13...	120	.7	14	610	597	.33	.00	.33	.01	.60
APR										
17...	120	.9	17	675	667	.53	.02	.55	.01	.58
MAY										
08...	140	.9	16	693	694	.16	.01	.17	.05	.53
JUN										
05...	110	.9	12	613	623	.25	.09	.34	.01	.71
JUL										
10...	130	1.0	20	666	667	.21	.01	.22	.00	.59
AUG										
14...	120	.9	18	643	628	.25	.01	.26	.02	.57
SEP										
11...	79	.6	14	470	469	.57	.01	.58	.01	.59

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...	.27	--	.03	--	2.2	--	--	40	170	74
NOV										
07...	.54	--	.03	--	4.2	--	--	77	362	97
DEC										
05...	.33	.33	.03	.01	3.6	--	--	22	96	96
JAN										
23...	.51	.25	.04	.02	2.2	--	--	8	29	78
FEB										
13...	.41	.37	.05	.02	--	--	--	21	70	95
MAR										
13...	.61	.35	.14	.05	4.0	--	--	125	901	96
APR										
17...	.59	.43	.07	.00	2.9	--	--	92	422	98
MAY										
08...	.58	.36	.11	.04	--	--	--	45	95	100
JUN										
05...	.72	.34	.03	.01	7.8	--	--	392	8820	92
JUL										
10...	.59	.41	.03	.00	3.2	--	--	61	703	88
AUG										
14...	.59	.54	.04	.01	--	2.6	1.1	100	686	91
SEP										
11...	.60	.54	.08	.03	4.8	--	--	192	1850	92

08459000 RIO GRANDE AT LAREDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
FEB 13...	1245	3	1	2	100	0	100	0	0	0
MAY 08...	1530	5	2	3	300	100	200	0	0	0
AUG 14...	1310	4	0	4	300	200	100	1	0	<1

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
FEB 13...	0	0	10	2	2	0	7	5	2	370
MAY 08...	0	0	0	0	0	2	7	7	0	780
AUG 14...	10	10	0	0	0	<1	7	6	1	1300

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)
FEB 13...	--	10	9	4	5	20	10	10	.0	.0
MAY 08...	--	0	6	5	1	40	30	10	.0	.0
AUG 14...	1300	<10	8	8	0	40	40	<1	.0	.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)
FEB 13...	.0	0	0	0	1	1	0	20	10	10
MAY 08...	.0	0	0	0	0	0	0	20	0	20
AUG 14...	.0	1	1	0	0	0	0	20	20	<3

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

DATE	LENGTH OF EXPOSURE (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)	SAMPLING METHOD
MAR 13...	28	39.3	43.9	9.29	.960	POLYETHYLENE STRIP

08459000 RIO GRANDE AT LAREDO, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE / TIME	NOV 7,77 1415		MAR 13,78 1255		MAY 8,78 1530		JUN 5,78 1630		JUL 10,78 1630		AUG 14,78 1310	
TOTAL CELLS/ML	230		340		2300		570		1000		250	
DIVERSITY: DIVISION	1.5		1.3		1.4		1.3		1.2		0.7	
.CLASS	1.5		1.3		1.4		1.3		1.2		0.7	
..ORDER	1.5		1.5		2.1		1.4		1.4		0.8	
...FAMILY	2.2		2.4		2.2		2.2		2.0		1.0	
....GENUS	2.2		2.5		2.3		2.4		2.2		1.1	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	8	3	--	-	--	-	14	2	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	--	-	--	-	--	-	4	2
....CHODATELLA	--	-	--	-	--	-	--	-	89	9	--	-
....FRANCEIA	--	-	--	-	--	-	--	-	22	2	--	-
....KIRCHNERIELLA	--	-	--	-	41	2	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	89	9	--	-
...SCENEDESMACEAE												
....SCENEDESMUS	15	7	31	9	--	-	--	-	360#	36	200#	81
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	16	5	210	9	29	5	22	2	--	-
...PHACOTACEAE												
....PHACOTUS	--	-	8	2	--	-	--	-	--	-	--	-
...POLYBLEPHARIDACEAE												
....SPERMATOZOOPSIS	--	-	--	-	41	2	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	--	-	1200#	53	--	-	--	-	4	2
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-	4	2
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	8	3	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	--	-	14	2	--	-	--	-
....CYMBELLA	--	-	*	0	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	*	0	--	-	--	-	14	2	44	4	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	16	5	--	-	57	10	--	-	--	-
....SYNEDRA	8	3	8	2	--	-	29	5	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	8	2	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	15	7	47	14	83	4	43	7	--	-	8	3
...NITZSCHIACEAE												
....NITZSCHIA	77#	33	130#	39	120	5	86	15	22	2	28	11
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCOCCALES												
...CHROCOCCACEAE												
....AGMENELLUM	--	-	78#	23	170	7	--	-	360#	36	--	-
....ANACYSTIS	--	-	--	-	100	5	--	-	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	270	12	--	-	--	-	--	-
....OSCILLATORIA	92#	40	--	-	--	-	290#	50	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	8	3	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	41	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 1977 TO SEPTEMBER 1978

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	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. 1977.....	58910	993	600	95700	110	17500	200	32200	270
NOV. 1977.....	39210	984	600	63300	110	11500	200	21000	270
DEC. 1977.....	39200	1030	620	65900	120	12200	210	22300	280
JAN. 1978.....	39650	1040	630	67600	120	12800	210	22900	280
FEB. 1978.....	35080	1040	630	59700	120	11000	210	20200	280
MAR. 1978.....	78246	1090	660	139000	120	25900	230	48100	290
APR. 1978.....	44494	1150	700	83800	140	16300	240	29300	300
MAY 1978.....	125660	1070	650	219000	120	41000	220	75200	280
JUNE 1978.....	182100	1040	630	310000	120	57300	220	106000	280
JULY 1978.....	137090	1070	650	241000	120	45500	220	82600	290
AUG. 1978.....	87670	1060	640	152000	120	28200	220	52100	280
SEPT 1978.....	117200	877	530	168000	92	29100	170	53800	250
TOTAL	984510	**	**	1660000	**	308000	**	566000	**
WTD.AVG.	2697.29	1030	630	**	120	**	210	**	280

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1090	945	1020	1030	1000	1070	1100	1120	1100	1100	1060	698
2	1060	952	1020	1030	1030	1070	1100	1090	1100	1090	1030	837
3	1050	991	990	1040	1010	1060	1140	1130	1090	1090	1060	960
4	1100	987	1010	1020	1000	1080	1160	1140	1030	1080	1080	991
5	1060	1020	1020	1040	987	1090	1170	1150	944	1100	1030	987
6	1100	1000	995	1040	1110	1110	1170	1120	941	1100	1080	1020
7	1100	938	1020	1050	1000	1120	1170	1150	885	1100	1100	908
8	1120	982	1010	1040	1010	1110	1180	1150	863	1100	1050	858
9	1120	979	1020	1040	978	1070	1190	1170	961	1100	1040	792
10	1100	1000	1030	1040	1050	1080	1210	1150	996	1100	1060	819
11	1040	1000	1020	1050	1000	1080	1230	1170	1030	1100	1060	800
12	1030	940	1010	1060	1020	1100	1230	1190	1050	1080	1060	852
13	1050	981	1010	1040	1030	1030	1220	1180	1050	1090	1050	923
14	1070	981	1020	1050	1020	1080	1230	1180	1070	1100	1060	939
15	1050	960	1020	1040	1060	1070	1180	990	1080	1100	1070	905
16	1010	971	1030	1040	1000	1070	1160	1060	1080	1090	1070	903
17	1050	983	1040	1050	1070	1060	1100	1090	1080	1090	1060	911
18	1010	987	1050	1040	1040	1090	1100	1110	1080	1100	1070	947
19	1050	995	1030	1040	1080	1090	1110	1110	1080	1100	1070	985
20	999	1000	1030	1030	1070	1090	1140	1120	1090	1100	1070	988
21	1040	999	1040	1040	1070	1060	1150	1020	1090	1110	1070	994
22	1030	981	1030	1040	1050	1080	1150	867	1100	1120	1080	994
23	1040	985	1040	1030	1090	1090	1140	1000	1090	1120	1080	977
24	1010	988	1040	1050	1080	1090	1160	1050	1080	1120	1090	881
25	984	999	1040	1030	1080	1090	1160	1020	1090	1110	1080	780
26	740	984	1050	1050	1070	1090	1160	1050	1090	1110	1080	648
27	533	1000	1040	1050	1060	1090	1150	1080	1100	1110	1080	796
28	756	1000	1040	1050	1060	1100	1150	1110	1100	1110	1080	883
29	685	1000	1040	1050	---	1120	1130	1110	1100	728	1080	867
30	735	1020	1050	1060	---	1100	1120	1100	1100	881	1060	769
31	823	---	1050	1020	---	1100	---	1100	---	1020	950	---
MEAN	990	985	1030	1040	1040	1080	1160	1100	1050	1080	1060	887

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 1977 TO SEPTEMBER 1978

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)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
OCT											
17...	1425	1026	8.1	23.0	9.5	113	1.2	140000	1700	2200	19
NOV											
07...	1520	989	8.0	24.5	8.5	104	1.0	260000	60000	23000	30
DEC											
06...	0845	870	7.5	13.5	8.7	86	3.1	60000	4900	6300	--
JAN											
24...	0820	1060	7.9	9.5	9.3	84	2.4	350000	78000	31000	9
FEB											
13...	1435	1020	7.9	15.0	11.1	113	1.2	44000	1100	500	19
MAR											
13...	1410	1090	7.6	20.5	7.1	81	4.1	250000	20000	51000	85
APR											
18...	0905	1110	7.6	25.0	6.2	77	2.8	1300000	110000	9000	68
MAY											
09...	1015	1190	7.6	28.0	3.6	46	3.9	1200000	330000	670000	18
JUN											
05...	1320	978	7.6	28.0	6.9	88	1.7	120000	41000	9700	413
JUL											
11...	0910	1180	8.1	28.5	7.0	91	1.3	130000	15000	100000	54
AUG											
14...	1510	1030	8.0	30.5	7.1	95	1.6	100000	17000	2400	83
SEP											
12...	0905	844	8.0	27.5	6.6	85	2.0	--	33000	6400	198

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.

263337099100101 - INTERNATIONAL FALCON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	HARDNESS (CA,MG) (MG/L)
JAN									
05...	1742	1.0	1060	8.1	15.5	1.70	9.0	93	260
05...	1746	10	1060	8.1	15.5	--	8.9	92	--
05...	1748	20	1060	8.1	15.5	--	8.8	91	--
05...	1751	30	1060	8.1	15.5	--	8.8	91	--
05...	1754	40	1060	8.1	15.5	--	8.8	91	--
05...	1755	50	1060	8.0	15.5	--	8.5	88	--
05...	1756	60	1060	7.9	15.5	--	8.4	87	--
05...	1757	70	1060	7.9	15.0	--	8.4	86	--
05...	1758	80	1060	7.9	15.0	--	8.3	85	--
05...	1759	95	1060	7.9	15.5	--	8.1	83	270

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JAN									
05...	160	69	22	120	3.2	4.6	130	0	230
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	160	70	22	120	3.2	4.6	130	0	230

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN									
05...	120	.7	12	642	.10	.07	.03	20	10
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	120	.7	12	643	.11	.07	.03	20	10

263326099092201 - INTERNATIONAL FALCON RES SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
JAN							
05...	1810	1.0	1060	8.3	15.5	9.0	93
05...	1812	10	1060	8.4	15.5	9.0	93
05...	1815	25	1060	8.4	15.5	9.0	93

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263815099124901 - INTERNATIONAL FALCON RES SITE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
JAN							
05...	1716	1.0	1060	8.2	15.5	9.0	93
05...	1717	10	1060	8.2	15.5	9.0	93
05...	1718	20	1060	8.1	15.5	8.8	91
05...	1720	30	1060	8.1	15.5	8.7	90
05...	1722	40	1060	8.0	15.0	8.3	85
05...	1724	46	1060	8.0	15.0	8.1	83

264002099101701 - INTERNATIONAL FALCON RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	DISSOLVED OXYGEN (MG/L)
JAN							
05...	1618	1.0	1060	8.2	15.5	1.40	9.1
05...	1621	10	1060	8.2	15.5	--	9.0
05...	1624	20	1060	8.2	15.5	--	8.8
05...	1626	30	1060	8.1	15.0	--	8.5
05...	1628	40	1060	8.1	15.0	--	8.3
05...	1630	50	1060	8.0	14.5	--	7.9
05...	1633	60	1060	8.0	14.5	--	7.8

DATE	PERCENT SATURATION	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN						
05...	94	.09	.20	.08	175	70
05...	93	--	--	--	--	--
05...	91	--	--	--	--	--
05...	87	--	--	--	--	--
05...	85	--	--	--	--	--
05...	80	--	--	--	--	--
05...	79	.09	.07	.03	80	10

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

264328099123101 - INTERNATIONAL FALCON RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	HARDNESS (CA,MG) (MG/L)
JAN									
05...	1532	1.0	1060	8.3	15.5	1.20	9.1	94	270
05...	1534	10	1060	8.2	15.5	--	9.0	93	--
05...	1536	20	1060	8.2	15.5	--	8.6	89	--
05...	1538	30	1060	8.1	15.5	--	8.4	87	--
05...	1540	40	1060	8.0	15.0	--	8.1	83	--
05...	1542	50	1080	8.0	15.0	--	8.0	82	--
05...	1544	60	1080	8.0	15.0	--	8.0	82	--
05...	1547	70	1100	8.0	14.5	--	7.9	80	--
05...	1550	82	1100	8.0	14.5	--	7.6	77	280

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JAN									
05...	170	71	23	120	3.2	4.7	130	0	240
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	170	74	24	120	3.1	4.5	140	0	260

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN								
05...	120	12	655	.07	.04	.02	40	10
05...	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--
05...	--	--	--	.10	.10	.03	110	20
05...	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--
05...	120	12	683	.09	.16	.03	0	10

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

26485099154201 - INTERNATIONAL FALCON RES SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
JAN							
05...	1455	1.0	1100	8.0	15.5	9.1	94
05...	1457	10	1100	8.0	15.0	8.8	90
05...	1459	20	1100	7.9	15.0	8.4	86
05...	1501	30	1100	8.0	14.5	8.1	82
05...	1504	40	1120	8.0	14.5	8.0	81
05...	1506	50	1120	7.9	14.5	7.9	80
05...	1509	64	1120	7.9	14.5	7.6	77

265224099160701 - INTERNATIONAL FALCON RESERVOIR SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	DISSOLVED OXYGEN (MG/L)
JAN							
05...	1250	1.0	1100	8.2	14.5	1.00	9.0
05...	1300	10	1100	8.2	14.5	--	8.9
05...	1302	20	1100	8.2	14.5	--	8.8
05...	1305	30	1100	8.2	14.5	--	8.7
05...	1307	44	1100	8.1	14.0	--	6.7

DATE	PERCENT SATURATION	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN						
05...	91	.08	.09	.04	20	0
05...	90	--	--	--	--	--
05...	89	--	--	--	--	--
05...	88	--	--	--	--	--
05...	67	.05	.34	.07	20	10

265014099190601 - INTERNATIONAL FALCON RES GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	DISSOLVED OXYGEN (MG/L)
JAN							
05...	1408	1.0	1190	8.3	14.5	.90	9.2
05...	1410	10	1190	8.2	14.5	--	9.0
05...	1414	20	1190	8.1	14.5	--	8.4
05...	1416	30	1190	8.1	14.5	--	8.3
05...	1418	40	1160	8.0	14.0	--	7.8
05...	1420	45	1160	8.0	14.0	--	7.2

DATE	PERCENT SATURATION	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN						
05...	93	.08	.09	.04	10	10
05...	91	--	--	--	--	--
05...	85	--	--	--	--	--
05...	84	--	--	--	--	--
05...	78	--	--	--	--	--
05...	72	.07	.24	.06	20	0

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265213099190801 - INTERNATIONAL FALCON RESERVOIR SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	HARDNESS (CA,MG) (MG/L)
JAN									
05...	1330	1.0	1110	8.3	14.5	.90	9.0	91	290
05...	1334	10	1110	8.3	14.5	--	8.8	89	--
05...	1337	20	1110	8.2	14.0	--	8.5	85	--
05...	1340	30	1110	8.2	14.0	--	8.3	83	--
05...	1343	40	1110	8.1	14.0	--	7.9	79	--
05...	1345	50	1100	8.1	14.0	--	7.6	76	290

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JAN									
05...	180	76	25	120	3.1	4.5	140	0	270
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	160	77	23	120	3.1	4.4	150	0	260

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN								
05...	120	13	697	.09	.10	.05	10	0
05...	--	--	--	--	--	--	--	--
05...	--	--	--	.10	.14	.04	20	10
05...	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--
05...	120	13	691	.12	.23	.06	20	0

263337099100101 - INTERNATIONAL FALCON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED BARIUM (BA) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)
JAN							
05...	1742	1.0	2	100	0	0	1
05...	1759	95	2	100	0	0	1

DATE	DISSOLVED IRON (FE) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED SILVER (AG) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
JAN							
05...	20	0	10	.0	0	0	10
05...	20	1	10	.0	1	0	10

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263337099100101 INTERNATIONAL FALCON RESERVOIR SITE AC
PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JANUARY 1978

DATE	JAN 5,78
TIME	1742
TOTAL CELLS/ML	14000
DIVERSITY: DIVISION	0.5
.CLASS	0.5
..ORDER	1.3
...FAMILY	1.5
....GENUS	1.7

ORGANISM	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OOCYSTACEAE		
....ANKISTRODESMUS	200	1
....KIRCHNERIELLA	120	1
....OOCYSTIS	*	0
....SELENASTRUM	120	1
....TETRAEDRON	90	1
...SCENEDESMACEAE		
....CRUCIGENIA	*	0
....SCENEDESMUS	750	5
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	*	0
..PENNALES		
...FRAGILARIACEAE		
....SYNEDRA	*	0
...NITZSCHIACEAE		
....NITZSCHIA	*	0
.CHRYSOPHYCEAE		
..CHRYSOMONADALES		
...OCHROMONADACEAE		
....OCHROMONAS	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..CHROCCOCCALES		
...CHROCCOCCACEAE		
....AGMENELLUM	240	2
....ANACYSTIS	9300#	66
..HORMOGONALES		
...NOSTOCACEAE		
....APHANIZOMENON	360	3
...OSCILLATORIACEAE		
....OSCILLATORIA	2800#	20
EUGLENOPHYTA (EUGLENOIDS)		
.CRYPTOPHYCEAE		
..CRYPTOMONIDALES		
...CRYPTOMONODACEAE		
....CRYPTOMONAS	*	0

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

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265213099190801 INTERNATIONAL FALCON RESERVOIR SITE HC
PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JANUARY 1978

DATE	JAN 5,78
TIME	1330
TOTAL CELLS/ML	340000
DIVERSITY: DIVISION	0.8
.CLASS	0.8
..ORDER	1.4
...FAMILY	2.3
....GENUS	2.5

ORGANISM	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...COELASTRACEAE		
....COELASTRUM	7400	2
...OOCYSTACEAE		
....ANKISTRODESMUS	20000	6
....CHODATELLA	*	0
....KIRCHNERIELLA	*	0
....TETRAEDRON	*	0
...SCENEDESMACEAE		
....CRUCIGENIA	4900	1
....SCENEDESMUS	17000	5
....TETRASTRUM	3100	1
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CARTERIA	9800	3
....CHLAMYDOMONAS	1800	1
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..PENNALES		
...FRAGILARIACEAE		
....SYNEDRA	1800	1
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..CHROCCOCCALES		
...CHROCCOCCACEAE		
....AGMENELLUM	39000	12
..HORMOGONALES		
...NOSTOCACEAE		
....APHANIZOMENON	120000#	35
...OSCILLATORIACEAE		
....OSCILLATORIA	110000#	32
EUGLENOPHYTA (EUGLENOIDS)		
.CRYPTOPHYCEAE		
..CRYPTOMONIDALES		
...CRYPTOCHRYSIDACEAE		
....CHROOMONAS	2500	1

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

263351099105701 - INTERNATIONAL FALCON RES AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUN							
06...	1405	1.0	1120	8.0	29.5	7.7	103
06...	1407	10	1120	8.0	29.5	8.1	108
06...	1409	20	1120	8.0	29.5	78.0	104
06...	1411	30	1120	7.8	29.5	6.1	81
06...	1414	40	1120	7.8	29.5	6.0	80

263337099100101 - INTERNATIONAL FALCON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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, DISSOLVED (MG/L AS CACO3)
JUN									
06...	1301	1.0	1120	8.0	29.5	1.20	7.4	100	290
06...	1302	2.0	--	--	--	--	--	--	--
06...	1303	10	1120	8.0	29.5	--	7.3	99	--
06...	1305	20	1120	8.0	29.5	--	6.9	93	--
06...	1307	30	1120	7.8	29.5	--	5.8	78	--
06...	1309	40	1120	7.8	29.5	--	5.8	78	--
06...	1311	50	1120	7.7	29.5	--	5.2	70	--
06...	1314	60	1140	7.7	29.0	--	4.8	64	--
06...	1316	70	1140	7.5	29.0	--	3.7	49	--
06...	1318	80	1140	7.3	29.0	--	2.6	35	--
06...	1320	90	1140	7.0	29.0	--	.8	11	300

DATE	HARDNESS, NONCARBONATE, DIS. (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)
JUN									
06...	180	75	24	120	3.1	4.9	130	0	240
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	180	80	24	120	3.0	5.0	150	0	230

DATE	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)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUN									
06...	140	.8	11	680	.01	.00	.00	0	20
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	.02	.01	.00	0	0
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	140	.8	13	687	.00	.30	.02	0	310

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263326099092201 - INTERNATIONAL FALCON RES SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUN							
06...	1432	1.0	1120	8.1	29.0	7.8	104
06...	1434	10	1120	8.0	29.0	7.4	99
06...	1436	20	1120	7.9	28.5	6.6	87
06...	1438	33	1120	7.8	28.5	6.4	84

263815099124901 - INTERNATIONAL FALCON RES SITE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUN							
06...	1531	1.0	1120	8.1	30.5	8.2	111
06...	1533	10	1120	8.1	29.5	8.4	112
06...	1535	20	1120	8.0	29.5	7.9	105
06...	1537	30	1120	8.0	29.0	7.3	97
06...	1539	37	1120	7.7	29.0	5.7	76

263815099111901 - INTERNATIONAL FALCON RES SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUN							
06...	1502	1.0	1120	8.1	30.5	8.2	111
06...	1504	10	1120	8.1	29.5	8.3	111
06...	1506	20	1120	8.0	29.5	7.4	99
06...	1508	30	1120	7.9	29.0	7.1	95
06...	1510	40	1120	7.7	29.0	5.5	73
06...	1512	50	1140	7.5	28.5	4.2	55
06...	1514	60	1140	7.4	28.5	3.8	50
06...	1516	69	1140	7.5	28.5	4.1	54

264002099101701 - INTERNATIONAL FALCON RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUN												
06...	1555	1.0	1120	8.1	30.5	8.1	111	.01	.00	.00	0	0
06...	1557	10	1120	8.1	30.0	8.2	111	--	--	--	--	--
06...	1559	20	1120	7.9	29.5	7.0	95	--	--	--	--	--
06...	1601	30	1120	7.7	28.5	5.6	74	--	--	--	--	--
06...	1603	40	1120	7.6	28.5	4.4	58	--	--	--	--	--
06...	1605	47	1120	7.3	28.5	2.6	35	.03	.14	.00	0	10

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

264328099123101 - INTERNATIONAL FALCON RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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, DISSOLVED (MG/L AS CACO3)
JUN									
06...	1628	1.0	1120	8.1	30.5	1.00	8.3	114	290
06...	1630	10	1120	8.1	30.0	--	8.5	115	--
06...	1632	20	1120	7.9	29.5	--	7.4	100	--
06...	1634	30	1120	7.6	28.5	--	4.5	59	--
06...	1636	40	1120	7.6	28.5	--	4.8	63	--
06...	1638	50	1140	7.6	28.5	--	4.6	61	--
06...	1640	60	1140	7.4	28.5	--	3.6	47	--
06...	1642	73	1140	7.1	28.0	--	.5	7	300

DATE	HARDNESS, NONCARBONATE, DIS. (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)
JUN									
06...	190	75	24	120	3.1	5.1	120	0	240
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	180	77	25	120	3.0	5.1	140	0	240

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUN								
06...	140	11	674	.01	.00	.00	0	10
06...	--	--	--	--	--	--	--	--
06...	--	--	--	.00	.00	.00	0	0
06...	--	--	--	.05	.06	.00	10	10
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	--	--	--	.04	.09	.00	10	10
06...	140	13	689	.05	.24	.01	50	20

264858099154201 - INTERNATIONAL FALCON RES SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JUN							
06...	1719	1.0	1120	8.2	30.0	9.2	124
06...	1721	10	1120	8.1	29.5	8.2	109
06...	1723	20	1120	7.8	29.0	7.1	95
06...	1725	30	1120	7.7	29.0	6.0	80
06...	1727	40	1180	7.5	29.0	4.7	63
06...	1730	56	1180	7.4	29.0	3.7	49

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265224099160701 - INTERNATIONAL FALCON RESERVOIR SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUN												
06...	1142	1.0	1120	8.0	30.0	9.5	128	.00	.00	.01	0	0
06...	1144	10	1120	8.0	30.0	9.2	124	--	--	--	--	--
06...	1146	20	1120	7.8	29.0	8.0	107	--	--	--	--	--
06...	1148	32	1120	7.2	29.0	3.0	40	.05	.11	.01	0	20

265014099190601 - INTERNATIONAL FALCON RES GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUN													
06...	1825	1.0	1340	8.4	30.0	.80	10.2	138	.08	.00	.01	60	5
06...	1827	10	1340	8.2	29.0	--	9.0	120	--	--	--	--	--
06...	1830	20	1340	7.5	27.5	--	4.7	61	--	--	--	--	--
06...	1832	30	1340	7.3	27.0	--	2.1	27	--	--	--	--	--
06...	1834	37	1340	7.2	27.0	--	.9	12	.24	.21	.01	0	60

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265213099190801 - INTERNATIONAL FALCON RESERVOIR SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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, DISSOLVED (MG/L AS CACO3)
JUN									
06...	1750	1.0	1060	8.0	30.0	.50	8.7	118	260
06...	1752	10	1060	7.4	29.5	--	8.2	111	--
06...	1754	20	1060	7.8	29.0	--	6.8	91	--
06...	1756	30	1060	7.4	28.5	--	4.4	58	--
06...	1758	40	1380	7.3	28.5	--	2.8	37	340

DATE	HARDNESS, NONCARBONATE, DIS. (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)
JUN									
06...	150	70	21	120	3.2	5.2	130	0	210
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	260	96	24	150	3.5	5.0	100	0	380

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUN								
06...	130	14	634	.13	.00	.00	10	0
06...	--	--	--	--	--	--	--	--
06...	--	--	--	.14	.01	.01	20	5
06...	--	--	--	.16	.06	.01	0	20
06...	140	8.8	853	.22	.13	.01	0	20

263337099100101 - INTERNATIONAL FALCON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)
JUN							
06...	1301	1.0	3	200	0	0	2
06...	1305	20	--	--	--	--	--
06...	1320	90	3	200	0	0	0

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
JUN							
06...	0	3	20	.0	0	0	20
06...	0	--	0	--	--	--	--
06...	0	4	310	.0	4	0	10

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

263337099100101 INTERNATIONAL FALCON RESERVOIR SITE AC
PHYTOPLANKTON ANALYSES, APRIL 1978 TO JUNE 1978

DATE	JUN 6,78
TIME	1302
TOTAL CELLS/ML	64000
DIVERSITY: DIVISION	0.8
.CLASS	0.8
..ORDER	1.3
...FAMILY	1.8
....GENUS	1.9

ORGANISM	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...COELASTRACEAE		
....COELASTRUM	2900	4
...MICRACTINIACEAE		
....GOLENKINIA	*	0
...OOCYSTACEAE		
....ANKISTRODESMUS	420	1
....CHODATELLA	420	1
....KIRCHNERIELLA	340	1
....TETRAEDRON	*	0
...SCENEDESMACEAE		
....CRUCIGENIA	340	1
....SCENEDESMUS	3000	5
..ULOTRICHALES		
...ULOTRICHACEAE		
....ULOTHRIX	4000	6
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	420	1
..PENNALES		
...ACHNANTHACEAE		
....ACHNANTHES	*	0
...FRAGILARIACEAE		
....SYNEDRA	590	1
.XANTHOPHYCEAE		
..HETEROCOCCALES		
...CHLOROTHECIACEAE		
....OPHIOCYTIUM	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..CHROCCOCCALES		
...CHROCCOCCACEAE		
....AGMENELLUM	1900	3
....ANACYSTIS	1300	2
..HORMOGONALES		
...NOSTOCACEAE		
....CYLINDROSPERMUM	3400	5
...OSCILLATORIACEAE		
....OSCILLATORIA	44000#	69
PYRRHOPHYTA (FIRE ALGAE)		
.DINOPHYCEAE		
..PERIDINIALES		
...PERIDINIACEAE		
....PERIDINIUM	*	0

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

INTERNATIONAL FALCON RESERVOIR NEAR FALCON HEIGHTS, TX--Continued

265213099190801 INTERNATIONAL FALCON RESERVOIR SITE HC
PHYTOPLANKTON ANALYSES, APRIL 1978 TO JUNE 1978

DATE	JUN 6,78
TIME	1751
TOTAL CELLS/ML	150000
DIVERSITY: DIVISION	0.6
.CLASS	0.6
..ORDER	1.2
...FAMILY	1.2
....GENUS	1.4

ORGANISM	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OOCYSTACEAE		
....ANKISTRODESMUS	1100	1
....KIRCHNERIELLA	*	0
....OOCYSTIS	890	1
....SELENASTRUM	*	0
...SCENEDESMACEAE		
....SCENEDESMUS	1800	1
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CARTERIA	2000	1
....CHLAMYDOMONAS	2500	2
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	4500	3
..PENNALES		
...NITZSCHIACEAE		
....NITZSCHIA	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..CHROCCOCCALES		
...CHROCCOCCACEAE		
....AGMENELLUM	5400	4
....ANACYSTIS	10000	7
..HORMOGONALES		
...OSCILLATORIACEAE		
....OSCILLATORIA	110000#	79
EUGLENOPHYTA (EUGLENOIDS)		
.EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....TRACHELOMONAS	*	0
PYRRHOPHYTA (FIRE ALGAE)		
.DINOPHYCEAE		
..PERIDINIALES		
...PERIDINIACEAE		
....PERIDINIUM	*	0

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

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 1978 are given in International Boundary and Water Commission Water Bulletins Nos. 47 and 48.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	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)
OCT 17...	0955	1020	8.0	25.5	250	150	68	20	120
NOV 29...	1130	1030	8.0	21.0	270	170	73	22	110
DEC 19...	0900	1060	7.8	16.5	280	170	73	23	110
JAN 16...	1000	1060	7.9	15.5	270	160	71	22	110
FEB 21...	1100	1080	8.0	12.0	280	180	76	23	110
MAR 13...	1000	1090	7.8	13.5	290	170	77	23	120
APR 17...	1000	1100	7.8	19.0	270	160	69	24	120
MAY 15...	0930	1140	7.8	24.5	280	160	74	23	140
JUN 19...	0915	1150	7.8	24.5	280	170	75	23	120
JUL 17...	1015	1140	8.0	26.5	270	160	70	23	130
AUG 28...	1130	1140	7.6	28.0	260	160	70	21	130
SEP 18...	0900	1120	7.7	28.0	250	150	63	22	140

DATE	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)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 17...	3.3	4.6	120	0	220	120	12	624
NOV 29...	2.9	4.8	130	0	240	120	12	646
DEC 19...	2.9	4.7	130	0	260	120	12	667
JAN 16...	2.9	5.0	130	0	240	130	13	655
FEB 21...	2.8	4.9	130	0	230	120	10	638
MAR 13...	3.1	4.9	140	0	230	130	10	664
APR 17...	3.2	5.1	140	0	230	130	11	658
MAY 15...	3.6	5.1	140	0	390	56	11	768
JUN 19...	3.1	5.1	140	0	250	140	11	693
JUL 17...	3.4	5.3	130	0	240	140	11	683
AUG 28...	3.5	5.1	120	0	260	140	11	696
SEP 18...	3.9	5.4	120	0	270	140	11	711

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 1978 are given in International Boundry and Water Commission Water Bulletins Nos. 47 and 48.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 17...	1230	3620	1030	7.8	25.0	250	150	66	20
NOV 21...	1330	2560	1060	7.7	22.0	270	170	73	22
DEC 19...	1130	3080	1070	7.8	19.0	270	170	73	22
JAN 16...	1400	4460	1070	7.8	15.0	270	170	72	23
FEB 21...	1330	540	1460	8.0	14.0	340	220	92	27
MAR 13...	1300	3260	1140	7.6	19.0	290	180	79	23
APR 18...	1330	2560	1140	7.9	26.0	270	160	70	24
MAY 22...	1500	11300	1150	7.8	26.0	280	170	75	23
JUN 19...	1430	2680	1220	7.7	30.0	270	160	71	23
JUL 17...	1400	4150	1150	8.0	30.5	270	160	70	23
AUG 14...	1420	3490	1170	7.6	28.5	270	160	72	22
SEP 18...	1400	631	1220	7.4	29.0	260	120	81	15

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 17...	120	3.3	4.7	120	0	220	130	12	632
NOV 21...	110	2.9	4.9	130	0	240	130	12	656
DEC 19...	110	2.9	4.6	130	0	240	130	11	655
JAN 16...	110	2.9	5.0	130	0	240	130	13	657
FEB 21...	180	4.2	5.1	150	0	300	210	7.5	896
MAR 13...	120	3.1	4.9	140	0	230	140	11	677
APR 18...	130	3.4	5.2	140	0	250	140	11	699
MAY 22...	140	3.6	5.1	140	0	380	58	11	761
JUN 19...	140	3.7	5.2	140	0	260	150	11	729
JUL 17...	130	3.4	5.4	130	0	250	140	11	693
AUG 14...	140	3.7	5.0	130	0	260	150	11	724
SEP 18...	160	4.3	5.8	170	0	230	180	12	768

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 1977 TO SEPTEMBER 1978

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 17...	1330	3670	1080	7.9	24.0	250	150	69	20	120
NOV 21...	1500	3180	1260	7.7	25.0	310	200	82	26	140
DEC 19...	1300	3420	1140	7.7	19.0	290	180	77	23	130
JAN 16...	1430	6920	1080	7.8	16.0	270	170	72	23	120
FEB 21...	1445	1480	1840	7.9	14.0	410	270	110	34	230
MAR 13...	1430	1470	1340	7.6	20.0	330	220	89	27	160
APR 18...	1415	1500	1400	7.9	28.0	330	190	84	28	160
MAY 22...	1600	1220	1150	7.8	26.5	280	160	74	23	140
JUN 19...	1515	1500	1350	7.9	30.0	290	170	76	24	160
JUL 17...	1520	3420	1200	8.0	30.5	280	170	71	24	130
AUG 14...	1520	5480	1170	7.6	29.0	270	170	73	22	130
SEP 18...	1520	1210	1660	7.8	29.5	370	210	110	23	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 17...	3.3	4.6	130	0	220	130	--	13	641
NOV 21...	3.5	4.8	140	0	280	170	--	12	784
DEC 19...	3.3	4.7	130	0	280	140	--	11	730
JAN 16...	3.2	4.9	130	0	230	130	--	13	657
FEB 21...	4.9	5.7	180	0	340	280	.8	11	1100
MAR 13...	3.8	5.4	140	0	280	180	--	11	821
APR 18...	3.9	5.9	160	0	300	190	--	11	858
MAY 22...	3.6	5.2	140	0	250	140	--	11	712
JUN 19...	4.1	5.4	150	0	280	170	--	12	801
JUL 17...	3.4	5.3	130	0	260	150	--	11	715
AUG 14...	3.4	5.0	130	0	260	140	--	11	705
SEP 18...	4.8	7.1	190	0	300	280	--	16	1040

08469200 RIO GRANDE AT 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. 47 and 48.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,880 micromhos Feb. 21; minimum daily, 517 micromhos Sept. 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 17...	0915	1400	1130	7.9	24.0	270	160	70	23
NOV 21...	1200	900	1180	8.0	24.5	300	200	80	25
DEC 19...	1050	1080	1230	7.7	19.0	310	190	81	25
JAN 16...	1345	3100	1110	7.9	19.0	270	170	72	23
FEB 21...	1015	300	2830	7.8	15.5	710	480	190	56
MAR 13...	1340	1100	1430	7.9	20.5	350	230	95	28
APR 17...	1045	700	1330	8.0	23.5	310	200	83	26
MAY 23...	0815	4400	1260	8.0	25.5	300	190	80	25
JUN 19...	--	1600	1830	7.9	29.5	370	240	100	30
JUL 17...	1100	2600	1430	8.2	29.0	300	180	77	26
AUG 17...	1150	1400	1190	7.6	29.0	290	170	78	23
SEP 18...	1145	400	875	7.4	28.0	170	69	53	8.4

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 17...	130	3.4	4.7	130	0	230	140	13	675
NOV 21...	130	3.3	4.9	130	0	270	150	12	736
DEC 19...	140	3.5	4.7	140	0	270	160	12	762
JAN 16...	120	3.2	5.0	130	0	240	140	11	675
FEB 21...	350	5.7	7.2	270	0	520	510	16	1780
MAR 13...	170	3.9	5.4	150	0	290	200	10	872
APR 17...	150	3.7	5.5	140	0	270	170	12	786
MAY 23...	140	3.5	5.3	140	0	250	170	12	751
JUN 19...	240	5.4	6.0	160	0	360	280	15	1110
JUL 17...	170	4.3	5.5	140	0	290	200	12	850
AUG 17...	130	3.3	5.1	140	0	260	150	10	725
SEP 18...	120	4.0	5.0	120	0	160	130	11	547

08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	34083	1150	700	64200	140	13200	240	21900	290
NOV. 1977.....	28405	1670	1020	78500	250	19200	330	25100	390
DEC. 1977.....	36393	1500	910	89700	210	20800	300	29400	340
JAN. 1978.....	49693	1190	720	96800	150	20100	240	32800	290
FEB. 1978.....	8778	1970	1210	28800	320	7510	380	8900	470
MAR. 1978.....	36784	1420	870	86000	200	19500	290	28500	330
APR. 1978.....	49954	1250	760	102000	160	21600	260	35000	300
MAY 1978.....	114150	1220	740	228000	150	46400	250	78300	300
JUNE 1978.....	64290	1340	810	141000	180	31000	270	47300	320
JULY 1978.....	71530	1240	750	145000	150	29800	260	49300	300
AUG. 1978.....	38406	1220	740	76400	150	15600	250	26200	300
SEPT 1978.....	129869	840	510	179000	110	37600	170	60500	220
TOTAL	662335	**	**	1320000	**	282000	**	443000	**
WTD.AVG.	1814.62	1210	740	**	160	**	250	**	300

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	1470	1610	1210	1330	2150	1190	1230	1270	1270	1220	1310
2	1180	1470	1490	1190	1300	2150	1200	1220	1260	1270	1210	1310
3	1090	1550	1520	1220	1350	2150	1210	1240	1250	1250	1210	1290
4	1080	1410	1780	1160	1340	2080	1200	1230	1250	1220	1180	1300
5	1060	1480	2380	1130	1440	2130	1200	1210	955	1240	1240	1270
6	1160	1780	2500	1130	1390	2080	1210	1220	1220	1280	1200	1000
7	1060	2490	2180	1150	1400	2100	1190	1220	934	1280	1190	1020
8	1130	2530	1820	1180	1430	2010	1200	1210	1340	1290	1180	1270
9	1130	2300	1770	1160	1470	1850	1190	1220	1420	1270	1190	1490
10	1090	2100	1660	1160	1450	1900	1190	1210	1370	1250	1170	970
11	1080	2120	1760	1140	1520	1870	1160	1200	1400	1220	1160	692
12	1060	2000	1770	1170	1570	1550	1180	1200	1460	1200	1170	785
13	1090	2090	1440	1120	1670	1440	1220	1210	1600	1220	1180	517
14	1140	2160	1330	1110	1840	1520	1220	1210	1610	1200	1180	671
15	1110	1870	1210	1110	1940	1600	1180	1190	1700	1220	1180	824
16	1100	1330	1150	1120	1990	1350	1180	1170	1640	1230	1200	836
17	1110	1200	1160	1130	2140	1290	1250	1220	1600	1260	1200	881
18	1080	1160	1150	1120	2370	1340	1330	1230	1610	1260	1220	870
19	1090	1140	1230	1170	2560	1370	1340	1220	1640	1250	1200	855
20	1080	1250	1340	1310	2840	1210	1260	1220	1600	1220	1210	817
21	1090	1240	1500	1280	2880	1290	1780	1230	1540	1200	1190	775
22	1080	1280	1300	1500	2740	1250	1630	1240	1490	1210	1250	763
23	1090	1320	1200	1670	2710	1240	1450	1220	1450	1220	1240	801
24	1120	1360	1230	1720	2510	1220	1350	1240	1390	1210	1230	1230
25	1250	1460	1230	1610	2370	1210	1300	1260	1370	1220	1300	1880
26	1220	1460	1230	1520	2260	1220	1350	1250	1310	1190	1280	859
27	1190	1420	1290	1550	2210	1210	1320	1250	1320	1220	1270	787
28	1360	1380	1390	1530	2200	1220	1300	1200	1290	1240	1310	659
29	1440	1620	1270	1720	---	1200	1260	1240	1310	1200	1330	676
30	1510	1750	1230	1680	---	1210	1250	1240	1300	1190	1320	682
31	1580	---	1210	1450	---	1200	---	1240	---	1240	1400	---
MEAN	1160	1640	1490	1300	1940	1570	1280	1220	1400	1230	1230	970

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. 47 and 48.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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
SEP 30...	1000	948	26.0	3040	7780	34	37

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
SEP 30...	41	48	55	68	87	99	100

MONTHLY AND ANNUAL SUMMARY OF WATER AND SUSPENDED-SEDIMENT DISCHARGE

WATER YEAR, OCTOBER 1977 TO SEPTEMBER 1978

DATE	DISCHARGE (CFS-DAYS)	MEAN WEIGHTED SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS)
OCT. 1977...	3949	150	1600
NOV. 1977...	3362	140	1270
DEC. 1977...	3061	131	1080
JAN. 1978...	7825	267	5640
FEB. 1978...	4098	76	836
MAR. 1978...	4442	143	1710
APR. 1978...	5273	199	2830
MAY 1978...	5468	161	2380
JUNE 1978...	6011	323	5250
JULY 1978...	5313	169	2430
AUG. 1978...	5417	202	2960
SEP. 1978...	7780	453	9530
TOTAL.....	61999	224	37500

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. 47 and 48.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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										
24...	1240	.3	1	.00	.00	.0	.0	2	.00	2.8
APR										
18...	1520	.0	--	.00	.00	--	.0	--	.00	--
JUL										
11...	1410	.0	0	.00	.00	.0	.0	0	.00	.4

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										
24...	.02	7.8	.00	3.1	.06	.01	.5	.01	.02	.6
APR										
18...	.04	--	.00	--	.02	.00	--	.00	.01	--
JUL										
11...	.02	2.9	.00	.0	.02	.02	.1	.00	.02	.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									
24...	.00	.00	.0	.00	.0	.00	.0	.00	.08
APR									
18...	.00	.00	--	.00	--	.00	--	.00	.00
JUL									
11...	.00	.00	.0	.00	.0	.00	.0	.00	.24

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									
24...	.00	--	.33	0	8	.00	.35	.00	.00
APR									
18...	.00	--	.01	0	--	.00	.00	.00	.00
JUL									
11...	.00	.00	.00	0	0	.00	.00	.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 1977 TO SEPTEMBER 1978

DATE	DISCHARGE (CFS-DAYS)	MEAN WEIGHTED SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS)
OCT. 1977...	5686	110	1700
NOV. 1977...	3196	116	1000
DEC. 1977...	3181	126	1080
JAN. 1978...	5501	141	2090
FEB. 1978...	2951	121	964
MAR. 1978...	4225	149	1700
APR. 1978...	3950	122	1300
MAY 1978...	4088	141	1560
JUNE 1978...	3812	130	1340
JULY 1978...	3754	122	1240
AUG. 1978...	6574	131	2320
SEP. 1978...	9196	209	5180
TOTAL.....	56114	142	21500

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 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT												
18...	1130	1550	7.5	24.5	25	15	8.3	101	2.3	160	300	210
NOV												
08...	1100	1500	8.0	23.0	20	35	9.1	108	2.6	170	290	230
DEC												
06...	1415	1500	8.0	21.0	30	30	9.1	105	3.2	96	290	210
JAN												
24...	1415	1330	7.8	11.0	0	65	10.5	98	1.1	64	260	190
FEB												
14...	1320	1680	7.7	17.5	25	15	9.1	98	2.5	20	290	250
MAR												
14...	1245	2430	7.5	21.0	25	25	8.7	100	1.6	62	430	380
APR												
19...	1045	1240	7.8	26.0	20	30	9.4	118	1.9	1400	240	150
MAY												
09...	1600	1410	8.3	29.0	30	25	8.4	110	2.7	700	290	180
JUN												
07...	1130	1240	7.9	28.0	20	170	7.5	7	1.6	22000	250	150
JUL												
11...	1540	1550	8.1	31.0	15	20	8.8	119	1.3	1600	320	190
AUG												
15...	1040	1470	7.8	29.0	35	30	7.0	92	2.9	500	300	200
SEP												
12...	1625	1420	7.7	29.0	10	360	6.2	82	3.2	1300	290	190

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
18...	997	24	8	--	--	.02	--	--	.60	.04	13
NOV											
08...	953	82	19	--	--	.07	--	--	.82	.06	5.2
DEC											
06...	940	52	12	--	--	.12	--	--	.43	.07	7.0
JAN											
24...	772	89	11	--	--	.49	--	--	.66	.08	5.1
FEB											
14...	981	67	12	.08	.01	.09	.06	.51	.57	.06	4.1
MAR											
14...	1490	50	9	--	--	.03	--	--	.89	.10	34
APR											
19...	746	52	7	--	--	.05	--	--	.74	.05	3.8
MAY											
09...	860	16	5	--	--	.03	--	--	.93	.06	6.8
JUN											
07...	743	334	46	--	--	--	--	--	.17	.01	6.5
JUL											
11...	912	40	6	--	--	.00	--	--	.64	.03	3.7
AUG											
15...	921	42	4	--	--	.02	--	--	.89	.00	5.2
SEP											
12...	851	652	120	--	--	.22	--	--	1.1	.32	8.0

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, 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.

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, 1977-78): 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, 2,620 micromhos Mar. 7, 10; minimum daily, 661 micromhos Sept. 30.
WATER TEMPERATURES: Maximum daily, 33.5°C on several days during July and August; minimum daily, 11.5°C Jan. 20, 21.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,160 mg/L Sept. 28; minimum daily mean, 16 mg/L Feb. 9.
SEDIMENT LOADS: Maximum daily, 62,400 tons Sept. 28; minimum daily, 0.18 tons July 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	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)
OCT										
18...	1330	1680	7.2	25.5	20	5.4	68	5.1	790000	1700
NOV										
08...	1325	1470	8.1	23.5	35	9.6	116	2.9	39000	12000
DEC										
06...	1635	1550	8.0	20.5	30	8.5	97	3.1	63000	2400
JAN										
24...	1545	1380	7.8	11.0	40	9.9	93	1.4	200000	150000
FEB										
14...	1530	1650	7.7	17.5	20	8.6	92	3.2	35000	800
MAR										
14...	1445	2540	7.9	22.0	20	10.7	126	2.1	4600	2700
APR										
19...	0900	1270	7.8	26.0	40	9.1	114	3.3	23000	600
MAY										
10...	1030	1810	7.9	28.5	30	7.8	101	2.9	380000	290000
JUN										
07...	1615	1280	7.7	29.5	160	7.9	104	1.1	490000	280000
JUL										
12...	1020	1600	8.0	30.0	25	7.6	101	3.0	9000	1700
AUG										
15...	1200	1470	8.0	30.0	30	8.6	115	3.4	2200	K1200
SEP										
13...	1045	1330	7.8	29.5	280	6.2	82	2.0	--	18000

DATE	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)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)
OCT										
18...	1000	560	300	150	44	200	3.7	6.8	310	0
NOV										
08...	7400	370	250	98	31	170	3.8	5.4	150	0
DEC										
06...	4100	410	250	110	33	170	3.7	5.6	190	0
JAN										
24...	14000	320	220	86	26	160	3.9	4.9	130	0
FEB										
14...	1600	440	260	120	35	180	3.7	5.2	220	0
MAR										
14...	1600	630	410	170	51	300	5.2	7.0	270	0
APR										
19...	10000	310	200	83	26	140	3.4	5.2	140	0
MAY										
10...	120000	500	290	130	42	200	3.9	7.4	250	0
JUN										
07...	760000	330	220	86	27	150	3.6	5.5	130	0
JUL										
12...	9000	390	240	100	33	180	4.0	5.8	180	0
AUG										
15...	2500	360	210	93	31	180	4.1	6.1	180	0
SEP										
13...	3000	230	140	66	17	180	5.1	5.5	110	0

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 18...	350	280	.6	24	1210	1210	.06	.05	.11	2.4
NOV 08...	280	220	.6	.0	908	879	.02	.01	.03	.02
DEC 06...	310	220	.6	13	968	956	.00	.01	.01	.09
JAN 24...	270	190	.7	11	811	813	.13	.01	.14	.10
FEB 14...	290	250	.6	13	984	1000	.00	.01	.01	.09
MAR 14...	460	410	.6	9.9	1490	1540	.04	.00	.04	.00
APR 19...	260	160	.7	12	775	756	.04	.01	.05	.03
MAY 10...	340	270	.6	21	1100	1130	.03	.02	.05	.01
JUN 07...	280	170	.8	8.6	774	792	.16	.01	.17	.03
JUL 12...	330	210	.8	18	961	966	.00	.00	.00	.00
AUG 15...	300	200	.8	15	931	915	.00	.01	.01	.03
SEP 13...	250	200	.6	11	789	784	.22	.03	.25	.05

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)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 18...	.60	3.0	--	.78	--	4.5	--	--	29	91
NOV 08...	.66	.68	.62	.07	.00	3.8	--	--	93	75
DEC 06...	.43	.52	.46	.09	.02	4.6	--	--	57	91
JAN 24...	.58	.68	.73	.10	.03	3.8	--	--	79	89
FEB 14...	.57	.66	.35	.07	.01	--	--	--	34	93
MAR 14...	1.3	1.3	.46	.10	.05	5.7	--	--	97	94
APR 19...	.77	.80	.46	.07	.00	5.0	--	--	51	96
MAY 10...	.78	.79	.12	.10	.01	--	--	--	94	97
JUN 07...	.70	.73	.63	.91	.00	6.5	--	--	271	99
JUL 12...	.68	.68	.52	.05	.00	6.2	--	--	19	96
AUG 15...	.84	.87	.30	.06	.01	--	5.0	2.6	59	82
SEP 13...	.85	.90	.54	.22	.03	7.5	--	--	558	92

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
FEB 14...	1530	3	1	2	100	0	200	0	0	0
MAY 10...	1030	7	5	2	300	0	300	0	0	0
AUG 15...	1200	4	1	3	300	200	100	1	0	<1

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	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)
FEB 14...	10	0	10	1	1	0	7	7	0	670
MAY 10...	10	0	10	3	1	2	25	24	1	830
AUG 15...	10	0	10	0	0	<1	7	6	1	690

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)
FEB 14...	--	0	33	31	2	120	70	50	.2	.2
MAY 10...	--	50	4	0	4	230	190	40	.0	.0
AUG 15...	680	<10	6	6	0	100	100	2	.0	.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)
FEB 14...	.0	0	0	0	0	0	0	40	30	10
MAY 10...	.0	0	0	0	0	0	0	20	0	20
AUG 15...	.0	0	0	0	0	0	0	10	7	<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)	ATRA-ZINE, TOTAL (UG/L)	ATRA-ZINE, 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...	1325	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
FEB 14...	1530	--	--	ND	--	ND	--	ND	--	ND	--
MAY 10...	1000	ND	ND	ND	ND	ND	--	ND	ND	ND	ND
AUG 15...	1200	ND	--	ND	--	--	--	ND	--	ND	--

DATE	P,P' DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)	P,P' 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-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)
NOV 08...	1.0	ND	1.4	ND	--	ND	ND	ND	ND	ND	ND
FEB 14...	--	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 10...	--	ND	.4	ND	ND	ND	ND	ND	ND	ND	ND
AUG 15...	--	ND	--	ND	--	ND	--	ND	--	ND	--

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	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)
NOV										
08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB										
14...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
10...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG										
15...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	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)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	SIMAZINE TOTAL COULSON COND. (UG/L)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS)
NOV										
08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB										
14...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
10...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
AUG										
15...	ND	--	ND	--	ND	--	ND	--	--	--

DATE	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-D, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV										
08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB										
14...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY										
10...	ND	ND	ND	ND	--	--	--	--	--	--
AUG										
15...	ND	--	ND	--	--	--	--	--	--	--

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	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	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
OCT											
18...	1330	80	25.5	29	6.3	--	--	--	--	--	91
NOV											
08...	1325	96	23.5	93	24	--	--	--	--	--	75
DEC											
06...	1635	450	20.5	57	69	--	--	--	--	--	91
JAN											
24...	1545	508	11.0	79	108	--	--	--	--	--	89
FEB											
14...	1530	275	17.5	34	25	--	--	--	--	--	93
MAR											
14...	1445	75	22.0	97	20	--	--	--	--	--	94
APR											
19...	0900	141	26.0	51	19	--	--	--	--	--	96
MAY											
10...	1030	48	28.5	94	12	--	--	--	--	--	97
JUN											
07...	1615	960	29.5	271	702	--	--	--	--	--	99
JUL											
12...	1020	52	30.0	19	2.7	--	--	--	--	--	96
AUG											
15...	1200	21	30.0	59	3.3	--	--	--	--	--	82
SEP											
13...	1045	2800	29.5	558	4220	--	--	--	--	--	92
28...	1730	11500	30.0	4480	139000	51	68	83	92	98	100

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE TIME	NOV 8,77 1325		MAR 14,78 1445		MAY 10,78 1030		JUN 7,78 1615		JUL 12,78 1020		AUG 15,78 1200	
TOTAL CELLS/ML	200000		32000		320000		19000		450000		580000	
DIVERSITY: DIVISION	0.8		1.2		0.4		0.9		0.3		0.0	
.CLASS	0.8		1.2		0.4		0.9		0.3		0.0	
..ORDER	1.4		1.2		1.0		1.5		1.2		0.1	
...FAMILY	1.6		2.0		1.1		1.8		1.5		0.9	
....GENUS	2.5		2.4		1.8		2.7		2.2		1.8	
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	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE												
....COELASTRUM	1100	1	--	-	*	0	210	1	5100	1	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	830	3	*	0	1100	6	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	*	0	--	-	--	-	--	-	--	-	--	-
....MICRACTINIUM	--	-	1000	3	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	*	0	830	3	2400	1	*	0	*	0	--	-
....DICTYOSPHAERIUM	14000	7	14000#	45	4500	1	--	-	5100	1	--	-
....FRANCEIA	--	-	--	-	*	0	*	0	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	*	0	*	0	--	-
....OOCYSTIS	2000	1	1000	3	*	0	530	3	*	0	--	-
....TETRAEDRON	*	0	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	*	0	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	2200	7	--	-	*	0	--	-	--	-
....CRUCIGENIA	5100	2	--	-	3800	1	230	1	*	0	--	-
....SCENEDESMUS	5500	3	1200	4	3800	1	1800	9	--	-	*	0
....TETRASTRUM	1700	1	*	0	--	-	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	5600	3	--	-	--	-	240	1	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	--	-	--	-	--	-	*	0	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	--	-	*	0	*	0	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....COSMARIUM	--	-	--	-	*	0	--	-	--	-	--	-
....EUASTRUM	*	0	--	-	--	-	*	0	--	-	--	-
....STAURASTRUM	--	-	--	-	--	-	*	0	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	*	0	*	0	*	0	190	1	*	0	--	-
....MELOSIRA	--	-	--	-	*	0	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	*	0	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....AMPHORA	--	-	*	0	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	*	0	--	-	--	-
...NAVICULACEAE												
....NAVICULA	*	0	*	0	*	0	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	--	-	7900#	25	4800	1	170	1	*	0	--	-
...SURIRELLACEAE												
....SURIRELLA	--	-	*	0	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	*	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 1977 TO AUGUST 1978

DATE TIME	NOV 8,77 1325		MAR 14,78 1445		MAY 10,78 1030		JUN 7,78 1615		JUL 12,78 1020		AUG 15,78 1200	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..HORMOGONALES												
...OSCILLATORIACEAE												
....PHORMIDIUM	--	-	--	-	--	-	6400#	33	--	-	--	-
..CHROCCOCCALES												
...CHROCCOCCACEAE												
....AGMENELLUM	59000#	29	--	-	42000	13	460	2	70000#	16	3300	1
....ANACYSTIS	84000#	42	2200	7	220000#	67	1500	8	180000#	40	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	31000	7	71000	12
....ANABAENOPSIS	--	-	--	-	9300	3	--	-	--	-	53000	9
....APHANIZOMENON	2900	1	--	-	--	-	--	-	--	-	--	-
....CYLINDROSPERMUM	*	0	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	4800	1	--	-	--	-	210000#	36
....OSCILLATORIA	18000	9	--	-	29000	9	6100#	32	140000#	31	240000#	42
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-	3300	1
..CHROCCOCCALES												
...CHROCCOCCACEAE												
....GOMPHOSPHAERIA	--	-	*	0	--	-	--	-	10000	2	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	*	0	--	-	*	0	*	0	--	-	--	-
....PHACUS	--	-	--	-	*	0	--	-	--	-	--	-
....TRACHELOMONAS	*	0	--	-	*	0	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	*	0	--	-	--	-	--	-	--	-	--	-

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

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

DATE	LENGTH OF EXPOSURE (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)	SAMPLING METHOD
OCT 18...	35	27.6	30.8	.394	.038	POLYETHYLENE STRIP
MAR 14...	28	68.0	72.9	16.2	1.73	POLYETHYLENE STRIP
JUN 07...	28	12.8	13.7	.730	.000	POLYETHYLENE STRIP
AUG 15...	34	22.7	24.3	1.70	.000	POLYETHYLENE STRIP

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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. 1977.....	3030	1640	1000	8170	240	1960	320	2610	410
NOV. 1977.....	14691	1720	1040	41400	250	10000	330	13000	430
DEC. 1977.....	7024	1870	1140	21600	280	5300	350	6690	470
JAN. 1978.....	11612	1290	780	24500	170	5460	260	8190	320
FEB. 1978.....	6492	1680	1020	17900	250	4320	330	5710	420
MAR. 1978.....	2591	2340	1420	9920	360	2540	420	2940	590
APR. 1978.....	6833	1220	740	13700	160	2990	250	4560	310
MAY 1978.....	7502.8	1250	760	15400	170	3380	250	5150	310
JUNE 1978.....	10973	1270	770	22800	170	5050	260	7590	320
JULY 1978.....	2779.1	1360	820	6170	190	1410	270	2050	340
AUG. 1978.....	3637.4	1270	770	7560	170	1690	250	2500	320
SEPT 1978.....	61769	1010	610	103000	130	21900	210	34500	250
TOTAL	138934.18	**	**	292000	**	66000	**	95500	**
WTD.AVG.	380.64	1280	770	**	170	**	260	**	320

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1560	1260	1390	1270	1380	2060	1590	1570	1340	1650	1190	1430
2	1620	1290	1590	1310	1210	2210	1570	1590	1380	1600	1200	1360
3	1690	1390	1780	1300	1600	2260	1550	1730	1230	1520	1190	1370
4	1510	1450	1660	1300	1610	2370	1730	1620	1250	1520	1290	1380
5	1650	1490	1550	1340	1600	2360	1730	1760	1230	1440	1270	1420
6	1790	1400	1760	1380	1600	2350	1180	1670	1280	1410	1260	1420
7	1890	1470	1940	1340	1630	2620	1180	1600	1250	1430	1250	1290
8	1900	1490	2180	1300	1760	2500	1170	1550	1240	1530	1300	1190
9	1940	1460	2210	1280	1670	2550	1170	1700	1230	1530	1310	1280
10	1960	1470	2250	1300	1680	2620	1170	1810	1240	1520	1310	1290
11	1720	2000	2100	1360	1570	2530	1170	1500	1100	1440	1350	1300
12	1970	2410	2080	1390	1590	2500	1170	1430	1070	1440	1410	1300
13	1760	2250	1940	1550	1610	2460	1180	1300	1270	1320	1420	1330
14	1800	2110	1870	1540	1590	2390	1190	1300	1580	1430	1430	1200
15	1850	2100	1920	1540	1600	1830	1220	1260	1580	1340	1440	1390
16	1880	2070	1840	1520	1530	2030	1230	1230	1670	1320	1460	1200
17	1920	2080	1800	1450	1650	1870	1240	1220	1650	1300	1500	1300
18	1890	2010	1790	1140	1710	2060	1260	1240	1600	1350	1510	1390
19	1850	1930	1770	1140	1700	2050	1260	1230	1550	1380	1400	1230
20	1820	1750	1790	1270	1690	2040	1300	1180	1490	1330	1300	1240
21	1430	1640	1530	1270	1730	2160	1310	1180	1470	1320	1230	807
22	1490	1550	1540	1280	1710	2180	1320	1180	1450	1320	1250	803
23	1460	1430	1810	1290	1810	2160	1370	1280	1720	1300	1230	829
24	1490	1390	1900	1300	1970	2300	1410	1270	1540	1290	1250	830
25	1420	1320	1870	1210	2020	2300	1500	1210	1550	1300	1260	839
26	1500	1280	1830	1220	2000	2250	1430	1260	1570	1370	1290	942
27	1570	1470	1970	1230	1970	2230	1570	1350	1700	1290	1300	939
28	1480	1660	2030	1240	2040	2300	1470	1300	1660	1220	1300	1360
29	1500	1530	2090	1400	---	2300	1730	1290	1570	1280	1230	662
30	1490	1690	2010	1450	---	1600	1500	1330	1720	1250	1230	661
31	1310	---	1770	1430	---	1580	---	1360	---	1210	1420	---
MEAN	1680	1660	1860	1330	1690	2230	1360	1400	1440	1390	1320	1170

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	25.5	22.0	---	12.5	14.0	19.0	28.0	31.0	---	33.5	31.5
2	---	25.0	12.0	20.0	13.0	14.0	---	28.5	31.0	---	33.5	31.5
3	28.0	25.0	21.0	20.0	13.0	14.0	19.0	29.0	31.0	32.5	33.5	---
4	28.0	25.0	---	20.0	13.0	14.0	19.0	28.5	---	32.5	33.5	30.0
5	28.0	25.0	21.0	20.0	---	---	19.0	28.0	31.0	32.5	33.5	30.5
6	28.5	---	21.0	21.0	13.0	14.5	19.0	29.0	31.0	33.0	---	30.5
7	28.5	25.0	21.0	21.0	12.5	14.5	20.0	---	31.0	33.0	33.0	30.5
8	28.5	24.0	21.0	---	13.0	14.5	20.0	29.0	31.0	33.0	33.0	31.0
9	---	24.0	21.0	19.5	13.0	14.5	---	29.0	31.5	---	33.0	31.0
10	29.0	24.0	21.0	20.0	13.0	14.5	20.0	29.0	31.5	33.0	33.0	---
11	29.0	24.0	---	19.0	13.5	15.0	21.0	29.0	---	33.0	33.0	30.5
12	29.0	24.0	20.5	18.0	---	---	21.0	29.5	31.5	33.0	32.5	31.0
13	29.0	---	20.0	17.5	13.0	15.0	22.5	29.5	31.0	32.5	---	30.0
14	29.0	24.0	20.0	17.0	13.0	15.0	24.0	---	31.5	32.5	31.5	31.0
15	29.0	24.0	20.0	---	13.5	16.0	24.0	29.5	31.5	33.0	31.5	30.5
16	---	24.0	20.0	16.0	13.5	16.0	---	30.0	31.5	---	31.5	30.5
17	29.0	24.0	20.0	16.0	14.0	16.0	25.0	30.0	32.0	33.0	32.0	---
18	29.0	24.0	---	15.0	14.0	16.5	25.5	30.0	---	33.0	32.0	30.5
19	29.0	24.0	19.0	14.0	---	---	24.0	30.0	32.0	33.0	32.0	30.5
20	29.0	---	19.5	11.5	13.5	17.0	25.0	30.5	32.0	33.5	---	30.5
21	29.0	24.0	19.5	11.5	13.0	17.0	24.5	---	32.0	33.5	32.5	29.5
22	29.0	24.0	19.5	---	13.0	17.0	25.0	31.0	32.0	33.5	32.0	30.0
23	---	23.0	19.0	12.0	13.5	17.0	---	31.0	32.0	---	32.0	30.0
24	27.5	23.0	---	12.0	14.0	17.5	26.0	30.5	32.0	33.5	32.0	---
25	27.0	23.0	---	12.0	14.0	18.0	26.5	31.0	---	32.0	31.5	30.0
26	27.0	23.0	19.0	12.0	---	---	26.5	31.5	32.0	33.0	32.5	30.5
27	26.5	---	19.0	---	13.5	18.0	27.5	31.0	32.0	33.0	---	30.0
28	26.0	22.0	19.0	13.0	14.0	18.0	26.0	---	32.0	33.0	32.0	30.0
29	25.5	22.0	---	---	---	18.5	28.0	31.5	32.0	33.5	31.5	30.0
30	---	22.0	---	12.0	---	19.0	---	31.5	32.0	---	31.0	30.0
31	25.5	---	---	12.0	---	19.0	---	30.0	---	33.5	31.5	---
MEAN	28.0	24.0	20.0	16.0	13.5	16.0	23.0	30.0	31.5	33.0	32.5	30.5

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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	115	76	24	341	62	57	126	60	20
2	110	65	19	270	90	66	141	62	24
3	117	53	17	163	112	49	320	56	48
4	130	64	22	151	100	41	453	55	67
5	127	142	49	586	106	168	500	58	78
6	141	62	24	961	100	259	457	58	72
7	116	34	11	891	98	236	353	78	74
8	100	34	9.2	776	96	201	173	53	25
9	87	35	8.2	727	124	243	114	86	26
10	87	36	8.5	529	195	279	233	72	45
11	116	33	10	557	58	87	448	60	73
12	83	37	8.3	757	55	112	539	55	80
13	56	43	6.5	770	50	104	576	62	96
14	63	32	5.4	702	46	87	602	62	101
15	47	34	4.3	665	46	83	333	56	50
16	50	32	4.3	583	42	66	140	91	34
17	81	30	6.6	519	39	55	91	186	46
18	80	46	9.9	571	65	100	82	90	20
19	67	61	11	454	144	177	83	70	16
20	64	48	8.3	311	60	50	81	58	13
21	51	60	8.3	314	46	39	62	58	9.7
22	32	51	4.4	392	57	60	49	92	12
23	146	46	18	444	56	67	49	76	10
24	218	46	27	397	48	51	60	80	13
25	164	148	66	387	59	62	113	77	23
26	101	56	15	298	66	53	262	76	54
27	66	56	10	361	65	63	184	161	80
28	35	68	6.4	365	62	61	90	88	21
29	28	70	5.3	260	70	49	52	70	9.8
30	58	65	10	189	54	28	85	65	15
31	294	158	125	---	---	---	173	60	28

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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	214	50	29	216	28	16	194	31	16
2	326	52	46	214	48	28	155	46	19
3	197	44	23	236	35	22	172	49	23
4	198	50	27	289	42	33	184	30	15
5	259	43	30	386	70	73	185	40	20
6	147	42	17	366	86	85	181	54	26
7	107	44	13	291	48	38	198	20	11
8	99	43	11	257	24	17	170	42	19
9	133	44	16	264	16	11	143	76	29
10	134	43	16	221	24	14	125	54	18
11	83	42	9.4	177	20	9.6	106	92	26
12	66	32	5.7	204	30	17	97	50	13
13	118	27	8.6	232	36	23	87	18	4.2
14	161	27	12	275	22	16	75	88	18
15	151	40	16	222	23	14	57	106	16
16	170	59	27	173	20	9.3	26	93	6.5
17	141	42	16	166	36	16	22	82	4.9
18	290	74	58	163	30	13	32	92	7.9
19	857	120	278	187	22	11	34	60	5.5
20	2030	66	362	235	29	18	29	75	5.9
21	1410	98	479	194	32	17	18	86	4.2
22	1050	90	255	193	22	11	20	104	5.6
23	650	90	158	210	24	14	32	82	7.1
24	508	78	107	194	26	14	37	68	6.8
25	440	34	40	213	36	21	32	108	9.3
26	348	34	32	227	37	23	22	115	6.8
27	187	30	15	230	37	23	59	146	23
28	141	32	12	257	18	12	31	86	7.2
29	134	30	11	---	---	---	26	121	8.5
30	202	28	15	---	---	---	21	58	3.3
31	261	26	18	---	---	---	21	56	3.2

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	22	51	3.0	18	44	2.1	33	48	4.3
2	22	60	3.6	7.4	24	.48	102	79	22
3	23	81	5.0	5.6	84	1.3	193	72	38
4	42	68	7.7	11	54	1.6	370	74	74
5	86	52	12	8.6	152	3.5	1490	150	603
6	133	145	52	13	120	4.2	2170	727	4260
7	172	150	70	9.7	80	2.1	960	664	1720
8	242	137	90	7.5	55	1.1	970	242	634
9	343	140	130	25	33	2.2	1150	235	730
10	458	150	185	48	56	7.3	890	158	380
11	729	74	146	35	46	4.3	710	100	192
12	688	64	119	86	52	12	495	56	75
13	1000	120	324	185	42	21	275	147	109
14	1120	89	269	187	50	25	185	28	14
15	542	88	129	296	61	49	87	42	9.9
16	274	100	74	1950	90	474	58	37	5.8
17	152	110	45	2000	77	416	46	34	4.2
18	145	51	20	791	1280	2730	30	36	2.9
19	141	64	24	207	614	343	24	38	2.5
20	84	52	12	76	115	24	54	60	8.7
21	61	44	7.2	60	80	13	146	54	21
22	55	61	9.1	106	324	93	115	27	8.4
23	53	65	9.3	317	106	91	60	74	12
24	53	68	9.7	416	96	108	35	98	9.3
25	47	44	5.6	237	108	69	24	95	6.2
26	41	56	6.2	126	71	24	21	96	5.4
27	36	32	3.1	91	102	25	38	80	8.2
28	31	53	4.4	52	80	11	79	89	19
29	21	32	1.8	34	64	5.9	111	89	27
30	17	40	1.8	48	111	14	52	92	13
31	---	---	---	49	---	---	---	---	---

08475000 RIO GRANDE AT BROWNSVILLE, TX--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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	39	91	9.6	329	78	69	214	32	18
2	40	92	9.9	373	83	84	205	50	28
3	88	90	21	320	92	79	387	40	42
4	163	94	41	192	74	38	611	48	79
5	160	110	48	240	94	61	289	39	30
6	77	124	26	171	400	185	214	42	24
7	40	103	11	102	116	32	162	46	20
8	18	88	4.3	138	94	35	217	84	49
9	9.1	95	2.3	118	75	24	682	58	107
10	21	103	5.8	95	120	31	2060	200	1110
11	33	86	7.7	74	91	18	2540	156	1070
12	52	83	12	57	98	15	2890	156	1220
13	54	70	10	44	112	13	2650	210	1500
14	35	100	9.5	32	126	11	2500	461	3110
15	34	77	7.1	21	82	4.6	1670	818	3690
16	227	85	52	16	73	3.2	793	460	985
17	231	78	49	10	44	1.2	443	550	658
18	96	106	27	4.7	51	.65	365	706	696
19	68	64	12	1.7	92	.42	320	523	452
20	34	104	9.5	25	80	5.4	275	473	351
21	15	52	2.1	70	72	14	258	96	67
22	1.3	50	.18	86	83	19	328	150	133
23	3.6	65	.63	126	66	22	524	85	120
24	256	85	59	66	1010	180	574	83	129
25	369	106	106	112	274	83	657	53	94
26	246	46	31	182	71	35	951	50	128
27	102	65	18	158	75	32	4890	400	5280
28	47	95	12	100	78	21	10300	2160	62400
29	23	77	4.8	76	71	15	11800	830	26400
30	5.1	75	1.0	99	49	13	12000	900	29200
31	192	76	39	199	26	14	---	---	---
YEAR	138934.3		164441.16						

A low-flow investigation along a watercourse involves making discharge measurements at selected sites in a given reach of a channel. In addition, discharge measurements of inflow and diversions, field commentary relative to observations, water samples and temperature, and other relevant data are collected. Measuring sites are described to the extent that they may be used in subsequent investigations. At times, temporary recording installations are used to supplement records at regular gaging stations in the study of flow trends.

In tabulating the results, the indicated gains or losses may appear incompatible because of diurnal or other flow variations, or because of small inaccuracies in open-channel discharge measurements. These trends in a reach may vary with the seasons, because of regulation, or other factors. Successive investigations may serve to delineate a progressive change in flow trends.

COLORADO RIVER BASIN

Colorado River Low-Flow Investigations

PURPOSE.--To determine the changes in quantity and quality of low flow in this reach of the Colorado River.

REACH.--The investigations began on the Colorado River at a point 50 ft above the mouth of Bull Creek and ended at the stream-gaging station, Colorado River at Colorado City. The investigations involved a distance along the Colorado River of 35.5 miles.

PREVIOUS INVESTIGATIONS.--1968, 1975, 1976, and 1977.

SUMMARY.--Two low-flow investigations were made on Jan. 16, 1978, and Mar. 20, 1978. During these investigations, climatic factors were favorable for determing the gains and losses. There was no storm runoff, no known diversions from the river, and no appreciable loss could be attributed to evapotranspiration.

Location and description of data-collection sites, Colorado River and tributaries

Site No.	Stream	Location	Date	River mile	Water temp. (°C)	Discharge (ft^3/s) Main stream	Discharge (ft^3/s) tributary	Remarks
1	Colorado River	Lat 32°34'58", long 101°05'42", 50 ft upstream from Bull Creek.	Jan. 16 Mar. 20	831.8	7.0 -	0.09 0	- -	Streambed of sand. Grass and scattered trees on banks.
2	Bull Creek	Lat 32°36'00", long 101°05'38", 300 ft upstream from bridge on Farm Road 2085.	Jan. 16 Mar. 20	-	7.0 12.5	- -	0.06 0.06	Streambed of gravel and sand. Grass and scattered trees on banks.
2A	....do....	Lat 32°34'54", long 101°05'42", 30 ft upstream from Col rado River.	Jan. 16 Mar. 20	-	6.5 12.0	- -	.20 .09	Do
3	Colorado River	Lat 32°36'00", long 101°05'42", 30 ft downstream from Bull Creek.	Jan. 16 Mar. 20	831.8	7.0 17.0	.17 .04	- -	Streambed of gravel and sand. Grass and scattered trees on banks.
4	....do....	Lat 32°34'17", long 101°05'42", 40 ft upstream from Bluff Creek.	Jan. 16 Mar. 20	828.8	6.5 13.0	.13 .04	- -	Streambed of gravel and sand. Grass, brush, and scattered trees on both banks.
5	Bluff Creek	Lat 32°35'29", long 101°03'02", at bridge on Farm Road 1606.	Jan. 16 Mar. 20	-	7.0 13.5	- -	.35 .15	Streambed of gravel and sand. Grass and scattered trees on both banks.
6	....do....	Lat 32°34'20", long 101°03'21", 150 ft upstream from mouth	Jan. 16 Mar. 20	- -	6.5 14.0	- -	.35 .15	Streambed of coarse sand over sandstone. Grass and thin brush on both banks.
7	Colorado River	Lat 32°32'18", long 101°03'12", at stream-gaging station.	Jan. 16 Mar. 20	826.3	5.5 24.0	- .24	- -	Wide, flat sand channel with steep banks. Thick stand of salt cedars along both banks.
8	....do....	Lat 32°30'43", long 101°01'42", 30 ft upstream from Willow Creek.	Jan. 16 Mar. 20	824.0	6.0 14.0	1.17 .27	- -	Streambed of sand and silt. Steep banks with heavy stand of salt cedars along left bank.
9	Willow Creek	Lat 32°30'42", long 101°01'46", 300 ft upstream from mouth.	Jan. 16 Mar. 20	- -	- -	- -	- 0	Streambed of sand. Steep grassy banks with heavy stand of brush on both banks.
10	Colorado River	Lat 32°32'25", long 100°56'54", 15 ft upstream from Canyon Creek.	Jan. 16 Mar. 20	817.8	6.0 14.5	.71 .22	-	Streambed of sand. Steep banks with thick stand of salt cedars.
11	Canyon Creek	Lat 32°32'26", long 100°56'53", 15 ft upstream from mouth.	Jan. 16 Mar. 20	- -	6.5 14.0	- -	.53 .51	Streambed of gravel and sand. Steep banks with heavy stand of brush and trees.
12	Colorado River	Lat 32°30'51", long 100°54'46", 300 ft upstream from Deep Creek.	Jan. 16 Mar. 20	814.3	7.0 18.0	2.43 1.09	- -	Wide sand channel. Thick stand of salt cedars along both banks.
13	Deep Creek	Lat 32°32'25", long 100°54'27", at stream-gaging station 08120500.	Jan. 16 Mar. 20	- -	5.5 16.0	- -	2.30 .79	Streambed of gravel. Steep grassy banks lined with scattered large trees.
14	....do....	Lat 32°30'51", long 100°54'43", 70 ft upstream from mouth.	Jan. 16 Mar. 20	- -	5.5 15.0	- -	4.70 2.63	Streambed of sand. Steep grassy banks with heavy stand of salt cedars.
15	Colorado River	Lat 32°28'41", long 100°56'54", at stream-gaging station 08120700.	Jan. 16 Mar. 20	- -	6.0 15.0	5.73 2.27	- -	Wide streambed of gravel and sand. Steep banks with heavy stand of salt cedars.

Location and description of data-collection sites, Colorado River and tributaries--Continued

Site No	Stream	Location	Date	River mile	Water temp. (°C)	Discharge (ft^3/s) Main stream	Discharge (ft^3/s) tributary	Remarks
16	Colorado River	Lat 32°26'35", long 100°56'45", 1,000 ft downstream from Cedar Bend bridge.	Jan. 16 Mar. 20	804.4	7.0 17.5	6.19 4.29	- -	Streambed of gravel. Steep banks with heavy stand of salt cedars.
17	....do....	Lat 32°25'51", long 100°55'00", 30 ft upstream from low-water crossing 1 mile northwest of Colorado River Municipal Water District diversion station.	Jan. 16 Mar. 20	802.1	7.0 19.0	6.88 4.36	- -	Streambed of gravel. Steep banks with scattered salt cedars.
18	Bone Hollow	Lat 32°25'33", long 100°53'43", at right of private dam and 300 ft upstream from mouth.	Jan. 16 Mar. 20	-	6.0 22.0	- -	0.17 .09	Streambed of sandstone and shale. Scattered trees and brush.
19	Colorado River Municipal Water District pump Station	Lat 32°25'08", long 100°54'21", at Colorado River Municipal Water District pump station.	Jan. 16 Mar. 20	799.3	- -	- -	- -	Entire flow of river was being pumped into CRMWD off-channel reservoir.
20	Colorado River	Lat 32°24'51", long 100°54'28", 1,500 ft downstream from Colorado River Municipal Water District diversion dam.	Jan. 16 Mar. 20	798.9	7.0 27.0	.15 .09	- -	Wide streambed of gravel over sandstone. Heavy stand of saltcedar along fairly steep banks.
21	....do....	Lat 32°23'33", long 100°52'42", at stream-gaging station 08121000.	Jan. 16 Mar. 20	796.3	6.5 14.0	.48 .20	- -	Streambed of gravel with heavy stand of saltcedar.

STREAMFLOW AND WATER-QUALITY DATA FOR THE COLORADO RIVER AND TRIBUTARIES, JAN. 16, 1978

SITE	STREAM	DISCHARGE (FT^3/S)	DIS-SOLVED SILICA (SIO_2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAGNE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED POTAS-SIUM (P) (MG/L)	a/ BICAR-BONATE (HCO_3) (MG/L)	DIS-SOLVED SUL-FATE (SO_4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	PH (UNITS)
1	Colorado River	b/0.09	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Bull Creek	.06	2.1	300	150	860	9.4	260	600	1800	3850	1400	1200	6290	7.8
2A	....do....	.20	5.2	390	130	3300	12.0	270	1600	4800	10400	1500	1300	16100	7.7
3	Colorado River	.17	3.4	420	200	4600	14.0	290	2000	7000	14400	1900	1600	21400	7.8
4	....do....	.13	.2	440	240	5500	17.0	210	2200	8400	16900	2100	1900	25600	7.7
5	Bluff Creek	.35	5.8	230	83	240	4.8	260	710	380	1780	920	700	2670	8.0
6	....do....	.35	5.3	250	94	500	5.6	260	830	750	2560	1000	800	3870	7.9
7	Colorado River	.75	5.5	470	240	5000	18	230	1600	8000	15400	2200	2000	24800	7.7
8	....do....	1.2	6.7	450	200	4500	15	270	1700	7100	14100	1900	1700	21000	7.8
10	....do....	.71	2.3	510	210	4800	17	230	1500	7900	15100	2100	2000	23800	7.6
11	Canyon Creek	.53	3.1	190	130	380	3.7	400	1000	320	2220	1000	680	3050	8.1
12	Colorado River	2.4	3.4	390	180	2700	10	320	1300	4100	8840	1700	1500	14300	7.7
13	Deep Creek	2.3	15	100	28	190	11	420	190	190	931	370	21	1570	7.8
14	....do....	4.7	7.8	160	73	260	9.2	390	600	250	1550	700	380	2290	8.2
15	Colorado River	5.7	4.3	240	110	950	10	370	860	1400	3760	1100	750	6070	8.1
16	....do....	6.2	3.4	250	120	1100	10	360	980	1600	4240	1100	820	6600	8.1
17	....do....	6.9	2.9	290	130	1600	11	360	1100	2400	5710	1300	960	8790	8.1
18	Bone Hollow	.17	5.0	250	170	430	9.8	320	1300	460	2780	1300	1100	3710	8.0
20	Colorado River	.15	5.6	810	450	16000	46	170	3700	24000	45100	3900	3700	65600	6.7
21	....do....	.48	2.4	480	230	4600	17	300	2100	7200	14800	2100	1900	22200	7.5

a/ Includes the equivalent of any carbonate (CO_3) present.
b/ Sample was contaminated.

STREAMFLOW AND WATER-QUALITY DATA FOR THE COLORADO RIVER AND TRIBUTARIES, MAR. 20, 1978

SITE	STREAM	DISCHARGE (FT^3/S)	DIS-SOLVED SILICA (SiO_2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAGNE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED POTAS-SIUM (P) (MG/L)	a/ BICAR-BONATE (HCO_3) (MG/L)	DIS-SOLVED SUL-FATE (SO_4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	PH (UNITS)
2	Bull Creek	0.06	0.9	310	140	850	6.8	240	690	1600	3720	1400	1200	6080	7.6
2A	....do....	.09	2.0	410	180	3200	12	200	1600	4800	10300	1800	1600	16100	7.7
3	Colorado River	.04	.1	420	200	4100	15	220	1800	6000	12600	1900	1700	19400	7.7
4	....do....	.04	.1	490	260	6000	43	120	2300	9300	18500	2300	2200	28100	7.5
5	Bluff Creek	.15	1.9	230	87	340	4.6	220	720	540	2030	930	750	3200	7.9
6	....do....	.15	.4	260	97	590	5.6	220	870	830	2760	1000	870	4380	7.9
7	Colorado River	.24	4.1	450	200	5500	23	160	1800	8200	16300	1900	1800	24700	7.7
8	....do....	.27	.1	470	200	4400	18	180	2000	6400	13600	2000	1900	20100	7.6
10	....do....	.22	.3	520	230	4700	17	160	2000	6900	14400	2200	2100	22200	7.6
11	Canyon Creek	.51	1.0	190	130	440	3.7	340	1100	370	2400	1000	730	3390	8.1
12	Colorado River	1.1	.7	340	170	2100	9.0	240	1300	3200	7240	1600	1400	11600	7.9
13	Deep Creek	.79	11	100	26	190	9.8	360	190	190	894	360	61	1490	7.8
14	....do....	2.6	3.3	180	92	310	8.4	360	790	280	1840	830	530	2620	8.2
15	Colorado River	2.3	.4	200	120	960	9.4	350	900	1300	3660	990	710	5710	8.2
16	....do....	4.3	.1	230	120	1100	10	240	1000	1500	4080	1100	870	6570	7.6
17	....do....	4.4	.1	260	130	1400	11	230	1100	2000	5010	1200	1000	7840	7.7
18	Bone Hollow	.09	.1	260	170	490	9.1	280	1400	480	2950	1400	1100	3970	8.0
20	Colorado River	.09	1.0	1500	510	19000	130	84	4200	31000	79200	5800	5800	79200	7.2
21	....do....	.20	1.0	520	250	5300	21	240	2300	7900	16400	2300	2100	24300	7.4

a/ Includes the equivalent of any carbonate (CO_3) present.

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 pa-tial-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 1978

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Colorado River basin				
08129500	Dove Creek Spring near Knickerbocker, 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.	(c)	1944-58*, 1959-78	11- 3-77 12-13-77 1-18-78 2-28-78 4-25-78 6- 5-78 7-18-78 8-29-78	25 26 24 26 25 23 24 30
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.	(c)	1963-78	11- 2-77 12-12-77 1-17-78 2-27-78 4-26-78 7-17-78 8-29-78	6.0 7.0 6.9 7.5 6.8 4.2 4.3
08143900	Springs at Fort McKavett, TX	Lat 30°50'03", long 100°05'37", Menard County, at Fort McKavett.	(c)	1902, 1905, 1922, 1942, 1948-49, 1951-52, 1955-56, 1958-78	2-24-78 9- 8-78	40 41
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.	(c)	1939, 1952, 1957, 1959-78	12- 6-77 6-13-78	9.1 9.4
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.	(c)	1939, 1952, 1956, 1959-78	1-12-78 7-26-78	27 25
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.	(c)	1939, 1952, 1955-56, 1959-78	1-12-78 7-26-78	21 14
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	1919-78	3-28-78 9-27-78	0 0
08155500	Barton Springs at Austin, TX	Lat 30°15'49", long 97°46'02", Travis County, in Zilker Park just below the lowest dam at Austin.	(c)	1895-1916, 1917-18*, 1919-78*	1-16-78 2-28-78	39 42
		Guadalupe River basin				
08166150	Guadalupe River above Kerrville, TX	Lat 30°03'55", long 99°11'02", Kerr County, 0.6 mi downstream from Bear Creek and 3.0 mi northwest of Keerville.	-	1976-78	10-13-77 11-23-77 1- 5-78 2-15-78 3-29-78 5-10-78 6-21-78	56 76 77 83 63 52 43

* Converted to continuous-record station in March 1978.
* Operated as a continuous-record station.
c Not applicable.

Discharge measurements made at low-flow partial-record stations during water year 1978--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Guadalupe River basin--Continued				
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.	(c)	1944-78	11- 7-77	80
					12-20-77	35
					1-31-78	19
					3-10-78	21
					4-24-78	17
					6- 6-78	14
					7-13-78	20
					8-21-78	20
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.	-	1962-78	1-27-78	0
					6- 7-78	0
					7-14-78	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.	-	1962-78	1-27-78	0
					6- 7-78	0
					7-14-78	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.	-	1962-78	1-30-78	.90
					7-14-78	.10
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.	393	-	3-23-78	21
					5- 1-78	21
					5- 9-78	17
					5-18-78	13
					5-31-78	15
					6-14-78	22
					6-29-78	11
					7-21-78	7.7
					8- 1-78	18
					9- 6-78	7.4
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, 0.9 mi upstream from Coleto Creek.	21.8	-	3-23-78	.32
					5- 2-78	.24
					5- 9-78	.11
					5-18-78	.19
					5-31-78	.17
					6-14-78	.99
					6-29-78	.29
					7-21-78	.28
					8- 1-78	.79
					9- 6-78	.06
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.	494	-	3-23-78	27
					5- 1-78	33
					5- 9-78	22
					5-18-78	16
					6-14-78	39
					6-29-78	20
					7-20-78	11
					8- 1-78	30
					9- 5-78	9.9
		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.	(c)	1931-33*, 1942-66*, 1967-78	12- 5-77	f54
					12-20-77	f56
					2- 2-78	f48
					3-13-78	f37
					4-19-78	f38
					6- 5-78	f37
					7-17-78	f16

* Operated as a continuous-record station.
c Not applicable.
f Cooks Slough included.

Discharge measurements made at low-flow partial-record stations during water year 1978--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		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.	(c)	1931-33*, 1942-66*, 1967-78	10-25-77 12- 6-77 1-10-78 2-14-78 3-28-78 5- 2-78 6-13-78 7-25-78 9- 6-78	3.4 2.8 2.9 3.2 3.4 2.9 2.7 2.9 4.8
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.	(c)	1919, 1922-23, 1925, 1932-33*, 1941-78	1-10-78 6-13-78	2.1 3.1
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.	(c)	1931-33*, 1941-65*, 1966-78	10-26-77 1-10-78 2-14-78 3-28-78 6-13-78 7-25-78 9- 6-78	29 29 25 26 27 26 31
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.	(c)	1899-1935, 1936-64*, 1965-78	1-12-78 6-12-78	0 0
08456300 k/	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.	(c)	1896, 1899-1900, 1902, 1904-6, 1910, 1912, 1925, 1928, 1951-77	10-11-77 11-10-77 12-13-77 1-10-78 2-14-78 3-14-78 4-11-78 5- 9-78 6-13-78 7-11-78 8- 8-78 9-12-78	17 19 18 15 14 7.2 12 9.1 12 2.8 27 24

* Operated as a continuous-record station.
c Not applicable.
k Records for the current year 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 1978

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		Colorado River basin					
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	1975-78	2-12-78	2.82	240
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	1975-78	5-11-78	2.74	391
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	1975-78	5-11-78	9.53	1,010
08156800	Shoal Creek at 12th Street, Austin, TX	Lat 30°16'35", long 97°45'00", Travis County, on downstream side of bridge on 12th Street in Austin.	12.8	1975-78	5- 2-78 5-11-78	9.66 9.66	1,470 1,470
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	1975-78	4-10-78	2.96	74
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	1975-78	2-12-78	7.44	832
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 on Interstate Highway 35 in Austin.	5.57	1975-78	5- 2-78	4.76	1,500
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	1975-78	5- 2-78	6.48	1,180
08158860	Slaughter Creek at Farm Road 2304 near Austin, TX	Lat 30°09'43", long 97°49'55", Travis County, at bridge on Farm Road 2304 near Austin.	23.1	1978*	-	-	0
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	1976-78	5- 2-78	4.64	360
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	1975-78	5- 2-79	5.29	551
		Guadalupe River basin					
08169500	Guadalupe River at New Braunfels, TX	Lat 29°41'52", long 98°06'23", Comal County, at Comal Mills in New Braunfels and 0.4 mi upstream from Interstate Highway 35.	1,652	1898-1902, 1915-27*, 1974-78	9-13-78	12.50	6,060
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.	-	1977-78	6- 8-78	20.61	7,400
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.	-	1973-78	9-13-78	e644.64	-
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.	-	1973-78	9-13-78	e644.90	-
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.	-	1973-78	9-13-78	e682.55	-
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.	-	1973-78	9-13-78	e640.79	-

* For the period March to September.
\# Operated as a continuous-record station.
e Elevation in feet above mean sea level.

Annual maximum stage and (or) discharge during water year 1978--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		Guadalupe River basin--Continued					
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.	-	1973-78	9- 7-78	e632.05	-
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.	-	1973-78	9-13-78	e608.86	-
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.	-	1973-78	11- 1-78	e522.16	-
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.	-	1968-78	9-13-78	e668.69	-
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.	-	1969-78	9-13-78	e621.18	-
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.	-	1969-78	9-13-78	e589.53	-
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.	-	1969-78	9-13-78	e565.95	-
		Nueces River basin					
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.	-	1973-78	8- 2-78	e344.22	-
		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	1965-78	10- 9-77	2.66	-

e Elevation in feet above mean sea level.

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 1978

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Colorado River basin				
Bear Creek	North Llano River	Lat 30°31'57", long 99°50'11", Kimble County, 1.3 mi upstream from Interstate Highway 10 and 3.4 mi west of Junction, TX	155		8- 3-78	81,000
Lower Colorado River Authority's Lane City Canal	Colorado River (Diversion)	Lat 29°12'00", long 96°03'19", Wharton County, 1.8 mi southwest of Lane City, TX	-	1918, 1962-65, 1968-69	3-21-78 3-21-78 3-21-78 3-21-78 3-21-78	127 133 96 88 81
Lower Colorado River Authority's Gulf Coast Canal	.....do.....	Lat 28°59'05", long 96°00'56", Matagorda County, on right bank of Colorado River, 0.2 mi north of State Highway 35, and 3 mi west of Bay City, TX	-	1954, 1958, 1961, 1969,	5- 4-78 5- 4-78	166 162
.....Do.....	.....do.....	Lat 28°58'57", long 95°59'52", Matagorda County, on left bank of Colorado River just downstream from State Highway 35 and 1.8 mi west of Bay City, TX	-	1962-65, 1969,	3-28-78 3-28-78	72 71
		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, 1965-78	10-11-77 11-10-77 12-13-77 1-10-78 2-14-78 3-14-78 4-11-78 5- 9-78 6-13-78 7-11-78 8- 8-78 9-12-78	24 26 25 24 22 20 19 18 18 18 16 16
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, 1965-78	10-11-77 11-10-77 12-13-77 1-10-78 2-14-78 3-14-78 4-11-78 5- 9-78 6-13-78 7-11-78 8- 8-78 9-12-78	7.4 6.8 5.0 4.2 1.2 0 0 0 0 0 0 0

1/ Measurements by International Boundary and Water Commission.

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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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