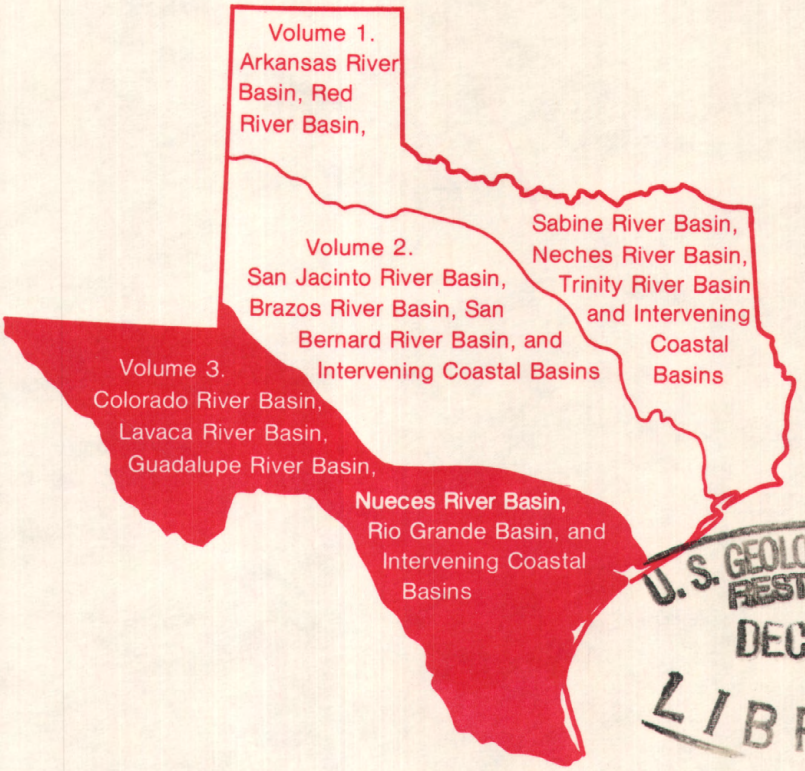
Water Resources Data Texas Water Year 1982

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-82-3
Prepared in cooperation with the State of Texas
and with other agencies

CALENDAR FOR WATER YEAR 1982

1981

OCTOBER

S	M	T	W	T	F	S
				1	2	3
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1982

JANUARY

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JUNE

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AUGUST

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SEPTEMBER

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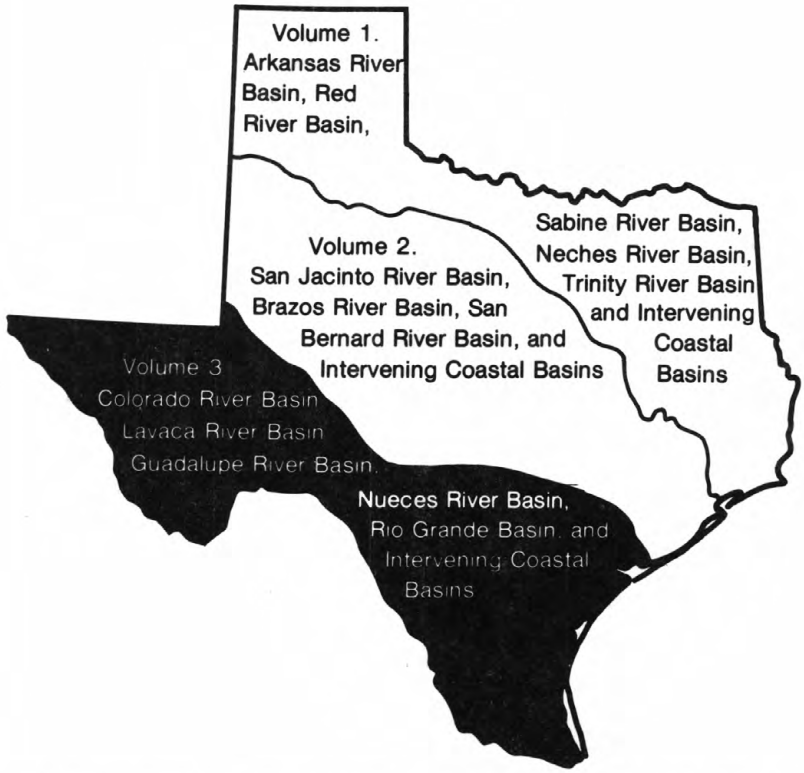
Water Resources Data Texas

Water Year 1982

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

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-82-3
Prepared in cooperation with the State of Texas
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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

1983

Preface

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

Volume 1. Arkansas River Basin, Red River Basin, Sabine River Basin, Neches River Basin, Trinity River Basin, and intervening and adjacent Coastal Basins

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

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

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

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

50272-101

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14.

15. Supplementary Notes
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16. Abstract (Limit: 200 words)

Surface-water data for the 1982 water year for Texas are presented in three volumes, appropriately identified as to content by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Also included are crest-stage and flood-hydrograph partial-record stations, reconnaissance partial-record stations, and low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements. Records for a few pertinent stations in bordering States also are included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Texas.

17. Document Analysis a. Descriptors

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

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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CONTENTS

TABLE

ILLUSTRATION

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

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WATER RESOURCES DATA, TEXAS, WATER YEAR 1982

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 1982 water year are presented in three volumes, appropriately identified by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Records for a few pertinent stations in bordering states are also included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey in cooperation with State and Federal agencies in Texas.

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

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1975 water year, water data for streamflow and water quality are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report TX-82-3." Water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

COOPERATION

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

Corps of Engineers, U.S. Army.

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

National Park Service.

U.S. Bureau of Reclamation.

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

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

HYDROLOGIC CONDITIONS

Large variations in rainfall and runoff characterize the usual hydrologic conditions in Texas. In the eastern part of the State, streams generally are deep with wide alluvial flood plains, and streamflow generally is perennial. Normal annual rainfall exceeds 50 inches, and the annual runoff may average as much as 15 inches. In the western part of the State, streams generally flow through arroyos, and streamflow principally is highly ephemeral. Normal annual rainfall is less than 8 inches, and annual runoff averages less than 0.1 inch in many areas.

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

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

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

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

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

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

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

DEFINITION OF TERMS

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

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

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

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

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

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

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

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in g/m^3 (grams per cubic meter), and periphyton and benthic organisms in g/m^2 (grams per square meter).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Biomass pigment ratio is the ratio of organic mass in mg/m^2 (milligrams per square meter) to the mass of chlorophyll a, in mg/m^2.

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

Cubic foor per second (FT^3/S, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second. This rate is equivalent to approximately 7.48 gallons per second, 448.8 gallons per minute, or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to that material in a representative water sample which passes through a 0.45 μm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

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

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

where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified location. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

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

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

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

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

Micrograms per gram (µg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

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

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

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

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

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

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon baceria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Recoverable from bottom material refers to the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usuage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream, or is the quantity of sediment, as measured by dry weight or volume, that passes a section during a given time. It is computed by multiplying discharge (ft^3/s) times mg/L times 0.0027.

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

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

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

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

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

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

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

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

Substrate is the physical surface upon which an organism lives.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multi-plate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Suspended, recoverable refers to the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total refers to the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total." Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total numbers of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

Total refers to the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Total in bottom material refers to the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the mean discharge (ft^3/s), times the mg/L of the constituent, times the factor 0.0027, times the number of days.

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

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

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

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

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

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

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

DOWNSTREAM ORDER AND STATION NUMBER

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

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

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

SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

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

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

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

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

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

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys, the computed contents may be increasingly in error due to the gradual accumulation of sediment. However, the change in contents is not affected to the same extent.

At some gaging stations, there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. For such periods, the daily discharges are estimated on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Daily contents may be estimated on the basis f operator's log, adjoining good record, inflow-outflow studies, and other infor- ation.

The data in this report generally comprise a description of the station and tabulations of daily and monthly values. For gaging stations on streams or canals, a table showing the daily, monthly, and yearly discharge is given. For a gaging station on a reservoir, a table showing the daily contents is given. Tables of daily or maximum and minimum daily gage heights are included for some gaging stations. Records are published for the water year, which begins on October 1 and ends on September 30. A calendar for the current water year is shown on the inside of the front cover to facilitate finding the day of the week for any date.

The description of the gaging stations, except those partial-record stations published in tabular form in the back of the report, gives the location, drainage area, period of record, type and history of gages, average discharge, extremes of discharge or contents, general remarks, and notations of revisions of previously published records. The location of the gaging stations and the drainage areas are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies (U.S. Water Resources Council, 1968). Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records for some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage referred to National Geodetic Vertical Datum, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITIONS OF TERMS" on page 9.

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

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

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

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from

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

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

Accuracy of field data and computed results

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

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

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

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

Other data available

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

Records of discharge collected by agencies other than the Geological Survey

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

EXPLANATION OF SURFACE-WATER QUALITY RECORDS

Collection and examination of data

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

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

Water analysis

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

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

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

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

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

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

Water temperature

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

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

Sediment

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

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

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

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

PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-seven manuals by the U.S. Geological Survey have been publisted to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Pickett Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

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

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

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

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

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

3-A4. *Measurement of peak discharge at width contractions by indirect methods,* by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 p.

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

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3-A11. *Measurement of discharge by moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 p.

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

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

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

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

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

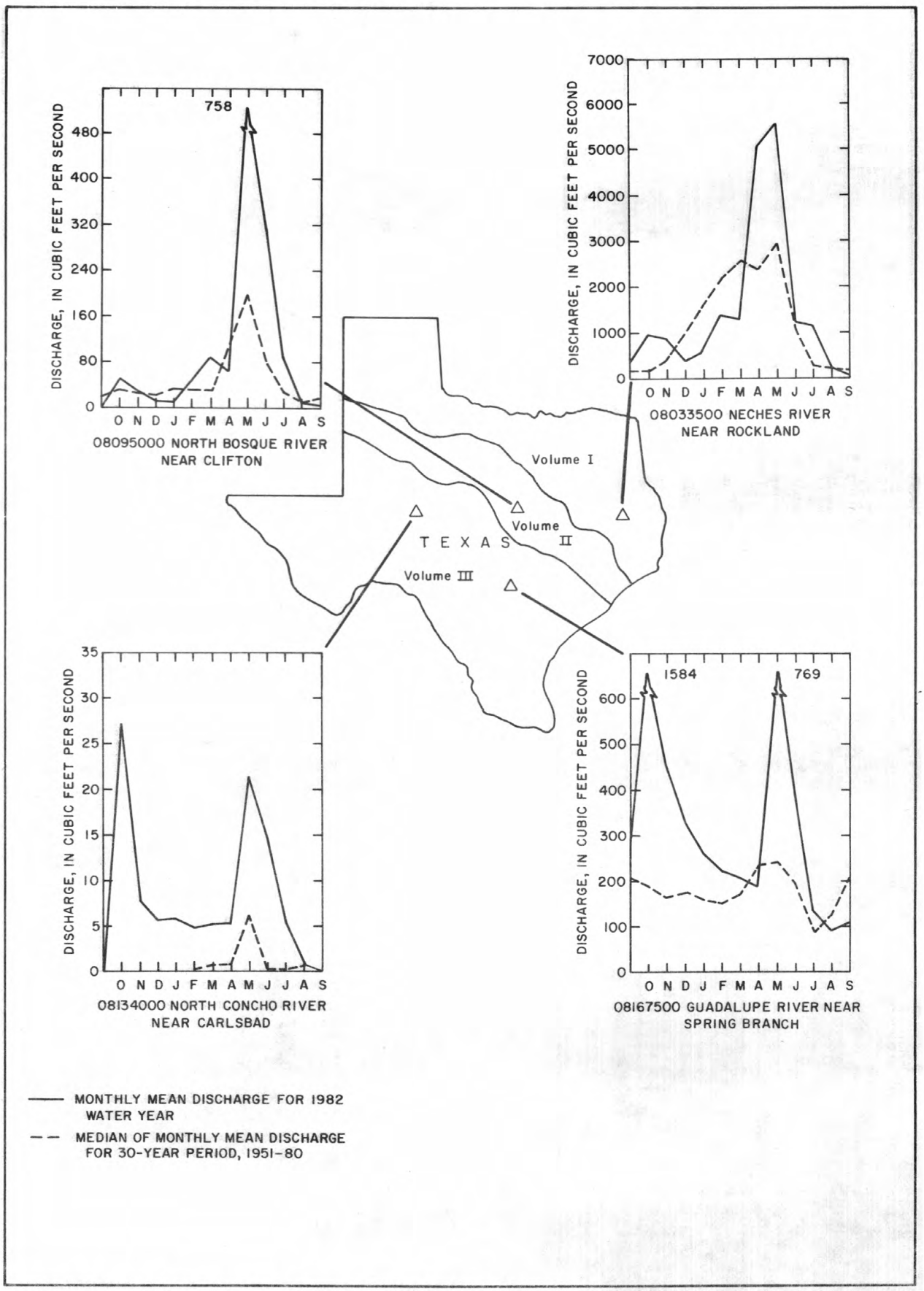

FIGURE 1.--COMPARISON OF MONTHLY MEAN DISCHARGE AT FOUR LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 1982 WATER YEAR WITH MEDIAN OF THE MONTHLY MEAN DISCHARGE FOR THE PERIOD 1951-80

COLORADO RIVER BASIN

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-81-3: Drainage area.

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

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 70,620 acre-ft (87.1 hm³) July 2, elevation, 2,234.65 ft (681.121 m); minimum, 41,510 acre-ft (51.2 hm³) May 3, elevation, 2,225.83 ft (678.433 m).

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

2,225.0	39,190	2,232.0	60,930
2,229.0	50,990	2,235.0	71,950

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53550	52460	50650	48790	47140	45700	43880	41600	47020	70470	68190	64770
2	53450	52400	50590	48730	47050	45640	43730	41570	46930	70620	68080	64660
3	53360	52330	50530	48600	47050	45580	43700	41510	46870	70580	67970	64550
4	53290	52270	50460	48540	46960	45580	43560	41570	46720	70470	67820	64370
5	53290	52210	50400	48480	46840	45370	43530	41850	46570	70350	67710	64230
6	53490	52170	50370	48450	46840	45310	43440	42250	46510	70240	67560	64090
7	53420	52140	50310	48320	46720	45250	43350	42280	46420	70160	67490	63980
8	53360	52080	50250	48260	46720	45220	43320	42190	46240	70010	67420	63840
9	53290	51950	50220	48230	46690	45160	43240	42160	46150	69900	67310	63700
10	53290	51920	50150	48080	46630	45100	43120	42110	46030	69780	67200	63560
11	53390	51850	50090	48080	46570	45070	43060	42050	46630	69780	67050	63380
12	53550	51790	50060	48010	46510	45010	42920	42020	47410	70430	66940	63310
13	53680	51730	50030	47980	46480	44980	42920	41850	48230	70620	66790	63170
14	53650	51660	49970	47950	46420	44980	42830	41820	48290	70580	66650	63100
15	53610	51600	49910	47920	46360	44890	42720	41770	48200	70470	66500	62950
16	53680	51530	49870	47920	46330	44890	42630	41570	48110	70350	66350	62810
17	53650	51470	49750	47830	46270	44860	42480	41630	47980	70160	66320	62710
18	53520	51470	49690	47770	46240	44890	42430	41770	48910	70010	66240	62560
19	53420	51370	49630	47740	46150	44720	42370	41850	53710	69900	66130	62560
20	53330	51310	49560	47680	46120	44690	42140	41850	58050	69750	65980	62420
21	53260	51210	49500	47680	46090	44600	41990	42110	58870	69630	65840	62280
22	53230	51150	49380	47620	46060	44510	42050	42720	59040	69520	65730	62140
23	53170	51050	49320	47560	46030	44460	41990	43440	59110	69370	65580	62000
24	53100	51020	49250	47500	46060	44400	41910	44690	59900	69250	65430	61890
25	52970	50900	49160	47440	46000	44280	41880	46180	60450	69100	65290	61780
26	52940	50870	49130	47410	45880	44190	41850	47260	62880	68910	65140	61600
27	52880	50800	49070	47350	45820	44190	41740	47440	67600	68800	64990	61460
28	52810	50770	49010	47290	45790	44140	41710	47410	69860	68640	65140	61320
29	52780	50710	48940	47290	---	44020	41650	47350	70470	68570	65140	61180
30	52750	50680	48880	47230	---	43930	41650	47260	70510	68380	65030	61140
31	52560	---	48850	47230	---	43900	---	47110	---	68260	64920	---
MAX	53680	52460	50650	48790	47140	45700	43880	47440	70510	70620	68190	64770
MIN	52560	50680	48850	47230	45790	43900	41650	41510	46030	68260	64920	61140
(†)	2229.49	2228.90	2228.31	2227.78	2227.30	2226.66	2225.88	2227.74	2234.62	2234.03	2233.12	2232.06
(‡)	-1090	-1880	-1830	-1620	-1440	-1890	-2250	+5460	+23400	-2250	-3340	-3780
(††)	989	1150	1120	1140	1040	1070	1300	1100	1290	1620	1690	1690

CAL YR 1981 MAX 66870 MIN 48850 ‡ -12900 †† 16000
WTR YR 1982 MAX 70620 MIN 41510 ‡ +7490 †† 15200

† 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 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	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 18...	1445	569	15.0	140	0	42	9.5	62

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 18...	2.4	5.6	160	53	51	.6	4.1	324

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.--3,483 mi^2 (9,021 km^2), of which 1,112 mi^2 (2,880 km^2) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-81-3: Drainage area.

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 ft^3/s (1.430 m^3/s), 36,590 acre-ft/yr (45.1 hm^3/yr); 24 years (water years 1959-82) partially regulated, 10.4 ft^3/s (0.295 m^3/s), 7,530 acre-ft/yr (9.28 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,500 ft^3/s (581 m^3/s) July 6, 1948, gage height, 21.35 ft (6.507 m), from rating curve extended above 9,600 ft^3/s (272 m^3/s) by slope-conveyance method; maximum gage height, 22.84 ft (6.962 m) May 15, 1980 (from shift in rating); no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,060 ft^3/s (58.3 m^3/s) June 19 at 1430 hours, gage height, 14.73 ft (4.490 m); no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.14	.89	.25	.84	.67	.28	.31	.68	18	.42	.54
2	.02	.13	.61	.27	.57	.60	.28	.56	.61	22	1.2	.31
3	.03	.13	.35	.25	.46	.53	.31	.40	.48	6.8	1.4	.18
4	.02	.12	.24	.23	.45	.50	.27	.33	.42	5.2	.76	.09
5	.03	.12	.21	.24	.48	.42	.20	12	.36	4.0	.48	.06
6	.49	.12	.20	.25	.60	.37	.15	64	.31	3.0	.31	.03
7	.94	.14	.20	.21	.68	.35	.14	4.9	.26	3.0	.22	.01
8	.22	.49	.18	.19	.63	.42	.14	1.2	.22	2.5	.12	.01
9	.18	.38	.18	.22	.48	.43	.11	.69	.15	2.1	.09	.01
10	.18	.42	.19	.22	.48	.39	.12	.50	.09	1.8	.09	.01
11	.22	.31	.23	.22	.46	.40	.10	.73	27	5.7	.06	.00
12	.48	.21	.26	.23	.45	.35	.12	.55	360	24	.04	.00
13	1.1	.18	.32	.32	.47	.36	.11	.45	48	6.5	.04	.00
14	.54	.17	.35	.85	.54	2.5	.10	.49	11	3.7	.03	.00
15	.42	.15	.34	.88	.64	1.8	.08	.36	4.4	2.1	.03	.00
16	.48	.12	.35	.83	.69	.83	.06	.31	1.9	1.7	.03	.00
17	.31	.14	.29	.51	.75	.45	.04	52	1.2	1.5	.22	.00
18	.18	.13	.25	.47	.66	.34	.04	89	70	1.4	.09	.00
19	.15	.11	.26	.32	.61	.29	.06	106	1620	1.4	.03	.00
20	.15	.08	.28	.31	.70	.25	.04	29	308	1.2	.03	.00
21	.22	.09	.29	.38	.72	.22	.03	8.2	38	1.0	.02	.01
22	.35	.12	.27	.39	.62	.21	.38	77	16	.94	.02	.01
23	.20	.12	.25	.41	.60	.22	.22	42	9.4	.76	.01	.00
24	.21	.11	.26	.41	.59	.21	.30	100	12	.85	.00	.00
25	.31	.13	.22	.39	.66	.18	.26	115	186	.76	.00	.00
26	.21	.13	.23	.31	.54	.18	.17	133	119	.68	.00	.00
27	.20	.12	.23	.35	.71	.22	.12	13	1390	.54	.00	.00
28	.20	.13	.25	.38	.77	.25	.13	9.7	180	.54	22	.00
29	.15	.15	.23	.45	---	.28	.10	2.0	38	.42	24	.00
30	.16	.42	.23	.61	---	.30	.28	1.7	19	.42	4.4	.00
31	.17	---	.26	1.1	---	.27	---	.85	---	.31	1.0	---
TOTAL	8.54	5.31	8.90	12.45	16.85	14.79	4.74	866.23	4462.48	124.82	57.14	1.27
MEAN	.28	.18	.29	.40	.60	.48	.16	27.9	149	4.03	1.84	.042
MAX	1.1	.49	.89	1.1	.84	2.5	.38	133	1620	24	24	.54
MIN	.02	.08	.18	.19	.45	.18	.03	.31	.09	.31	.00	.00
AC-FT	17	11	18	25	33	29	9.4	1720	8850	248	113	2.5

CAL YR 1981 TOTAL 737.75 MEAN 2.02 MAX 159 MIN .00 AC-FT 1460
WTR YR 1982 TOTAL 5583.52 MEAN 15.3 MAX 1620 MIN .00 AC-FT 11070

08119500 COLORADO RIVER NEAR IRA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--Chemical analyses: November 1958 to September 1970, November 1974 to September 1982 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1958 to September 1970, November 1974 to September 1982 (discontinued).
WATER TEMPERATURES: November 1958 to September 1970, November 1974 to September 1982 (discontinued).

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

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

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 34,900 micromhos Oct. 12; minimum daily, 270 micromhos June 27.
WATER TEMPERATURES: Minimum daily, 35.0°C Aug. 23; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
NOV 18...	1320	.14	25500	14.5	1800	1600	400	190	5800
FEB 25...	0840	.41	22600	6.0	1800	1600	410	190	5200
MAY 26...	1200	170	814	21.0	180	97	55	10	100
JUN 30...	1330	15	5810	30.0	670	490	180	53	1000
AUG 11...	1220	.05	19000	28.0	1900	1700	420	200	3900
SEP 22...	0925	.01	14600	17.0	1900	1500	420	200	3100

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV 18...	60	16	140	1700	9000	1.0	10	17200
FEB 25...	53	14	170	1700	8000	.6	2.9	15600
MAY 26...	3.4	4.2	82	55	180	.2	6.6	460
JUN 30...	17	8.9	180	380	1700	.4	10	3440
AUG 11...	39	13	190	2600	5900	.7	7.6	13200
SEP 22...	31	8.8	350	3500	3500	.9	13	11000

08119500 COLORADO RIVER NEAR IRA, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	8.54	23100	15000	345	7700	178	1600	36	*
NOV.	1981	5.31	27300	17800	255	9200	132	1800	26	*
DEC.	1981	8.90	25000	16200	390	8400	201	1700	41	*
JAN.	1982	12.45	23400	15100	508	7800	261	1600	54	*
FEB.	1982	16.85	21300	13700	624	7000	320	1500	67	*
MAR.	1982	14.79	19600	12600	503	6400	257	1400	54	*
APR.	1982	4.74	25000	16200	208	8400	107	1700	22	*
MAY	1982	866.23	1670	1030	2400	510	1200	120	286	150
JUNE	1982	4462.48	923	570	6870	290	3440	67	812	81
JULY	1982	124.82	8770	5510	1860	2800	937	630	212	740
AUG.	1982	57.14	8500	5350	826	2700	418	610	93	710
SEPT	1982	1.27	8780	5500	19	2800	9.5	630	2.2	740
TOTAL		5583.52	**	**	14800	**	7460	**	1710	**
WTD. AVG.		15	1570	982	**	490	**	110	**	130

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26000	24500	30200	24600	19800	21100	22100	24800	7720	7200	23600	6580
2	24000	24300	22700	25000	19500	20800	21700	10200	8960	4270	22900	8600
3	21900	24800	22200	24800	19300	21100	22600	18200	10000	7640	26200	9890
4	20900	25700	22100	26200	20200	21600	22300	21200	11300	8580	19200	11700
5	17700	26300	22300	25100	21600	22000	22600	3790	12400	9840	19100	12800
6	21400	27200	22300	25300	22800	22200	21800	2040	13400	10600	19800	14000
7	21500	26800	22900	27500	21200	22300	21500	2460	14500	11200	20200	14600
8	22200	34000	23600	26300	19900	22200	22000	4200	15400	11900	20500	15100
9	24600	27900	23900	27000	21100	22500	22300	5480	16800	12700	20400	15400
10	26100	29300	24300	27900	20200	22100	23000	7670	18000	13800	19600	15800
11	28200	25200	24800	31400	20300	22000	23200	8550	14500	12000	19100	---
12	34900	24000	25300	28300	21200	22600	24300	9560	1540	8020	18500	---
13	15300	23300	24900	27800	21000	23100	24700	9810	1720	8540	18000	---
14	17400	24000	26300	24100	20900	14600	24500	9820	3310	8510	17900	---
15	21900	24600	26100	24500	21100	17500	27400	9660	4670	9020	17600	---
16	21800	24300	25300	22400	22000	17200	27600	10900	5570	10200	18300	---
17	23200	24100	25600	24100	21700	17800	29900	4500	7000	11900	9000	---
18	23000	24900	25300	19800	21900	18100	30000	1720	5050	12400	7530	---
19	20800	25700	24100	18700	22100	19000	26200	1140	299	13100	10700	---
20	20200	24100	24500	20500	21700	20300	31900	1430	995	14300	12500	---
21	21100	22500	24600	19900	21600	20900	31500	2220	3540	15200	13700	15000
22	26400	25300	25300	19900	22000	21500	29200	1670	5400	16000	14400	14600
23	25600	26300	25700	21900	21600	22000	29500	1260	6850	17700	15300	---
24	25500	26900	25200	20900	22300	22100	29100	994	7050	17600	---	---
25	30500	26600	25400	21600	22600	23900	26000	1420	2440	18500	---	---
26	28400	28400	24900	21300	22300	22600	25700	814	1640	19700	---	---
27	28200	28500	24500	21900	22600	22900	25600	1710	270	20300	---	---
28	27700	28300	24600	22600	21300	22700	25700	2390	1000	20900	10300	---
29	27000	28900	24900	22400	---	22500	26000	3680	3840	21400	4790	---
30	26500	31500	24600	23100	---	22200	25500	5180	5680	22100	3700	---
31	27200	---	24700	23200	---	22500	---	6120	---	23800	5160	---
MEAN	24100	26300	24600	23900	21300	21200	25500	6280	7030	13500	15900	12800

08119500 COLORADO RIVER NEAR IRA, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	6.0	11.0	1.5	4.0	5.5	13.5	15.0	21.0	24.0	24.5	23.0
2	24.0	7.0	8.0	5.0	2.5	8.0	15.0	23.0	26.0	23.0	24.0	31.0
3	20.0	10.0	12.0	5.0	.0	9.0	15.5	17.0	21.0	31.0	24.0	22.0
4	20.5	8.5	3.5	.0	.0	6.5	11.0	30.5	18.0	23.5	30.0	21.5
5	23.0	9.0	7.5	.0	.0	4.0	9.0	17.0	21.0	23.0	23.0	21.0
6	20.0	11.0	7.0	5.0	.0	.0	6.5	16.0	21.0	23.0	24.0	27.5
7	16.0	10.0	5.0	.0	.0	1.0	11.0	12.5	22.5	23.0	24.0	24.0
8	17.0	12.0	5.5	.0	2.0	3.0	12.0	21.0	22.0	24.0	24.0	20.0
9	16.5	4.5	12.5	.0	.0	18.0	11.0	17.0	22.5	27.0	23.5	20.0
10	---	3.5	13.5	.0	.0	10.0	10.0	30.5	20.0	31.5	25.0	---
11	20.0	4.5	6.0	.0	2.0	11.5	7.0	20.0	20.5	25.0	24.5	---
12	19.5	19.5	8.0	.0	4.5	14.0	13.0	20.0	19.0	23.0	24.0	---
13	20.0	8.0	9.0	.0	1.5	14.0	15.5	16.5	20.5	23.0	26.0	---
14	28.0	9.0	7.0	.0	2.0	12.0	17.5	15.0	22.5	24.0	32.0	---
15	27.0	9.0	3.0	.0	11.5	13.5	28.0	16.0	23.0	24.0	24.0	---
16	21.5	7.0	10.0	.0	15.0	18.0	23.0	18.0	20.0	24.0	32.0	---
17	20.0	8.0	.5	.0	11.5	12.0	12.0	18.0	26.5	30.5	28.5	---
18	12.0	8.0	.0	13.5	6.0	18.0	12.5	---	22.0	24.5	26.5	---
19	12.0	7.0	1.0	4.0	7.0	17.5	16.0	21.0	19.0	23.5	25.0	---
20	11.0	3.0	4.0	7.0	15.0	10.0	9.0	22.0	20.0	30.0	22.5	---
21	15.5	5.0	14.0	9.0	7.0	10.0	8.0	21.0	22.0	23.0	29.0	---
22	13.0	4.0	6.0	9.5	22.0	9.0	16.0	21.5	24.0	24.0	28.0	---
23	7.0	6.0	.0	2.0	10.5	12.0	10.0	19.0	22.5	32.0	35.0	---
24	12.5	5.0	1.0	2.0	11.0	11.0	13.5	21.0	22.0	---	---	---
25	11.0	7.0	.5	4.0	6.0	8.0	12.0	20.0	21.0	24.5	---	---
26	12.0	7.5	1.0	1.0	2.0	6.5	12.5	17.5	23.0	32.0	---	---
27	8.0	8.0	4.0	3.0	2.0	12.0	15.0	23.0	20.0	23.0	---	---
28	11.0	9.0	3.0	4.0	5.0	14.0	15.5	20.5	29.0	24.0	27.0	---
29	12.0	11.0	8.0	12.0	---	10.0	27.5	20.0	27.0	24.0	24.0	---
30	19.0	7.5	3.0	9.0	---	21.5	17.5	22.0	27.0	24.0	24.0	---
31	13.0	---	12.0	1.5	---	9.0	---	20.0	---	32.0	23.0	---
MEAN	17.0	8.0	6.0	3.0	5.5	10.5	14.0	19.5	22.0	25.5	26.0	23.5

08120500 DEEP CREEK NEAR DUNN, TX

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

DRAINAGE AREA.--198 mi² (513 km²), of which 10 mi² (25.9 km²) probably is noncontributing.

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

REVISED RECORDS.--WSP 1922: Drainage area.

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

REMARKS.--Records fair.

AVERAGE DISCHARGE.--29 years (water years 1954-82), 12.5 ft³/s (0.354 m³/s), 0.90 in/yr (23 mm/yr), 9,060 acre-ft/yr (11.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,700 ft³/s (586 m³/s) Aug. 14, 1972, gage height, 31.28 ft (9.534 m), from floodmarks, from rating curve extended above 12,000 ft³/s (340 m³/s) by velociy-area study; no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1881, 36,400 ft³/s (1,030 m³/s) June 19, 1939, by slope-area measurement at site 8.0 mi (12.9 km) upstream from gage. Flood in 1892 reached about same stage as that of June 19, 1939, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 850 ft³/s (24.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 18	0200	2,260	64.0	a17.93	5.465	May 25	1000	1,940	54.9	a16.49	5.026
May 23	1600	1,280	36.2	a12.62	3.847	June 12	1730	1,180	33.4	11.95	3.642
May 24	0500	*2,440	69.1	a18.60	5.669	June 19	1130	938	26.6	10.28	3.133

a From floodmark.

Minimum discharge, no flow Oct. 1-6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.38	2.4	.58	2.3	.80	.80	1.0	12	2.8	.40	3.6
2	.00	1.7	1.1	.80	1.6	.80	.95	2.0	10	2.8	.40	3.6
3	.00	2.8	1.1	.95	1.1	.80	.25	1.0	7.8	2.6	.40	3.4
4	.00	3.6	1.1	.40	.38	.40	.58	.50	7.1	1.9	.40	3.1
5	.00	3.6	.95	.25	.40	.40	.95	30	6.9	1.7	.40	2.8
6	.00	3.4	1.1	.58	.40	.58	.50	100	6.9	1.4	.25	2.4
7	1.9	3.6	1.1	.44	.93	.80	.40	30	6.5	1.6	.25	2.4
8	1.9	5.0	1.1	.08	1.5	.80	.40	10	6.3	1.6	.25	2.4
9	1.1	2.5	1.1	.18	1.3	.40	.30	8.0	6.4	1.7	.25	2.4
10	.80	1.5	1.1	.18	1.1	.40	.30	6.0	6.1	1.4	.40	2.4
11	.58	1.8	1.1	.25	1.3	.08	.30	5.0	21	6.6	.40	2.2
12	22	2.0	.40	.52	1.5	.05	.20	4.0	683	88	.40	1.3
13	4.5	1.9	.87	1.1	1.3	.01	.20	3.0	164	2.6	.40	1.3
14	2.3	2.0	1.4	.75	1.4	6.9	.20	2.0	26	2.0	.40	1.3
15	1.3	2.0	1.3	1.3	1.5	2.6	.20	1.0	12	1.6	.40	1.3
16	3.5	1.8	1.3	1.5	1.4	.80	.20	100	8.8	1.4	.40	1.3
17	2.4	1.5	1.1	1.7	1.5	.40	.20	200	6.3	1.4	.40	1.3
18	1.1	.93	.84	1.1	1.4	.08	.20	884	91	1.1	.25	1.3
19	.80	.77	1.1	1.1	1.2	.02	.30	49	416	.80	.25	1.3
20	.58	1.1	1.3	1.1	2.0	.01	.40	31	58	.58	.25	1.6
21	.61	1.8	1.3	1.2	1.1	.01	.40	21	12	.80	.25	1.7
22	2.8	1.9	1.1	1.4	.95	.08	.50	146	5.2	.40	.25	2.0
23	2.3	1.9	.79	1.1	.80	.25	1.0	645	335	.40	.25	1.7
24	.81	1.8	.80	.99	.95	.15	.80	924	94	.40	.25	1.7
25	.99	1.9	1.0	1.1	.15	.25	.50	828	332	.58	.25	1.7
26	.51	2.4	1.1	.92	1.3	.25	.50	160	72	.58	.25	1.3
27	.47	2.0	.95	1.2	1.3	.58	.40	47	121	2.2	.25	.95
28	.37	2.0	1.1	1.2	.80	1.3	.40	67	8.4	1.3	15	.58
29	.45	2.0	.80	1.3	---	1.1	.60	25	3.8	1.1	8.4	.80
30	.52	3.0	.25	2.3	---	1.4	.80	20	2.9	.95	3.6	1.1
31	.58	---	.25	3.5	---	1.1	---	15	---	.40	3.6	---
TOTAL	55.17	64.58	32.30	31.07	32.86	23.60	13.73	4365.50	2548.4	134.69	39.30	56.23
MEAN	1.78	2.15	1.04	1.00	1.17	.76	.46	141	84.9	4.34	1.27	1.87
MAX	22	5.0	2.4	3.5	2.3	6.9	1.0	924	683	88	15	3.6
MIN	.00	.38	.25	.08	.15	.01	.20	.50	2.9	.40	.25	.58
CFSM	.009	.01	.006	.005	.006	.004	.002	.75	.45	.02	.007	.01
IN.	.01	.01	.01	.01	.01	.00	.00	.86	.50	.03	.01	.01
AC-FT	109	128	64	62	65	47	27	8660	5050	267	78	112

CAL YR 1981 TOTAL 3718.51 MEAN 10.2 MAX 1360 MIN .00 CFSM .05 IN .74 AC-FT 7380
WTR YR 1982 TOTAL 7397.43 MEAN 20.3 MAX 924 MIN .00 CFSM .11 IN 1.46 AC-FT 14670

NOTE.--No gage-height record Feb. 24 to Apr. 6.

08120700 COLORADO RIVER NEAR CUTHBERT, TX

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

DRAINAGE AREA.--3,912 mi² (10,132 km²), of which 2,381 mi² (6,167 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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.--17 years (water years 1966-82), 38.9 ft³/s (1.102 m³/s), 28,180 acre-ft/yr (34.7 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); maximum gage height, 27.18 ft (8.284 m) Sept. 29, 1980; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,690 ft³/s (133 m³/s) June 19 at 2100 hours, gage height, 19.38 ft (5.907 m); no flow Oct. 1-6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	3.4	5.2	5.5	13	7.9	6.9	16	21	99	8.6	23
2	.00	3.1	5.7	6.0	12	7.7	11	15	16	126	8.2	16
3	.00	2.7	5.5	5.7	9.8	7.5	7.9	7.9	14	88	7.9	14
4	.00	2.7	5.2	5.7	8.1	7.5	7.2	7.0	12	73	7.6	10
5	.00	2.8	5.0	5.5	6.9	7.2	6.6	61	11	60	7.2	6.9
6	.00	2.9	4.7	5.5	6.3	6.6	6.0	373	11	53	6.2	5.2
7	.32	2.9	4.7	5.7	5.7	6.6	5.5	114	10	48	5.6	3.6
8	4.8	3.9	5.0	5.5	7.8	6.9	4.7	44	8.1	81	5.0	2.5
9	6.3	7.0	5.0	5.5	6.3	6.9	4.7	23	7.5	52	5.0	1.9
10	4.0	6.1	5.9	5.5	6.3	6.9	4.9	16	7.1	44	4.9	2.1
11	3.5	4.5	5.2	5.5	6.3	6.9	4.8	10	13	42	4.6	2.0
12	23	4.2	5.2	5.5	6.3	6.5	4.5	17	575	232	4.6	1.9
13	87	4.2	5.2	5.6	6.3	6.1	4.3	16	744	106	4.2	3.1
14	23	4.2	5.6	8.8	5.7	66	3.7	11	141	60	3.3	3.0
15	9.6	4.3	6.0	8.1	5.7	39	3.3	7.3	60	44	2.6	2.5
16	15	4.2	6.5	8.4	5.7	20	2.9	5.4	35	36	2.0	2.7
17	17	4.0	6.3	8.3	6.0	15	2.6	241	24	32	4.6	2.3
18	11	3.9	6.0	8.9	6.3	14	2.2	953	206	28	7.6	1.3
19	6.2	3.6	6.0	8.6	6.5	12	2.1	252	3920	25	6.3	1.1
20	4.9	2.9	6.0	8.4	6.3	9.8	2.0	165	3680	23	5.2	2.3
21	4.5	2.5	6.1	8.2	7.3	9.0	1.8	64	983	21	4.3	3.5
22	4.9	2.9	6.7	8.6	6.9	8.6	2.1	62	174	19	3.6	3.6
23	8.4	3.6	6.2	8.7	6.6	7.9	3.0	703	642	17	3.2	2.5
24	6.9	3.6	6.0	8.2	6.7	7.5	5.2	1310	340	16	2.7	1.9
25	5.0	3.6	5.7	8.1	6.3	8.2	4.8	1090	781	15	2.1	1.6
26	4.2	3.8	5.7	7.4	6.5	8.2	3.8	724	680	15	2.0	1.5
27	3.8	4.0	6.6	7.2	7.5	9.0	3.4	319	2090	14	1.8	1.2
28	3.6	4.0	6.3	6.7	8.2	8.6	3.3	135	1960	18	50	.74
29	3.4	4.0	6.0	7.0	---	7.9	2.9	70	473	13	103	.52
30	3.6	4.5	6.0	19	---	7.5	3.0	45	136	12	72	.52
31	3.6	---	5.7	16	---	6.9	---	30	---	10	38	---
TOTAL	267.52	114.0	176.9	237.3	199.3	356.3	131.1	6906.6	17774.7	1522	393.9	124.98
MEAN	8.63	3.80	5.71	7.65	7.12	11.5	4.37	223	592	49.1	12.7	4.17
MAX	87	7.0	6.7	19	13	66	11	1310	3920	232	103	23
MIN	.00	2.5	4.7	5.5	5.7	6.1	1.8	5.4	7.1	10	1.8	.52
AC-FT	531	226	351	471	395	707	260	13700	35260	3020	781	248

CAL YR 1981 TOTAL 11805.96 MEAN 32.3 MAX 2730 MIN .00 AC-FT 23420
WTR YR 1982 TOTAL 28204.60 MEAN 77.3 MAX 3920 MIN .00 AC-FT 55940

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1965 to current year.
WATER TEMPERATURES: March 1965 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 70,000 micromhos Nov. 17, 1968; minimum daily, 102 micromhos Sept. 28, 1980.
WATER TEMPERATURES (1965-81): Minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 10,600 micromhos Jan. 31; minimum daily, 177 micromhos May 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
08...	1020	1.8	7040	16.5	1400	1200	320	140	1100
NOV									
02...	1430	3.0	3850	15.0	770	530	190	71	580
DEC									
10...	0950	5.8	5490	8.5	960	670	220	100	870
MAR									
11...	1050	6.8	5230	14.5	1000	730	230	110	790
MAY									
19...	0845	244	1140	20.0	240	140	68	16	130
JUN									
20...	1115	3920	314	22.0	110	16	37	3.7	19
AUG									
09...	1605	5.0	5010	31.0	900	670	210	91	780
SEP									
09...	1020	1.9	3490	24.0	610	350	150	56	540

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT								
08...	13	12	160	970	1900	.6	6.4	4550
NOV								
02...	9.1	8.6	240	580	900	.9	5.9	2480
DEC								
10...	12	8.3	290	840	1400	1.0	3.0	3620
MAR								
11...	11	7.9	300	770	1200	1.0	4.7	3290
MAY								
19...	3.9	5.5	98	110	240	.3	7.7	636
JUN								
20...	.8	4.7	92	16	34	.2	9.3	179
AUG								
09...	11	8.1	230	730	1200	.8	11	3170
SEP								
09...	9.6	8.5	250	440	810	.8	11	2170

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	267.52	4700	2880	2080	1100	785	640	461	800
NOV.	1981	114.0	4400	2700	830	1000	309	610	188	760
DEC.	1981	176.9	5450	3340	1590	1300	615	720	345	910
JAN.	1982	237.3	6890	4210	2700	1700	1110	840	537	1100
FEB.	1982	199.3	7060	4320	2320	1800	959	850	458	1100
MAR.	1982	356.3	4800	2940	2820	1100	1070	650	623	810
APR.	1982	131.1	5370	3290	1160	1300	448	710	253	900
MAY	1982	6906.6	747	458	8540	150	2850	120	2160	140
JUNE	1982	17774.7	559	343	16400	110	5340	89	4270	110
JULY	1982	1522	2990	1830	7530	650	2660	440	1800	540
AUG.	1982	393.9	5000	3060	3260	1200	1250	670	709	840
SEPT	1982	124.98	4160	2550	859	950	319	580	195	720
TOTAL		28204.60	**	**	50100	**	17700	**	12000	**
WTD. AVG.		77	1070	658	**	230	**	160	**	200

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	3810	4940	5370	9650	5010	5750	4900	1700	2250	4970	5670
2	---	3850	4900	5280	9160	4490	5530	4680	1770	2410	5060	4970
3	---	3900	5090	5400	9760	4520	5260	5130	1760	2640	5160	4620
4	---	3930	5230	5320	9830	4850	5240	5380	2780	2830	5210	4270
5	---	3980	5280	5340	8750	5280	5280	5510	3170	2910	5270	4070
6	---	4030	5340	5290	7160	5010	5270	1540	3260	3050	5240	3780
7	7750	4080	5360	5240	7020	5140	5180	2860	3340	3290	5050	3610
8	7040	4020	5500	5350	6990	5000	5190	1920	3400	3030	4930	3480
9	6950	3950	5560	5370	7940	4760	5350	2710	3440	3060	5010	3490
10	7070	4040	5490	5400	7700	4950	5460	3090	3690	3130	4800	3330
11	7130	4110	5600	5460	6740	5230	5570	3240	3570	3200	4570	3310
12	6360	4180	5630	5510	7740	4890	5470	3220	1280	2210	4550	3370
13	4720	4280	5690	4900	7370	4960	5500	1990	914	2660	4590	3390
14	4490	4370	5620	4370	6580	3170	5600	2910	1250	2770	4520	3130
15	4680	4360	5560	5590	6150	3470	5760	2950	1570	3320	3570	3010
16	4110	4450	5500	6930	6580	4670	5740	3360	2310	3650	2870	3080
17	3990	4520	5570	6280	6070	5690	5720	483	2780	3600	3460	3090
18	4070	4540	5610	7720	5150	6080	4930	329	690	3900	4530	3030
19	4120	4590	5630	7980	5270	5910	4050	1140	271	4000	4580	3170
20	4200	4700	5580	7810	5420	5730	5010	1600	193	4150	4550	3120
21	4310	4770	5560	7970	5660	5770	4060	2190	774	4280	4630	3050
22	4240	4830	5470	7670	5760	5730	4450	2850	2230	4240	4830	2590
23	3820	4760	5500	7860	5920	5850	4770	478	1020	4440	4760	2460
24	3740	4800	5510	7850	6200	5900	5690	177	1440	4340	4450	2910
25	3670	4870	5550	7830	5390	5990	5790	329	794	4350	4230	2870
26	3590	4850	5570	7850	5180	5960	5450	635	1020	4480	3380	2700
27	3630	4830	5500	7180	5340	6020	5420	727	332	4520	3290	2750
28	3670	4900	5410	7940	5260	5890	5400	1200	279	4450	2930	2860
29	3720	5020	5400	7860	---	5850	5570	1550	1510	4650	4550	3090
30	3710	4970	5380	7110	---	5830	5370	1600	2030	4730	6740	3260
31	3750	---	5350	10600	---	5750	---	1660	---	4850	6650	---
MEAN	4740	4410	5450	6570	6850	5270	5290	2330	1820	3590	4610	3380

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.--3,966 mi^2 (10,272 km^2), of which 2,381 mi^2 (6,167 km^2) 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 1512: 1946(M). WRD TX-81-3: Drainage area.

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.

AVERAGE DISCHARGE.--6 years (water years 1947-52) prior to completion of Lake J. B. Thomas, 85.4 ft^3/s (2.419 m^3/s), 61,870 acre-ft/yr (76.3 hm^3/yr); 30 years (water years 1953-82) regulated, 40.1 ft^3/s (1.136 m^3/s), 29,050 acre-ft/yr (35.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft^3/s (705 m^3/s) July 6, 1948, gage height, 22.37 ft (6.818 m), from floodmark; maximum gage height, 27.81 ft (8.476 m) Sept. 29, 1980, backwater from Salt Cedar; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,860 ft^3/s (138 m^3/s) June 19 at 1300 hours, gage height, 21.61 ft (6.587 m); minimum daily, 0.15 ft^3/s (0.004 m^3/s) Sept. 22-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.54	1.4	1.1	.96	.80	1.1	.84	.33	31	115	.62	.24
2	.49	1.4	1.1	1.1	1.0	1.0	1.4	.49	30	106	.62	.24
3	.53	1.5	1.2	1.0	.68	.91	.43	.44	23	110	.62	.24
4	.52	1.5	1.1	.49	.62	.69	.37	.60	17	69	.41	.24
5	.46	1.0	1.2	.56	.62	8.7	.30	34	16	55	.41	4.8
6	.91	.92	1.4	.86	.62	9.7	.24	454	14	46	.41	5.3
7	1.5	1.0	1.3	.82	.72	9.1	.34	285	13	53	.41	5.2
8	.46	1.2	1.3	.64	.94	10	.41	34	11	81	.41	4.9
9	.60	.84	1.3	.92	.88	11	.25	9.9	10	54	.41	4.7
10	.44	.64	1.4	.96	.70	11	.24	4.8	6.2	22	.41	4.5
11	.97	.92	1.5	.66	.96	11	.24	2.9	8.6	2.6	.41	4.6
12	105	1.1	1.5	1.1	1.2	11	.28	2.3	338	113	.24	5.2
13	272	1.3	1.6	1.5	.70	9.4	.24	4.1	913	181	.24	5.3
14	.85	1.4	1.6	1.5	1.0	112	.22	2.4	319	73	.24	5.2
15	.52	1.5	.81	1.6	1.2	56	.23	1.8	95	44	.24	4.5
16	1.0	1.2	.87	1.3	1.2	31	.28	1.1	48	33	.24	.66
17	.63	1.3	.52	.96	1.2	21	.18	.71	32	27	.24	.24
18	.37	.93	.41	1.2	.95	16	.18	735	150	23	.41	.24
19	.35	.92	.56	1.2	.71	13	.28	605	4160	14	.41	.24
20	.45	.85	.69	.92	1.0	10	.16	197	4370	1.5	.41	.25
21	.85	1.1	.92	1.2	1.2	8.9	.15	94	2350	1.1	.24	.15
22	6.5	1.2	1.0	1.5	1.2	7.8	.45	28	403	.92	.24	.19
23	.72	1.2	.68	.99	1.2	7.5	.34	344	631	.92	.24	.21
24	.69	1.3	.62	.92	1.1	7.7	.24	1220	616	.92	.24	.23
25	.95	1.5	.62	1.0	1.0	8.2	.24	1090	520	.92	.24	.23
26	.79	1.4	.99	.89	1.2	5.2	.17	1100	1110	.62	.24	.22
27	.95	1.2	.90	1.1	.92	.43	.18	603	2190	.62	.24	.18
28	1.1	1.3	.83	1.1	1.1	.41	.28	255	2530	.62	.24	.15
29	1.3	1.3	.67	1.3	---	.41	.24	150	1170	.62	.24	.15
30	1.2	1.6	.92	1.8	---	.41	.37	75	219	.62	.24	.21
31	1.3	---	1.1	1.1	---	.32	---	39	---	.62	.24	---
TOTAL	404.94	35.92	31.71	33.15	26.62	400.88	9.77	7373.87	22343.8	1231.60	10.45	58.71
MEAN	13.1	1.20	1.02	1.07	.95	12.9	.33	238	745	39.7	.34	1.96
MAX	272	1.6	1.6	1.8	1.2	112	1.4	1220	4370	181	.62	5.3
MIN	.35	.64	.41	.49	.62	.32	.15	.33	6.2	.62	.24	.15
AC-FT	803	71	63	66	53	795	19	14630	44320	2440	21	116

CAL YR 1981 TOTAL 14995.27 MEAN 41.1 MAX 3750 MIN .15 AC-FT 29740
WTR YR 1982 TOTAL 31961.42 MEAN 87.6 MAX 4370 MIN .15 AC-FT 63400

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1946 to September 1954, November 1956 to current year.
WATER TEMPERATURES: November 1952 to September 1954, November 1956 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 67,400 micromhos May 14, 17, 1961; minimum daily, 240 micromhos Sept. 29, 1980.
WATER TEMPERATURES: Maximum daily, 37.0°C July 29, 1960, July 9, 1965, July 1, 1973, and June 29, 1979; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 21,500 micromhos Aug. 31; minimum daily, 315 micromhos June 20.
WATER TEMPERATURES: Maximum daily, 35.0°C on several days during July and August; minimum daily, 0.0°C Jan. 10-12, 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 21...	1114	.60	12300	19.0	1400	1200	330	150	2400
NOV 19...	0935	.97	16200	11.5	1600	1400	360	180	3300
JAN 27...	1240	.87	20000	2.0	1900	1600	440	200	4200
APR 07...	0946	.45	6850	13.0	1200	950	230	140	1200
MAY 24...	1450	1220	439	20.0	130	47	40	6.2	36
AUG 11...	1000	.40	7210	27.0	830	550	180	92	1300
SEP 22...	1505	.15	9600	28.0	1100	920	240	120	1900

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 21...	28	11	240	1300	3800	.6	5.2	8140
NOV 19...	35	12	260	1600	5300	.7	2.4	10900
JAN 27...	42	13	280	2000	6600	.7	2.9	13600
APR 07...	15	7.5	200	1300	1700	1.0	2.3	4700
MAY 24...	1.5	5.0	78	54	58	.3	6.7	260
AUG 11...	20	9.5	280	1100	1800	.8	9.7	4660
SEP 22...	25	8.9	170	1200	2800	.8	10	6380

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	404.94	5010	3190	3490	1400	1480	630	686	620
NOV.	1981	35.92	16000	10300	1000	4700	458	1700	164	*
DEC.	1981	31.71	17300	11200	957	5200	443	1800	152	*
JAN.	1982	33.15	17800	11500	1030	5300	477	1800	162	*
FEB.	1982	26.62	19100	12300	886	5800	416	1900	136	*
MAR.	1982	400.88	8290	5290	5730	2300	2480	1000	1080	1000
APR.	1982	9.77	8330	5310	140	2300	60	1000	27	1000
MAY	1982	7373.87	1050	665	13200	270	5350	140	2860	140
JUNE	1982	22343.8	803	508	30700	200	12300	110	6660	110
JULY	1982	1231.60	4020	2550	8480	1100	3510	530	1750	520
AUG.	1982	10.45	8970	5740	162	2500	71	1000	30	1000
SEPT	1982	58.71	10700	6870	1090	3000	478	1300	198	*
TOTAL		31961.42	**	**	66900	**	27600	**	13900	**
WTD. AVG.		88	1220	775	**	320	**	160	**	160

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17600	14200	16500	16800	17700	20000	7600	10500	4040	4220	6230	21200
2	17700	13600	16300	16300	17500	20000	6980	13300	4230	4500	6180	20200
3	18000	15800	16600	16600	17600	17600	7000	13200	4400	4800	6250	21000
4	18200	15400	16500	18700	17700	19400	7150	13100	4610	4780	6500	21200
5	18100	15600	16400	16600	17300	15000	7050	10000	4800	4760	6610	12500
6	17600	15800	16500	18600	17700	13500	7100	1880	4980	5460	6790	10600
7	19600	15700	16600	17900	17600	14000	6850	2400	5190	5050	6970	10400
8	18700	16100	17100	17600	17800	12500	7000	3150	5360	4000	7010	10800
9	19300	15400	17000	18400	17600	12000	7990	3830	5550	4440	7080	11500
10	19400	15600	16200	18300	19200	11800	8000	3970	5730	5000	7140	12000
11	19800	15700	16700	18200	19300	11500	8020	4350	5920	5820	7210	10600
12	7860	14700	15400	18300	19200	11700	7990	4740	3340	2500	7260	9490
13	3080	14200	16500	18500	19300	12000	8250	2520	859	1860	7300	9480
14	8750	15200	18000	18400	19400	6500	8640	1840	1220	4220	7320	9500
15	11900	16200	18100	18500	19500	7010	8760	2520	1550	4450	7360	9550
16	11800	16300	18300	18400	19600	7000	8840	3500	2010	4660	7380	9590
17	11700	15200	18700	18400	19500	7060	8990	6210	2450	4850	7400	9630
18	12000	15100	17900	18500	19600	7100	9100	425	1500	5100	5920	9660
19	12300	15900	17700	18400	19700	7000	8950	1300	390	5320	6110	9730
20	12400	16400	17900	18200	19500	6990	9270	1730	315	5500	8000	9690
21	12500	17300	17800	17800	19600	7250	9370	2100	750	5560	8960	9750
22	8220	16500	18200	17200	19800	7420	9900	2510	2000	5630	9910	9600
23	11300	17300	18100	17100	19700	7390	9920	876	1700	5720	11900	9520
24	11000	16700	17800	17200	19800	7290	9960	439	1740	5840	13100	9480
25	10900	18200	17700	17000	19700	7340	9270	650	1850	5930	14300	9550
26	11900	17500	18100	17300	19800	7390	9780	671	900	6150	15600	11000
27	12300	17000	18400	17200	19700	7420	10300	1000	407	6260	16800	12500
28	12900	17900	18800	17300	19800	7140	10800	1480	337	6260	17900	14100
29	13800	17200	19400	17400	---	7410	10500	2130	1850	6250	19100	15600
30	13700	16000	19600	17500	---	7470	10600	2770	3050	6250	20400	17000
31	13800	---	18800	17600	---	7510	---	3420	---	6260	21500	---
MEAN	13800	16000	17500	17700	18900	10300	8660	3950	2770	5080	9920	12200

08121000 COLORADO RIVER AT COLORADO CITY, TEXAS--CONTINUED

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	12.0	14.0	10.0	5.0	16.0	21.0	18.0	25.0	25.0	33.0	32.0
2	---	11.0	14.0	11.0	5.0	15.0	21.0	22.0	26.0	28.0	34.0	32.0
3	---	16.0	13.0	10.0	6.0	15.0	22.0	26.0	28.0	28.0	33.0	30.0
4	---	16.0	13.0	9.0	6.0	15.0	22.0	28.0	28.0	28.0	33.0	30.0
5	---	17.0	15.0	11.0	6.0	15.0	20.0	20.0	28.0	30.0	34.0	30.0
6	---	19.0	16.0	10.0	7.0	15.0	20.0	20.0	30.0	30.0	32.0	32.0
7	17.5	19.0	15.0	4.0	7.0	15.0	24.0	26.0	30.0	30.0	28.0	30.0
8	17.0	18.0	15.0	3.0	7.0	14.0	23.0	25.0	29.0	30.0	34.0	30.0
9	21.0	18.0	15.0	3.0	9.0	15.0	20.0	26.0	28.0	30.0	35.0	30.0
10	19.0	---	15.0	.0	13.0	15.0	24.0	26.0	28.0	30.0	33.0	30.0
11	22.0	17.0	13.0	.0	12.0	15.0	22.0	22.0	27.0	32.0	34.0	30.0
12	21.0	15.0	14.0	.0	10.0	15.0	26.0	26.0	24.0	30.0	35.0	30.0
13	21.0	14.0	13.0	3.0	17.0	15.0	25.0	23.0	25.0	30.0	34.0	30.0
14	25.0	15.0	13.0	3.0	15.0	15.0	26.0	25.0	28.0	32.0	34.0	30.0
15	26.0	16.0	14.0	4.0	15.0	---	28.0	22.0	28.0	33.0	35.0	30.0
16	24.0	15.0	12.0	5.0	17.0	16.0	27.0	24.0	29.0	34.0	35.0	30.0
17	21.0	14.0	8.0	6.0	15.0	16.0	21.0	18.0	30.0	34.0	34.0	30.0
18	19.0	15.0	15.0	2.0	16.0	18.0	23.0	20.0	---	35.0	34.0	30.0
19	23.0	13.0	15.0	4.0	17.0	18.0	27.0	22.0	24.0	35.0	34.0	30.0
20	23.0	13.0	12.0	.0	16.0	20.0	22.0	20.0	26.0	34.0	34.0	30.0
21	19.0	14.0	14.0	1.0	15.0	20.0	18.0	---	28.0	34.0	35.0	30.0
22	13.0	14.0	14.0	---	16.0	22.0	16.0	20.0	28.0	35.0	34.0	30.0
23	19.0	15.0	16.0	---	18.0	22.0	15.0	20.0	28.0	35.0	33.0	30.0
24	18.0	15.0	14.0	---	16.0	24.0	18.0	20.0	26.0	35.0	33.0	32.0
25	18.0	16.0	14.0	---	14.0	20.0	15.0	19.0	28.0	34.0	33.0	32.0
26	16.0	14.0	15.0	---	19.0	18.0	26.0	20.0	26.0	33.0	34.0	30.0
27	19.0	15.0	11.0	---	17.0	18.0	26.0	20.0	25.0	34.0	34.0	30.0
28	18.0	15.0	13.0	---	20.0	17.0	28.0	22.0	25.0	34.0	32.0	30.0
29	21.0	12.0	10.0	---	---	17.0	28.0	22.0	25.0	33.0	33.0	30.0
30	20.0	11.0	10.0	---	---	21.0	19.0	24.0	26.0	34.0	33.0	30.0
31	19.0	---	10.0	---	---	22.0	---	25.0	---	33.0	34.0	---
MEAN	20.0	15.0	13.5	4.5	12.5	17.5	22.5	22.5	27.0	32.0	33.5	30.5

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-81-3: Drainage area.

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

REMARKS.--The lake is formed by a rolled earthfill dam 4,800 ft (1,460 m) long. Storage began in April 1949, and the dam was completed in September 1949. The dam and lake are owned by the Texas Electric Service Co. to operate their thermal electric powerplant. The uncontrolled emergency spillway is an excavated cut channel through natural ground 1,200 ft (366 m) wide located 600 ft (180 m) upstream and to the left of left end of dam. The spillway is designed to discharge 150,000 ft³/s (4,250 m³/s) at the maximum design flood elevation. The service spillway is an uncontrolled rectangular drop inlet located 100 ft (30 m) upstream from dam with two uncontrolled openings of 10.0 by 12.0 ft (3.0 by 3.7 m). The spillway is designed for a maximum discharge of 5,000 ft³/s (142 m³/s). A service outlet is provided for small releases downstream through a 30-inch (762 mm) valve-controlled concrete pipe. Records furnished by the Texas Electric Service Co. show no pumpage from Champion Creek Reservoir (station 08123600) into Lake Colorado City during the current year. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	2,090.0	-
Design flood	2,086.7	70,700
Crest of spillway	2,073.7	37,850
Crest of service spillway (top of conservation pool)	2,070.2	31,810
Lowest gated outlet (invert)	2,024.3	316

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 31,010 acre-ft (38.2 hm³) June 30 at 0600 hours, elevation, 2,069.70 ft (630.845 m); minimum, 22,640 acre-ft (27.9 hm³) May 21, 22, elevation, 2,063.86 ft (629.065 m).

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

2,063.0	21,540	2,068.0	28,400
2,066.0	25,510	2,070.0	31,480

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26770	26340	25710	24980	24550	24130	23540	22700	24320	30930	29450	27740
2	26730	26310	25690	24960	24530	24110	23510	22730	24290	30880	29390	27700
3	26700	26300	25660	24930	24520	24090	23460	22710	24250	30850	29320	27640
4	26660	26270	25650	24900	24510	24060	23450	22760	24210	30790	29260	27600
5	26630	26250	25640	24870	24490	24030	23380	23070	24170	30740	29190	27520
6	26580	26240	25610	24850	24480	24010	23330	23040	24170	30690	29130	27480
7	26560	26230	25590	24830	24460	23970	23310	23010	24070	30650	29070	27440
8	26510	26200	25570	24820	24450	23950	23280	22990	24030	30600	29010	27380
9	26480	26140	25550	24800	24440	23940	23240	22960	23990	30540	28970	27330
10	26440	26110	25520	24780	24420	23900	23210	22950	23950	30510	28920	27260
11	26410	26100	25480	24760	24410	23900	23210	22930	24010	30490	28880	27220
12	26380	26070	25470	24750	24400	23870	23210	22930	24270	30510	28820	27160
13	26500	26040	25440	24740	24380	23860	23170	22910	24260	30490	28740	27100
14	26640	26030	25430	24720	24370	23970	23140	22870	24210	30440	28670	27040
15	26740	26000	25400	24710	24360	23950	23120	22830	24170	30380	28640	26990
16	26760	25990	25380	24700	24340	23930	23070	22800	24110	30320	28580	26940
17	26710	25970	25360	24680	24330	23930	23010	22780	24070	30240	28550	26900
18	26640	25960	25330	24670	24320	23910	22990	22760	24340	30190	28520	26860
19	26610	24520	25320	24650	24300	23890	22960	22730	26070	30130	28460	26830
20	26570	25860	25290	24640	24290	23850	22880	22660	27580	30070	28410	26770
21	26570	25830	25270	24630	24270	23810	22820	22670	27890	30020	28370	26700
22	26660	25800	25250	24630	24260	23780	22840	22660	27920	29960	28310	26700
23	26610	25800	25230	24610	24250	23750	22830	22880	27920	29930	28250	26600
24	26610	25800	25200	24610	24230	23740	22820	23080	27880	29880	28170	26560
25	26580	25790	25180	24600	24190	23690	22800	23950	27860	29820	28110	26510
26	26510	25790	25150	24600	24170	23630	22760	24400	27860	29740	28070	26440
27	26480	25780	25120	24590	24150	23610	22750	24480	30190	29680	28030	26370
28	26470	25780	25090	24570	24140	23580	22730	24490	30900	29640	27970	26300
29	26440	25750	25070	24570	---	23570	22710	24480	30990	29580	27940	26270
30	26430	25730	25040	24560	---	23570	22710	24440	30980	29530	27860	26210
31	26380	---	25010	24560	---	23530	---	24380	---	29500	27800	---
MAX	26770	26340	25710	24980	24550	24130	23540	24490	30990	30930	29450	27740
MIN	26380	24520	25010	24560	24140	23530	22710	22660	23950	29500	27800	26210
(†)	2066.62	2066.16	2065.64	2065.31	2065.00	2064.54	2063.92	2065.18	2069.68	2068.73	2067.60	2066.50
(‡)	-430	-650	-720	-450	-420	-610	-820	+1670	+6600	-1480	-1700	-1590
(††)	112	104	107	132	116	135	150	131	158	204	243	188

CAL YR 1981 MAX 36770 MIN 24520 ‡ -5920 †† 1660
WTR YR 1982 MAX 30990 MIN 22660 ‡ -600 †† 1780

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

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, 1.0 mi (1.6 km) upstream from mouth, 4.8 mi (7.7 km) downstream from State Highway 208, and 7.2 mi (11.6 km) south of Colorado City.

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

WATER-DISCHARGE RECORDS

PERIOD OF RECORD (revised).--October 1959 to current year.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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

REMARKS.--The reservoir is formed by a rolled earthfill dam about 6,800 ft (2,070 m) long. The dam was completed on Apr. 30, 1959. Closure and storage began in February 1959. The capacity curve is based on Geological Survey topographic map surveyed in 1950; excavation for borrow, estimated not to exceed 1,200 acre-ft (1.23 hm³), is not included. The dam and reservoir are owned and operated by the Texas Electric Service Company. Water may be pumped from the reservoir through a 24-inch (610 mm) pipeline to Lake Colorado City (station 08123000) for municipal use and for cooling operations of a steam generating powerplant. There are two spillways. The uncontrolled emergency spillway is 450 ft (137 m) wide by 1,800 ft (549 m) long, and is located at the right end of dam. The controlled service spillway, a cut channel 50 ft (15 m) wide, about 1,800 ft (549 m) long, and 8 ft (2 m) deep, is cut into the emergency spillway at the extreme right end. There is a controlled dropinlet 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, 47,060 acre-ft (58.0 hm³) June 29, 1982, elevation, 2,085.79 ft (635.749 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, 47,060 acre-ft (58.0 hm³) June 29, elevation, 2,085.79 ft (635.749 m); minimum, 24,690 acre-ft (30.4 hm³) Oct. 5, elevation, 2,068.97 ft (630.622 m).

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

2,068.0	23,700	2,076.0	32,690	2,083.0	42,500
2,072.0	27,930	2,080.0	38,040	2,086.0	47,410

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24760	27310	27140	27090	27180	27220	27150	26790	31470	46230	42830	41740
2	24740	27310	27130	27090	27180	27220	27140	26790	31440	45870	42800	41690
3	24720	27300	27120	27080	27180	27230	27120	26780	31430	45540	42750	41640
4	24700	27300	27120	27070	27170	27220	27120	26790	31400	45280	42720	41610
5	24690	27290	27110	27070	27150	27190	27090	27230	31380	45030	42660	41580
6	24760	27290	27110	27070	27130	27170	27060	27500	31370	44820	42640	41540
7	24770	27280	27120	27050	27140	27160	27020	27510	31360	44650	42610	41510
8	24820	27380	27120	27040	27170	27160	27010	27500	31330	44510	42580	41460
9	25030	27360	27120	27040	27150	27170	27000	27500	31320	44360	42560	41440
10	25240	27340	27130	27020	27150	27180	26980	27500	31290	44240	42530	41400
11	25450	27330	27130	27000	27160	27180	26960	27500	31320	44180	42470	41350
12	25660	27310	27130	27010	27160	27180	26960	27570	32130	44160	42440	41320
13	27160	27300	27140	27040	27160	27190	26960	27570	32170	44080	42410	41290
14	27170	27290	27150	27050	27160	27220	26960	27570	32140	43990	42380	41250
15	27160	27280	27150	27060	27180	27220	26950	27560	32130	43840	42320	41210
16	27220	27250	27160	27050	27180	27220	26950	27550	32100	43750	42290	41180
17	27200	27220	27130	27040	27190	27230	26900	27550	32080	43670	42290	41150
18	27190	27190	27120	27050	27190	27240	26900	27550	32240	43590	42260	41120
19	27180	27170	27110	27070	27190	27240	26900	27530	46600	43510	42240	41090
20	27170	27160	27120	27080	27200	27230	26830	27520	46570	43450	42210	41050
21	27160	27150	27130	27120	27200	27200	26800	27520	46330	43370	42150	41000
22	27380	27140	27130	27130	27220	27180	26800	28450	46010	43320	42130	40960
23	27370	27140	27120	27120	27220	27180	26800	28950	46480	43260	42070	40930
24	27370	27140	27110	27120	27230	27180	26800	29810	46240	43210	42030	40910
25	27360	27140	27110	27120	27230	27160	26800	30180	46230	43160	41980	40870
26	27360	27130	27110	27120	27200	27150	26790	30250	45970	43120	41950	40840
27	27350	27120	27110	27130	27200	27150	26790	30420	46820	43050	41900	40790
28	27350	27130	27090	27130	27220	27140	26780	31470	46990	43020	41870	40750
29	27340	27130	27080	27180	---	27130	26780	31500	47060	42970	41860	40720
30	27340	27150	27080	27200	---	27140	26790	31500	46720	42930	41810	40700
31	27330	---	27090	27180	---	27140	---	31490	---	42900	41770	---
MAX	27380	27380	27160	27200	27230	27240	27150	31500	47060	46230	42830	41740
MIN	24690	27120	27080	27000	27130	27130	26780	26780	31290	42900	41770	40700
(†)	2071.45	2071.29	2071.24	2071.32	2071.35	2071.28	2070.96	2075.04	2085.59	2083.25	2082.52	2081.82
(‡)	+2580	-180	-60	+90	+40	-80	-350	+4700	+15230	-3820	-1130	-1070

CAL YR 1981 MAX 27380 MIN 21470 ‡ +5630
WTR YR 1982 MAX 47060 MIN 24690 ‡ +15950

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

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 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	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)
AUG 11...	0745	645	27.0	230	110	58	20	42

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
AUG 11...	1.3	6.6	120	130	51	.4	3.9	396

08123800 BEALS CREEK NEAR WESTBROOK, TX

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

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-72-1: 1971. WDR TX-81-3: Drainage area.

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

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

AVERAGE DISCHARGE.--24 years, 25.0 ft³/s (0.708 m³/s), 0.17 in/yr (4 mm/yr), 18,110 acre-ft/yr (22.3 hm³/yr).

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

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

EXTREMES FOR CURRRENT YEAR.--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)
Oct. 12	2045	975	27.6	9.38	2.859	June 20	1800	*1,340	37.9	11.28	3.438
May 24	1645	990	28.0	9.46	2.883	June 27	1100	1,150	32.6	10.35	3.155

Minimum discharge, 1.0 ft³/s (0.028 m³/s) Oct. 2.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	5.0	4.7	5.6	6.0	5.9	5.5	5.9	7.8	26	4.8	2.7
2	1.6	4.9	5.4	5.8	6.6	5.9	5.2	11	7.3	61	4.7	2.9
3	2.9	4.7	5.6	7.1	5.9	5.6	6.6	11	6.6	72	4.3	2.8
4	2.5	4.7	5.0	6.8	5.7	5.5	5.6	7.2	6.4	20	4.4	2.8
5	2.5	4.8	4.8	5.7	5.8	5.4	4.3	126	5.7	14	4.1	2.7
6	3.6	4.8	4.5	5.6	5.6	5.3	4.4	367	5.9	12	3.9	2.9
7	5.4	4.8	4.5	5.4	5.3	5.4	4.3	52	6.6	11	3.9	2.6
8	7.7	4.8	4.5	5.2	6.1	5.6	4.3	13	5.5	11	3.6	2.5
9	9.2	4.6	4.6	5.2	6.4	5.6	4.5	9.2	6.6	11	6.0	2.4
10	5.5	4.7	4.8	5.4	6.2	5.2	4.3	7.5	19	9.7	18	2.6
11	4.9	4.4	4.9	5.5	6.0	5.2	4.2	7.0	7.5	8.8	14	2.5
12	362	4.4	4.9	6.1	5.9	5.2	4.0	10	361	69	7.3	2.7
13	117	4.6	5.3	6.8	5.7	5.2	3.8	29	348	35	5.3	2.9
14	27	4.7	5.5	7.4	5.7	17	3.7	8.8	36	21	4.5	2.8
15	10	4.7	5.4	7.4	5.7	8.2	3.6	6.0	15	12	4.0	2.8
16	74	4.7	5.8	11	5.7	6.7	3.7	5.0	12	9.7	3.7	2.7
17	137	4.5	6.2	10	5.3	5.9	3.5	4.9	11	8.6	3.4	2.7
18	28	4.5	5.6	7.9	5.6	5.6	3.5	5.0	9.4	8.6	4.8	2.6
19	9.6	4.3	5.1	7.3	5.4	5.5	3.5	5.1	843	8.6	4.9	2.4
20	6.9	4.3	5.0	7.6	5.4	5.3	3.3	5.3	1190	7.0	3.9	2.7
21	6.2	4.2	3.7	7.0	5.3	5.1	3.3	4.6	436	6.4	3.5	2.9
22	12	4.2	4.1	6.7	5.4	4.8	3.9	4.5	39	6.6	3.4	4.3
23	36	4.4	5.0	6.6	5.5	4.9	4.2	61	27	5.7	3.2	3.3
24	16	4.4	5.0	7.9	5.3	4.8	6.3	528	78	5.5	3.0	3.0
25	8.4	4.6	4.9	6.6	5.3	5.0	6.6	467	148	5.3	2.9	2.6
26	7.0	4.5	4.9	6.3	5.4	5.3	5.2	207	81	5.1	2.8	2.4
27	6.4	4.6	5.2	6.1	5.4	5.0	4.6	44	922	5.1	2.6	2.3
28	6.0	4.6	5.5	6.0	6.7	5.2	4.3	218	453	5.1	2.6	2.1
29	5.6	4.5	5.4	6.1	---	5.7	4.1	27	119	4.8	2.8	2.1
30	5.5	4.9	5.4	6.2	---	5.6	4.6	14	37	5.0	2.8	2.2
31	5.3	---	5.4	6.1	---	5.3	---	9.4	---	5.5	2.8	---
TOTAL	934.1	137.8	156.6	206.4	160.3	181.9	132.9	2280.4	5250.3	496.1	145.9	80.9
MEAN	30.1	4.59	5.05	6.66	5.73	5.87	4.43	73.6	175	16.0	4.71	2.70
MAX	362	5.0	6.2	11	6.7	17	6.6	528	1190	72	18	4.3
MIN	1.6	4.2	3.7	5.2	5.3	4.8	3.3	4.5	5.5	4.8	2.6	2.1
CFSM	.03	.005	.005	.007	.006	.006	.005	.08	.18	.02	.005	.003
IN.	.04	.01	.01	.01	.01	.01	.01	.09	.20	.02	.01	.00
AC-FT	1850	273	311	409	318	361	264	4520	10410	984	289	160

CAL YR 1981 TOTAL 6074.04 MEAN 16.6 MAX 927 MIN .42 CFSM .02 IN .23 AC-FT 12050
WTR YR 1982 TOTAL 10163.60 MEAN 27.8 MAX 1190 MIN 1.6 CFSM .03 IN .39 AC-FT 20160

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

WATER-QUALITY RECORDS

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

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 22,800 micromhos June 2, 1969; minimum daily, 219 micromhos Sept. 13, 1964.
WATER TEMPERATURES: Maximum daily, 37.0°C June 28, 1960, and July 3, 1976; minimum daily, 0.0°C Jan. 7, 1971, and Jan. 9, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 19,300 micromhos June 11; minimum daily, 480 micromhos June 12.
WATER TEMPERATURES: Minimum daily, 1.0°C Jan. 13, 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
29...	1055	5.6	6630	17.0	1500	1300	210	230	980
JAN									
26...	1115	4.8	11800	9.0	2700	2500	350	440	1900
MAR									
11...	1315	5.0	12300	19.5	2800	2600	370	460	1900
MAY									
24...	1600	902	741	20.0	180	50	54	11	83
JUL									
12...	0945	23	5230	24.0	1100	910	180	150	720
AUG									
09...	1305	4.5	9730	28.0	2200	2000	320	330	1500

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT								
29...	11	23	160	1100	1800	.6	5.6	4450
JAN								
26...	16	40	180	2200	3300	.8	13	8350
MAR								
11...	16	43	210	2200	3400	.6	15	8510
MAY								
24...	2.8	4.6	130	41	160	.4	7.6	440
JUL								
12...	9.6	15	160	730	1300	.5	3.8	3200
AUG								
09...	14	31	140	1600	2700	.8	3.5	6570

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	934.1	3000	1870	4720	720	1830	440	1110	640
NOV.	1981	137.8	10600	7000	2600	2800	1050	1700	629	*
DEC.	1981	156.6	11600	7760	3280	3200	1330	1900	795	*
JAN.	1982	206.4	11600	7720	4300	3100	1750	1900	1040	*
FEB.	1982	160.3	11800	7850	3400	3200	1380	1900	824	*
MAR.	1982	181.9	11900	7980	3920	3200	1600	1900	950	*
APR.	1982	132.9	12100	8120	2910	3300	1190	2000	707	*
MAY	1982	2280.4	2780	1740	10700	670	4140	410	2520	590
JUNE	1982	5250.3	1420	876	12400	340	4760	210	2910	300
JULY	1982	496.1	6000	3830	5130	1500	2020	910	1220	1300
AUG.	1982	145.9	8840	5760	2270	2300	907	1400	545	1900
SEPT	1982	80.9	8450	5490	1200	2200	478	1300	287	1800
TOTAL		10163.6	**	**	56900	**	22400	**	13600	**
WTD. AVG.		28	3230	2070	**	820	**	490	**	700

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	10100	6740	6800	6140	11000	10800	10900	12100	11800	12000
2	---	---	10200	8040	8080	7450	11000	11000	11000	11900	11800	11800
3	---	---	9930	9260	9340	8620	11000	10900	10900	12300	11900	12100
4	---	---	9960	10600	10600	10100	10900	10800	10800	12400	12100	12200
5	---	---	9980	11100	---	10800	10800	10700	10700	12200	12100	12200
6	---	---	9760	11400	11200	11300	10900	10800	10800	12000	11700	11800
7	---	---	9230	11500	11400	11500	10900	10800	10900	11800	11600	11700
8	---	---	8900	11500	11300	11400	10900	10700	10800	11800	11700	11800
9	---	---	7960	11300	11300	11300	10800	10600	10700	11900	11800	11800
10	---	---	7600	11300	11200	11200	10900	10600	10800	11900	11800	11800
11	---	---	7190	11300	11100	11200	11200	10900	11000	12000	11800	11900
12	---	---	2500	11100	10900	11000	11700	11200	11300	12000	11200	11600
13	---	---	1000	11000	10900	10900	13100	11800	12600	11300	11300	11300
14	---	---	1970	11100	11000	11000	13000	12800	12900	11500	11300	11400
15	---	---	2990	11100	11000	11100	12700	12100	12400	11500	11300	11400
16	---	---	2030	11100	11000	11000	12100	11700	11900	---	---	11100
17	---	---	2480	11000	10800	10900	11700	11400	11500	---	---	10900
18	---	---	3300	10800	10500	10600	11500	11400	11400	---	---	10600
19	---	---	4330	10500	10400	10500	11700	11500	11600	---	---	10700
20	---	---	3870	10600	10500	10600	11700	11500	11600	---	---	10300
21	---	---	3790	11000	10700	10800	11700	11500	11600	---	---	10900
22	---	---	3500	11200	11100	11100	11700	11300	11500	---	---	10600
23	---	---	4500	11100	10900	11000	11900	11700	11700	---	---	12800
24	---	---	6950	10900	10900	10900	12000	11900	11900	---	---	11200
25	---	---	4890	11000	10900	10900	12000	11800	11900	---	---	11000
26	---	---	5830	11000	10900	10900	12100	11900	12000	12600	12500	12600
27	---	---	8330	11000	10900	10900	13000	12200	12500	12600	12400	12500
28	---	---	7970	11100	10900	11000	13300	12500	12900	12400	12300	12400
29	---	---	6770	10900	10800	10900	12600	12500	12500	12300	12100	12200
30	---	---	5840	10800	10400	10700	12600	12300	12400	12100	12000	12000
31	5660	5340	5440	---	---	---	12300	12000	12100	12000	11800	11900
MONTH	5660	5340	6100	11500	6800	10600	13300	10600	11600	12600	11200	11600

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	11800	11600	11700	---	---	12000	12700	12500	12600	10300	10100	10200
2	11900	11800	11800	---	---	11700	12600	12500	12600	12500	9960	10500
3	11800	11700	11800	11500	11200	11300	12500	12400	12400	12700	10600	11400
4	11900	11800	11800	11800	11500	11600	12400	12300	12400	10700	10400	10600
5	11900	11800	11900	12000	11800	12000	12300	12200	12300	10800	4340	5020
6	11900	11700	11800	12200	11900	12000	12200	12100	12100	5540	2980	3180
7	11800	11700	11800	12100	11800	12000	12100	12000	12100	5960	5040	5800
8	11700	11600	11700	12000	11900	11900	12100	12000	12000	5620	5300	5420
9	11700	11500	11600	13200	11800	12700	12000	11900	11900	5480	5260	5360
10	---	---	11500	13200	13000	13100	11900	11900	11900	6420	5500	5910
11	---	---	12300	13100	12900	13000	11900	11800	11900	7900	6460	7150
12	---	---	11800	13000	12900	12900	11900	11800	11800	9400	5360	8590
13	---	---	11600	12900	12800	12900	11900	11700	11800	7700	1860	5780
14	---	---	11800	12900	10900	11700	11800	11700	11800	9940	5080	8920
15	---	---	11400	10900	10600	10800	12500	11800	12100	12000	9860	11100
16	---	---	11200	10900	10700	10800	13000	12400	12700	11900	11600	11800
17	---	---	11000	11200	10800	11000	13400	12900	13100	11600	11000	11400
18	---	---	11300	11400	11100	11200	13900	13400	13700	11000	9080	10400
19	---	---	11400	11200	11000	11200	13800	13300	13600	---	---	7600
20	---	---	11900	11100	10900	11000	13300	12900	13000	---	---	6050
21	---	---	12100	11000	10900	11000	12800	12700	12700	7860	6160	7060
22	---	---	11800	11200	11000	11000	12700	12400	12500	9580	7960	8690
23	---	---	12000	11400	11200	11300	12400	12300	12300	10100	3880	4080
24	---	---	12100	11800	11400	11700	12300	12100	12200	---	---	1260
25	---	---	12200	11900	11700	11800	12100	11700	11900	---	---	1610
26	---	---	12000	13300	11900	12900	11700	11300	11500	---	---	2210
27	---	---	12300	13200	13100	13100	11300	11200	11200	---	---	3550
28	---	---	11700	13100	12900	13000	11200	10800	11100	---	---	2510
29	---	---	---	13000	12800	12900	10900	10600	10800	---	---	1810
30	---	---	---	12800	12700	12800	10600	10100	10400	---	---	2590
31	---	---	---	12700	12600	12700	---	---	---	---	---	3380
MONTH	11900	11500	11800	13300	10600	12000	13900	10100	12100	12700	1860	6480

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	7240			3750	---	---	9950	---	---	9520
2	---	---	10800			4560	---	---	10000	---	---	9690
3	---	---	11300			6960	---	---	9950	---	---	9370
4	---	---	10300			7840	---	---	9940	---	---	9630
5	---	---	8650			7280	---	---	10100	---	---	9660
6	---	---	8510			6190	---	---	10100	---	---	9550
7	---	---	10000			5820	---	---	9950	---	---	9400
8	---	---	10600			5610	---	---	9880	---	---	9250
9	---	---	11300			5570	10000	9860	9970	---	---	9170
10	---	---	12100			6200	9980	8120	9410	---	---	9020
11	19300	11000	12100			7600	---	---	8070	---	---	8950
12	10900	480	1680			5230	---	---	8240	---	---	8770
13	2860	800	1750			2500	---	---	7450	---	---	8630
14	---	---	3050			3270	---	---	7760	8540	8300	8460
15	3340	3020	3190			5630	---	---	6850	8380	8240	8310
16	3800	3360	3570			6850	---	---	6430	8240	8080	8150
17	4900	3820	4350			8760	---	---	6490	8060	7940	8000
18	5520	1900	4510			8270	---	---	6860	8040	6340	7820
19	---	---	833			7350	---	---	7350	---	---	8170
20	---	---	651			7080	---	---	7600	---	---	8120
21	---	---	1200			6880	---	---	8100	---	---	7970
22	---	---	2670			6800	---	---	8530	---	---	7740
23	---	---	4570			7140	---	---	8850	---	---	7600
24	---	---	4300			7880	---	---	9280	---	---	7570
25	---	---	3550			9230	---	---	10100	---	---	7530
26	---	---	2750			10100	---	---	10700	---	---	7500
27	---	---	663			10700	---	---	10800	---	---	7480
28	---	---	1860			10600	---	---	10600	---	---	7420
29	---	---	1640			10500	---	---	9320	---	---	7370
30	---	---	2350			10600	---	---	8580	---	---	7370
31	---	---	---			10400	---	---	9120	---	---	---
MONTH	19300	480	5400			7200	10000	8120	8910	8540	6340	8440

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	16.5	13.5	15.0	12.5	10.5	11.5	9.5	7.0	8.0
2	---	---	---	18.0	12.5	16.0	11.0	9.0	10.0	11.0	8.5	9.5
3	---	---	---	---	---	---	11.5	9.0	10.0	10.0	8.0	9.0
4	---	---	---	---	---	---	11.5	9.5	10.5	8.0	6.0	7.0
5	---	---	---	---	---	---	10.0	8.5	9.5	9.0	6.0	7.5
6	---	---	---	17.0	14.5	16.0	12.0	9.5	10.5	11.0	8.0	9.5
7	---	---	---	17.0	14.0	15.5	12.5	10.0	11.0	9.0	5.5	7.0
8	---	---	---	17.0	14.0	15.5	13.0	10.0	11.5	6.5	4.0	5.5
9	---	---	---	14.0	11.5	13.0	13.0	10.0	11.5	6.5	4.0	5.0
10	---	---	---	13.0	9.5	11.5	13.0	10.5	12.0	5.5	2.0	3.5
11	---	---	---	13.0	9.5	11.5	12.0	10.5	11.5	2.0	1.5	2.0
12	---	---	---	14.0	10.0	12.0	12.5	11.0	11.5	4.0	1.5	2.5
13	---	---	---	15.0	11.0	13.0	12.0	11.0	11.5	2.5	1.0	1.5
14	---	---	---	16.0	12.5	14.5	11.5	9.5	10.5	3.5	1.0	2.0
15	---	---	---	16.5	14.0	15.0	10.5	7.5	9.0	5.5	2.0	3.5
16	---	---	---	16.0	13.0	14.5	11.5	8.0	9.5	---	---	---
17	---	---	---	16.0	13.0	14.5	10.0	6.5	8.0	---	---	---
18	---	---	---	17.0	13.5	15.0	7.0	4.5	6.0	---	---	---
19	---	---	---	14.5	12.5	13.5	7.5	4.5	6.0	---	---	---
20	---	---	---	13.0	10.5	12.0	10.0	6.5	8.0	---	---	---
21	---	---	---	13.0	10.0	11.5	12.0	8.5	10.0	---	---	---
22	---	---	---	13.0	10.0	11.5	10.5	8.5	9.5	---	---	---
23	---	---	---	13.5	11.0	12.0	8.5	6.5	7.5	---	---	---
24	---	---	---	14.0	10.5	12.0	8.0	6.0	7.0	---	---	---
25	---	---	---	15.0	11.5	13.5	7.0	5.0	6.0	---	---	---
26	---	---	---	15.0	13.0	14.0	8.0	5.5	6.5	10.0	8.0	9.0
27	---	---	---	13.0	12.0	12.0	8.5	6.0	7.0	11.5	8.0	9.5
28	---	---	---	13.5	11.5	12.5	8.5	6.0	7.0	11.5	9.0	10.5
29	---	---	---	13.5	13.0	13.5	7.5	5.5	6.5	15.0	11.0	13.0
30	---	---	---	14.0	12.0	13.0	9.0	6.0	7.5	14.0	10.0	12.5
31	19.5	16.0	18.0	---	---	---	9.5	7.5	8.5	10.5	8.0	9.5
MONTH	19.5	16.0	18.0	18.0	9.5	13.5	13.0	4.5	9.0	15.0	1.0	7.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	10.5	8.5	9.5	---	---	---	19.0	15.0	17.0	18.5	17.5	18.0
2	10.0	8.0	9.5	---	---	---	19.5	17.5	18.5	20.5	17.0	18.5
3	8.5	6.5	7.5	16.0	13.5	15.0	18.0	15.0	16.5	21.0	18.5	20.0
4	6.5	3.5	5.0	15.5	12.5	14.0	20.0	16.0	18.0	24.5	19.5	22.0
5	3.5	2.0	2.5	14.0	9.0	11.5	19.5	16.0	17.5	22.5	18.5	21.0
6	4.0	1.5	2.5	10.5	7.5	9.0	18.0	15.0	16.5	---	---	---
7	6.5	3.0	4.5	11.0	8.0	9.5	18.5	15.0	16.5	21.5	16.0	18.5
8	9.0	5.5	7.0	12.5	9.0	11.0	20.0	16.5	18.5	23.5	17.5	20.5
9	8.0	6.0	7.0	14.5	11.5	13.0	18.5	16.5	17.5	23.0	19.5	21.0
10	---	---	---	16.5	13.5	14.5	18.5	15.5	17.0	26.0	20.5	23.0
11	---	---	---	17.5	14.5	16.0	19.0	14.5	17.0	26.5	22.0	24.0
12	---	---	---	18.5	16.0	17.0	21.0	16.5	18.5	27.0	22.0	24.5
13	---	---	---	17.5	16.0	17.0	22.5	18.5	20.5	25.0	19.0	22.0
14	---	---	---	17.5	15.0	16.5	21.5	19.0	20.5	25.0	19.5	22.0
15	---	---	---	18.5	16.0	17.0	24.5	19.5	21.5	26.5	20.0	23.0
16	---	---	---	19.0	16.0	17.5	24.5	19.5	22.0	27.5	21.5	24.5
17	---	---	---	19.5	17.0	18.0	21.0	18.0	19.5	24.5	22.0	23.0
18	---	---	---	20.0	18.5	19.0	20.0	17.0	18.5	28.0	20.5	24.0
19	---	---	---	21.0	19.0	19.5	23.5	18.5	21.0	28.0	23.0	25.5
20	---	---	---	19.0	17.0	18.0	20.5	15.0	17.0	29.5	23.0	26.0
21	---	---	---	17.5	15.5	16.5	14.5	12.0	13.0	29.0	24.5	26.0
22	---	---	---	16.5	14.0	15.5	13.5	11.5	12.5	27.5	22.5	24.5
23	---	---	---	17.0	14.5	15.5	16.5	12.0	14.0	24.5	20.0	22.5
24	---	---	---	19.0	14.5	16.5	19.5	14.5	17.0	---	---	---
25	---	---	---	17.0	13.5	14.5	21.5	16.0	19.0	---	---	---
26	---	---	---	13.0	11.5	12.0	22.0	17.5	20.0	---	---	---
27	---	---	---	13.5	11.0	12.0	20.0	18.5	19.5	---	---	---
28	---	---	---	13.0	11.5	12.0	22.5	18.0	20.0	---	---	---
29	---	---	---	14.0	12.0	13.0	23.5	18.5	21.0	---	---	---
30	---	---	---	17.0	13.5	15.0	21.5	19.0	20.5	---	---	---
31	---	---	---	16.5	14.0	15.5	---	---	---	---	---	---
MONTH	10.5	1.5	6.0	21.0	7.5	15.0	24.5	11.5	18.0	29.5	16.0	22.5

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

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

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

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

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

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-81-3: Drainage area.

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.--15 years, 81.6 ft³/s (2.311 m³/s), 59,120 acre-ft/yr (72.9 hm³/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,630 ft³/s (216 m³/s) June 20 at 1930 hours, gage height, 15.93 ft (4.855 m), minimum, 2.0 ft³/s (0.057 m³/s) Oct. 3, 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	16	15	13	17	14	18	12	110	668	35	11
2	2.4	16	14	13	16	15	17	12	85	412	32	10
3	2.3	16	14	11	16	14	17	13	72	331	27	10
4	2.5	16	14	11	15	13	19	22	64	321	23	9.4
5	2.4	15	14	13	15	11	19	37	59	246	19	9.4
6	8.5	16	14	14	14	11	18	334	58	206	17	8.8
7	17	16	14	12	14	11	17	364	57	181	17	8.8
8	14	15	15	12	14	14	16	308	55	162	16	8.2
9	17	15	14	11	13	20	16	106	54	239	16	8.3
10	22	14	14	11	13	21	15	64	44	161	15	10
11	20	14	13	11	14	20	15	50	32	129	20	11
12	498	14	13	11	16	22	14	45	94	132	31	10
13	725	14	13	14	15	21	14	81	745	229	23	11
14	731	14	14	17	15	25	12	56	631	237	18	11
15	160	14	14	15	15	37	11	43	268	132	15	11
16	70	14	15	16	14	66	10	35	154	99	12	11
17	113	14	16	16	14	51	9.4	31	99	84	12	11
18	115	14	15	22	13	46	8.8	29	76	75	19	11
19	54	13	14	21	12	44	8.2	213	1920	68	16	11
20	35	14	14	18	13	43	7.1	597	6410	63	16	11
21	29	13	14	18	14	40	8.5	205	6390	54	15	11
22	28	13	12	19	13	38	13	191	3140	47	14	11
23	49	13	12	17	13	35	9.5	127	1060	43	14	11
24	64	13	11	16	13	34	11	513	863	40	14	11
25	42	12	12	15	14	31	11	1330	1060	39	13	10
26	31	12	12	17	14	29	10	1620	791	37	12	9.4
27	25	11	12	15	14	26	14	1150	3120	34	12	8.8
28	22	11	11	14	14	24	11	981	4210	34	11	8.2
29	22	12	11	15	---	23	10	528	3520	33	11	7.1
30	21	18	12	18	---	21	9.9	222	2010	34	11	6.6
31	18	---	13	16	---	19	---	152	---	32	11	---
TOTAL	2962.7	422	415	462	397	839	389.4	9471	37251	4602	537	297.0
MEAN	95.6	14.1	13.4	14.9	14.2	27.1	13.0	306	1242	148	17.3	9.90
MAX	731	18	16	22	17	66	19	1620	6410	668	35	11
MIN	2.3	11	11	11	12	11	7.1	12	32	32	11	6.6
AC-FT	5880	837	823	916	787	1660	772	18790	73890	9130	1070	589

CAL YR 1981 TOTAL 33210.5 MEAN 91.0 MAX 6940 MIN 1.6 AC-FT 65870
WTR YR 1982 TOTAL 58045.1 MEAN 159 MAX 6410 MIN 2.3 AC-FT 115100

NOTE.--No gage-height record Mar. 17 to Apr. 19.

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 September 1981.

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 14,500 micromhos Dec. 30, 1978; minimum daily, 180 micromhos June 28, 1982.
WATER TEMPERATURES (1967-81): Maximum daily, 34.5°C July 4, 1981; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 12,300 micromhos Mar. 16; minimum daily, 180 micromhos June 28.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 22...	1200	28	2240	7.8	14.0	46	11.1	116	3.2	160	140
DEC 17...	1200	16	7540	8.1	8.5	3.0	11.9	110	4.8	72	K32
FEB 11...	1100	15	8060	8.5	7.0	2.3	12.2	109	13	160	K31
APR 15...	1600	12	9480	8.2	25.0	48	8.9	120	14	230	50
MAY 19...	1425	300	--	--	--	--	--	--	--	--	--
JUN 24...	1000	833	1320	7.7	25.0	370	9.2	118	5.7	2100	4900
AUG 17...	1000	13	7820	7.6	28.5	32	5.8	81	9.9	360	5000

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 22...	520	420	120	54	290	5.5	9.9	100	370	460	.4
DEC 17...	2000	1800	370	250	1100	11	19	140	1600	1900	.7
FEB 11...	1900	1800	330	260	1200	12	20	130	1700	1900	.8
APR 15...	2100	2000	350	300	1500	14	23	120	1500	2600	.7
MAY 19...	--	--	--	--	--	--	--	--	--	--	--
JUN 24...	340	200	92	26	150	3.8	7.9	140	230	230	.5
AUG 17...	1800	1700	340	240	1100	11	19	130	1500	2000	.6

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, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 22...	6.6	1440	1370	.50	.070	.80	.220	.190	72	5.4	100
DEC 17...	1.3	5520	5330	<.10	<.070	1.10	.080	.030	13	.56	100
FEB 11...	.7	5650	5500	<.10	.080	2.40	.350	.080	33	1.3	96
APR 15...	1.7	6920	6350	<.10	.080	.46	.140	<.010	110	3.6	100
MAY 19...	--	--	--	--	--	--	--	--	642	520	96
JUN 24...	8.6	827	831	.26	.120	1.10	.250	.060	950	2140	92
AUG 17...	7.8	5360	5290	<.10	<.060	1.80	.130	.030	64	2.2	97

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 22...	1200	6	0	6	100	0	100	4	3	1	10
FEB 11...	1100	4	1	3	100	0	100	<1	--	<1	20
JUN 24...	1000	7	3	4	500	300	230	1	--	<1	20
AUG 17...	1000	4	1	3	100	0	200	<1	--	<1	70

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 22...	10	0	1	0	1	9	8	1	1100	1100	30
FEB 11...	10	10	2	--	<1	5	--	<1	380	320	60
JUN 24...	--	<10	8	--	<1	18	14	4	13000	--	<3
AUG 17...	20	50	1	--	<1	1	0	2	1100	1100	30

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
OCT 22...	5	2	3	430	410	20	.2	.2	.0	3	2
FEB 11...	<1	--	<1	210	80	130	.2	--	<.1	3	1
JUN 24...	9	4	5	590	590	1	.6	--	<.1	21	20
AUG 17...	<1	--	1	510	410	100	.1	--	<.1	8	7

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 22...	1	0	0	1	1	1	0	20	10	10
FEB 11...	2	1	0	1	<1	--	<1	30	10	20
JUN 24...	1	1	--	<1	<1	--	<1	60	50	8
AUG 17...	1	<1	--	1	1	--	<1	30	10	20

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	2962.7	1810	1130	9030	400	3180	310	2450	390
NOV.	1981	422	5340	3420	3900	1200	1410	930	1060	1200
DEC.	1981	415	7470	4890	5480	1800	2020	1300	1500	1700
JAN.	1982	462	8310	5480	6830	2000	2540	1500	1870	1900
FEB.	1982	397	8200	5400	5790	2000	2150	1500	1580	1800
MAR.	1982	839	7750	5090	11500	1900	4270	1400	3150	1700
APR.	1982	389.4	7870	5180	5450	1900	2020	1400	1490	1800
MAY	1982	9471	1300	805	20600	280	7210	220	5570	280
JUNE	1982	37251	606	372	37500	130	13000	100	10100	130
JULY	1982	4602	2180	1360	16900	480	5920	370	4560	470
AUG.	1982	537	4280	2710	3930	970	1410	740	1070	930
SEPT	1982	297.0	6240	4040	3240	1500	1180	1100	882	1400
TOTAL		58045.1	**	**	130000	**	46200	**	35300	**
WTD. AVG.		159	1320	830	**	300	**	230	**	280

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	5560	5440	5510	5020	4400	4670			6260	---	---	8230
2	5740	5540	5640	4420	4220	4410			6420	---	---	8300
3	5920	5720	5810	---	---	4470			6590	---	---	8380
4	6120	5860	5980	---	---	4550			6670	---	---	8450
5	6140	6040	6110	---	---	4630			6750	---	---	8240
6	6180	5100	5960	---	---	4640			6870	---	---	8110
7	5640	5100	5430	---	---	4680			6980	---	---	8220
8	5520	5300	5390	---	---	4850			7070	---	---	8350
9	5480	4760	5260	---	---	4900			7130	---	---	8460
10	6680	5080	5980	---	---	4990			7220	---	---	8560
11	7020	6700	6910	---	---	5090			7280	---	---	8680
12	6900	640	2070	---	---	5120			7350	---	---	8770
13	2780	820	1760	---	---	5200			7430	---	---	8640
14	760	320	463	---	---	5250			7470	---	---	8520
15	780	360	557	---	---	5270			7590	---	---	8600
16	1140	800	967	---	---	5340			7750	---	---	8510
17	2380	1140	1500	---	---	5460			7720	---	---	8590
18	4500	2580	3330	---	---	5590			7760	---	---	8010
19	2920	1680	1950	---	---	5660			7780	---	---	8120
20	2300	1680	2060	---	---	5730			7810	---	---	8190
21	2120	1940	2010	---	---	5810			7870	---	---	8250
22	2560	2420	2290	---	---	5880			7920	---	---	8200
23	2860	2580	2710	---	---	5970			7970	---	---	8340
24	3620	2880	3300	---	---	6040			8000	---	---	8410
25	3580	3280	3470	---	---	6150			8040	---	---	8490
26	3420	3240	3320	---	---	6220			8070	---	---	8520
27	3540	3440	3480	---	---	6330			8100	8660	8480	8580
28	4180	3460	3770	---	---	6420			8160	8600	8400	8520
29	4560	4200	4420	---	---	6400			8220	8380	7840	8240
30	4940	4560	4740	---	---	6010			8240	7760	7200	7410
31	5180	4940	5080	---	---	---			8190	7700	7340	7470
MONTH	7020	320	3780	5020	4220	5390			7510	8660	7200	8330

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7900	7720	7830	8480	8320	8370	6360	5800	6230	---	---	9090
2	7820	7740	7770	8380	8300	8340	6040	5520	5830	---	---	9130
3	7880	7760	7820	8400	8260	8320	6060	5540	5860	---	---	9000
4	8200	7900	8030	8360	8220	8270	5940	5100	5360	---	---	8250
5	8740	8220	8520	8300	8220	8260	5900	5220	5580	---	---	7570
6	8800	8520	8680	8340	8280	8300	6660	5860	6250	---	---	2080
7	8500	7960	8140	8400	8300	8330	7240	6660	6840	---	---	1290
8	7960	7900	7930	8740	8360	8550	7640	7240	7420	---	---	1150
9	7920	7840	7870	8940	8740	8840	7960	7620	7810	---	---	2000
10	7940	7860	7900	8940	8800	8870	8220	7940	8100	---	---	2760
11	7960	7800	7880	9000	8660	8840	8540	8140	8440	---	---	3080
12	7940	7780	7860	8700	8160	8570	8920	8520	8650	3320	3100	3240
13	8080	7960	8030	8120	7520	7730	9220	8860	8930	3460	1840	2900
14	8140	8060	8090	7500	7120	7220	9080	8920	8990	4400	3120	3880
15	8240	8060	8150	7200	7020	7130	9120	8900	9000	4540	4360	4440
16	8400	8200	8300	12300	6980	10300	9120	8900	9000	4420	4120	4210
17	8400	8300	8330	10900	7900	9090	9080	8900	9000	5100	4140	4590
18	8480	8300	8380	7880	7660	7750	9060	8920	8980	5520	5140	5360
19	8660	8380	8470	8100	7580	7770	9120	8900	8990	5200	1260	3950
20	8480	8340	8430	8620	8120	8440	9400	8940	9170	920	460	900
21	8400	8280	8340	8500	7600	8120	9400	9200	9360	1760	920	1480
22	8480	8300	8390	7560	7000	7260	9180	8860	8990	1740	1040	1430
23	8600	8420	8520	7000	6640	6840	9100	8900	8990	2740	1360	2180
24	8580	8480	8530	6600	6340	6510	9200	8960	9010	4860	240	2030
25	8480	8300	8390	6340	6260	6300	9380	9080	9100	3240	520	1010
26	8460	8400	8430	6240	5920	6100	---	---	9140	880	560	715
27	8540	8440	8480	5920	5760	5810	---	---	8970	700	420	548
28	8460	8320	8410	5860	5800	5840	---	---	9000	1220	640	750
29	---	---	---	5840	5760	5800	---	---	9180	1920	940	990
30	---	---	---	6140	5860	6020	---	---	9240	1440	960	1200
31	---	---	---	6300	6120	6220	---	---	---	1760	1460	1620
MONTH	8800	7720	8210	12300	5760	7680	9400	5100	8180	5520	240	3320

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	2120	1740	1940	1080	640	868	3820	3780	3800	---	---	5510
2	2380	2120	2260	1400	1080	1250	3920	3780	3850	---	---	5590
3	2560	2400	2470	1620	1420	1530	3980	3900	3930	---	---	5700
4	2740	2560	2620	2480	1620	2090	4020	3920	3970	---	---	5820
5	3060	2720	2880	2540	2440	2480	4120	3980	4020	---	---	5940
6	3300	3020	3160	2580	2420	2480	4420	4140	4310	---	---	6020
7	3540	3280	3420	2600	2280	2460	4380	4220	4330	---	---	6140
8	3800	3540	3660	2360	2260	2300	4240	4180	4200	---	---	6220
9	4060	3800	3890	3640	2240	2800	4200	4180	4190	---	---	6330
10	4520	4000	4270	3360	1860	2180	---	---	4280	6420	6260	6340
11	5100	4540	4830	2140	2060	2100	---	---	4120	6500	6340	6400
12	---	---	4350	2600	2040	2220	---	---	3860	6580	6400	6450
13	---	---	870	4760	2180	3410	---	---	3950	6440	6180	6290
14	---	---	1020	4680	2160	3420	---	---	4100	6180	5960	6040
15	---	---	1330	4540	2260	3550	---	---	4240	6060	5920	5990
16	---	---	1600	2220	1740	1850	---	---	4410	6540	6060	6240
17	---	---	1710	1880	1760	1830	---	---	4550	6880	6560	6260
18	---	---	2130	2100	1880	1990	---	---	4080	---	---	6310
19	---	---	850	2400	2120	2270	---	---	4170	---	---	6340
20	---	---	275	2480	2400	2440	---	---	4290	---	---	6360
21	---	---	290	2560	2460	2510	---	---	4340	---	---	6400
22	---	---	650	2720	2560	2640	---	---	4470	---	---	6420
23	---	---	1030	3040	2720	2830	---	---	4590	---	---	6450
24	---	---	1400	3340	3020	3200	---	---	4660	---	---	6490
25	1820	820	1250	3440	3340	3390	---	---	4780	---	---	6530
26	2660	1120	1870	3500	3400	3450	---	---	4900	---	---	6540
27	1300	340	552	3520	3400	3440	---	---	5030	---	---	6580
28	740	180	419	3520	3420	3470	---	---	5110	---	---	6600
29	540	200	321	3680	3520	3610	---	---	5210	---	---	6630
30	640	200	433	3760	3660	3700	---	---	5300	---	---	6680
31	---	---	---	3800	3720	3750	---	---	5430	---	---	---
MONTH	5100	180	1930	4760	640	2630	4420	3780	4400	6880	5920	6250

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	24.5	22.5	23.5	17.0	12.0	14.0				---	---	---
2	26.0	21.0	23.5	18.0	11.5	14.5				---	---	---
3	26.0	22.0	24.0	---	---	---				---	---	---
4	27.5	22.0	25.0	---	---	---				---	---	---
5	24.5	22.0	23.5	---	---	---				---	---	---
6	24.0	20.0	22.5	---	---	---				---	---	---
7	20.0	17.0	18.5	---	---	---				---	---	---
8	17.0	16.0	16.5	---	---	---				---	---	---
9	23.5	16.0	18.5	---	---	---				---	---	---
10	26.0	19.5	22.5	---	---	---				---	---	---
11	24.0	21.5	22.5	---	---	---				---	---	---
12	22.5	20.0	21.0	---	---	---				---	---	---
13	23.0	21.0	22.0	---	---	---				---	---	---
14	23.0	21.0	22.0	---	---	---				---	---	---
15	25.5	21.5	23.5	---	---	---				---	---	---
16	25.0	22.5	23.5	---	---	---				---	---	---
17	24.5	21.5	23.0	---	---	---				---	---	---
18	21.5	19.0	20.5	---	---	---				---	---	---
19	21.0	17.0	19.0	---	---	---				---	---	---
20	21.0	16.0	18.5	---	---	---				---	---	---
21	19.0	16.0	18.0	---	---	---				---	---	---
22	16.0	12.5	14.0	---	---	---				---	---	---
23	15.5	11.5	13.0	---	---	---				---	---	---
24	16.0	11.0	13.5	---	---	---				---	---	---
25	16.0	12.0	14.0	---	---	---				---	---	---
26	17.0	11.0	14.0	---	---	---				14.0	8.5	11.5
27	19.5	12.0	15.5	---	---	---				16.0	9.0	12.0
28	20.0	14.0	17.0	---	---	---				16.0	10.5	13.0
29	21.5	16.0	18.0	---	---	---				19.5	12.5	16.0
30	20.0	16.5	17.5	---	---	---				16.5	10.0	13.5
31	19.5	13.5	17.0	---	---	---				14.0	7.5	10.5
MONTH	27.5	11.0	19.5	18.0	11.5	14.5				19.5	7.5	13.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.5	8.5	10.5	18.5	10.0	13.5	22.5	14.5	18.5	---	---	---
2	12.5	8.5	10.0	17.0	11.5	14.0	22.0	17.0	19.5	---	---	---
3	11.5	6.5	8.5	18.5	12.5	15.5	20.5	14.0	17.0	---	---	---
4	7.0	4.0	5.5	19.5	12.0	15.0	22.0	14.0	17.5	---	---	---
5	4.0	1.5	3.0	13.5	7.5	10.5	22.0	13.5	17.0	---	---	---
6	6.5	1.5	3.5	13.0	5.0	8.5	19.0	13.0	15.5	---	---	---
7	10.5	3.5	6.5	15.0	6.5	10.5	21.5	12.0	16.5	---	---	---
8	14.0	6.5	9.5	17.0	8.0	12.0	23.0	16.0	19.0	---	---	---
9	11.5	5.5	8.0	18.5	11.5	14.5	18.5	14.0	16.5	---	---	---
10	11.0	4.5	7.5	20.5	13.5	16.5	20.0	12.5	15.5	---	---	---
11	13.5	7.0	10.0	21.5	14.5	17.5	22.5	12.5	17.0	---	---	---
12	14.5	10.0	12.0	22.5	16.5	19.0	23.5	15.5	19.0	---	---	---
13	12.5	8.5	10.0	20.5	15.5	18.0	24.5	17.5	20.5	---	---	---
14	15.5	8.0	11.0	22.0	15.5	18.5	24.0	17.5	20.5	---	---	---
15	17.5	11.0	14.0	20.5	16.5	18.5	25.5	18.0	21.5	---	---	---
16	19.5	12.0	15.0	21.5	15.5	18.5	24.0	18.0	21.0	---	---	---
17	19.0	13.5	16.0	22.5	17.0	19.5	21.0	16.5	19.0	31.5	27.0	29.0
18	19.5	12.5	15.5	22.5	19.5	20.5	19.0	14.5	17.0	---	---	---
19	17.5	12.5	14.5	24.0	19.5	21.0	23.5	17.5	20.0	31.0	27.0	28.5
20	16.0	14.0	15.0	22.0	16.0	19.0	20.0	13.5	15.5	28.5	24.0	26.0
21	20.0	13.0	16.0	18.5	15.5	17.0	13.5	10.5	11.5	30.0	25.0	27.0
22	20.5	13.5	16.5	19.5	13.5	16.0	13.0	9.5	11.0	26.0	22.5	24.0
23	21.0	13.5	17.0	19.5	14.5	16.5	18.0	11.0	14.0	26.5	19.0	23.5
24	17.0	13.5	15.5	22.5	15.0	18.0	22.0	13.5	17.5	25.5	9.0	18.5
25	13.0	7.5	10.5	17.5	12.5	14.5	22.5	14.5	18.0	24.0	21.0	22.0
26	9.0	6.0	7.5	12.5	10.5	11.5	23.0	9.0	19.0	24.5	21.0	22.5
27	14.5	5.5	9.5	12.0	10.5	11.0	---	---	---	24.5	22.5	23.5
28	15.0	9.0	11.5	14.0	10.0	11.5	---	---	---	25.5	23.0	24.0
29	---	---	---	15.0	11.5	13.0	---	---	---	29.0	24.0	26.0
30	---	---	---	21.0	13.0	16.5	---	---	---	32.5	24.5	28.0
31	---	---	---	19.0	14.0	16.0	---	---	---	29.0	24.5	26.5
MONTH	21.0	1.5	11.0	24.0	5.0	15.5	25.5	9.0	17.5	32.5	9.0	25.0

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

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

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

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 712.4 (1,146.3 km), revised.

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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

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

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

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 342,900 acre-ft (423 hm³) July 15, 1982, elevation, 1,885.90 ft (574.822 m); minimum since first appreciable storage in June 1969 (not from recorder), about 330 acre-ft (0.407 hm³) May 29, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 342,900 acre-ft (423 hm³) July 15 at 2100 hours, elevation, 1,885.90 ft (574.822 m); minimum, 246,500 acre-ft (304 hm³) May 4, 5, elevation, 1,876.18 ft (571.860 m).

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

1,876.0	244,900	1,880.0	282,000	1,884.0	322,000
1,878.0	262,900	1,882.0	302,000	1,886.0	344,000

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	257900	267000	262600	258900	256200	253700	250100	246800	270300	339600	338700	330300
2	257600	266800	262500	259100	256200	253500	250700	247000	270900	340200	338300	330000
3	257400	266500	262400	259000	255800	253400	250400	246700	270600	340500	338100	329900
4	257100	266500	262000	258700	255500	253200	250300	246800	270300	340600	337700	329700
5	257100	266400	261800	258800	254900	253000	250300	247200	270000	340600	337500	329400
6	259700	266200	261900	258700	254400	252800	250200	247400	270000	340900	337400	328900
7	259900	266100	261800	258200	254600	252800	250200	248200	270000	341600	337100	328600
8	259800	266300	261800	257800	254700	252600	250000	248800	269900	341800	337000	328400
9	260100	265600	261600	257900	254200	252500	249800	248700	269700	341900	336700	328100
10	259700	265400	261700	257100	254400	252300	249300	249000	270900	342000	336400	327600
11	259800	265300	261500	256900	254400	252100	249400	249000	270900	342400	336200	327300
12	264400	265200	261400	256400	254400	252000	249900	249600	271300	342400	336300	326800
13	267500	265200	261600	256800	254400	252000	249600	249600	272100	342500	336100	327200
14	268800	265100	261000	256800	254300	252200	249300	249600	273200	342800	335800	327200
15	269400	265000	261100	256800	254600	252000	249300	249400	274500	342800	335600	326700
16	269200	264900	260800	256400	254500	251900	249000	249200	274800	342600	335400	326700
17	268900	264900	260700	256200	254500	251900	248400	249000	274900	342400	335100	326500
18	268800	264800	260500	256500	254300	251700	248100	249000	275500	342100	334500	326200
19	268300	264300	260300	256400	254300	251700	248300	248700	281000	341900	334300	325900
20	268300	264200	260500	256600	254300	251600	247700	250100	289900	341800	334100	325400
21	268500	264000	260500	256800	254200	251600	247500	253500	298900	341700	333900	325000
22	268800	263900	260200	256900	254100	251400	247400	254500	304000	341300	333600	324600
23	268300	263700	259900	256500	254200	251400	247400	257300	307600	341000	333100	324600
24	268100	263600	259800	256700	254300	251300	247200	259400	309900	340900	332800	324100
25	268100	263500	260000	256400	254400	251200	247400	262000	312100	340600	332500	324000
26	267800	263300	259700	256200	254300	250900	247000	265500	312800	340200	332200	323900
27	267800	263000	259700	256300	254100	250800	246800	267800	320200	339900	331900	323400
28	267700	263000	259300	256300	254000	250800	247000	269700	327400	339700	331700	322600
29	267400	263000	259100	257100	---	250700	246900	270700	334200	339400	331400	322200
30	267600	263100	259300	256400	---	250500	246700	271100	338300	339200	331000	321800
31	267300	---	259200	256200	---	250300	---	270600	---	338900	330700	---
MAX	269400	267000	262600	259100	256200	253700	250700	271100	338300	342800	338700	330300
MIN	257100	263000	259100	256200	254000	250300	246700	246700	269700	338900	330700	321800
(†)	1878.49	1878.02	1877.59	1877.26	1877.01	1876.60	1876.20	1878.85	1885.48	1885.54	1884.79	1883.98
(‡)	+9300	-4200	-3900	-3000	-2200	-3700	-3600	+23900	+67700	+600	-8200	-8900
(††)	2430	1940	2010	2250	1660	2340	2390	2630	2250	2140	2070	1820

CAL YR 1981 MAX 282900 MIN 234700 ‡ +20400 †† 25110
WTR YR 1982 MAX 342800 MIN 246700 ‡ +63800 †† 25930

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

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year. Biochemical analyses: October 1977 to September 1978, October 1979 to current year.

315235100312201 E.V.SPENCE RESERVOIR SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB								
10...	1142	1.00	2560	8.1	6.5	--	10.8	93
10...	1144	10.0	2560	8.1	6.5	--	10.7	92
10...	1146	20.0	2560	8.1	6.5	--	10.7	92
10...	1148	30.0	2560	8.1	6.0	--	10.8	92
10...	1150	40.0	2560	8.1	6.0	--	10.8	92
10...	1152	51.0	2560	8.1	6.5	--	10.8	93
APR								
26...	1202	1.00	2650	8.3	17.5	1.50	9.7	108
26...	1204	10.0	2650	8.2	16.0	--	9.3	100
26...	1206	20.0	2650	8.2	15.5	--	8.8	94
26...	1208	30.0	2650	8.1	15.5	--	8.1	86
26...	1210	40.0	2660	8.0	15.5	--	7.8	83
26...	1212	49.0	2660	8.0	15.5	--	7.3	78
JUL								
29...	1120	1.00	2350	8.2	28.5	--	6.7	91
29...	1122	10.0	2350	8.2	28.0	--	6.5	88
29...	1124	20.0	2380	7.9	27.5	--	5.7	76
29...	1126	30.0	2480	7.2	26.0	--	1.0	13
29...	1128	40.0	2560	7.2	25.0	--	.5	6
29...	1130	50.0	2660	7.3	23.5	--	.5	6

315335100312401 E.V.SPENCE RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)
FEB									
10...	1040	1.00	2580	8.0	6.0	1.50	11.0	93	530
10...	1042	10.0	2580	8.1	6.0	--	11.0	93	--
10...	1044	20.0	2580	8.1	6.0	--	10.9	93	--
10...	1046	30.0	2580	8.0	6.0	--	11.0	93	--
10...	1048	40.0	2570	8.0	6.0	--	11.0	93	--
10...	1050	50.0	2580	8.0	6.0	--	11.0	93	--
10...	1052	60.0	2580	8.0	6.0	--	11.0	93	--
10...	1054	70.0	2580	8.0	6.0	--	10.8	92	--
10...	1056	76.0	2580	8.0	6.0	--	10.8	92	530
APR									
26...	1128	1.00	2640	8.3	17.5	1.80	9.9	110	580
26...	1130	10.0	2640	8.3	16.0	--	9.6	103	--
26...	1132	20.0	2640	8.2	15.5	--	8.7	93	--
26...	1134	30.0	2640	8.1	15.5	--	8.2	87	--
26...	1136	40.0	2640	8.1	15.0	--	7.9	83	--
26...	1138	50.0	2640	8.0	15.0	--	7.6	80	--
26...	1140	60.0	2640	7.8	14.5	--	6.0	62	--
26...	1142	70.0	2640	7.5	14.5	--	4.3	45	--
26...	1144	81.0	2640	7.5	14.0	--	3.7	38	580
JUL									
29...	1010	1.00	2300	8.2	27.5	2.19	6.4	85	460
29...	1012	10.0	2330	8.2	27.5	--	6.5	87	--
29...	1014	20.0	2330	8.2	27.5	--	5.3	71	--
29...	1018	40.0	2610	7.2	24.5	--	.4	5	--
29...	1020	50.0	2660	7.1	22.5	--	.4	5	--
29...	1022	60.0	2670	7.0	21.0	--	.4	5	--
29...	1024	70.0	2670	7.0	19.5	--	.4	5	--
29...	1026	80.0	2670	6.9	19.0	--	.4	5	--
29...	1028	90.0	2670	7.0	19.0	--	.4	5	550

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
FEB									
10...	400	120	57	350	6.6	12	130	400	580
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	400	120	57	350	6.6	12	130	390	580
APR									
26...	450	130	62	360	6.5	11	130	410	620
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	440	130	61	360	6.5	11	140	410	600
JUL									
29...	350	100	51	310	6.3	10	110	350	500
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	390	120	61	360	6.7	11	160	380	590

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB									
10...	.3	7.3	1600	--	<.10	.93	.010	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	<.10	.86	.010	80	30
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	7.3	1590	--	<.10	1.10	.020	--	--
APR									
26...	.5	4.4	1680	<.020	<.10	.68	.040	30	<10
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	<.020	<.10	.82	.050	40	20
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	5.4	1660	.020	<.10	1.60	.090	40	180
JUL									
29...	.4	4.4	1390	--	<.10	1.10	.020	20	10
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	<.10	.80	.020	30	180
29...	--	--	--	--	<.10	.80	.030	40	290
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	7.3	1630	--	<.10	2.00	.150	100	1100

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

315413100312501 E.V.SPENCE RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB								
10...	1010	1.00	2570	8.0	5.5	--	10.9	92
10...	1012	10.0	2570	8.0	5.5	--	10.9	92
10...	1014	20.0	2570	8.0	5.5	--	10.8	91
10...	1016	30.0	2570	8.0	5.5	--	10.8	91
10...	1018	40.0	2570	8.0	5.5	--	10.7	90
10...	1020	49.0	2570	8.0	5.5	--	10.7	90
APR								
26...	1110	1.00	2640	8.3	17.0	1.70	9.9	109
26...	1112	10.0	2640	8.3	16.5	--	10.1	110
26...	1114	20.0	2640	8.3	16.0	--	9.7	104
26...	1116	30.0	2650	8.0	15.5	--	7.9	84
26...	1118	40.0	2650	7.9	15.5	--	8.2	87
26...	1120	43.0	2680	8.0	15.5	--	7.5	80
JUL								
29...	1140	1.00	2320	8.2	28.5	--	6.8	92
29...	1142	10.0	2340	8.1	28.0	--	6.4	86
29...	1144	20.0	2340	8.0	28.0	--	6.2	84
29...	1146	30.0	2430	7.4	26.5	--	2.2	29
29...	1148	40.0	2620	7.1	24.5	--	.5	6
29...	1150	50.0	2660	7.1	23.0	--	.5	6
29...	1152	56.0	2660	7.3	22.0	--	.5	6

315558100342601 E.V.SPENCE RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)
FEB									
10...	1210	1.00	2580	8.1	6.5	1.20	10.9	94	540
10...	1212	10.0	2580	8.1	6.0	--	10.8	92	--
10...	1214	20.0	2580	8.1	6.0	--	10.8	92	--
10...	1216	30.0	2580	8.1	6.0	--	10.8	92	--
10...	1218	40.0	2580	8.1	6.0	--	10.8	92	--
10...	1220	46.0	2580	8.1	6.0	--	10.8	92	530
APR									
26...	1232	1.00	2670	8.3	17.5	1.20	9.7	108	580
26...	1234	10.0	2670	8.3	17.0	--	9.4	103	--
26...	1236	20.0	2700	8.2	16.0	--	8.2	88	--
26...	1238	30.0	2720	8.2	16.0	--	8.1	87	--
26...	1240	43.0	2730	7.9	15.5	--	6.2	66	580
JUL									
29...	1210	1.00	2140	8.2	29.5	1.43	6.5	90	450
29...	1212	10.0	2150	8.2	29.5	--	6.5	90	--
29...	1214	20.0	2200	7.6	28.5	--	3.5	47	--
29...	1216	30.0	2430	7.2	27.0	--	1.1	14	--
29...	1218	35.0	2480	7.2	26.5	--	.4	5	--
29...	1220	40.0	2540	7.0	25.0	--	.4	5	--
29...	1222	50.0	2640	6.9	23.5	--	.4	5	--
29...	1224	60.0	2640	6.9	22.0	--	.4	5	550

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
FEB									
10...	410	120	58	350	6.6	12	130	400	580
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	400	120	57	350	6.6	12	130	400	580
APR									
26...	450	130	62	360	6.5	11	130	410	600
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	450	130	63	370	6.7	11	130	410	600
JUL									
29...	340	99	49	290	6.0	9.6	110	320	470
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	380	120	61	360	6.7	11	170	370	600

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB								
10...	7.3	1610	--	<.10	.95	.030	10	20
10...	--	--	--	--	--	--	--	--
10...	--	--	--	<.10	.94	.010	30	30
10...	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--
10...	7.3	1600	--	<.10	.96	.010	50	20
APR								
26...	4.6	1660	<.020	<.10	.76	.040	30	10
26...	--	--	--	--	--	--	--	--
26...	4.3	--	<.020	<.10	.77	.010	40	<10
26...	--	--	--	--	--	--	--	--
26...	4.7	1670	<.020	<.10	.79	.060	20	30
JUL								
29...	5.1	1310	--	<.10	1.10	.030	20	<10
29...	--	--	--	--	--	--	--	--
29...	--	--	--	<.10	1.10	.030	<10	20
29...	--	--	--	<.10	1.30	.070	10	40
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	7.7	1630	--	<.10	2.10	.170	130	1600

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

315619100335601 E.V.SPENCE RESERVOIR SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB								
10...	1230	1.00	2580	8.0	6.5	--	10.8	93
10...	1232	10.0	2580	8.0	6.0	--	10.8	92
10...	1234	20.0	2580	8.0	6.0	--	10.8	92
10...	1236	30.0	2580	8.0	6.0	--	10.7	91
10...	1238	39.0	2580	8.0	6.0	--	10.5	89
APR								
26...	1252	1.00	2680	8.3	17.0	1.20	9.5	104
26...	1254	10.0	2680	8.3	16.5	--	9.6	104
26...	1256	20.0	2680	8.2	16.0	--	8.6	92
26...	1258	30.0	2780	8.1	15.5	--	7.6	81
26...	1300	42.0	2810	7.8	15.5	--	5.3	56
JUL								
29...	1235	1.00	2140	8.1	29.5	--	6.5	90
29...	1237	10.0	2150	8.0	29.5	--	6.3	88
29...	1239	20.0	2310	7.8	28.5	--	5.3	72
29...	1241	30.0	2400	7.3	27.0	--	1.3	17
29...	1243	44.0	2570	7.3	25.0	--	.4	5

315712100352001 E.V.SPENCE RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB								
10...	1246	1.00	2590	8.0	6.0	--	10.8	92
10...	1248	10.0	2590	8.0	6.0	--	10.8	92
10...	1250	20.0	2590	8.0	6.0	--	10.8	92
10...	1252	30.0	2590	8.0	6.0	--	10.7	91
10...	1254	34.0	2590	8.0	6.0	--	10.6	90
APR								
26...	1310	1.00	2740	8.3	17.5	.90	9.5	106
26...	1312	10.0	2740	8.3	17.0	--	9.4	103
26...	1314	20.0	2740	8.3	17.0	--	9.1	100
26...	1316	32.0	2850	7.8	16.0	--	6.1	66
JUL								
29...	1250	1.00	1990	8.2	30.5	--	7.0	99
29...	1252	10.0	1990	8.0	30.0	--	6.1	85
29...	1254	20.0	2200	7.1	28.5	--	.4	5
29...	1256	30.0	2400	7.1	26.5	--	.4	5
29...	1258	43.0	2530	7.2	25.5	--	.4	5

315810100364901 E.V.SPENCE RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)
FEB									
10...	1312	1.00	2770	7.9	5.5	1.00	10.6	89	610
10...	1314	10.0	2780	7.9	5.5	--	10.4	87	--
10...	1316	20.0	4450	7.9	6.5	--	7.4	64	--
10...	1318	23.0	4510	7.9	6.5	--	7.5	65	1000
APR									
26...	1332	1.00	3060	8.2	18.0	.60	8.9	100	650
26...	1334	10.0	3120	8.0	16.5	--	7.5	82	--
26...	1336	20.0	4200	7.3	16.0	--	2.3	25	--
26...	1338	22.0	4240	7.3	16.0	--	2.3	25	950
JUL									
29...	1315	1.00	1380	7.9	30.0	1.43	5.0	69	300
29...	1317	10.0	1380	7.9	29.5	--	4.9	68	--
29...	1319	20.0	1760	6.8	28.0	--	.4	5	--
29...	1321	25.0	2180	6.9	27.5	--	.4	5	450

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

315810100364901 E.V.SPENCE RESERVOIR SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
FEB									
10...	480	140	64	380	6.7	12	130	440	640
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	890	210	120	650	8.9	14	130	840	1100
APR									
26...	510	140	72	420	7.2	12	140	470	700
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	810	200	110	620	8.7	13	140	710	1100
JUL									
29...	190	74	28	170	4.6	7.6	110	200	270
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	300	100	48	290	6.0	9.0	150	310	470

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB								
10...	6.8	1760	--	<.10	.99	.020	50	40
10...	--	--	--	<.10	.74	.010	70	40
10...	--	--	--	--	--	--	--	--
10...	2.0	3010	--	<.10	1.10	.010	40	150
APR								
26...	3.9	1900	<.020	<.10	1.00	.010	20	<10
26...	--	--	<.020	<.10	1.00	.010	40	50
26...	--	--	--	--	--	--	--	--
26...	2.7	2840	<.020	<.10	1.40	.030	50	340
JUL								
29...	5.6	821	--	<.10	1.00	.050	4	20
29...	--	--	--	<.10	1.10	.040	10	30
29...	--	--	--	--	--	--	--	--
29...	7.1	1330	--	<.10	1.90	.090	220	670

08124000 COLORADO RIVER AT ROBERT LEE, TX

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

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

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

REVISED RECORDS.--WSP 1723: 1925(M). WRD TX-81-3: Drainage area.

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); 14 years (water years 1969-82) regulated, 3.66 ft³/s (0.104 m³/s), 2,650 acre-ft/yr (3.27 hm³/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,620 ft³/s (131 m³/s) June 19 at 0330 hours, gage height, 11.12 ft (3.389 m); no flow June 17, 18.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.46	1.8	.42	.96	.93	.49	.36	.54	.92	1.2	.42	128
2	.48	1.6	.31	1.0	.91	.79	.36	.54	.92	1.9	.42	75
3	.49	1.6	.38	1.1	1.0	.56	.49	.73	.79	2.1	.42	.57
4	.51	1.5	.50	.88	.87	.63	.49	.65	.62	2.5	.36	.49
5	.51	1.4	.56	.71	.71	.56	.36	1.4	.57	2.8	.36	.49
6	28	1.3	.63	.82	.59	.42	.42	3.5	.52	3.1	.36	.47
7	49	1.2	.64	.94	.53	.36	.49	1.7	.49	3.3	.36	.48
8	8.4	1.3	.56	.91	.73	.36	.43	1.0	.42	3.7	.36	.47
9	4.7	1.4	.61	.90	.87	.49	.34	.86	.38	3.4	.30	.44
10	2.8	1.2	.62	1.0	.79	.49	.37	.80	.41	3.1	.30	.45
11	2.7	1.3	.73	.96	.78	.87	.37	.70	.40	2.8	.30	.44
12	2.5	1.3	.72	.86	.65	1.3	.35	2.3	1.1	3.3	.30	.45
13	2.4	1.4	.78	.93	.60	1.0	.37	3.3	.55	3.5	.31	15
14	2.3	1.4	.79	1.1	.69	1.5	.41	1.7	.39	3.2	.36	7.4
15	2.1	1.2	.88	1.1	.69	1.4	.59	1.0	.17	2.9	.36	.70
16	2.0	1.1	.77	.93	.91	1.2	.59	.59	.03	2.5	.36	.64
17	1.9	1.2	.65	.83	.93	.87	.47	.40	.00	2.4	.36	.63
18	1.7	1.0	.67	.91	1.0	.96	.34	.45	.00	2.3	.36	.64
19	1.6	.82	.73	.90	1.1	.87	.32	.39	677	2.1	.36	.65
20	1.5	.72	.83	.85	.93	1.0	.30	.45	7.5	1.5	.36	.63
21	1.6	.63	.86	.80	.88	1.0	.52	16	1.1	.79	.36	.63
22	5.3	.69	.83	.83	.90	.96	.77	234	.72	.62	.36	.62
23	3.8	.53	.81	.91	1.0	.87	.67	220	.59	.56	.36	.59
24	2.5	.40	.72	.67	.94	.71	.74	366	.49	.56	.36	.56
25	2.2	.46	.81	.68	1.7	.79	.78	3.1	3.0	.53	.30	.56
26	2.0	.57	.96	.87	1.3	.87	.71	2.1	.77	.49	.24	.56
27	1.7	.57	.94	.72	.86	.71	.70	.95	270	.47	.31	.56
28	1.8	.58	.86	.80	.56	.71	.62	1.0	4.1	.42	.33	.56
29	1.8	.60	.84	.80	---	.42	.58	.96	.82	.44	.36	.55
30	1.7	.73	.76	1.3	---	.36	.42	.96	.84	.42	.36	.53
31	1.7	---	.87	1.2	---	.49	---	.95	---	.42	.36	---
TOTAL	142.15	31.50	22.04	28.17	24.35	24.01	14.73	869.02	975.61	59.32	10.79	239.76
MEAN	4.59	1.05	.71	.91	.87	.77	.49	28.0	32.5	1.91	.35	7.99
MAX	49	1.8	.96	1.3	1.7	1.5	.78	366	677	3.7	.42	128
MIN	.46	.40	.31	.67	.53	.36	.30	.39	.00	.42	.24	.44
AC-FT	282	62	44	56	48	48	29	1720	1940	118	21	476

CAL YR 1981 TOTAL 824.32 MEAN 2.26 MAX 163 MIN .00 AC-FT 1640
WTR YR 1982 TOTAL 2441.45 MEAN 6.69 MAX 677 MIN .00 AC-FT 4840

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.--238 mi^2 (616 m^2).

WATER-DISCHARGE RECORDS

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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

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

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

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

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents observed, 49,100 acre-ft (60.5 hm^3) Oct. 13, 1957, elevation, 2,003.80 ft (610.758 m); minimum observed, 6,050 acre-ft (7.46 hm^3) Sept. 6-8, 1980, elevation, 1,974.5 ft (601.83 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents observed, 43,520 acre-ft (53.7 hm^3) June 27, 28 at 0800 hours, elevation, 2,001.7 ft (610.12 m); minimum, 22,650 acre-ft (27.9 hm^3) Oct. 2-5, elevation, 1,991.4 ft (606.98 m).

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

1,991.0	22,020	1,999.0	37,070
1,996.0	30,770	2,002.0	44,280

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22810	30000	29620	29230	29230	29040	28850	28850	29430	41760	39360	37990
2	22650	30000	29620	29230	29230	29040	29230	28850	29430	41520	39360	37990
3	22650	30000	29620	29230	29230	29040	29230	28850	29430	41280	39360	37990
4	22650	30000	29620	29230	29230	29040	29040	28850	29430	41040	39360	37990
5	22650	30000	29620	29230	29230	29040	29040	28850	29430	40800	39360	37760
6	22970	30000	29620	29230	29230	29040	29040	29040	29430	40800	39360	37760
7	22970	30000	29620	29230	29040	29040	29040	29040	29430	40800	39130	37530
8	22970	30000	29620	29230	29040	29040	29040	29040	29430	40560	39130	37530
9	22970	30000	29620	29230	29040	29040	28850	29040	29230	40560	39130	37530
10	22970	29810	29620	29230	29040	29040	28850	29040	29230	40320	39130	37300
11	22970	29810	29620	29040	28850	29040	28850	29040	29230	40320	38900	37300
12	23930	29810	29620	29040	28850	29040	28850	29430	29810	40560	38900	37300
13	28850	29810	29620	29040	28850	29040	28850	29230	29810	40560	38900	37300
14	29620	29810	29620	29040	28850	29040	28850	29230	29810	40560	38900	37300
15	29810	29810	29620	29040	28850	29040	28850	29230	29810	40320	38900	37300
16	29810	29810	29620	29040	28850	29040	28850	29040	29810	40320	38900	37070
17	29810	29810	29620	29040	28850	29040	28850	29040	29810	40320	38670	37070
18	29810	29810	29620	29040	28850	29040	28670	29040	29810	40080	38670	37070
19	29810	29810	29620	29040	28850	29040	28670	29040	36190	40080	38670	37070
20	29810	29810	29620	29040	28850	29040	28670	29040	43270	39840	38670	37070
21	29810	29810	29430	29040	28850	29040	28670	29040	42770	39840	38440	37070
22	29810	29810	29430	29040	28850	29040	28850	29230	42520	39840	38440	37070
23	30000	29810	29430	29040	28850	29040	28850	29230	42260	39840	38440	37070
24	30000	29620	29430	29040	28850	29040	28850	29230	42010	39840	38440	37070
25	30000	29620	29430	29040	28850	29040	28850	29430	41760	39840	38440	37070
26	30000	29620	29430	29040	28850	29040	28850	29620	41520	39840	38220	37070
27	30000	29620	29430	29040	29040	29040	28850	29620	43520	39600	38220	37070
28	30000	29620	29430	29040	29040	29040	28850	29620	43520	39600	38220	36850
29	30000	29620	29430	29040	---	29040	28850	29620	42770	39600	38220	36850
30	30000	29620	29230	29040	---	28850	28850	29620	42260	39600	37990	36850
31	30000	---	29230	29230	---	28850	---	29430	---	39360	37990	---
MAX	30000	30000	29620	29230	29230	29040	29230	29620	43520	41760	39360	37990
MIN	22650	29620	29230	29040	28850	28850	28670	28850	29230	39360	37990	36850
(†)	1995.6	1995.4	1995.2	1995.2	1995.1	1995.0	1995.0	1995.3	2001.2	2000.0	1999.4	1998.9
(‡)	+7190	-380	-390	0	-190	-190	0	+580	+12830	-2900	-1370	-1140
(††)	61	114	117	156	135	13	22	13	13	13	135	13

CAL YR 1981 MAX 30000 MIN 21420 ‡ +7810 †† 1360
WTR YR 1982 MAX 43520 MIN 22650 ‡ +14040 †† 805

† 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 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	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 17...	0720	824	15.0	310	170	73	31	52

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 17...	1.4	6.1	140	190	82	.3	5.4	524

08126380 COLORADO RIVER NEAR BALLINGER, TX

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

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

WATER-DISCHARGE RECORDS

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

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

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

REMARKS.--Wat -drecords good. Diversions above station for irrigation, municipal supplies, and oilfield operation. Flow is affected by E. V. Spence and Oak Creek Reservoirs (see stations 08123950 and 08125500) and at times by discharge from floodwater-retarding structures 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); 14 years (water years 1969-82) partially regulated, 52.5 ft³/s (1.487 m³/s), 38,040 acre-ft /yr (46.9 hm³/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,000 ft³/s (368 m³/s) Oct. 13 at 1900 hours, gage height, 26.77 ft (8.159 m); minimum, 0.52 ft³/s (0.015 m³/s) Oct. 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	58	30	18	23	22	25	16	19	607	27	19
2	.80	54	29	19	22	21	25	18	18	499	28	15
3	.90	51	28	18	22	20	19	18	17	412	27	13
4	.99	49	28	18	22	19	18	16	16	350	25	50
5	.82	48	26	18	21	19	18	31	15	308	24	108
6	.76	44	25	21	20	18	17	134	14	326	22	59
7	1740	40	26	19	20	17	15	107	13	460	22	33
8	333	42	27	18	20	17	13	67	13	247	21	20
9	133	37	27	18	21	16	14	38	13	193	23	17
10	118	33	25	20	20	17	14	22	11	167	23	16
11	42	33	26	18	20	17	15	18	11	140	21	14
12	20	32	25	19	20	17	16	17	20	121	19	10
13	7830	31	24	20	20	18	13	22	75	144	17	8.5
14	4190	33	26	21	20	21	10	17	41	211	16	50
15	1040	33	25	22	20	31	10	16	33	190	16	66
16	692	33	26	23	19	26	12	15	29	156	15	85
17	378	32	25	21	19	24	12	13	22	129	14	42
18	206	31	23	22	17	34	11	13	19	107	14	22
19	164	31	23	22	18	28	9.3	11	3340	88	14	17
20	154	27	22	22	18	26	9.2	10	5580	76	14	15
21	136	26	24	22	18	32	9.6	9.6	1600	66	12	14
22	274	27	25	22	18	30	11	162	1240	54	14	13
23	277	28	21	21	18	26	12	661	918	46	14	11
24	176	27	20	21	17	24	12	1160	726	41	12	11
25	130	26	19	21	23	25	14	713	671	38	13	11
26	107	28	18	20	27	19	16	296	573	35	13	10
27	91	28	17	20	27	18	15	137	2850	33	13	8.3
28	86	28	18	20	22	18	16	79	2390	32	13	7.0
29	77	28	17	20	---	19	16	44	1100	30	13	7.2
30	73	31	17	24	---	21	14	26	772	29	13	7.2
31	68	---	18	24	---	25	---	22	---	28	19	---
TOTAL	18540.37	1049	730	632	572	685	431.1	3928.6	22159	5363	551	779.2
MEAN	598	35.0	23.5	20.4	20.4	22.1	14.4	127	739	173	17.8	26.0
MAX	7830	58	30	24	27	34	25	1160	5580	607	28	108
MIN	.76	26	17	18	17	16	9.2	9.6	11	28	12	7.0
AC-FT	36770	2080	1450	1250	1130	1360	855	7790	43950	10640	1090	1550

CAL YR 1981	TOTAL	33998.08	MEAN	93.1	MAX	7830	MIN	.00	AC-FT 67440
WTR YR 1982	TOTAL	55420.27	MEAN	152	MAX	7830	MIN	.76	AC-FT 109900

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1961 to current year.
WATER TEMPERATURES: October 1961 to current year.
SUSPENDED SEDIMENT DISCHARGE: January 1978 to September 1981.

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

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

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,410 micromhos Oct. 6; minimum daily, 267 micromhos Oct. 13.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 15, 16, 27; minimum daily, 3.0°C Jan. 11, Feb. 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 13...	1630	12800	267	21.0	110	28	31	7.8	18
NOV 16...	1325	33	1650	16.5	510	340	120	51	160
JAN 06...	1220	20	2510	10.0	820	590	190	84	250
MAR 29...	1505	19	2840	13.0	980	780	210	110	280
JUN 21...	1700	110	533	25.0	190	76	48	16	30
AUG 03...	1510	27	1330	30.5	440	260	96	49	110
SEP 22...	1515	13	2160	24.0	650	490	150	68	230

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 13...	.8	4.9	82	14	27	.3	6.8	159
NOV 16...	3.4	5.1	170	310	270	.4	7.8	1030
JAN 06...	3.8	5.8	230	550	430	.6	8.3	1660
MAR 29...	3.9	5.5	200	690	500	.5	4.4	1920
JUN 21...	1.0	5.3	110	83	48	.2	6.3	303
AUG 03...	2.5	5.1	180	270	180	.4	13	832
SEP 22...	3.9	7.2	160	480	370	.5	13	1410

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	18540.37	359	198	9930	59	2930	42	2110	92
NOV.	1981	1049	1610	994	2820	250	707	320	897	500
DEC.	1981	730	2220	1440	2850	340	662	520	1030	760
JAN.	1982	632	2420	1600	2730	360	619	600	1030	850
FEB.	1982	572	2560	1720	2660	380	591	670	1030	920
MAR.	1982	685	2760	1880	3480	410	755	750	1390	1000
APR.	1982	431.1	2710	1850	2150	400	468	740	859	990
MAY	1982	3928.6	1110	697	7400	170	1830	230	2430	360
JUNE	1982	22159	559	313	18700	91	5420	71	4230	150
JULY	1982	5363	855	493	7130	140	1980	120	1810	240
AUG.	1982	551	1460	891	1330	230	340	270	404	450
SEPT	1982	779.2	1620	1030	2170	250	524	350	740	530
TOTAL		55420.27	**	**	63400	**	16800	**	18000	**
WTD. AVG.		152	712	424	**	110	**	120	**	210

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2900	1300	2070	2370	2400	2770	2790	2930	1150	677	1320	1810
2	3050	1330	2090	2350	1970	2760	2800	3100	1210	712	1350	1830
3	3140	1370	2100	2220	1860	2700	2820	2840	1310	750	1330	1810
4	3210	1350	2090	2390	2690	2640	2810	2870	1300	767	1340	1920
5	3330	1340	2140	2430	2700	2630	2800	2960	1370	805	1430	2170
6	3410	1360	2170	2400	2710	2740	2750	3390	1390	831	1420	2200
7	272	1380	2150	2360	2690	2760	2700	3100	1480	525	1420	2260
8	413	1390	2160	2330	2680	2720	2400	3030	1620	787	1440	2360
9	478	1450	2170	2300	2590	2710	2000	2690	1580	878	1290	2350
10	740	1520	2220	2060	2640	2660	2550	2470	1530	931	1400	2360
11	1010	1540	2150	2340	2620	2670	2820	2220	1630	970	1370	2340
12	1100	1570	2140	2120	2560	2660	2670	2050	1360	1010	1360	2200
13	267	1610	2160	2200	2590	2650	2760	1930	1520	1000	1380	2150
14	307	1660	2180	2410	2610	2710	2400	2030	1570	993	1400	406
15	318	1670	2240	2400	2630	2860	2420	2140	1650	1030	1540	593
16	347	1650	2260	2320	2570	3030	2460	2180	1610	1060	1460	612
17	418	1660	2190	2600	2320	2900	2490	2200	1620	1150	1480	845
18	470	1700	2230	2540	2330	2760	2510	2290	1640	1110	1470	1350
19	529	1670	2280	2530	2620	2750	2370	2360	694	1160	1460	1800
20	591	1720	2300	2510	2580	2650	2340	2410	352	1150	1360	1980
21	650	1760	2290	2520	2640	2640	2230	2420	542	1160	1380	2080
22	893	1820	2300	2550	2630	2770	2550	1950	554	1170	1430	2160
23	815	1870	2310	2490	2640	2740	2880	1230	596	1180	1490	2130
24	875	1910	2300	2500	2600	2770	2740	467	646	1220	1500	2110
25	997	1980	2310	2520	2530	2670	2810	602	656	1240	1590	2210
26	1140	1990	2300	2560	2650	2850	3050	702	678	1260	1660	2010
27	1160	2020	2380	2480	2940	2870	3040	870	544	1270	1700	2030
28	1150	2010	2350	2490	2730	2860	3030	894	565	1280	1830	1940
29	1170	2040	2380	2450	---	2840	3080	950	638	1300	1860	1950
30	1230	2110	2360	2480	---	2820	3220	1050	660	1310	1890	2240
31	1330	---	2390	2490	---	2810	---	1100	---	1320	1800	---
MEAN	1220	1660	2230	2410	2560	2750	2680	2050	1120	1030	1490	1870

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.5	16.0	13.0	9.0	11.0	15.5	18.0	20.0	25.5	26.5	30.5	31.0
2	25.0	---	12.5	10.5	10.0	16.0	18.5	23.0	29.0	28.0	31.0	29.0
3	24.0	18.5	12.5	10.5	10.0	17.5	19.0	23.0	27.5	---	30.0	28.0
4	27.5	19.0	12.5	10.0	10.5	16.0	21.5	24.5	27.0	28.0	30.0	29.0
5	27.5	18.0	11.0	10.0	3.0	12.0	20.5	---	27.0	28.0	31.0	29.0
6	23.0	---	13.5	9.5	5.0	12.5	18.0	20.0	28.5	27.5	31.0	---
7	17.0	---	14.0	7.0	5.5	13.5	20.5	23.0	28.0	26.0	31.0	28.0
8	17.0	18.0	15.0	7.0	10.0	15.0	18.0	24.0	28.5	28.5	27.0	28.0
9	22.0	16.5	17.0	5.0	8.0	15.5	17.0	21.0	29.0	29.0	29.5	28.0
10	21.5	15.0	14.5	6.0	8.0	17.0	17.0	24.0	29.5	30.0	30.5	28.0
11	22.0	15.0	14.0	3.0	9.5	17.5	18.0	24.0	29.5	31.0	31.0	27.5
12	23.5	17.0	12.5	5.0	11.0	18.0	24.0	26.0	27.0	27.0	31.0	25.0
13	22.0	17.0	12.0	---	10.0	19.0	24.0	26.0	27.5	29.0	31.0	21.0
14	22.5	17.0	11.0	4.5	10.5	---	25.0	26.0	28.0	29.5	31.5	24.0
15	24.0	17.0	12.0	---	14.0	---	25.5	26.0	30.0	30.0	32.0	24.0
16	24.0	17.0	12.5	4.0	15.5	19.0	---	26.0	27.5	30.0	32.0	26.0
17	23.5	18.0	9.5	5.5	15.5	---	21.0	25.0	29.0	30.0	30.0	23.0
18	21.5	18.5	8.0	7.0	15.5	22.5	19.0	27.5	29.5	30.0	31.0	28.0
19	21.0	16.0	11.0	8.0	15.5	24.0	25.5	27.0	21.0	30.5	31.0	27.0
20	21.5	15.5	11.0	9.0	14.5	21.0	15.5	28.0	22.0	30.5	30.0	24.5
21	19.5	14.0	10.5	10.5	17.0	17.0	14.0	27.5	24.5	31.0	29.5	23.5
22	15.0	13.5	10.5	11.5	19.0	16.0	15.5	28.0	27.0	---	30.0	25.0
23	14.0	---	8.0	10.0	18.5	17.0	16.5	21.5	26.5	31.5	31.0	24.5
24	16.5	14.5	8.5	9.0	15.5	21.0	17.5	19.0	27.5	31.0	30.5	25.0
25	14.0	15.0	---	10.0	11.0	16.0	21.0	22.0	---	31.0	31.0	25.0
26	15.5	---	10.0	10.5	8.5	13.5	22.0	25.0	27.0	30.0	31.0	25.0
27	---	14.0	10.0	11.0	12.5	12.5	20.0	26.0	25.0	30.0	32.0	25.5
28	17.5	13.0	9.5	13.0	14.0	13.0	21.5	27.0	28.0	30.5	30.0	25.5
29	19.0	15.0	8.5	12.5	---	13.5	23.0	---	28.5	30.5	30.0	26.0
30	18.0	15.0	7.5	12.0	---	16.5	21.5	28.0	29.0	30.0	29.0	23.0
31	18.0	---	10.0	12.5	---	16.0	---	26.0	---	31.0	28.0	---
MEAN	21.0	16.0	11.5	8.5	11.5	16.5	20.0	24.5	27.5	29.5	30.5	26.0

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.--450 mi² (1,166 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1442: 1935, 1946, 1954. WRD TX-81-3: Drainage area.

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

REMARKS.--Water-discharge records good except those below 100 ft³/s (2.83 m³/s), which are fair. Stage-discharge relation during period of low flow affected by wind action and occasional accumulation of drift on dam. The city of Winters diverts water for municipal use from Lake Winters, capacity, 8,374 acre-ft (10.3 hm³), at elevation 1,790 ft (545.6 m). Prior to June 1982, capacity was 3,060 acre-ft (3.77 hm³).

AVERAGE DISCHARGE.--50 years (water years 1933-82), 47.6 ft³/s (1.348 m³/s), 1.44 in/yr (37 mm/yr), 34,490 acre-ft/yr (42.5 hm³/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,300 ft³/s (1,080 m³/s) Oct. 13 at 1900 hours, gage height, 11.80 ft (3.597 m); minimum, 0.11 ft³/s (0.003 m³/s) Oct. 4, 5.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	30	16	17	17	23	8.0	3.9	3.1	84	12	2.1
2	.17	29	14	17	17	19	6.0	6.4	2.6	64	15	1.9
3	.14	29	14	15	16	15	5.1	8.5	2.3	52	14	1.5
4	.12	29	14	11	14	14	5.6	7.6	1.7	42	14	1.7
5	.12	29	14	13	13	13	6.9	8.2	1.5	37	14	1.9
6	.17	29	14	14	12	10	5.4	49	1.4	32	13	2.0
7	24	29	14	13	12	9.7	4.4	52	1.3	33	12	2.0
8	11	29	14	12	13	9.7	4.4	26	1.2	30	12	2.0
9	4.0	21	14	12	12	9.7	4.0	15	1.2	26	32	2.1
10	2.1	20	14	13	12	9.7	3.6	11	1.1	22	64	12
11	1.6	20	17	14	12	9.7	3.6	9.1	1.8	18	48	24
12	1.6	20	17	14	12	9.7	3.6	7.7	119	21	29	24
13	15900	20	17	17	12	9.7	3.6	8.6	39	104	21	30
14	7660	20	16	20	12	12	3.5	6.8	13	96	16	37
15	658	20	14	20	11	19	3.6	7.6	7.5	68	13	35
16	269	20	16	20	9.7	23	3.6	6.6	14	51	9.7	36
17	150	20	19	20	9.7	19	3.2	4.9	11	37	7.9	36
18	99	20	18	20	9.7	15	2.7	3.5	5.0	26	6.5	35
19	72	19	18	20	9.7	13	2.6	3.0	11100	22	5.8	17
20	58	17	20	20	9.7	12	2.4	2.7	3770	19	5.2	7.8
21	54	17	20	20	9.7	13	2.0	2.2	664	16	4.9	4.6
22	68	15	18	19	9.7	13	2.6	13	248	14	4.4	3.3
23	94	15	14	17	9.7	11	3.6	9.6	103	14	4.8	2.8
24	83	14	14	18	9.7	9.7	4.1	20	61	13	4.6	2.4
25	63	19	14	17	18	7.9	3.6	14	93	14	4.4	2.3
26	52	20	14	14	34	7.8	3.1	17	132	14	4.4	2.0
27	42	18	17	13	36	7.9	3.1	14	3420	13	4.4	2.0
28	38	20	17	12	29	8.0	3.1	9.3	818	12	3.5	1.9
29	38	20	17	14	---	7.9	3.0	7.4	239	12	3.1	1.8
30	38	19	17	19	---	9.2	2.7	6.2	113	11	2.6	1.7
31	36	---	17	17	---	9.0	---	4.5	---	12	1.9	---
TOTAL	25517.22	647	493	502	401.3	379.3	116.7	365.3	20988.7	1029	407.1	335.8
MEAN	823	21.6	15.9	16.2	14.3	12.2	3.89	11.8	700	33.2	13.1	11.2
MAX	15900	30	20	20	36	23	8.0	52	11100	104	64	37
MIN	.12	14	14	11	9.7	7.8	2.0	2.2	1.1	11	1.9	1.5
CFSM	1.75	.05	.03	.03	.03	.03	.008	.03	1.49	.07	.03	.02
IN.	2.02	.05	.04	.04	.03	.03	.01	.03	1.66	.08	.03	.03
AC-FT	50610	1280	978	996	796	752	231	725	41630	2040	807	666

CAL YR 1981	TOTAL	30186.40	MEAN	82.7	MAX	15900	MIN	.00	CFSM .18	IN 2.38	AC-FT	59870
WTR YR 1982	TOTAL	51182.42	MEAN	140	MAX	15900	MIN	.12	CFSM .30	IN 4.04	AC-FT	101500

08127000 ELM CREEK AT BALLINGER, TX--Continued

WATER-QUALITY RECORDS

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,220 micromhos Sept. 12, 17, 1970; minimum daily, 244 micromhos Aug. 4, 1978.
WATER TEMPERATURES: Maximum daily 34.5°C Aug. 14, 1973; minimum daily, 0.0°C Jan. 8, 1968, Jan. 10, 13, 1973, and Jan. 11, 14, 1982.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,620 micromhos Apr. 29; minimum daily, 255 micromhos Oct. 14.
WATER TEMPERATURES: Maximum daily, 32.0°C on many days during August and September; minimum daily, 0.0°C Jan. 10, 11, 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
JAN									
04...	1440	10	3490	10.0	1100	820	200	140	360
MAR									
29...	1315	8.8	3280	13.0	980	740	180	130	330
JUN									
21...	1335	632	632	24.5	190	85	50	17	44
AUG									
03...	1140	13	2690	29.0	830	630	150	110	280
SEP									
22...	1335	2.9	1750	24.0	560	350	100	76	160

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
JAN								
04...	4.8	5.1	260	510	760	.8	11	2140
MAR								
29...	4.6	4.6	240	470	720	.7	8.7	1990
JUN								
21...	1.5	5.9	110	57	100	.2	11	351
AUG								
03...	4.2	6.1	200	390	580	.7	14	1650
SEP								
22...	3.3	5.2	210	290	310	.6	11	1080

08127000 ELM CREEK AT BALLINGER, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	25517.22	325	178	12300	53	3630	32	2190	89
NOV.	1981	647	2890	1710	2990	610	1070	390	688	850
DEC.	1981	493	3370	2030	2700	750	1000	490	647	1000
JAN.	1982	502	3470	2090	2840	780	1060	510	685	1000
FEB.	1982	401.3	3320	1990	2160	740	797	480	515	990
MAR.	1982	379.3	3310	1990	2030	730	750	470	485	980
APR.	1982	116.7	3460	2090	658	780	245	500	159	1000
MAY	1982	365.3	2980	1770	1750	640	631	410	406	880
JUNE	1982	20988.7	434	238	13500	70	3980	42	2390	120
JULY	1982	1029	2020	1170	3250	390	1100	250	690	580
AUG.	1982	407.1	2800	1650	1820	590	647	380	414	820
SEPT	1982	335.8	2170	1260	1140	430	389	270	246	620
TOTAL		51182.42	**	**	47100	**	15300	**	9510	**
WTD. AVG.		140	600	341	**	110	**	69	**	170

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3210	2390	3250	3460	3400	3410	3360	3580	2760	1840	2780	3050
2	3070	2530	3320	3480	3410	3400	3340	3570	2750	1850	2550	3110
3	2920	2470	3240	3490	3400	3360	3350	3500	2740	1870	2690	3160
4	2780	2620	3260	3490	3380	3370	3340	3610	2730	1580	2790	3080
5	3250	2660	3240	3480	3360	3350	3380	3590	2740	1160	2820	3100
6	3240	2690	3320	3520	3350	3330	3310	3360	2720	2390	2720	3080
7	3010	2770	3330	3500	3400	3320	3320	3060	2710	2240	2730	3090
8	3100	2840	3340	3490	3360	3340	3380	3000	2730	2400	2960	3100
9	3140	2850	3310	3480	3340	3330	3330	2950	2740	2560	2650	3220
10	2900	2870	3320	3470	3330	3320	3430	3250	2740	2680	2500	3180
11	3150	2940	3340	3500	3330	3310	3540	3030	2750	2620	2810	2390
12	3020	2930	3330	3490	3320	3340	3440	2850	1450	2630	3070	2250
13	260	2960	3360	3500	3310	3330	3490	2930	1890	1840	3010	1960
14	255	3020	3340	3510	3340	3310	3500	2910	1920	2100	2990	1850
15	503	2990	3350	3500	3350	3300	3490	2850	1960	2230	2920	1900
16	661	3010	3330	3490	3350	3170	3500	2840	1880	1780	2980	1960
17	846	3020	3380	3470	3360	3280	3510	2830	1960	1330	3030	2050
18	1060	3040	3390	3480	3370	3310	3570	2850	2700	1770	2920	2300
19	1210	3060	3400	3480	3350	3300	3580	2840	334	1850	2950	2720
20	1360	3050	3430	3490	3370	3280	3590	2890	346	1920	2840	2050
21	1500	3030	3420	3480	3360	3260	3600	2950	637	1800	2710	1690
22	1680	3040	3430	3460	3370	3240	3610	2720	861	1920	2930	1770
23	1820	3120	3440	3440	3360	3250	3580	2840	1150	2040	2860	1790
24	1950	3180	3440	3420	3370	3250	3540	2490	1480	2680	2900	1760
25	2080	3070	3450	3400	3190	3270	3550	2500	1330	2550	2930	1750
26	1910	3090	3460	3410	2980	3280	3590	2550	1250	2430	2960	1740
27	1970	3160	3440	3400	3330	3290	3610	2610	492	2490	3000	1780
28	1910	3170	3460	3470	3370	3300	3600	2660	606	2520	2980	1790
29	2200	3190	3430	3450	---	3310	3620	2690	911	2590	2960	1810
30	2050	3180	3450	3400	---	3300	3600	2700	1550	2660	2950	1800
31	2140	---	3440	3390	---	3310	---	2710	---	2740	2970	---
MEAN	2070	2930	3370	3470	3340	3310	3490	2960	1830	2160	2870	2340

08127000 ELM CREEK AT BALLINGER, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	14.0	14.0	10.0	8.0	10.0	15.0	18.0	25.0	27.0	30.0	32.0
2	24.0	15.0	13.0	11.0	5.0	12.0	---	19.0	25.0	28.0	29.0	31.0
3	25.0	---	14.0	9.0	6.0	11.0	---	20.0	26.0	29.0	31.0	32.0
4	25.0	13.0	14.0	10.0	8.0	12.0	16.0	19.0	25.0	28.0	30.0	31.0
5	24.0	14.0	13.0	8.0	6.0	10.0	15.0	20.0	25.0	29.0	30.0	32.0
6	25.0	15.0	13.0	6.0	5.0	11.0	16.0	16.0	---	28.0	29.0	32.0
7	24.0	14.0	14.0	6.0	5.0	12.0	16.0	20.0	26.0	27.0	29.0	31.0
8	22.0	15.0	12.0	6.0	8.0	11.0	16.0	19.0	25.0	28.0	31.0	31.0
9	21.0	13.0	14.0	6.0	7.0	12.0	17.0	20.0	27.0	29.0	31.0	32.0
10	22.0	11.0	13.0	.0	5.0	13.0	17.0	21.0	26.0	28.0	30.0	32.0
11	26.0	15.0	14.0	.0	6.0	15.0	18.0	23.0	27.0	28.0	32.0	---
12	25.0	15.0	13.0	4.0	8.0	16.0	19.0	22.0	26.0	29.0	31.0	31.0
13	23.0	16.0	12.0	1.0	9.0	16.0	16.0	23.0	---	28.0	31.0	29.0
14	25.0	14.0	14.0	.0	9.0	15.0	16.0	23.0	27.0	27.0	32.0	21.0
15	26.0	15.0	13.0	4.0	8.0	13.0	16.0	23.0	26.0	27.0	32.0	21.0
16	25.0	14.0	12.0	5.0	10.0	11.0	17.0	23.0	25.0	29.0	31.0	31.0
17	26.0	15.0	9.0	5.0	11.0	15.0	19.0	22.0	27.0	29.0	30.0	30.0
18	23.0	17.0	8.0	6.0	11.0	15.0	18.0	23.0	26.0	29.0	31.0	20.0
19	24.0	14.0	11.0	10.0	10.0	14.0	12.0	24.0	26.0	30.0	32.0	20.0
20	25.0	15.0	13.0	11.0	12.0	13.0	12.0	24.0	---	29.0	31.0	21.0
21	24.0	---	12.0	10.0	14.0	15.0	12.0	23.0	24.0	28.0	32.0	25.0
22	17.0	16.0	13.0	9.0	12.0	14.0	13.0	22.0	25.0	28.0	32.0	23.0
23	15.0	14.0	9.0	10.0	13.0	15.0	14.0	23.0	28.0	30.0	32.0	23.0
24	---	14.0	10.0	10.0	15.0	16.0	12.0	21.0	29.0	30.0	31.0	25.0
25	17.0	13.0	8.0	10.0	10.0	12.0	15.0	23.0	28.0	29.0	32.0	21.0
26	15.0	14.0	9.0	10.0	11.0	13.0	18.0	22.0	29.0	29.0	31.0	22.0
27	16.0	13.0	8.0	10.0	12.0	14.0	19.0	23.0	26.0	28.0	31.0	22.0
28	15.0	14.0	9.0	---	10.0	13.0	20.0	22.0	26.0	30.0	32.0	---
29	17.0	14.0	10.0	---	---	15.0	18.0	21.0	25.0	30.0	---	23.0
30	16.0	13.0	10.0	10.0	---	16.0	17.0	24.0	27.0	28.0	---	23.0
31	15.0	---	9.0	9.0	---	---	---	23.0	---	29.0	32.0	---
MEAN	21.5	14.5	11.5	7.0	9.0	13.5	16.0	21.5	26.0	28.5	31.0	26.5

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 except those for May 27 to July 15, which are fair. The following table lists only irrigation water diverted from right bank of South Concho River 900 ft (274 m) upstream from station at Christoval (station 08128000). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--42 years (water years 1941-82), 6.80 ft^3/s (0.193 m^3/s), 4,930 acre-ft/yr (6.08 hm^3/yr).

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

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	11	6.9	5.3	4.3	5.0	7.8	8.4	13	11	11	10
2	13	11	6.8	4.5	3.9	4.9	8.5	8.4	13	11	11	10
3	13	11	6.8	3.8	3.7	4.8	8.0	8.4	12	11	11	10
4	13	9.8	6.8	3.8	3.4	4.8	8.2	8.4	12	11	11	10
5	13	5.3	6.6	5.4	3.3	4.7	8.1	8.8	13	11	11	10
6	13	5.5	6.2	5.2	3.3	4.7	8.0	8.6	13	11	11	10
7	13	7.2	6.1	5.0	3.7	4.7	8.0	8.3	12	11	11	10
8	13	8.2	6.1	5.0	4.1	4.5	8.1	8.3	12	10	12	10
9	13	7.9	6.4	4.9	4.0	4.4	8.1	8.3	11	11	11	10
10	13	7.7	6.6	4.9	4.0	4.7	8.1	8.3	11	11	11	10
11	13	6.3	6.4	4.9	4.0	5.1	8.1	8.2	12	12	11	10
12	13	6.6	6.2	4.5	4.0	5.1	8.3	8.1	13	12	11	10
13	19	8.9	6.3	4.5	3.9	5.1	8.3	8.2	12	13	11	10
14	16	8.6	6.2	4.5	3.8	5.1	8.3	8.0	12	13	11	10
15	14	8.3	6.2	4.4	3.6	4.9	8.5	7.9	12	13	11	10
16	14	8.3	6.1	4.4	3.5	5.4	8.5	7.9	12	13	11	10
17	14	8.2	5.8	4.4	3.5	7.5	8.4	7.7	11	13	11	10
18	14	8.1	5.8	4.3	3.4	7.5	8.5	7.7	11	13	11	9.9
19	14	8.3	5.8	4.3	4.2	7.5	8.6	7.7	11	13	11	10
20	14	8.1	5.4	4.2	5.5	7.4	8.5	7.6	12	13	11	10
21	14	7.7	5.0	4.2	5.3	7.6	8.5	7.8	12	13	11	9.7
22	10	7.3	4.8	4.2	5.1	7.5	8.8	11	13	13	11	9.6
23	7.8	7.4	4.7	4.2	4.9	7.5	8.8	9.9	13	13	11	9.6
24	11	8.2	6.1	4.1	4.7	7.5	8.7	12	12	13	11	9.6
25	11	8.1	6.7	4.1	5.2	7.5	8.5	12	11	13	11	9.7
26	11	7.9	6.2	4.1	4.9	7.5	8.4	12	11	12	11	10
27	11	7.6	5.6	4.1	4.9	7.6	8.4	12	10	12	10	10
28	11	7.6	5.3	4.2	5.0	7.7	8.4	12	10	12	10	9.3
29	11	7.5	5.1	4.2	---	7.8	8.2	12	11	12	10	9.3
30	11	7.3	4.1	4.9	---	7.7	8.2	12	11	12	10	9.3
31	11	---	4.4	4.8	---	7.7	---	12	---	12	10	---
TOTAL	394.8	240.9	183.5	139.3	117.1	191.4	249.8	287.9	354	374	337	296.0
MEAN	12.7	8.03	5.92	4.49	4.18	6.17	8.33	9.29	11.8	12.1	10.9	9.87
MAX	19	11	6.9	5.4	5.5	7.8	8.8	12	13	13	12	10
MIN	7.8	5.3	4.1	3.8	3.3	4.4	7.8	7.6	10	10	10	9.3
AC-FT	783	478	364	276	232	380	495	571	702	742	668	587

CAL YR 1981 TOTAL 3051.5 MEAN 8.36 MAX 19 MIN 2.7 AC-FT 6050
WTR YR 1982 TOTAL 3165.7 MEAN 8.67 MAX 19 MIN 3.3 AC-FT 6280

08128000 SOUTH CONCHO RIVER AT CHRISTOVAL, TX

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

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

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

REVISED RECORDS.--WSP 1118: 1943(M). WDR TX-81-3: Drainage area.

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

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

AVERAGE DISCHARGE.--52 years, 33.2 ft³/s (0.940 m³/s), 24,050 acre-ft/yr (29.7 hm³/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 248 ft³/s (7.02 m³/s) Oct. 13 at 1700 hours, gage height, 2.77 ft (0.844 m), no other peak above base of 160 ft³/s (4.53 m³/s); minimum daily, 10 ft³/s (0.28 m³/s) for several days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	28	31	27	25	24	18	16	14	14	12	10
2	14	28	31	27	26	23	21	16	14	14	12	10
3	14	28	31	27	27	22	18	16	14	14	12	11
4	14	29	31	28	27	21	19	16	14	14	12	11
5	14	35	31	25	28	21	20	18	14	14	12	10
6	14	35	31	25	28	20	20	18	14	15	11	11
7	16	32	31	25	28	21	19	17	14	16	11	10
8	15	31	31	25	27	20	18	17	14	15	11	10
9	15	31	31	25	27	21	18	16	14	15	12	11
10	15	31	31	25	25	21	18	16	13	15	11	11
11	17	33	30	25	25	21	18	16	13	15	11	11
12	15	35	30	25	25	20	17	16	16	15	11	12
13	78	33	30	28	25	20	17	17	15	15	11	11
14	32	33	30	28	25	20	18	16	14	16	11	11
15	18	33	30	28	25	20	18	16	13	16	11	12
16	17	33	30	26	25	20	18	16	13	15	11	12
17	17	31	30	27	24	18	18	16	13	15	11	12
18	18	31	30	27	24	17	18	16	13	15	10	12
19	18	30	30	27	24	17	18	16	16	15	10	12
20	19	30	30	27	23	18	17	15	16	15	10	12
21	21	30	30	27	23	18	17	16	16	15	10	12
22	30	31	29	26	22	18	17	27	15	15	10	11
23	27	33	30	25	22	18	19	14	13	15	10	11
24	24	33	29	25	22	18	18	16	13	14	10	11
25	25	32	28	26	28	19	16	16	16	15	11	11
26	25	31	28	26	24	18	16	16	14	14	11	12
27	24	31	28	25	24	19	16	16	20	14	10	12
28	24	30	27	25	24	20	16	18	15	14	10	11
29	25	30	27	25	---	19	16	16	15	14	10	11
30	25	30	27	25	---	17	16	14	15	12	10	11
31	26	---	28	25	---	17	---	14	---	12	10	---
TOTAL	670	941	921	807	702	606	533	509	433	452	335	335
MEAN	21.6	31.4	29.7	26.0	25.1	19.5	17.8	16.4	14.4	14.6	10.8	11.2
MAX	78	35	31	28	28	24	21	27	20	16	12	12
MIN	14	28	27	25	22	17	16	14	13	12	10	10
AC-FT	1330	1870	1830	1600	1390	1200	1060	1010	859	897	664	664

CAL YR 1981 TOTAL 10674 MEAN 29.2 MAX 78 MIN 14 AC-FT 21170
WTR YR 1982 TOTAL 7244 MEAN 19.8 MAX 78 MIN 10 AC-FT 14370

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.--2,084 mi² (5,398 km²), of which 968 mi² (2,507 km²) probably is noncontributing.

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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.--21 years, 15.8 ft³/s (0.447 m³/s), 11,450 acre-ft/yr (14.1 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.--Maximum discharge, 7,780 ft³/s (220 m³/s) Oct. 13 at 0900 hours, gage height, 19.05 ft (5.806 m), no other peak above base of 1,700 ft³/s (48.1 m³/s); minimum, no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	7.4	9.5	10	11	11	8.6	7.4	5.0	4.1	.05	.00
2	3.8	7.4	9.1	10	10	10	8.4	7.4	4.3	3.4	.04	.00
3	3.5	6.6	10	9.6	10	9.9	8.2	7.4	4.1	2.9	.01	.00
4	3.5	7.2	10	10	9.8	9.1	8.2	7.5	3.4	2.3	.00	.00
5	3.5	7.4	10	10	9.5	9.1	8.2	9.8	2.9	2.0	.00	.00
6	3.5	7.5	11	10	9.5	9.1	7.8	13	2.9	2.3	.00	.00
7	4.0	8.3	11	10	9.5	9.1	7.8	11	2.6	3.9	.00	.00
8	4.9	9.3	11	10	9.7	9.1	8.1	8.5	2.3	4.0	.00	.00
9	5.6	10	11	10	10	9.1	8.2	6.7	1.9	3.6	.00	.00
10	5.9	8.6	11	10	10	9.1	8.2	7.0	1.7	2.7	.00	.00
11	5.3	8.6	11	10	10	9.1	8.2	6.9	1.6	2.2	.00	.00
12	5.3	9.3	12	11	11	9.1	7.4	6.3	2.5	2.0	.00	.00
13	1550	9.0	12	11	11	9.1	5.6	9.9	2.6	1.7	.00	.00
14	378	9.5	11	11	10	11	6.0	9.1	3.9	1.3	.00	.00
15	62	9.1	11	12	10	10	6.3	6.6	4.3	1.2	.00	.00
16	30	9.4	11	12	9.5	9.5	5.9	5.5	3.1	.90	.00	.00
17	19	10	11	11	9.5	9.5	5.5	5.2	2.2	.88	.00	.00
18	14	10	10	11	9.5	9.5	4.5	4.9	1.7	.65	.00	.00
19	11	10	10	11	9.7	9.2	4.9	4.8	3.9	.58	.00	.00
20	11	9.5	11	11	9.8	9.1	5.3	4.9	6.5	.46	.00	.00
21	11	12	10	11	10	13	5.4	4.3	16	.44	.00	.00
22	56	12	10	11	10	12	5.6	7.9	4.9	.35	.00	.00
23	26	12	9.8	11	10	10	6.8	8.2	4.1	.28	.00	.00
24	15	12	9.5	10	9.7	9.5	7.9	10	3.0	.24	.00	.00
25	12	11	9.5	10	13	8.5	8.2	11	3.0	.24	.00	.00
26	11	11	10	10	13	8.2	8.1	11	2.5	.15	.00	.00
27	9.6	11	9.5	10	12	8.2	8.1	9.0	4.7	.13	.00	.00
28	9.5	10	9.5	10	11	8.2	7.2	7.4	5.2	.09	.00	.00
29	8.6	10	9.5	11	---	8.4	7.0	7.3	5.2	.09	.00	.00
30	8.3	10	9.5	12	---	8.6	7.4	6.4	5.4	.08	.00	.00
31	7.8	---	9.7	12	---	8.6	---	5.7	---	.07	.00	---
TOTAL	2302.4	285.1	320.1	328.6	287.7	292.9	213.0	238.0	117.4	45.23	.10	.00
MEAN	74.3	9.50	10.3	10.6	10.3	9.45	7.10	7.68	3.91	1.46	.003	.000
MAX	1550	12	12	12	13	13	8.6	13	16	4.1	.05	.00
MIN	3.5	6.6	9.1	9.6	9.5	8.2	4.5	4.3	1.6	.07	.00	.00
AC-FT	4570	565	635	652	571	581	422	472	233	90	.2	.00

CAL YR 1981 TOTAL 4589.99 MEAN 12.6 MAX 1550 MIN .10 AC-FT 9100
WTR YR 1982 TOTAL 4430.53 MEAN 12.1 MAX 1550 MIN .00 AC-FT 8790

08129300 SPRING CREEK ABOVE TANKERSLEY, TX

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

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

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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.--22 years, 14.3 ft^3/s (0.405 m^3/s), 10,360 acre-ft/yr (12.8 hm^3/yr).

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

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

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 13	1900	*3,930	111	8.16	2.487
July 7	0230	1,840	52.1	6.68	2.036

Minimum discharge, 0.16 ft^3/s (0.005 m^3/s) Sept. 6, 8-16, 18.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	17	11	16	11	20	14	13	11	11	2.0	.31
2	2.3	15	13	18	11	20	19	15	11	11	1.2	.22
3	2.9	17	12	17	13	20	12	13	9.5	11	1.2	.18
4	1.5	16	9.9	12	12	18	13	11	6.8	11	.67	.18
5	1.2	17	10	14	13	19	11	18	7.4	10	.37	.17
6	2.0	16	13	15	14	19	9.0	30	8.9	10	.25	.16
7	8.3	18	14	16	15	18	9.0	21	9.5	290	.21	.17
8	8.1	17	12	16	14	18	10	17	9.3	32	.21	.16
9	9.9	15	11	15	12	17	10	17	6.9	20	.27	.16
10	14	15	12	17	14	16	12	19	2.9	17	3.0	.16
11	18	14	14	16	13	13	14	15	2.0	16	4.1	.16
12	17	15	15	18	16	13	13	18	11	15	4.3	.16
13	982	14	15	20	15	13	9.3	24	14	14	4.6	.16
14	209	15	15	20	14	14	9.8	21	8.9	13	4.6	.16
15	51	16	16	19	15	11	8.9	31	7.6	9.1	3.5	.16
16	32	14	15	18	13	10	8.3	26	7.5	7.6	1.6	.16
17	26	12	14	18	12	14	7.2	24	6.7	8.4	.80	.17
18	21	10	14	19	11	12	11	21	6.4	9.1	2.1	.16
19	19	14	15	16	11	10	12	17	12	8.8	4.5	.17
20	19	12	16	12	15	11	9.3	15	17	7.5	4.5	.18
21	19	11	16	11	24	20	13	14	28	5.3	3.4	.20
22	80	9.4	13	12	21	18	16	23	13	2.6	2.1	.27
23	35	11	12	11	15	21	19	18	11	2.0	2.0	.29
24	22	11	13	12	17	19	16	20	13	2.8	2.7	.27
25	19	12	14	11	27	16	15	22	16	4.4	2.5	.24
26	20	11	13	11	24	15	13	16	14	5.6	2.3	.21
27	19	11	15	10	21	15	8.9	14	20	3.8	2.5	.18
28	19	11	15	8.5	21	14	9.0	15	16	1.7	2.6	.17
29	19	12	16	6.3	---	16	8.5	12	13	.86	2.1	.17
30	20	13	16	11	---	17	9.6	12	12	.79	1.3	.17
31	16	---	17	11	---	13	---	11	---	2.2	.59	---
TOTAL	1735.3	411.4	426.9	446.8	434	490	349.8	563	332.3	563.55	68.07	5.68
MEAN	56.0	13.7	13.8	14.4	15.5	15.8	11.7	18.2	11.1	18.2	2.20	.19
MAX	982	18	17	20	27	21	19	31	28	290	4.6	.31
MIN	1.2	9.4	9.9	6.3	11	10	7.2	11	2.0	.79	.21	.16
AC-FT	3440	816	847	886	861	972	694	1120	659	1120	135	11

CAL YR 1981 TOTAL 4948.66 MEAN 13.6 MAX 982 MIN .16 AC-FT 9820
WTR YR 1982 TOTAL 5826.80 MEAN 16.0 MAX 982 MIN .16 AC-FT 11560

08130500 DOVE CREEK AT KNICKERBOCKER, TX

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

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

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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.--22 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, 6,400 ft³/s (181 m³/s) Oct. 13, gage height, 13.77 ft (4.197 m), no other peak above base of 100 ft³/s (2.83 m³/s); minimum daily, 0.92 ft³/s (0.026 m³/s) Sept. 5, 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	24	23	20	18	18	16	16	13	7.9	7.9	5.3
2	9.9	24	22	20	18	18	12	16	12	7.9	4.3	2.9
3	12	24	21	20	18	18	11	16	11	7.1	3.6	1.2
4	14	24	21	19	18	18	10	13	11	6.5	3.5	1.0
5	14	24	21	19	17	18	10	12	12	6.7	3.6	.92
6	14	24	21	19	15	18	10	17	13	7.3	8.2	.92
7	14	24	21	19	15	18	10	12	13	8.5	17	1.9
8	15	24	21	18	15	18	10	11	13	7.2	17	3.6
9	15	24	21	18	15	18	10	11	12	6.5	18	4.4
10	16	24	20	18	15	18	10	11	14	5.9	14	4.2
11	20	24	20	18	15	18	11	11	15	6.9	13	4.4
12	18	24	20	18	15	16	11	14	20	7.9	12	4.8
13	1150	24	20	20	15	14	9.8	16	11	7.7	13	2.3
14	69	24	20	20	15	12	7.9	14	7.8	8.0	17	2.7
15	30	24	20	20	15	12	9.8	14	11	7.9	16	2.7
16	25	24	20	19	16	13	11	14	11	7.7	14	3.2
17	26	23	20	18	16	13	14	14	14	7.8	10	4.2
18	25	22	20	18	16	16	16	14	13	8.2	17	7.5
19	24	22	20	18	18	17	16	15	17	8.4	19	8.8
20	23	22	20	18	20	17	16	14	13	8.5	18	10
21	24	22	19	18	21	17	16	14	7.8	8.4	17	11
22	35	22	15	18	20	17	17	15	7.7	8.8	14	11
23	27	23	15	18	19	17	17	14	9.4	9.5	9.7	10
24	26	23	17	18	19	17	16	15	9.6	11	9.5	6.5
25	25	22	19	18	23	15	15	16	12	11	9.3	10
26	25	23	14	18	21	13	15	14	11	11	8.8	11
27	25	22	18	18	20	12	15	14	12	10	8.8	10
28	25	22	19	18	19	14	15	17	11	9.8	9.1	10
29	25	23	19	17	---	16	16	14	8.8	9.4	8.0	11
30	25	23	19	20	---	16	16	14	8.3	9.3	5.5	9.7
31	25	---	20	19	---	16	---	13	---	8.7	5.8	---
TOTAL	1834.9	698	606	577	487	498	389.5	435	354.4	257.4	351.6	177.14
MEAN	59.2	23.3	19.5	18.6	17.4	16.1	13.0	14.0	11.8	8.30	11.3	5.90
MAX	1150	24	23	20	23	18	17	17	20	11	19	11
MIN	9.9	22	14	17	15	12	7.9	11	7.7	5.9	3.5	.92
AC-FT	3640	1380	1200	1140	966	988	773	863	703	511	697	351

CAL YR 1981 TOTAL 8307.90 MEAN 22.8 MAX 1150 MIN 9.9 AC-FT 16480
WTR YR 1982 TOTAL 6665.94 MEAN 18.3 MAX 1150 MIN .92 AC-FT 13220

08131200 TWIN BUTTES RESERVOIR NEAR SAN ANGELO, TX

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

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum combined daily contents, 99,540 acre-ft (123 hm³) Mar. 29; minimum, 72,250 acre-ft (89.1 hm³) Sept. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76990	90760	92910	94340	96370	98970	99380	97100	98140	96730	87700	77870
2	76840	90880	92960	94340	96260	99070	99280	97040	98030	96780	87160	77630
3	76700	90970	92960	94240	96370	99070	99330	96990	97880	96730	86710	77430
4	76610	91100	93010	94340	96420	99120	99280	96890	97820	96730	86290	77210
5	76500	91180	93110	94450	96470	99020	99230	97510	97720	96680	85920	76980
6	76490	91320	93110	94340	96520	99070	99180	97510	97620	96470	85460	76700
7	76800	91450	93160	94290	96630	99180	99180	97620	97460	96780	85080	76470
8	76810	91390	93260	94390	96630	99070	99020	97560	97250	96420	84830	76260
9	76810	91490	93310	94450	96730	99070	98920	97620	96940	96010	84560	76080
10	77060	91580	93410	94290	96890	99120	98760	97560	96680	95640	84340	75840
11	77400	91660	93450	94500	97040	99070	98810	97620	96260	95280	84170	75660
12	77690	91770	93500	94340	96940	99070	98600	97770	96320	95280	83960	75460
13	86100	91910	93600	94710	97100	99070	98450	97880	96210	94760	83670	75240
14	87850	92040	93600	94810	97200	99070	98240	97820	96060	94500	83350	75040
15	88130	92120	93700	94860	97200	99070	98190	97820	95690	94200	83020	74840
16	88320	92220	93700	94860	97250	99070	98030	97770	95430	93950	82700	74700
17	88350	92310	93700	95020	97300	99020	97880	97720	95170	93650	82410	74530
18	88410	92270	93750	95020	97360	99070	97820	97670	94970	93360	82080	74340
19	88470	92220	93800	95120	97460	98970	97720	97620	95280	93110	81760	74170
20	88490	92320	93950	95170	97670	98860	97460	97460	95800	92860	81480	73970
21	88670	92370	93950	95330	97770	99070	97300	97360	96060	92610	81170	73740
22	89700	92520	93850	95380	97820	99120	97510	97770	96060	92220	80860	73570
23	89900	92520	93950	95490	97930	99180	97560	97980	96010	91820	80680	73390
24	90040	92570	93990	95590	97880	99280	97620	98080	95950	91430	80340	73180
25	90080	92710	94090	95590	98500	99180	97510	98290	96110	91080	80020	73070
26	90190	92660	94040	95800	98660	99230	97460	98290	96160	90640	79720	72890
27	90310	92710	94140	95750	98760	99180	97410	98500	96780	90190	79370	72720
28	90440	92810	94140	95800	98860	99230	97300	98450	96840	89750	79060	72550
29	90560	92910	94190	96110	---	99540	97250	98400	96890	89240	78760	72410
30	90690	92860	94290	96010	---	99280	97100	98340	96840	88740	78450	72250
31	90680	---	94190	96260	---	99280	---	98190	---	88200	78140	---
MAX	90690	92910	94290	96260	98860	99540	99380	98500	98140	96780	87700	77870
MIN	76490	90760	92910	94240	96260	98860	97100	96890	94970	88200	78140	72250
(†)	1926.19	1926.69	1926.96	1927.36	1927.86	1927.94	1927.52	1927.73	1927.47	1925.67	1923.17	1921.51
(‡)	+13540	+2180	+1330	+2070	+2600	+420	-2180	+1090	-1350	-8640	-10060	-5890

CAL YR 1981 MAX 100400 MIN 76490 ‡ +11940
WTR YR 1982 MAX 99540 MIN 72250 ‡ -4890

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet
NOTE.--Elevation is not representative of total combined contents below 1,926.5 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 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	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 20...	0930	720	14.5	210	48	42	25	64

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 20...	2.2	5.7	160	50	110	.4	13	406

08131400 PECAN CREEK NEAR SAN ANGELO, TX

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

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

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

REVISED RECORDS.--WDR TX-75-3: 1971, 1972(M). WRD TX-81-3: Drainage area.

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

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

AVERAGE DISCHARGE.--21 years, 2.38 ft^3/s (0.0674 m^3/s), 0.39 in/yr (10 mm/yr), 1,720 acre-ft/yr (2.12 hm^3/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 110 ft^3/s (3.12 m^3/s) Oct. 13 at 0500 hours, gage height, 1.00 ft (0.305 m), no other peak above base of 100 ft^3/s (2.83 m^3/s); no flow for many days in July, August, and September.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.0	2.0	1.0	2.0	1.6	.50	1.0	.92	.93	.00	.00
2	1.1	2.0	2.0	1.0	1.0	1.4	.56	1.0	.10	.10	.00	.00
3	.63	2.0	2.0	1.4	1.0	1.3	1.0	1.0	.10	.10	.00	.00
4	.10	2.0	1.5	2.0	1.0	1.0	1.0	1.0	.10	.10	.00	.00
5	.10	2.0	1.0	1.1	1.0	1.0	1.0	2.6	.81	.10	.00	.00
6	.11	2.0	1.0	1.0	1.4	1.0	.60	1.8	.10	.09	.00	.00
7	2.2	2.0	1.0	1.0	2.0	1.0	.50	.47	.10	.10	.00	.00
8	2.7	2.8	1.0	1.0	2.0	1.0	.20	.04	.10	.10	.00	.00
9	2.4	2.6	1.0	1.0	2.0	1.0	.20	.00	.10	.09	.00	.00
10	2.0	2.0	1.0	1.0	1.0	1.0	.20	.00	.10	.09	.00	.00
11	2.0	2.5	1.0	1.5	.56	1.0	.32	.00	.10	.08	.00	.00
12	2.0	2.7	1.0	2.0	.10	1.0	.50	.49	.10	.07	.00	.00
13	36	2.7	1.0	2.0	.10	1.0	.50	1.0	.10	.07	.00	.00
14	7.3	2.7	1.0	1.2	.10	.50	.42	.17	.10	.06	.00	.00
15	3.5	2.7	1.0	1.0	.10	.50	1.0	.01	.00	.05	.00	.00
16	2.7	2.7	1.0	1.5	.10	.50	1.0	.00	.00	.03	.00	.00
17	2.7	2.7	1.0	1.2	.10	.50	.60	.00	.00	.01	.00	.00
18	2.6	2.7	1.0	1.5	.10	.50	.50	.00	.30	.00	.00	.00
19	1.5	2.7	1.0	1.5	.10	.55	.67	.00	1.7	.00	.00	.00
20	1.5	2.7	1.0	1.6	.10	.58	1.0	.00	2.7	.00	.00	.00
21	1.7	2.7	1.0	1.7	.10	.50	1.0	5.2	2.2	.00	.00	.00
22	19	2.7	1.0	1.8	.67	.50	1.0	3.0	.51	.00	.00	.00
23	7.8	2.7	1.0	1.9	1.0	.50	1.0	2.0	2.0	.00	.00	.00
24	4.3	2.7	1.0	2.0	1.0	.50	1.0	2.0	2.7	.00	.00	.00
25	3.7	2.7	1.0	2.0	3.4	.50	1.0	1.2	6.5	.00	.00	.00
26	2.6	2.5	1.0	2.0	3.8	.50	1.0	1.0	4.1	.00	.00	.00
27	2.0	2.0	1.0	2.0	2.5	.50	1.0	1.0	2.4	.00	.00	.00
28	2.0	2.0	1.0	2.0	2.0	.50	1.0	1.0	.10	.00	.00	.00
29	2.0	2.0	1.0	2.0	---	.50	1.0	1.0	.75	.00	.00	.00
30	2.0	2.0	1.0	2.6	---	.50	1.0	1.0	1.0	.00	.00	.00
31	2.0	---	1.0	2.7	---	.50	---	1.0	---	.00	.00	---
TOTAL	124.04	72.2	34.5	49.2	30.33	23.43	22.27	29.98	29.89	2.17	.00	.00
MEAN	4.00	2.41	1.11	1.59	1.08	.76	.74	.97	1.00	.070	.000	.000
MAX	36	2.8	2.0	2.7	3.8	1.6	1.0	5.2	6.5	.93	.00	.00
MIN	.10	2.0	1.0	1.0	.10	.50	.20	.00	.00	.00	.00	.00
CFSM	.05	.03	.01	.02	.01	.009	.009	.01	.01	.001	.000	.000
IN.	.06	.03	.02	.02	.01	.01	.01	.01	.01	.00	.00	.00
AC-FT	246	143	68	98	60	46	44	59	59	4.3	.00	.00

CAL YR 1981 TOTAL 1192.85 MEAN 3.27 MAX 36 MIN .10 CFSM .04 IN .53 AC-FT 2370
WTR YR 1982 TOTAL 418.01 MEAN 1.15 MAX 36 MIN .00 CFSM .01 IN .19 AC-FT 829

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 11,880 acre-ft (14.6 hm³) Oct. 13, gage height, 31.88 ft (9.717 m); minimum, 10,120 acre-ft (12.5 hm³) Mar.8, Apr. 5, 6, gage height, 30.75 ft (9.373 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 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10250	11170	10290	10230	10470	10270	10260	10270	10230	10600	10520	10360
2	10290	11090	10260	10250	10430	10250	10220	10270	10220	10530	10570	10360
3	10320	11050	10250	10250	10400	10200	10190	10260	10190	10440	10530	10360
4	10370	11050	10250	10250	10370	10160	10180	10220	10190	10360	10440	10370
5	10390	10950	10290	10250	10360	10130	10120	10360	10180	10260	10390	10370
6	10400	10920	10270	10230	10340	10130	10120	10320	10160	10190	10390	10390
7	10550	10890	10270	10230	10330	10130	10150	10300	10150	10220	10470	10400
8	10500	10820	10290	10260	10300	10120	10150	10290	10150	10260	10660	10400
9	10470	10770	10290	10270	10300	10160	10130	10290	10200	10260	10760	10390
10	10500	10730	10300	10250	10290	10200	10130	10290	10250	10250	10730	10360
11	10580	10690	10290	10290	10270	10220	10150	10290	10340	10290	10650	10340
12	10820	10660	10290	10270	10250	10230	10180	10270	10460	10430	10550	10330
13	11880	10630	10300	10370	10230	10250	10200	10290	10370	10460	10530	10340
14	11850	10610	10290	10400	10230	10270	10230	10250	10290	10520	10530	10330
15	11770	10570	10270	10410	10200	10290	10260	10220	10270	10550	10530	10330
16	11690	10530	10260	10410	10190	10260	10220	10200	10320	10530	10530	10340
17	11610	10500	10230	10470	10180	10260	10180	10180	10360	10520	10520	10360
18	11540	10470	10230	10470	10150	10260	10180	10200	10390	10530	10520	10370
19	11460	10400	10230	10470	10150	10250	10150	10250	10600	10520	10500	10390
20	11400	10370	10230	10490	10200	10220	10130	10270	10850	10460	10470	10370
21	11400	10330	10230	10530	10220	10370	10190	10330	10950	10360	10440	10370
22	11620	10300	10190	10550	10230	10370	10320	10390	10900	10330	10410	10400
23	11590	10290	10190	10570	10230	10340	10330	10390	10840	10320	10370	10400
24	11560	10300	10180	10580	10220	10300	10360	10390	10770	10320	10320	10360
25	11480	10320	10180	10570	10360	10260	10320	10370	10770	10220	10270	10370
26	11450	10290	10160	10570	10360	10250	10290	10320	10730	10190	10260	10360
27	11400	10290	10160	10500	10330	10230	10270	10270	10970	10180	10230	10330
28	11350	10290	10150	10500	10300	10250	10270	10270	10900	10180	10220	10290
29	11300	10300	10160	10500	---	10270	10270	10270	10820	10230	10250	10270
30	11270	10300	10220	10520	---	10260	10260	10270	10730	10340	10270	10250
31	11190	---	10190	10500	---	10250	---	10250	---	10460	10330	---
MAX	11880	11170	10300	10580	10470	10370	10360	10390	10970	10600	10760	10400
MIN	10250	10290	10150	10230	10150	10120	10120	10180	10150	10180	10220	10250
(†)	31.45	30.88	30.80	31.02	30.88	30.84	30.85	30.84	31.16	30.99	30.90	30.84
(‡)	+990	-890	-110	+310	-200	-50	+10	-10	+480	-270	-130	-80

CAL YR 1981 MAX 11880 MIN 9940 ‡ -300
WTR YR 1982 MAX 11880 MIN 10120 ‡ +50

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

08132000 LAKE NASWORTHY NEAR SAN ANGELO, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	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 20...	0830	850	21.0	230	57	48	26	88

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 20...	2.8	5.1	170	64	150	.5	16	500

08133500 NORTH CONCHO RIVER AT STERLING CITY, TX

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

DRAINAGE AREA.--588 mi² (1,523 km²), of which 19.6 mi² (50.8 km²) probably is noncontributing.

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

REVISED RECORDS.--WSP 1512: 1945, 1948. WRD TX-81-3: 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.--43 years, 8.32 ft³/s (0.236 m³/s), 6,030 acre-ft/yr (7.43 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,300 ft³/s (462 m³/s) July 6, 1948, gage height, 23.70 ft (7.224 m); no flow at times each year.
Maximum stage since at least 1891, that of July 6, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 268 ft³/s (7.59 m³/s) June 28 at 0730 hours, gage height, 7.26 ft (2.213 m), no peak above base of 300 ft³/s (8.50 m³/s); no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.15	.26	7.1	.26	.60	.41	.14	3.3	.00	.00
2	.00	.00	.11	.26	3.5	.29	.80	.45	.05	.63	.00	.00
3	.00	.00	.13	.24	2.4	.46	.55	.49	.05	.35	.00	.00
4	.00	.00	.15	.34	3.1	.83	.34	.68	.04	.24	.00	.00
5	.00	.00	.15	.26	3.3	.28	.42	1.2	.03	.20	.00	.00
6	.00	.00	.21	.29	3.1	.16	.31	1.4	.01	.15	.00	.00
7	.00	.00	.22	.23	3.9	.20	.43	.37	.02	.18	.00	.00
8	.00	.00	.19	.22	4.7	.26	.50	.13	.00	.19	.00	.00
9	.00	.00	.20	.25	5.3	.39	.53	.09	.00	.13	.00	.00
10	.00	.00	.18	.36	8.1	.45	.50	.10	.02	.10	.00	.00
11	.00	.00	.17	.38	5.5	1.0	.51	.07	.03	.12	.00	.00
12	.00	.00	.17	.49	3.2	.53	.34	.09	8.7	8.3	.00	.00
13	.00	.00	.22	.67	1.7	1.1	.29	.31	26	.25	.00	.00
14	.00	.00	.21	.84	.24	4.1	.24	.50	16	.09	.00	.00
15	.00	.00	.19	.92	.17	.72	.23	.08	3.0	.05	.00	.00
16	.00	.00	.18	1.1	2.8	1.6	.16	.03	.16	.04	.00	.00
17	.00	.00	.20	1.0	6.1	.84	.12	.00	.05	.04	.00	.00
18	.00	.01	.16	1.1	3.4	.63	.08	.03	.03	.03	.00	.00
19	.00	.02	.22	.69	3.0	.72	.00	.03	1.8	.03	.00	.00
20	.00	.01	.25	.87	3.5	.91	.00	.02	9.1	.02	.00	.00
21	.00	.04	.24	.99	3.5	.80	.00	5.6	18	.02	.00	.00
22	.00	.07	.27	.78	1.2	.28	.03	12	5.9	.01	.00	.00
23	.00	.07	.19	.91	2.3	.34	.07	1.0	.92	.00	.00	.00
24	.00	.06	.18	2.1	2.7	.19	.18	49	.14	.00	.00	.00
25	.00	.07	.25	1.2	3.2	.16	.23	23	.05	.00	.00	.00
26	.00	.08	.31	.79	3.0	.14	.24	4.2	.23	.00	.00	.00
27	.00	.07	.28	1.6	1.4	.29	.47	.38	42	.00	.00	.00
28	.00	.07	.24	1.6	.30	.35	.33	.20	146	.00	.00	.00
29	.00	.08	.22	2.0	---	.51	.33	.12	26	.00	.00	.00
30	.00	.17	.27	5.6	---	.76	.31	.08	9.9	.00	.00	.00
31	.00	---	.29	5.2	---	.69	---	.38	---	.00	.00	---
TOTAL	.00	.82	6.40	33.54	91.71	20.24	9.14	102.44	314.37	14.47	.00	.00
MEAN	.000	.027	.21	1.08	3.28	.65	.30	3.30	10.5	.47	.000	.000
MAX	.00	.17	.31	5.6	8.1	4.1	.80	49	146	8.3	.00	.00
MIN	.00	.00	.11	.22	.17	.14	.00	.00	.00	.00	.00	.00
AC-FT	.00	1.6	13	67	182	40	18	203	624	29	.00	.00

CAL YR 1981 TOTAL 357.54 MEAN .98 MAX 46 MIN .00 AC-FT 709
WTR YR 1982 TOTAL 593.13 MEAN 1.63 MAX 146 MIN .00 AC-FT 1180

08134000 NORTH CONCHO RIVER NEAR CARLSBAD, TX

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

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1512: 1924(M), 1925, 1926(M), 1928, 1930, 1932(M), 1935, 1937-38(M), 1941(M), 1945(M), 1947-49(M). WRD TX-81-3: Drainage area.

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

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

AVERAGE DISCHARGE.--58 years, 34.5 ft³/s (0.977 m³/s), 25,000 acre-ft/yr (30.8 hm³/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 13	0700	*3,160	89.5	10.70	3.261
May 24	0800	1,820	51.5	8.77	2.673

Minimum discharge, no flow Aug. 25 to Sept. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	8.9	6.4	5.2	5.6	5.2	4.8	5.6	8.0	16	1.0	.00
2	.02	9.8	6.0	6.0	5.6	4.8	5.6	5.6	8.0	12	.87	.00
3	.02	9.4	6.0	6.0	5.2	5.2	5.2	5.6	8.9	10	.75	.00
4	.01	9.8	6.0	5.6	4.8	5.6	5.2	5.2	7.6	8.9	.64	.00
5	.01	10	6.0	5.6	5.2	5.2	4.8	6.0	6.4	7.6	.54	.00
6	16	11	6.0	6.0	4.5	4.8	4.8	9.8	5.6	7.2	.45	.00
7	19	10	6.0	6.4	4.5	4.5	5.2	7.2	5.6	6.8	.30	.00
8	5.6	9.8	6.0	6.0	4.5	4.8	5.6	6.0	5.2	6.4	.64	.00
9	5.6	8.9	6.0	6.0	4.5	4.8	5.2	6.0	4.8	6.0	1.5	.00
10	4.1	8.0	6.0	5.6	4.1	4.5	5.2	6.4	4.5	5.6	1.5	.00
11	3.2	8.5	5.6	5.2	4.5	5.2	5.6	6.0	4.1	5.2	1.7	.00
12	3.1	8.0	5.6	5.2	4.1	5.2	6.0	5.2	14	6.8	1.7	.00
13	627	8.0	5.6	5.6	4.1	5.6	5.6	8.9	9.4	7.6	1.5	.00
14	26	8.0	5.6	5.6	4.1	5.6	6.0	6.0	12	11	1.0	.00
15	10	8.5	5.6	5.6	4.1	5.2	6.4	6.0	14	7.6	.75	.00
16	7.2	8.0	5.6	5.2	4.5	5.6	5.6	5.2	14	6.4	.64	.00
17	6.8	7.6	5.6	4.8	4.1	5.2	4.8	5.2	9.8	5.6	.45	.00
18	6.8	8.0	5.6	5.2	4.1	5.6	4.5	5.2	7.6	4.1	.45	.00
19	6.4	6.8	5.6	5.6	4.1	5.6	4.8	5.2	13	3.8	.30	.00
20	6.0	6.4	6.0	6.0	4.5	5.6	4.5	4.8	12	3.8	.30	.00
21	7.2	6.4	6.0	6.0	4.8	7.2	4.5	4.8	15	3.2	.18	.00
22	17	6.4	5.6	6.0	5.2	6.8	5.2	15	12	2.9	.14	.00
23	9.4	6.4	5.2	5.6	5.2	6.0	6.0	8.1	12	2.4	.04	.00
24	7.6	6.0	4.8	5.6	5.6	6.0	5.6	359	12	2.4	.02	.00
25	7.2	5.6	4.8	6.0	7.2	5.2	5.6	52	12	2.1	.00	.00
26	6.8	5.6	5.2	5.6	6.0	5.2	5.6	36	8.9	1.9	.00	.00
27	7.2	5.6	5.2	5.6	5.6	5.2	5.2	21	22	1.7	.00	.00
28	7.6	5.6	5.6	6.0	5.2	5.2	5.2	15	38	1.5	.00	.00
29	7.6	5.6	5.2	6.4	---	4.8	5.2	12	105	1.3	.00	.00
30	7.6	6.4	4.8	7.2	---	4.8	5.2	9.8	26	1.3	.00	.00
31	8.5	---	5.2	6.0	---	4.8	---	8.9	---	1.0	.00	---
TOTAL	846.58	233.0	174.4	178.4	135.5	165.0	158.7	662.7	437.4	170.1	17.36	.00
MEAN	27.3	7.77	5.63	5.75	4.84	5.32	5.29	21.4	14.6	5.49	.56	.000
MAX	627	11	6.4	7.2	7.2	7.2	6.4	359	105	16	1.7	.00
MIN	.01	5.6	4.8	4.8	4.1	4.5	4.5	4.8	4.1	1.0	.00	.00
AC-FT	1680	462	346	354	269	327	315	1310	868	337	34	.00

CAL YR 1981 TOTAL 2836.32 MEAN 7.77 MAX 627 MIN .00 AC-FT 5630
WTR YR 1982 TOTAL 3179.14 MEAN 8.71 MAX 627 MIN .00 AC-FT 6310

08134000 NORTH CONCHO RIVER NEAR CARLSBAD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
NOV 24...	0940	5.8	1110	7.7	12.5	0	6.0	--	--	--	480
MAR 25...	0910	5.4	1120	7.6	16.0	5	7.0	13.4	144	3.4	470
MAY 25...	1045	48	223	7.1	17.0	50	220	9.0	100	5.3	90
JUL 27...	1030	1.8	1130	7.5	27.5	5	17	8.5	113	3.7	400

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 24...	200	100	55	59	1.3	3.7	280	90	170	.5	19
MAR 25...	210	96	55	60	1.3	3.4	260	88	180	.6	17
MAY 25...	23	25	6.6	6.9	.3	3.5	67	11	17	.2	6.7
JUL 27...	160	81	48	70	1.7	3.8	240	77	160	.6	23

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 24...	666	10	9	--	<.020	<.10	<.070	--	.53	.020	2.2
MAR 25...	656	14	9	--	<.020	<.10	<.060	--	.68	.030	2.3
MAY 25...	117	205	38	.08	.120	.20	.330	1.5	1.80	.380	15
JUL 27...	608	30	<2	--	<.020	<.10	<.060	--	1.10	.050	3.7

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 24...	0940	2	180	<1	<10	<1	12
MAY 25...	1045	2	48	<3	<10	1	67

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 24...	1	2	.1	<1	<1	54
MAY 25...	<1	4	.1	<1	<1	12

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

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

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area.

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

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 36,140 acre-ft (44.6 hm³) July 12, elevation, 1,885.95 ft (574.838 m); minimum daily, 31,120 acre-ft (38.4 hm³) Oct. 9, elevation, 1,883.73 ft (574.161 m).

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

1,883.0	29,560
1,884.0	31,710
1,886.0	36,260

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31270	34510	33920	33490	33330	33400	33530	32970	34990	35550	35160	33580
2	31230	34460	33870	33490	33330	33420	33490	32970	34950	35550	35060	33550
3	31180	34440	33850	33440	33280	33400	33460	32950	34930	35510	34990	33490
4	31160	34420	33830	33440	33280	33370	33460	32920	34880	35480	34930	33440
5	31140	34420	33800	33420	33280	33370	33400	33260	34830	35460	34860	33370
6	31180	34400	33800	33400	33260	33330	33350	33260	34790	35480	34830	33330
7	31180	34400	33800	33350	33240	33310	33330	33240	34740	35900	34740	33240
8	31140	34400	33800	33330	33240	33260	33310	33190	34690	35980	34810	33190
9	31120	34300	33800	33330	33240	33260	33240	33190	34670	35980	34900	33130
10	31140	34280	33800	33280	33240	33260	33220	33170	34650	35930	34860	33100
11	31180	34240	33780	33280	33240	33260	33220	33150	34860	36090	34810	33040
12	31420	34240	33760	33260	33240	33260	33190	33150	34880	36140	34740	32970
13	34330	34210	33760	33260	33240	33260	33150	33220	34860	36090	34690	32950
14	34510	34210	33760	33310	33220	33330	33170	33170	34810	36070	34650	32900
15	34530	34210	33760	33330	33220	33330	33190	33130	34760	36020	34600	32840
16	34560	34190	33710	33310	33220	33330	33150	33100	34720	36020	34510	32810
17	34510	34190	33690	33310	33220	33330	33100	33040	34690	35930	34460	32790
18	34440	34190	33670	33280	33190	33310	33080	33060	34650	35860	34420	32750
19	34420	34120	33640	33280	33190	33330	33040	33020	34950	35830	34370	32700
20	34370	34120	33640	33280	33240	33330	32990	32990	35110	35790	34350	32630
21	34420	34080	33640	33310	33240	33670	32950	33190	35090	35720	34280	32550
22	34760	34080	33620	33330	33240	33670	33020	33310	35060	35670	34210	32500
23	34740	34050	33600	33330	33240	33640	33080	33370	35020	35650	34140	32460
24	34720	34030	33600	33330	33220	33640	33040	34810	34990	35600	34050	32390
25	34670	34030	33600	33310	33440	33620	33020	35040	35090	35530	33980	32350
26	34650	34010	33530	33280	33420	33600	32970	35110	35040	35460	33960	32280
27	34630	33960	33530	33280	33400	33580	32970	35130	35390	35410	33870	32210
28	34630	33940	33530	33280	33400	33560	32970	35130	35440	35390	33830	32150
29	34580	33940	33510	33310	---	33560	32950	35090	35510	35300	33760	32100
30	34580	33940	33490	33420	---	33560	32950	35090	35550	35270	33690	32040
31	34560	---	33490	33330	---	33530	---	35040	---	35230	33620	---
MAX	34760	34510	33920	33490	33440	33670	33530	35130	35550	36140	35160	33580
MIN	31120	33940	33490	33260	33190	33260	32950	32920	34650	35230	33620	32040
(†)	1885.27	1885.00	1884.80	1884.73	1884.76	1884.82	1884.56	1885.48	1885.70	1885.56	1884.86	1884.15
(‡)	+3240	-620	-450	-160	+70	+130	-580	+2090	+510	-320	-1610	-1580

CAL YR 1981 MAX 35910 MIN 31120 ‡ +110
WTR YR 1982 MAX 36140 MIN 31120 ‡ +720

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

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

WATER-QUALITY RECORDS

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

312900100290201 O. C. FISHER LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
FEB										
11...	1242	1.00	599	8.1	7.0	1.00	11.2	97	K3	K7
11...	1243	1.70	--	--	--	--	--	--	--	--
11...	1244	10.0	599	8.2	7.0	--	11.1	96	--	--
11...	1246	20.0	598	8.2	6.5	--	11.0	94	--	--
11...	1248	30.0	598	8.2	6.5	--	10.9	93	--	--
11...	1250	33.0	597	8.2	6.5	--	10.6	91	--	--
APR										
28...	0926	1.00	656	8.1	17.0	.90	9.1	100	K2	K32
28...	0927	1.60	--	--	--	--	--	--	--	--
28...	0928	10.0	657	8.0	16.5	--	8.2	89	--	--
28...	0930	20.0	658	8.0	16.5	--	7.8	85	--	--
28...	0932	30.0	660	7.8	16.0	--	6.5	70	--	--
28...	0934	32.0	660	7.7	16.0	--	5.2	56	--	--
AUG										
17...	0820	1.00	650	7.8	28.0	1.10	7.8	107	K2	110
17...	0821	1.80	--	--	--	--	--	--	--	--
17...	0822	10.0	650	8.5	28.0	--	7.7	105	--	--
17...	0824	20.0	654	7.7	27.5	--	6.4	86	--	--
17...	0826	30.0	660	7.1	27.0	--	.9	12	--	--
17...	0828	33.0	659	7.1	27.0	--	1.0	13	--	--

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
FEB										
11...	220	55	50	22	37	1.2	12	160	40	87
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	220	58	51	22	36	1.2	13	160	39	88
APR										
28...	240	79	56	24	37	1.1	13	160	40	98
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	240	74	58	24	40	1.2	13	170	40	96
AUG										
17...	220	75	45	25	45	1.5	13	140	39	98
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	220	70	47	25	44	1.4	13	150	39	97

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB									
11...	.2	7.0	351	--	<.10	1.10	.010	<10	<1
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	<.10	.89	.020	50	10
11...	--	--	--	--	--	--	--	--	--
11...	--	7.5	353	--	<.10	1.10	.010	110	21
APR									
28...	.4	6.3	371	<.020	<.10	1.10	.050	13	<3
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	<.020	<.10	.96	.040	20	<10
28...	--	--	--	--	--	--	--	--	--
28...	--	6.6	380	<.020	<.10	1.10	.060	20	12
AUG									
17...	.3	8.1	358	--	<.10	.90	<.010	9	<1
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	<.10	1.00	.010	30	<10
17...	--	--	--	--	--	--	--	--	--
17...	--	9.5	365	--	<.10	1.80	.040	180	94

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

312937100303801 O. C. FISHER LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
FEB										
11...	1310	1.00	605	8.1	6.5	.80	11.4	97	K4	K6
11...	1312	10.0	602	8.1	6.5	--	11.3	97	--	--
11...	1314	20.0	602	8.1	6.5	--	11.3	97	--	--
11...	1316	28.0	607	8.1	6.5	--	10.9	93	--	--
APR										
28...	0947	1.00	664	8.2	17.0	.80	8.8	97	K7	74
28...	0949	10.0	665	8.2	17.0	--	8.7	96	--	--
28...	0951	20.0	667	8.1	17.0	--	8.4	92	--	--
28...	0953	28.0	660	7.8	16.0	--	6.2	67	--	--
AUG										
17...	0850	1.00	647	7.9	28.5	.90	8.3	114	K17	K29
17...	0852	10.0	654	7.7	27.5	--	6.4	86	--	--
17...	0854	20.0	658	7.1	27.5	--	1.1	15	--	--
17...	0856	29.0	661	7.2	27.0	--	1.1	15	--	--

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)
FEB									
11...	220	63	53	22	36	1.1	12	160	38
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	220	58	51	22	36	1.2	13	160	40
APR									
28...	240	66	55	24	37	1.1	13	170	40
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	240	74	58	24	38	1.2	14	170	40
AUG									
17...	210	73	44	25	45	1.5	13	140	40
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	220	80	47	25	45	1.5	13	140	39

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB									
11...	90	7.0	354	--	<.10	1.10	.010	<10	<1
11...	--	--	--	--	<.10	1.10	.010	40	20
11...	--	--	--	--	--	--	--	--	--
11...	89	7.0	354	--	<.10	1.10	.010	<10	2
APR									
28...	98	6.3	376	<.020	<.10	1.10	.010	18	<3
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	<.020	<.10	1.30	.040	40	<10
28...	90	7.3	374	.020	<.10	1.50	.050	150	21
AUG									
17...	99	8.1	358	--	<.10	1.30	.010	7	<1
17...	--	--	--	--	<.10	1.00	<.010	40	<10
17...	--	--	--	--	<.10	1.20	.020	40	<10
17...	100	8.8	362	--	<.10	1.30	.030	88	55

312907100311301 O. C. FISHER LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB								
11...	1330	1.00	608	8.2	7.0	--	12.2	105
11...	1332	7.00	609	8.1	6.5	--	11.8	101
APR								
28...	1012	1.00	665	7.8	18.5	.50	6.8	77
28...	1014	7.00	665	7.6	17.5	--	4.0	44
AUG								
17...	0920	1.00	661	8.3	29.5	--	6.7	94
17...	0922	7.00	683	7.1	28.5	--	.8	11

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

313023100321101 O. C. FISHER LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	TURBIDITY (FTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
FEB										
11...	1350	1.00	715	8.1	8.0	.60	--	11.8	104	<1
11...	1351	1.00	--	--	--	--	--	--	--	--
11...	1352	10.0	1090	7.8	8.0	--	--	11.5	102	--
11...	1354	13.0	1080	7.8	8.0	--	--	11.2	99	--
APR										
28...	1040	1.00	853	7.9	18.5	.60	--	7.5	85	K6
28...	1041	.75	--	--	--	--	--	--	--	--
28...	1042	11.0	1050	7.4	17.5	--	--	3.2	36	--
AUG										
17...	0935	1.00	681	7.8	30.5	.60	.60	7.3	104	K8
17...	0936	1.00	--	--	--	--	--	--	--	--
17...	0937	11.0	696	6.8	28.5	--	--	.3	4	--

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)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)
FEB										
11...	K5	270	94	62	29	41	1.2	11	180	51
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	440	190	92	52	62	1.4	5.0	250	91
APR										
28...	200	320	130	69	37	50	1.3	9.8	190	65
28...	--	--	--	--	--	--	--	--	--	--
28...	--	400	180	82	48	62	1.5	6.7	220	88
AUG										
17...	96	230	76	46	27	48	1.5	13	150	44
17...	--	--	--	--	--	--	--	--	--	--
17...	--	240	72	54	26	45	1.4	13	170	40

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB										
11...	110	7.2	419	--	<.10	--	1.10	.010	10	2
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	180	13	645	--	<.10	--	.87	.010	64	12
APR										
28...	140	9.3	494	<.010	<.10	<.060	1.30	.080	12	4
28...	--	--	--	--	--	--	--	--	--	--
28...	180	14	613	<.020	<.10	--	.92	.030	15	41
AUG										
17...	100	10	378	--	<.10	--	1.40	.020	9	2
17...	--	--	--	--	--	--	--	--	--	--
17...	100	14	395	--	<.10	--	2.60	.090	810	410

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

312900100290201 O. C. FISHER LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE	FEB 11,82		APR 28,82		AUG 17,82	
TIME	1243		0927		0821	
TOTAL CELLS/ML	19000		16000		46000	
DIVERSITY: DIVISION	2.2		1.6		0.7	
.CLASS	2.2		1.6		0.7	
..ORDER	2.6		1.6		1.6	
...FAMILY	3.0		2.1		1.7	
....GENUS	3.3		2.7		2.5	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..BACILLARIALES						
...NITZSCHIACEAE						
....NITZSCHIA	270	1	--	-	330	1
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	530	3	610	4	560	1
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	4300#	23	--	-	*	0
..NAVICULALES						
...GOMPHONEMACEAE						
....GOMPHONEMA	130	1	--	-	--	-
...NAVICULACEAE						
....NAVICULA	800	4	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	--	-	--	-	*	0
....TETRAEDRON	270	1	110	1	*	0
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	--	-	--	-	890	2
...MICRACTINIACEAE						
....GOLENKINIA	130	1	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	1500	8	610	4	*	0
....CHODATELLA	--	-	*	0	--	-
....KIRCHNERIELLA	--	-	170	1	--	-
....OOCYSTIS	--	-	500	3	1100	2
....SELENASTRUM	--	-	--	-	*	0
...SCENEDESMACEAE						
....CRUCIGENIA	530	3	2000	13	--	-
....SCENEDESMUS	2900#	16	3100#	20	280	1
....TETRASTRUM	1100	6	890	6	--	-
..TETRASPORALES						
...GLOEOCYSTACEAE						
....GLOEOCYSTIS	--	-	--	-	280	1
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	130	1	110	1	*	0
...VOLVOCACEAE						
....GONIUM	--	-	--	-	780	2
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	*	0
....STAURASTRUM	--	-	--	-	*	0
CHRYSOPHYTA						
.CHRYSOPHYCEAE						
..OCHROMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	2000	11	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	390	2	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	1200	8	500	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	12000#	26
....ANACYSTIS	2500	13	6100#	38	17000#	37
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	2200	5
....OSCILLATORIA	--	-	--	-	9500#	20

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

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

312900100290201 O. C. FISHER LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE	FEB 11,82		APR 28,82		AUG 17,82	
TIME	1243		0927		0821	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	1500	8	--	-	*	0
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..DINOKONTAE						
...PERIDINIACEAE						
....PERIDINIUM	270	1	--	-	--	-

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

313023100321101 O. C. FISHER LAKE SITE DC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE	FEB 11,82		APR 28,82		AUG 17,82	
TIME	1351		1041		0936	
DIVERSITY: DIVISION	1.6		1.5		0.5	
.CLASS	1.6		1.5		0.5	
..ORDER	1.8		2.1		1.8	
...FAMILY	1.9		2.6		2.0	
....GENUS	2.0		3.3		2.9	
TOTAL CELLS/ML	95000		12000		230000	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..BACILLARIALES						
...NITZSCHIACEAE						
....NITZSCHIA	2500	3	130	1	--	-
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	15000#	16	470	4	*	0
....MELOSIRA	1400	1	--	-	--	-
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	3900	4	--	-	*	0

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

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

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

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	FEB 11,82 1351		APR 28,82 1041		AUG 17,82 0936	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	--	-	--	-	*	0
....TETRAEDRON	--	-	200	2	1300	1
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	--	-	*	0
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	--	-	--	-	*	0
...OOCYSTACEAE						
....ANKISTRODESMUS	3900	4	810	7	1600	1
....CHODATELLA	*	0	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	1300	1
....OOCYSTIS	--	-	400	3	--	-
....SELENASTRUM	--	-	200	2	*	0
...SCENEDESMACEAE						
....CRUCIGENIA	1400	1	810	7	--	-
....SCENEDESMUS	2100	2	3600#	31	5000	2
....TETRASTRUM	--	-	540	5	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	*	0
....CHLAMYDOMONAS	--	-	880	7	*	0
CHRYSOPHYTA						
.CHRYSOPHYCEAE						
..OCHROMONADALES						
...DINOBRYACEAE						
....PSEUDOKEPHYRION	--	-	--	-	*	0
...OCHROMONADACEAE						
....OCHROMONAS	6000	6	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	470	4	*	0
...CRYPTOMONADACEAE						
....CRYPTOMONAS	*	0	67	1	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	19000	8
....ANACYSTIS	57000#	61	2100#	18	51000#	22
..NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	--	-	14000	6
...NOSTOCACEAE						
....ANABAENOPSIS	--	-	--	-	2500	1
....CYLINDROSPERMUM	--	-	--	-	11000	5
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	52000#	23
....OSCILLATORIA	--	-	470	4	65000#	28
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	67	1	*	0
....TRACHELOMONAS	700	1	540	5	1300	1

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

08135000 NORTH CONCHO RIVER AT SAN ANGELO, TX

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

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 568: 1916, 1918-22. WSP 1512: 1916(M), 1917-18, 1919-21(M). WRD TX-81-3: Drainage area.

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

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

AVERAGE DISCHARGE.--17 years (water years 1917-27, 1930-31, 1948-51) prior to completion of O. C. Fisher Dam, 54.5 ft³/s (1.543 m³/s), 39,490 acre-ft/yr (48.7 hm³/yr); 31 years (water years 1952-82) regulated, 8.16 ft³/s (0.231 m³/s), 5,910 acre-ft/yr (7.29 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, 913 ft³/s (25.9 m³/s) Oct. 13 at 0530 hours, gage height, 6.18 ft (1.884 m); minimum daily, 0.29 ft³/s (0.008 m³/s) Sept. 24.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.70	1.7	2.3	2.1	1.7	1.6	2.3	1.8	6.9	6.4	2.3	.51
2	1.0	1.8	1.8	2.0	1.5	1.4	2.4	2.2	6.9	6.6	2.0	.50
3	1.1	1.8	1.9	2.0	1.5	1.9	2.5	1.7	6.8	6.5	1.8	.61
4	1.2	1.8	1.5	2.5	1.4	1.7	2.0	1.6	6.9	6.4	1.6	.65
5	1.5	1.7	1.5	2.4	1.5	1.5	2.1	44	6.8	6.4	1.4	.67
6	5.3	2.3	1.3	2.0	1.5	1.6	2.3	13	6.9	6.6	1.2	.68
7	31	1.5	1.4	1.8	1.4	1.6	2.2	1.6	7.0	6.6	1.6	.53
8	1.5	1.3	1.5	1.8	1.2	1.6	2.1	1.7	7.0	6.8	2.6	.73
9	.80	2.1	1.5	1.8	1.3	1.1	2.0	2.0	7.0	6.6	2.4	.80
10	.80	2.0	1.6	1.8	1.2	1.6	2.1	1.1	7.0	6.5	2.6	.87
11	17	1.1	2.2	1.8	1.4	1.6	1.9	1.2	18	6.5	1.4	.87
12	5.8	1.3	2.3	1.7	1.3	1.5	2.0	1.5	66	7.0	1.1	.56
13	208	1.6	2.3	1.7	1.3	1.4	1.8	4.0	8.0	6.6	.92	.96
14	1.2	1.7	2.0	2.4	1.7	28	3.0	2.0	7.5	6.6	.83	1.0
15	.46	1.7	1.9	2.5	1.8	1.6	5.0	1.6	7.1	6.5	.75	.70
16	.70	2.4	2.0	1.8	1.5	1.6	4.0	1.6	6.9	6.4	.67	.63
17	1.2	2.0	2.0	1.8	.88	1.6	3.3	1.7	6.7	6.0	.65	.65
18	.88	1.0	2.0	1.8	1.6	1.9	2.4	1.6	6.6	6.0	.73	.64
19	.83	1.1	2.0	1.8	1.7	2.1	2.3	1.3	56	6.0	.73	.66
20	.82	1.6	2.0	1.8	2.5	2.0	1.9	1.3	14	5.8	.75	.66
21	1.4	1.7	1.9	1.8	2.1	82	1.7	30	44	5.6	.80	.62
22	76	1.7	1.7	1.8	1.7	7.2	3.4	73	6.7	5.0	.86	.64
23	2.6	1.8	2.2	1.7	1.6	2.3	3.6	2.6	6.5	5.6	.83	.56
24	1.7	1.8	2.1	1.3	1.5	2.1	3.5	17	6.5	5.2	.75	.29
25	1.7	1.8	1.9	1.3	34	1.9	2.1	10	21	5.2	.66	.30
26	1.8	1.8	2.0	1.5	2.2	1.8	1.4	7.4	7.2	5.0	.64	.50
27	1.7	1.8	2.0	1.5	1.4	2.6	1.7	7.2	53	3.8	.63	.64
28	1.8	1.8	2.1	1.6	1.3	1.8	1.8	8.1	7.4	2.9	.61	.56
29	1.8	1.8	2.2	1.3	---	1.6	1.7	7.1	6.9	2.6	.67	.68
30	2.0	3.2	2.2	2.8	---	2.4	1.5	7.0	6.4	2.4	.67	.72
31	1.3	---	2.2	1.8	---	2.2	---	6.9	---	2.3	.58	---
TOTAL	375.59	52.7	59.5	57.7	75.68	166.8	72.0	264.8	431.6	174.4	35.73	19.39
MEAN	12.1	1.76	1.92	1.86	2.70	5.38	2.40	8.54	14.4	5.63	1.15	.65
MAX	208	3.2	2.3	2.8	34	82	5.0	73	66	7.0	2.6	1.0
MIN	.46	1.0	1.3	1.3	.88	1.1	1.4	1.1	6.4	2.3	.58	.29
AC-FT	745	105	118	114	150	331	143	525	856	346	71	38

CAL YR 1981 TOTAL 1392.34 MEAN 3.81 MAX 208 MIN .40 AC-FT 2760
WTR YR 1982 TOTAL 1785.89 MEAN 4.89 MAX 208 MIN .29 AC-FT 3540

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
FEB 11...	0950	1.4	2180	8.0	7.5	5	6.5	15.7	138	2.9	620
APR 28...	1525	1.6	1930	7.9	22.5	5	21	13.9	172	4.9	530
AUG 17...	1110	.68	1720	7.4	28.0	10	11	7.8	105	5.8	470

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
FEB 11...	260	110	84	220	3.8	5.7	360	180	420	1.2	23
APR 28...	220	98	69	200	4.3	5.6	310	140	370	1.0	17
AUG 17...	170	75	69	190	4.4	5.5	300	120	350	1.0	23

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
FEB 11...	1260	16	12	2.0	.030	2.0	<.060	--	1.10	.020	5.4
APR 28...	1090	34	7	1.5	.070	1.6	<.060	--	1.40	.070	8.8
AUG 17...	1010	31	2	.86	.060	.92	.380	1.2	1.60	.050	8.3

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
FEB 11...	0950	6	200	1	10	1	30
APR 28...	1525	5	150	<3	<10	1	9
AUG 17...	1110	6	190	<1	<10	1	9

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
FEB 11...	<1	10	.2	1	<1	10
APR 28...	1	24	<.1	1	<1	<12
AUG 17...	<1	12	.2	<1	<1	7

08136000 CONCHO RIVER AT SAN ANGELO, TX

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

DRAINAGE AREA.--5,542 mi² (14,354 km²), of which 1,131 mi² (2,929 km²) probably is noncontributing.

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

REVISED RECORDS.--WSP 568: 1915-16, 1919-22. WSP 1148: 1916-22(M), 1924(M), 1925-26, 1929(M), 1930-32, 1935-37. WSP 1512: 1917-18. WSP 1712: 1936. WRD TX-81-3: 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. 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); 20 years (water years 1963-82) regulated, 23.6 ft³/s (0.668 m³/s), 17,100 acre-ft/yr (21.1 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, 4,320 ft³/s (122 m³/s) Oct. 13 at 0600 hours, gage height, 8.65 ft (2.637 m); minimum daily, 0.16 ft³/s (0.005 m³/s) Apr. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	27	17	11	15	18	20	13	18	31	6.7	5.4
2	8.4	25	17	11	12	18	8.3	18	16	24	5.4	4.8
3	8.1	25	16	11	12	23	.17	20	12	24	4.8	4.8
4	7.9	23	14	11	12	21	.16	17	8.7	24	4.8	4.8
5	8.4	21	12	11	9.7	17	.18	59	8.3	24	4.8	3.9
6	18	20	14	11	9.5	16	.19	181	9.7	24	4.8	6.9
7	179	19	14	11	9.5	15	.20	44	10	24	5.2	7.5
8	45	18	13	10	9.4	15	.27	29	10	24	17	7.5
9	28	16	13	10	9.0	15	15	23	11	24	42	9.2
10	25	16	13	10	8.4	15	24	21	9.5	24	29	11
11	67	16	13	10	7.9	14	22	19	10	24	24	14
12	55	16	13	9.5	7.5	13	22	15	359	27	21	17
13	1500	15	13	9.5	7.5	13	14	49	61	33	16	19
14	77	17	16	9.5	7.9	21	8.5	37	40	27	18	18
15	48	18	16	9.0	9.1	22	9.0	21	25	20	20	11
16	60	15	16	9.0	8.7	25	9.6	15	15	15	19	8.3
17	49	15	14	9.0	7.2	27	9.5	13	12	13	16	7.3
18	34	17	14	8.5	6.9	25	9.5	13	11	12	16	6.3
19	29	15	15	8.5	6.5	23	9.5	11	114	12	13	6.1
20	29	17	16	8.0	11	22	9.5	9.4	96	11	11	6.1
21	45	18	16	7.9	30	157	9.9	16	247	11	10	7.5
22	209	17	15	9.2	19	71	11	399	257	11	10	9.2
23	87	17	13	9.7	13	37	28	46	76	14	9.7	9.0
24	55	15	14	8.1	11	29	28	104	67	18	8.1	8.4
25	50	13	16	7.8	107	24	24	59	133	18	7.5	7.3
26	46	14	16	8.9	48	23	18	39	63	15	7.1	6.1
27	33	14	15	9.8	27	23	17	30	280	14	7.9	5.9
28	30	19	15	10	21	23	16	32	140	11	11	5.6
29	27	15	14	9.1	---	22	14	39	74	11	9.0	5.5
30	26	15	13	22	---	22	13	28	41	11	7.6	5.2
31	27	---	13	18	---	21	---	20	---	8.9	6.1	---
TOTAL	2919.2	528	449	318.0	462.7	830	370.47	1439.4	2234.2	583.9	392.5	248.6
MEAN	94.2	17.6	14.5	10.3	16.5	26.8	12.3	46.4	74.5	18.8	12.7	8.29
MAX	1500	27	17	22	107	157	28	399	359	33	42	19
MIN	7.9	13	12	7.8	6.5	13	.16	9.4	8.3	8.9	4.8	3.9
AC-FT	5790	1050	891	631	918	1650	735	2860	4430	1160	779	493

CAL YR 1981 TOTAL 10339.90 MEAN 28.3 MAX 1500 MIN 4.5 AC-FT 20510
WTR YR 1982 TOTAL 10775.97 MEAN 29.5 MAX 1500 MIN .16 AC-FT 21370

08136500 CONCHO RIVER AT PAINT ROCK, TX

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

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 458: 1915-16. WSP 568: 1919-20. WSP 1712: 1922(M). WSP 1732: 1918(M), 1923(M). WDR TX-81-3: Drainage area.

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

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

AVERAGE DISCHARGE.--47 years (water years 1916-62) prior to construction of Twin Buttes Dam, 210 ft^3/s (5.947 m^3/s), 152,100 acre-ft/yr (188 hm^3/yr); 20 years (water years 1963-82) regulated, 60.7 ft^3/s (1.719 m^3/s), 43,980 acre-ft/yr (54.2 hm^3/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximu discharge, 9,420 ft^3/s (267 m^3/s) Oct. 13 at 1700 hours, gage height, 18.00 ft (5.486 m); minimum daily, 13 ft^3/s (0.37 m^3/s) Aug. 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	60	55	52	54	71	61	35	50	91	17	25
2	27	58	55	52	61	63	61	36	44	70	18	27
3	28	58	55	52	56	59	55	33	39	56	15	26
4	30	56	53	51	52	55	53	31	38	49	15	24
5	32	55	52	52	52	53	40	37	36	44	15	22
6	35	55	54	52	52	51	34	225	31	46	13	23
7	47	55	55	51	52	49	33	322	30	48	15	25
8	122	55	53	50	51	47	32	136	28	74	13	25
9	130	55	54	53	50	45	30	72	27	51	19	25
10	67	55	53	53	46	44	29	57	28	43	27	28
11	56	53	52	52	48	42	26	48	26	36	50	29
12	56	55	52	54	47	41	28	41	26	69	42	29
13	3080	55	52	61	45	41	39	53	430	74	34	30
14	1250	55	52	59	45	40	37	55	189	41	29	31
15	318	55	52	61	45	43	40	57	78	43	25	34
16	178	55	52	60	44	41	37	55	51	37	26	38
17	134	55	52	62	43	43	27	44	36	29	32	38
18	129	55	52	66	41	36	25	39	25	28	32	36
19	93	55	52	61	40	41	26	40	24	25	33	33
20	79	54	53	58	39	38	24	67	48	26	30	31
21	74	55	53	58	40	155	22	36	237	24	23	30
22	205	55	55	57	38	308	26	177	416	23	17	30
23	458	55	53	53	45	223	33	582	156	22	18	28
24	233	55	52	53	51	117	40	958	82	23	20	28
25	140	55	52	53	63	86	43	562	68	23	19	29
26	101	55	52	50	87	72	49	237	69	24	18	30
27	90	55	52	46	144	65	46	145	556	25	18	31
28	85	55	53	48	89	64	39	102	899	24	17	27
29	75	55	51	51	---	64	42	71	280	21	19	28
30	67	55	52	53	---	64	36	61	137	21	24	26
31	64	---	52	52	---	62	---	62	---	17	26	---
TOTAL	7510	1659	1637	1686	1520	2223	1113	4476	4184	1227	719	866
MEAN	242	55.3	52.8	54.4	54.3	71.7	37.1	144	139	39.6	23.2	28.9
MAX	3080	60	55	66	144	308	61	958	899	91	50	38
MIN	27	53	51	46	38	36	22	31	24	17	13	22
AC-FT	14900	3290	3250	3340	3010	4410	2210	8880	8300	2430	1430	1720

CAL YR 1981	TOTAL	27394.9	MEAN 75.1	MAX 3080	MIN 5.6	AC-FT	54340	
WTR YR 1982	TOTAL	28820.0	MEAN 79.0	MAX 3080	MIN 13	AC-FT	57160	

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to current year.
WATER TEMPERATURES: October 1967 to current year.
SUSPENDED SEDIMENT DISCHARGE: February 1978 to September 1981.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,110 micromhos Apr. 20, 24, 25, 1974; minimum daily, 268 micromhos Sept. 9, 1980.
WATER TEMPERATURES (1967-73, 1975-82): Maximum daily, 35.0°C on several days during summer months; minimum daily, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,190 mg/L Sept. 9, 1980; minimum daily mean, 3 mg/L Feb. 2, 1979.
SEDIMENT LOADS: Maximum daily, 269,000 tons Sept. 9, 1980; minimum daily, 0.0 tons on several days during September 1980.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,620 micromhos Mar. 5; minimum daily, 473 micromhos May 26.
WATER TEMPERATURES: Maximum daily, 35.0°C July 11; minimum daily, 5.0°C Jan. 12, 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
OCT 21...	1715	80	1070	7.7	20.3	20	17	9.2	107	1.2	340
DEC 15...	0815	52	2350	7.9	10.5	5	12	8.9	84	2.6	800
JAN 04...	1245	51	2450	--	11.0	--	--	--	--	--	760
FEB 09...	1045	52	2540	7.8	6.5	5	6.9	13.3	115	2.3	800
APR 13...	0900	41	2180	7.9	21.0	10	15	10.1	122	2.7	690
JUN 22...	1015	450	1430	7.7	27.6	15	27	9.2	123	2.2	420
AUG 19...	1330	33	2220	7.7	29.5	10	24	8.3	114	4.2	660

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 21...	210	82	33	88	2.3	5.9	130	110	210	.3	14
DEC 15...	580	180	86	210	3.2	4.8	220	280	490	.6	14
JAN 04...	550	170	82	230	3.6	4.9	210	300	520	.7	17
FEB 09...	580	180	86	230	3.5	5.5	220	320	500	.7	21
APR 13...	500	150	76	210	3.5	5.2	190	270	460	.6	14
JUN 22...	270	99	43	130	3.0	5.6	150	150	280	.5	20
AUG 19...	490	140	75	220	3.7	5.4	170	290	480	.6	23

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 21...	621	22	10	4.1	.040	4.1	.110	.06	.17	.120	5.2
DEC 15...	1400	19	0	11	.060	11	.080	.92	1.00	.110	3.5
JAN 04...	1450	--	--	--	--	--	--	--	--	--	--
FEB 09...	1480	28	0	13	.060	13	.130	.97	1.10	.050	4.3
APR 13...	1300	28	12	5.9	.070	6.0	<.060	--	1.60	<.010	5.1
JUN 22...	819	47	4	5.4	.060	5.5	.100	2.0	2.10	.070	6.7
AUG 19...	1340	45	16	5.2	.080	5.3	<.060	--	.90	.080	6.0

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 21...	1715	5	110	<1	0	2	<10
FEB 09...	1045	2	100	<1	10	<1	<10
JUN 22...	1015	11	140	1	<10	2	33
AUG 19...	1330	6	300	<1	60	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)
OCT 21...	1	3	.2	2	0	5
FEB 09...	<1	10	<.1	7	<1	10
JUN 22...	4	5	.1	1	<1	26
AUG 19...	2	10	.1	4	<1	20

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 21...	1715	.00	0	.00	.0	.00	.0	.00	1.0	.00	1.4

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)	ETHION, TOTAL (UG/L)
OCT 21...	.00	7.1	.00	.0	.02	.00	.2	.00	.00	.0	.00

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)
OCT 21...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00	.00

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	PERTHANE 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-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT 21...	.00	.0	.00	.00	0	.0	.00	.04	.00	.02	.00

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	7510	1090	609	12400	210	4180	100	2130	310
NOV.	1981	1659	2040	1170	5240	410	1850	230	1040	610
DEC.	1981	1637	2340	1360	6010	490	2160	280	1250	710
JAN.	1982	1686	2440	1420	6460	510	2330	300	1360	750
FEB.	1982	1520	2460	1430	5880	520	2130	300	1250	760
MAR.	1982	2223	2340	1360	8150	490	2930	280	1700	710
APR.	1982	1113	2230	1290	3880	460	1390	260	793	680
MAY	1982	4476	1330	752	9090	260	3150	140	1690	380
JUNE	1982	4184	1280	716	8090	240	2750	130	1410	360
JULY	1982	1227	1540	870	2880	300	993	160	527	440
AUG.	1982	719	2260	1310	2540	470	909	270	522	690
SEPT	1982	866	2400	1390	3260	500	1170	290	683	730
TOTAL		28820	**	**	73800	**	25900	**	14300	**
WTD. AVG.		79	1660	949	**	330	**	180	**	490

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2070	1540	2260	2440	2500	2600	2140	2250	1150	1230	1910	2480
2	2150	1530	2300	2370	2510	2500	2170	2300	1170	1280	2030	2440
3	2160	1640	2320	2460	2520	2580	2160	2330	1240	1270	2060	2450
4	2180	1690	2270	2450	2520	2600	2150	2330	1320	1280	2080	2340
5	2200	1760	2300	2410	2510	2620	1960	2360	1340	1290	2120	2430
6	2210	1820	2300	2450	2520	2600	1980	2390	1500	1320	2130	2420
7	2170	1870	2310	2470	2470	2610	2150	2160	1530	1380	2160	2410
8	2140	1940	2330	2200	2500	2580	2110	1920	1560	1390	1770	2430
9	2130	1970	2320	2470	2470	2560	2140	1840	1670	1610	2010	2440
10	2200	2000	2330	2480	2510	2550	2170	1810	1740	1630	2180	2430
11	2200	2030	2370	2490	2540	2500	2190	2000	1770	1680	2280	2420
12	2210	2050	2320	2450	2520	2250	1970	2020	1780	1770	2090	2430
13	932	2060	2340	2400	2530	2540	2020	1980	1540	1690	2340	2420
14	750	2070	2350	2280	2540	2570	2190	2000	1630	1660	2270	2400
15	528	2100	2360	2470	2550	2590	2230	2140	1680	1420	2310	2300
16	653	2120	2370	2460	2530	2600	2260	2140	1590	1560	2300	2400
17	856	2130	2380	2450	2520	2580	2310	2170	1600	1320	2290	2360
18	880	2120	2370	2430	2540	2560	2320	2160	1600	1460	2280	1820
19	899	2130	2360	2420	2560	2550	2330	2140	1540	1460	2260	2240
20	1020	2140	2130	2430	2540	2480	2340	2130	1420	1640	2270	2460
21	1080	2200	2420	2390	2550	2250	2320	2050	1610	1740	2310	2480
22	1450	2210	2090	2450	2530	2100	2340	2000	1400	1760	2240	2490
23	1650	2220	2430	2440	2550	2150	2330	1280	1350	1820	2400	2500
24	1430	2230	2410	2410	2560	2180	2390	750	1370	1770	2450	2400
25	1260	2240	2430	2500	2400	2190	2270	654	1380	1890	2460	2500
26	1250	2260	2420	2500	2220	2240	2410	473	1360	1900	2470	2090
27	1240	2280	2350	2490	2100	2290	2420	678	1140	1930	2480	2530
28	1280	2270	2430	2500	2520	2260	2450	741	946	1960	2490	2540
29	1320	2280	2460	2480	---	2250	2430	1000	950	1950	2460	2530
30	1400	2290	2410	2460	---	2170	2410	1370	1150	1860	2330	2550
31	1530	---	2420	2430	---	2150	---	1080	---	1980	2470	---
MEAN	1530	2040	2340	2440	2490	2430	2240	1760	1430	1610	2250	2400

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	---	16.0	13.0	12.0	14.0	21.0	22.0	25.0	29.0	30.0	31.0
2	25.0	17.0	14.0	14.0	11.0	17.0	22.0	---	27.0	28.0	---	30.0
3	27.0	19.0	14.0	12.0	11.0	18.0	---	20.0	28.0	---	30.0	29.0
4	---	19.0	13.0	10.0	9.0	16.0	24.0	23.0	27.0	---	28.0	30.0
5	25.0	19.0	16.0	12.0	---	14.0	23.0	20.0	28.0	31.0	28.0	29.0
6	25.0	18.0	---	---	6.0	16.0	20.0	22.0	27.0	30.0	34.0	---
7	20.0	20.0	13.0	9.0	9.0	16.0	20.0	20.0	28.0	30.0	33.0	28.0
8	20.0	18.0	14.0	10.0	9.0	18.0	21.0	20.0	28.0	30.0	31.0	27.0
9	24.0	16.0	15.0	9.0	8.0	19.0	---	21.0	29.0	30.0	32.0	28.0
10	24.0	15.0	14.0	---	12.0	20.0	20.0	---	30.0	29.0	27.0	28.0
11	22.0	---	17.0	9.0	12.0	21.0	19.0	24.0	29.0	35.0	31.0	28.0
12	25.0	15.0	16.0	5.0	12.0	20.0	19.0	26.0	30.0	32.0	30.0	27.0
13	25.0	16.0	14.0	---	12.0	19.0	27.0	26.0	---	31.0	32.0	27.0
14	24.0	18.0	12.0	6.0	---	---	26.0	25.0	30.0	32.0	31.0	27.0
15	24.0	17.0	13.0	5.0	17.0	20.0	24.0	26.0	31.0	30.0	32.0	25.0
16	25.0	16.0	13.0	6.0	14.0	21.0	25.0	26.0	29.0	31.0	30.0	25.0
17	25.0	19.0	12.0	8.0	15.0	23.0	22.0	25.0	29.0	31.0	32.0	26.0
18	---	20.0	10.0	10.0	15.0	24.0	---	25.0	28.0	32.0	32.0	27.0
19	20.0	16.0	13.0	12.0	16.0	24.0	26.0	26.0	29.0	29.0	31.0	---
20	23.0	15.0	13.0	14.0	17.0	22.0	19.0	27.0	28.0	30.0	29.0	26.0
21	24.0	15.0	14.0	14.0	---	19.0	18.0	28.0	27.0	31.0	31.0	24.0
22	16.0	---	12.0	15.0	19.0	20.0	17.0	---	28.0	32.0	31.0	22.0
23	17.0	15.0	11.0	14.0	---	21.0	17.0	26.0	28.0	32.0	29.0	22.0
24	17.0	15.0	13.0	15.0	18.0	19.0	18.0	26.0	29.0	31.0	29.0	23.0
25	15.0	16.0	---	13.0	12.0	16.0	23.0	23.0	30.0	29.0	28.0	24.0
26	17.0	---	17.0	---	9.0	15.0	20.0	25.0	---	31.0	28.0	26.0
27	16.0	15.0	12.0	12.0	12.0	14.0	21.0	25.0	29.0	---	30.0	25.0
28	20.0	14.0	11.0	12.0	12.0	17.0	22.0	25.0	31.0	30.0	29.0	24.0
29	18.0	16.0	11.0	14.0	---	---	22.0	---	30.0	32.0	30.0	25.0
30	20.0	16.0	11.0	---	---	20.0	23.0	27.0	30.0	31.0	30.0	25.0
31	18.0	---	10.0	13.0	---	20.0	---	25.0	---	30.0	30.0	---
MEAN	21.5	16.5	13.0	11.0	12.5	18.5	21.5	24.0	28.5	30.5	30.5	26.5

08136700 COLORADO RIVER NEAR STACY, TX

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

DRAINAGE AREA.--24,193 mi² (62,660 km²), approximately, of which 11,391 mi² (29,503 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-81-3: Drainage area.

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

REMARKS.--water-discharge records good. Many diversions above station for irrigation, municipal, and oilfield operation uses. Effluent from numerous sewage plants is returned to the river. Flow is affected by reservoirs upstream (see stations 08126380 and 08136000) and at times by discharge from the flood-detention pools of 42 floodwaterretarding structures with combined detention capacity of 56,730 acre-ft (69.9 hm³). These structures control runoff from 277 mi² (717 km²).

AVERAGE DISCHARGE.--14 years (water years 1969-82), 230 ft³/s (6.514 m³/s), 166,600 acre-ft/yr (205 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft³/s (1,270 m³/s) Sept. 10, 1980, gage height, 28.00 ft (8.534 m); no flow June 22 to Aug. 3, 1974, and Aug. 5-16, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since since at least 1882, 356,000 ft³/s (10,100 m³/s) Sept. 18, 1936, gage height, 64.59 ft (19.687 m), by slope-area measurement of peak flow. The flood of Sept. 18, 1936, was 4 ft (1.2 m) higher than the 1906 flood and 7 to 8 ft (2.1 to 2.4 m) higher than the 1882 flood, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 34,900 ft³/s (988 m³/s) Oct. 14 at 1400 hours, gage height, 22.96 ft (6.998 m); minimum daily, 29 ft³/s (0.82 m³/s) Sept. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	175	120	100	109	176	88	67	147	1320	69	29
2	40	166	121	98	108	140	92	69	133	939	66	31
3	38	160	119	96	108	121	87	68	117	642	59	34
4	35	156	117	98	112	114	79	68	104	511	61	38
5	36	152	117	98	107	105	74	90	96	432	58	38
6	36	151	116	96	98	89	71	195	90	377	56	36
7	75	146	115	92	100	84	63	228	89	359	51	32
8	1350	144	115	90	100	84	57	425	84	507	51	43
9	404	138	115	90	97	83	56	268	80	330	63	49
10	294	136	114	89	94	78	52	176	77	272	73	46
11	183	135	113	87	92	76	50	136	72	236	93	42
12	151	133	113	91	90	74	49	117	98	208	102	39
13	2470	131	113	97	92	73	48	116	171	194	96	193
14	28300	131	111	96	90	76	46	106	486	380	82	473
15	4030	131	111	99	85	75	56	108	327	297	70	506
16	1670	131	107	104	84	75	60	101	214	252	62	182
17	1010	131	104	104	83	81	57	98	165	220	56	129
18	636	130	104	105	82	89	53	97	146	185	53	117
19	467	126	106	107	81	87	49	86	1850	160	51	102
20	358	124	109	106	79	77	44	78	16500	144	52	84
21	293	120	107	105	78	504	41	80	3940	131	52	69
22	384	117	105	98	75	191	48	197	2490	122	50	62
23	488	117	108	96	77	288	51	381	1770	113	47	55
24	707	117	108	96	75	261	53	1280	1130	104	39	51
25	458	117	105	92	90	169	56	2360	955	100	33	48
26	329	117	102	90	111	131	63	1020	942	96	30	45
27	263	117	102	90	127	115	66	532	6040	92	30	42
28	235	117	102	90	192	104	71	382	8410	88	30	42
29	217	117	100	87	---	95	69	265	3330	83	30	42
30	200	123	101	94	---	90	67	201	1920	79	30	42
31	186	---	101	92	---	90	---	164	---	77	30	---
TOTAL	45382	4006	3401	2973	2716	3895	1816	9559	51973	9050	1725	2741
MEAN	1464	134	110	95.9	97.0	126	60.5	308	1732	292	55.6	91.4
MAX	28300	175	121	107	192	504	92	2360	16500	1320	102	506
MIN	35	117	100	87	75	73	41	67	72	77	30	29
AC-FT	90020	7950	6750	5900	5390	7730	3600	18960	103100	17950	3420	5440

CAL YR 1981 TOTAL 96847.5 MEAN 265 MAX 28300 MIN 8.2 AC-FT 192100
WTR YR 1982 TOTAL 139237.0 MEAN 381 MAX 28300 MIN 29 AC-FT 276200

08136700 COLORADO RIVER NEAR STACY, TX--Continued

WATER-QUALITY RECORDS

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

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

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

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

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,710 micromhos Mar. 20; minimum daily, 278 micromhos Oct. 14.
WATER TEMPERATURES: Maximum daily, 33.0°C July 23, 24, 28; minimum daily, 3.0°C Jan. 13, 16.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
08...	0925	2160	2420	21.0	870	740	210	84	210
MAR									
18...	0930	83	2610	21.5	810	630	170	93	250
JUN									
09...	0916	81	993	24.5	300	180	71	29	78
JUL									
14...	0945	411	1030	27.5	320	190	75	33	83
AUG									
25...	0950	33	1930	29.0	550	440	110	68	190

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT								
08...	3.1	8.8	130	620	400	.5	11	1620
MAR								
18...	3.8	4.8	180	440	540	.5	12	1620
JUN								
09...	2.1	6.1	120	140	160	.4	12	569
JUL								
14...	2.2	5.6	130	140	170	.3	12	597
AUG								
25...	3.9	6.0	110	350	380	.5	18	1190

08136700 COLORADO RIVER NEAR STACY, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	45382	436	241	29500	73	9000	45	5570	120
NOV.	1981	4006	1770	1040	11200	330	3540	260	2840	530
DEC.	1981	3401	2300	1380	12700	440	4050	380	3520	710
JAN.	1982	2973	2490	1510	12100	480	3880	430	3470	770
FEB.	1982	2716	2530	1540	11300	490	3620	440	3260	790
MAR.	1982	3895	2180	1310	13800	420	4430	370	3920	680
APR.	1982	1816	2380	1430	7010	460	2240	400	1980	740
MAY	1982	9559	1590	929	24000	290	7570	240	6090	480
JUNE	1982	51973	584	323	45300	99	13800	62	8630	170
JULY	1982	9050	977	552	13500	170	4170	120	2890	290
AUG.	1982	1725	1650	957	4460	300	1400	240	1100	490
SEPT	1982	2741	1950	1160	8580	370	2730	310	2300	600
TOTAL		139237	**	**	193000	**	60500	**	45600	**
WTD. AVG.		381	893	514	**	160	**	120	**	270

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2370	1440	2170	2400	2400	2620	2320	2310	796	621	1370	2080
2	2320	1400	2180	2360	2500	2650	2350	2340	773	647	1380	2120
3	2310	1410	2170	2390	2510	2630	2360	2370	794	740	1390	2140
4	2320	1430	2190	2430	2160	2620	2330	2380	831	785	1410	2150
5	2330	1460	2200	2460	2550	2630	2300	2390	868	820	1420	2170
6	2310	1480	2210	2470	2590	2620	2310	2080	880	855	1440	2200
7	2250	1510	2220	2440	2580	2600	2370	2090	900	932	1470	2230
8	750	1550	2230	2470	2580	2570	2380	2310	961	992	1490	2280
9	591	1580	2220	2480	2570	2630	2450	2330	991	1010	1500	2300
10	615	1620	2240	2500	2560	2620	2410	2340	1020	1060	1540	2290
11	890	1660	2260	2510	2550	2630	2450	2420	1090	975	1570	2310
12	940	1700	2270	2500	2550	2570	2470	2460	1110	892	1590	2340
13	800	1740	2280	2490	2540	2600	2490	2430	1180	914	1600	1740
14	278	1780	2290	2480	2550	2620	2480	2400	1290	1090	1660	2500
15	375	1820	2300	2470	2560	2600	2440	2390	1420	1250	1690	2490
16	413	1860	2310	2460	2560	2620	2430	2380	1590	1570	1720	1820
17	480	1890	2310	2480	2540	2630	2420	2370	1730	1560	1740	1680
18	500	1920	2320	2490	2550	2610	2410	2240	1790	1700	1770	1610
19	588	1940	2340	2510	2540	2680	2410	2210	1050	1850	1790	1160
20	653	1970	2330	2520	2550	2710	2420	2170	400	1640	1780	1000
21	715	1990	2350	2510	2560	660	2410	2190	444	1450	1750	1050
22	730	2000	2380	2520	2570	720	2400	2200	630	1360	1810	1110
23	783	2040	2370	2520	2560	2160	2390	2050	833	1300	1860	1150
24	953	2060	2380	2530	2550	2420	2380	1800	802	1260	1910	1210
25	1200	2090	2400	2540	2560	2390	2360	1440	782	1270	1940	1260
26	1250	2110	2420	2560	2550	2380	2370	667	758	1280	1970	1300
27	1300	2140	2430	2550	2570	2430	2330	754	640	1290	1980	1340
28	1330	2150	2420	2570	2590	2420	2320	790	569	1310	2000	1370
29	1350	2140	2430	2560	---	2410	2290	743	507	1340	2010	1420
30	1400	2150	2440	2530	---	2360	2310	760	559	1360	2040	1490
31	1470	---	2430	2500	---	2320	---	780	---	1380	2060	---
MEAN	1180	1800	2310	2490	2540	2420	2390	1950	933	1180	1700	1780

08136700 COLORADO RIVER NEAR STACY, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	---	15.0	---	11.0	15.0	21.0	22.0	26.0	27.0	---	31.0
2	27.0	18.0	14.0	11.0	11.0	15.0	19.0	---	28.0	27.0	31.0	31.0
3	27.0	17.0	15.0	---	7.0	16.0	20.0	24.0	30.0	29.0	32.0	32.0
4	---	19.0	14.0	10.0	10.0	16.0	---	24.0	28.0	---	31.0	29.0
5	25.0	19.0	12.0	10.0	5.0	14.0	22.0	24.0	28.0	---	30.0	---
6	26.0	19.0	---	13.0	5.0	13.0	20.0	20.0	---	29.0	32.0	---
7	23.0	19.0	15.0	8.0	---	---	19.0	21.0	29.0	28.0	31.0	29.0
8	20.0	---	15.0	8.0	6.0	13.0	21.0	23.0	29.0	30.0	---	30.0
9	22.0	16.0	16.0	8.0	7.0	15.0	19.0	---	30.0	30.0	29.0	29.0
10	23.0	16.0	17.0	---	7.0	16.0	20.0	22.0	30.0	31.0	30.0	29.0
11	---	---	16.0	4.0	8.0	16.0	---	23.0	31.0	---	31.0	28.0
12	---	17.0	15.0	5.0	10.0	20.0	22.0	25.0	27.0	29.0	31.0	---
13	24.0	17.0	---	3.0	10.0	20.0	25.0	26.0	---	31.0	30.0	25.0
14	23.0	17.0	13.0	3.0	---	---	25.0	25.0	29.0	30.0	31.0	27.0
15	24.0	---	12.0	5.0	---	22.0	25.0	27.0	29.0	30.0	---	26.0
16	25.0	18.0	13.0	3.0	15.0	22.0	27.0	---	29.0	30.0	32.0	---
17	25.0	18.0	10.0	---	15.0	23.0	22.0	25.0	30.0	30.0	31.0	26.0
18	---	19.0	9.0	5.0	15.0	25.0	---	27.0	30.0	---	31.0	30.0
19	22.0	18.0	6.0	8.0	15.0	23.0	25.0	27.0	28.0	30.0	31.0	28.0
20	22.0	16.0	---	9.0	16.0	23.0	19.0	28.0	---	---	32.0	26.0
21	21.0	15.0	10.0	10.0	---	---	19.0	26.0	24.0	32.0	32.0	25.0
22	18.0	---	10.0	12.0	28.0	15.0	18.0	27.0	27.0	32.0	---	24.0
23	16.0	15.0	9.0	12.0	28.0	17.0	17.0	---	28.0	33.0	31.0	26.0
24	16.0	15.0	10.0	---	20.0	19.0	18.0	25.0	28.0	33.0	31.0	26.0
25	---	16.0	---	18.0	14.0	17.0	---	25.0	27.0	31.0	30.0	25.0
26	17.0	---	11.0	17.0	11.0	16.0	20.0	25.0	29.0	32.0	30.0	---
27	18.0	14.0	---	18.0	12.0	14.0	21.0	26.0	---	32.0	30.0	26.0
28	18.0	15.0	8.0	12.0	---	---	22.0	27.0	27.0	33.0	30.0	25.0
29	19.0	---	8.0	---	---	13.0	23.0	29.0	27.0	32.0	---	26.0
30	21.0	15.0	8.0	14.0	---	19.0	23.0	---	28.0	31.0	31.0	25.0
31	21.0	---	10.0	---	---	17.0	---	---	---	32.0	31.0	---
MEAN	22.0	17.0	12.0	9.5	12.5	17.5	21.0	25.0	28.5	30.5	31.0	27.5

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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

REMARKS.--Water-discharge records good. Many diversions above station for irrigation, muincipal supply, and oilfield operation. Flow is affected by reservoirs upstream (see stations 08126380 and 08136000) and at times by discharge from the flood-detention pools.

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); 14 years (water years 1969-82) partially regulated, 279 ft³/s (7.901 m³/s), 202,100 acre-ft/yr (249 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, 26,000 ft³/s (736 m³/s) Oct. 14 at 2400 hours, gage height, 29.65 ft (9.037 m); minimum daily, 22 ft³/s (0.62 m³/s) Oct. 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	198	133	110	102	188	115	106	201	2270	94	33
2	24	190	130	110	112	198	156	90	174	1560	86	31
3	23	182	131	107	121	155	170	79	157	1140	79	29
4	23	180	129	105	114	128	130	78	136	839	74	33
5	23	174	127	105	115	108	107	146	120	680	69	40
6	22	170	125	103	114	98	96	2460	107	563	70	41
7	25	166	124	102	108	95	92	643	100	483	68	41
8	335	165	124	98	107	89	85	372	92	463	65	40
9	987	160	123	97	105	87	79	470	84	592	103	38
10	445	151	123	93	103	87	74	292	80	395	89	43
11	334	150	124	92	103	84	71	205	75	324	86	54
12	222	149	123	95	102	82	69	162	613	281	100	50
13	520	144	123	105	102	78	65	150	288	260	120	105
14	12500	143	121	114	102	82	66	171	225	241	114	224
15	12500	143	121	112	102	82	66	141	573	431	99	663
16	5300	143	119	112	100	79	65	121	647	337	86	366
17	2200	143	117	112	98	78	73	116	289	286	75	192
18	1300	141	115	115	97	81	72	100	213	242	68	150
19	850	138	115	115	95	89	71	102	2180	218	64	132
20	560	136	114	119	95	89	66	92	12100	190	61	114
21	390	131	117	124	95	4480	64	82	15200	174	62	97
22	400	128	117	121	93	1970	82	661	4870	160	64	83
23	460	128	114	115	89	371	81	3430	2850	147	61	68
24	540	126	114	110	89	380	73	1810	2230	138	57	60
25	600	126	114	108	98	306	68	2510	1510	130	54	55
26	440	124	115	105	107	210	67	1890	1360	122	48	50
27	340	124	112	102	115	166	70	950	1430	119	46	46
28	290	124	112	102	128	144	73	802	13900	111	39	41
29	250	124	110	100	---	131	78	585	6340	106	38	39
30	228	129	110	105	---	125	133	360	3510	103	37	38
31	210	---	110	108	---	118	---	250	---	97	37	---
TOTAL	42366	4430	3706	3321	2911	10458	2577	19426	71654	13202	2213	2996
MEAN	1367	148	120	107	104	337	85.9	627	2388	426	71.4	99.9
MAX	12500	198	133	124	128	4480	170	3430	15200	2270	120	663
MIN	22	124	110	92	89	78	64	78	75	97	37	29
AC-FT	84030	8790	7350	6590	5770	20740	5110	38530	142100	26190	4390	5940

CAL YR 1981 TOTAL 101043.81 MEAN 277 MAX 12500 MIN .26 AC-FT 200400
WTR YR 1982 TOTAL 179260.00 MEAN 491 MAX 15200 MIN 22 AC-FT 355600

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 06...	0951	23	1860	24.5	490	360	99	60	190
NOV 04...	1241	179	1320	17.0	400	280	91	41	120
DEC 16...	1030	112	2220	11.0	720	550	160	78	200
JAN 27...	1201	100	2480	10.0	770	590	170	84	240
MAR 17...	0930	78	2620	21.0	820	660	170	96	250
MAY 04...	1055	79	1890	24.0	530	390	120	56	180
JUN 08...	1226	95	821	24.5	250	120	63	22	65
JUL 13...	1125	284	1020	27.5	320	170	75	33	78
AUG 24...	0955	57	1600	29.0	480	370	98	56	150

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 06...	4.2	6.0	130	260	390	.5	22	1110
NOV 04...	2.9	5.5	120	200	250	.4	10	790
DEC 16...	3.2	4.6	170	340	450	.4	5.0	1340
JAN 27...	3.8	4.5	180	420	520	.6	16	1560
MAR 17...	3.8	4.7	160	430	540	.5	11	1600
MAY 04...	3.7	4.6	140	300	380	.4	5.4	1130
JUN 08...	1.9	6.2	130	100	120	.3	10	465
JUL 13...	2.1	5.4	150	150	150	.3	11	593
AUG 24...	3.3	6.4	110	300	290	.4	13	980

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.--36.9 mi² (95.6 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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

REMARKS.--The lake is formed by a rolled earthfill dam, 3,950 ft (1,204 m) long. Appreciable storage began in April 1970, and the dam was completed in May 1970. The uncontrolled emergency spillways are two 200-foot-wide (61 m) cut channels through natural ground located at left end of dam. The service spillway is an uncontrolled 3.5- by 10.5-foot (1.1 by 3.2 m) reinforced concrete drop inlet connected to a 42-inch (1,067 mm) concrete outlet pipe. A 14-inch (356 mm) controlled drain pipe is connected to the drop inlet. There are four 4.83- by 3.50-foot (1.47 by 1.07 m) rectangular slots, two on each side, divided by a 10-inch (254 mm) concrete web. Figures given herein represent total contents. Data regarding the dam and lake are given in the follo ing 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, 10,580 acre-ft (13.0 hm³) Oct. 14, 1971, elevation, 1,881.0 ft (573.33 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, 10,580 acre-ft (13.0 hm³) Oct. 14, elevation, 1,881.0 ft (573.33 m); minimum, 2,090 acre-ft (2.58 hm³) Oct. 9-12, elevation, 1,861.6 ft (567.42 m).

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

1,861.0	1,940	1,872.0	5,720
1,865.0	3,040	1,876.0	7,690
1,869.0	4,460	1,881.0	10,580

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2160	5720	5500	5280	5110	4950	5150	4990	5240	5370	5150	4820
2	2160	5720	5500	5280	5110	4950	5150	4990	5240	5370	5150	4780
3	2140	5720	5500	5280	5110	4950	5150	4950	5240	5320	5150	4780
4	2140	5720	5450	5280	5110	4950	5110	4950	5200	5320	5110	4780
5	2140	5720	5450	5280	5070	4950	5110	4950	5200	5320	5110	4740
6	2110	5670	5450	5280	5070	4950	5110	4950	5200	5320	5110	4740
7	2110	5670	5450	5240	5070	4900	5110	4950	5200	5320	5070	4740
8	2110	5670	5410	5240	5070	4900	5110	4950	5200	5320	5070	4740
9	2090	5670	5410	5240	5070	4900	5110	4950	5200	5280	5070	4700
10	2090	5670	5410	5240	5070	4900	5110	4950	5150	5280	5070	4700
11	2090	5670	5410	5240	5030	4900	5110	4950	5150	5280	5030	4700
12	2090	5670	5410	5240	5030	4900	5110	4900	5150	5280	5030	4700
13	5720	5670	5370	5200	5030	4900	5070	5070	5150	5280	5030	4700
14	10580	5630	5370	5240	5030	5240	5070	5150	5150	5280	5030	4660
15	9360	5630	5370	5200	5030	5240	5070	5150	5150	5280	4990	4660
16	8340	5630	5370	5200	5030	5240	5070	5150	5150	5280	4990	4660
17	6860	5630	5370	5200	5030	5240	5030	5150	5150	5280	4990	4620
18	6660	5630	5370	5200	4990	5240	5030	5150	5110	5240	4990	4620
19	6470	5630	5320	5200	4990	5240	5030	5110	5110	5240	4950	4620
20	6130	5590	5320	5200	4990	5200	5030	5110	5110	5240	4950	4620
21	5950	5590	5320	5200	4990	5200	5030	5110	5200	5240	4950	4580
22	5810	5590	5320	5200	4990	5200	5030	5110	5200	5240	4950	4580
23	5760	5590	5320	5150	4990	5200	5030	5110	5200	5240	4900	4580
24	5760	5590	5320	5150	4950	5200	5030	5110	5240	5240	4900	4540
25	5720	5540	5320	5150	4990	5200	5030	5110	5280	5200	4900	4540
26	5720	5540	5280	5150	4990	5200	5030	5200	5320	5200	4860	4540
27	5720	5540	5280	5150	4990	5200	4990	5280	5370	5200	4860	4540
28	5720	5540	5280	5110	4950	5200	4990	5240	5370	5200	4860	4540
29	5720	5540	5280	5110	---	5150	4990	5240	5370	5200	4820	4540
30	5720	5540	5280	5110	---	5150	4990	5240	5370	5200	4820	4500
31	5720	---	5280	5110	---	5150	---	5240	---	5150	4820	---
MAX	10580	5720	5500	5280	5110	5240	5150	5280	5370	5370	5150	4820
MIN	2090	5540	5280	5110	4950	4900	4990	4900	5110	5150	4820	4500
(†)	1872.0	1871.6	1871.0	1870.6	1870.2	1870.7	1870.3	1870.9	1871.2	1870.7	1869.9	1869.1
(‡)	+3560	-180	-260	-170	-160	+200	-160	+250	+130	-220	-330	-320
(††)	28	25	24	30	25	28	36	32	47	76	91	44

CAL YR 1981 MAX 10580 MIN 2090 ‡ +2600 †† 387
WTR YR 1982 MAX 10580 MIN 2090 ‡ +2340 †† 486

† 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 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	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 05...	1500	931	25.0	190	79	51	15	110

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 05...	3.7	11	110	70	190	.5	7.2	521

08141000 HORDS CREEK LAKE NEAR VALERA, TX

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

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

WATER-DISCHARGE RECORDS

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

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

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 4,610 acre-ft (5.68 hm³) July 1, elevation, 1,891.45 ft (576.514 m); minimum daily, 2,280 acre-ft (2.81 hm³) June 18, elevation, 1,882.25 ft (573.710 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	3,090	1,890.0	4,160
1,886.0	2,630	1,892.0	4,790

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2930	3010	2920	2780	2680	2600	2500	2360	2330	4610	4370	4090
2	2920	3010	2910	2780	2680	2590	2500	2360	2330	4600	4360	4090
3	2920	3010	2900	2780	2670	2590	2490	2360	2320	4600	4340	4080
4	2910	3000	2900	2770	2670	2590	2490	2350	2320	4600	4320	4080
5	2900	3000	2900	2760	2670	2580	2480	2370	2310	4590	4320	4070
6	2920	3000	2900	2760	2670	2580	2470	2380	2300	4590	4310	4060
7	2940	3000	2890	2750	2660	2580	2450	2380	2300	4580	4300	4050
8	2940	3000	2890	2750	2660	2570	2450	2370	2290	4580	4330	4040
9	2940	2990	2880	2740	2650	2560	2440	2370	2290	4570	4320	4020
10	2930	2980	2880	2740	2640	2560	2430	2360	2280	4560	4320	4010
11	2930	2980	2880	2730	2640	2560	2430	2360	2280	4560	4310	4000
12	2940	2980	2880	2730	2630	2560	2420	2360	2310	4550	4300	3990
13	3070	2970	2880	2730	2630	2550	2420	2360	2300	4550	4290	3990
14	3080	2970	2870	2730	2630	2560	2420	2350	2300	4540	4280	3980
15	3080	2970	2860	2730	2620	2560	2410	2350	2300	4540	4280	3990
16	3070	2960	2860	2720	2620	2560	2410	2340	2290	4530	4270	3980
17	3070	2960	2850	2720	2620	2550	2400	2340	2290	4520	4250	3970
18	3060	2950	2850	2720	2610	2550	2400	2340	2280	4510	4240	3970
19	3050	2950	2850	2710	2610	2540	2400	2340	3090	4500	4230	3970
20	3040	2940	2840	2710	2610	2540	2400	2340	3420	4490	4220	3960
21	3060	2940	2840	2710	2610	2540	2390	2340	3520	4480	4210	3950
22	3060	2930	2840	2710	2600	2530	2390	2340	3520	4470	4200	3940
23	3050	2930	2830	2700	2600	2530	2390	2360	3520	4460	4190	3930
24	3050	2930	2820	2700	2600	2530	2390	2360	3520	4460	4180	3930
25	3040	2930	2820	2690	2610	2520	2380	2360	3610	4450	4170	3920
26	3040	2930	2810	2690	2610	2520	2370	2360	3870	4440	4160	3920
27	3030	2920	2810	2680	2610	2520	2370	2350	4540	4430	4140	3910
28	3030	2920	2800	2680	2600	2510	2360	2350	4580	4410	4130	3890
29	3030	2920	2800	2680	---	2510	2360	2350	4600	4400	4120	3880
30	3020	2920	2790	2680	---	2500	2360	2340	4600	4390	4110	3870
31	3020	---	2790	2680	---	2500	---	2340	---	4380	4100	---
MAX	3080	3010	2920	2780	2680	2600	2500	2380	4600	4610	4370	4090
MIN	2900	2920	2790	2680	2600	2500	2360	2340	2280	4380	4100	3870
(†)	1885.71	1885.29	1884.71	1884.10	1883.86	1883.36	1882.66	1882.54	1891.44	1890.73	1889.82	1889.00
(‡)	+80	-100	-130	-110	-80	-100	-140	-20	+2260	-220	-280	-230
(††)	44	30	68	81	71	58	56	14	30	32	54	46

CAL YR 1981 MAX 3870 MIN 2790 ‡ -400 †† 430
WTR YR 1982 MAX 4610 MIN 2280 ‡ +930 †† 584

† 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.

314959099333701 HORDS CREEK LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
FEB										
01...	1125	1.00	1190	7.8	8.5	.50	9.7	87	K6	K14
01...	1126	.90	--	--	--	--	--	--	--	--
01...	1127	10.0	1180	7.8	8.5	--	9.7	87	--	--
01...	1129	22.0	1180	7.8	8.5	--	9.5	86	--	--
APR										
27...	1105	1.00	1220	8.0	16.0	.70	8.2	88	<1	23
27...	1106	1.10	--	--	--	--	--	--	--	--
27...	1107	10.0	1220	7.9	16.0	--	7.0	75	--	--
27...	1109	21.0	1220	7.6	15.5	--	4.8	51	--	--
AUG										
18...	0945	1.00	815	7.6	28.0	1.13	6.3	86	K6	70
18...	0946	1.80	--	--	--	--	--	--	--	--
18...	0947	10.0	814	7.5	27.5	--	5.2	70	--	--
18...	0949	20.0	801	6.8	26.5	--	.4	5	--	--
18...	0951	27.0	721	6.8	24.0	--	.4	5	--	--

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
FEB										
01...	330	190	75	34	110	2.9	6.6	140	62	270
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	320	180	73	33	120	3.2	6.8	140	63	280
APR										
27...	330	200	75	35	120	3.2	6.7	130	67	290
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	340	210	77	35	120	3.1	7.5	130	67	290
AUG										
18...	220	100	55	21	70	2.2	6.1	120	35	170
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	190	61	47	18	57	1.9	5.3	130	17	140

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB									
01...	.2	7.3	649	--	<.10	1.10	.010	10	7
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	<.10	.93	.020	40	20
01...	--	7.3	667	--	<.10	1.10	.010	10	7
APR									
27...	.4	.1	672	<.020	<.10	1.30	.040	<9	4
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	.020	<.10	1.00	.040	30	50
27...	--	2.4	677	<.020	<.10	1.30	.070	32	290
AUG									
18...	.2	7.1	437	--	<.10	.70	.060	39	10
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	<.10	.80	.060	150	190
18...	--	--	--	--	<.10	1.10	.080	370	760
18...	--	12	378	--	<.10	2.10	.120	1200	2300

HORDS CREEK LAKE NEAR VALERA, TX--Continued

315021099341501 HORDS CREEK LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB								
01...	1155	1.00	1190	7.8	8.5	--	9.9	89
01...	1157	5.00	1190	7.8	8.5	--	9.9	89
APR								
27...	1126	1.00	1222	8.1	17.0	.60	9.0	99
27...	1128	6.00	1221	8.1	17.0	--	9.0	99
AUG								
18...	1010	1.00	818	8.2	28.0	--	6.1	84
18...	1012	10.0	820	8.0	27.5	--	4.6	62

315002099341301 HORDS CREEK LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
FEB										
01...	1205	1.00	1190	7.8	9.0	.50	10.0	92	K5	K5
01...	1207	10.0	1190	7.8	8.5	--	9.9	89	--	--
01...	1209	16.0	1190	7.8	8.5	--	9.6	86	--	--
APR										
27...	1136	1.00	1220	8.1	17.5	.50	8.8	98	K1	43
27...	1138	10.0	1220	8.1	17.0	--	8.8	97	--	--
27...	1140	13.0	1220	8.1	17.0	--	8.7	96	--	--
AUG										
18...	1020	1.00	819	7.7	28.5	1.22	6.9	95	K6	52
18...	1022	10.0	814	7.3	27.5	--	4.2	57	--	--
18...	1024	20.0	803	6.9	26.5	--	.3	4	--	--

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)
FEB									
01...	320	180	73	33	120	3.2	7.2	140	63
01...	--	--	--	--	--	--	--	--	--
01...	320	180	73	34	120	3.2	6.7	140	63
APR									
27...	330	200	76	35	120	3.1	6.9	130	68
27...	--	--	--	--	--	--	--	--	--
27...	340	210	80	35	120	3.1	7.0	130	69
AUG									
18...	220	94	55	21	72	2.3	6.1	130	36
18...	--	--	--	--	--	--	--	--	--
18...	230	110	58	21	69	2.1	6.0	120	32

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB									
01...	280	7.3	668	--	<.10	1.00	.010	<10	4
01...	--	--	--	--	<.10	1.10	.020	10	10
01...	280	7.3	668	--	<.10	1.10	.010	<10	4
APR									
27...	290	.7	675	<.020	<.10	1.00	.060	180	52
27...	--	--	--	<.020	<.10	1.40	.070	130	20
27...	290	1.6	681	<.020	<.10	1.10	.040	430	120
AUG									
18...	170	7.1	445	--	<.10	1.00	<.010	58	21
18...	--	--	--	--	<.10	1.00	.060	70	80
18...	170	11	441	--	<.10	1.40	.100	780	860

HORDS CREEK LAKE NEAR VALERA, TX--Continued

315020099344601 HORDS CREEK LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
FEB										
01...	1230	1.00	1190	7.9	8.5	--	10.0	90	K7	K5
01...	1232	2.00	1190	7.8	8.5	--	10.0	90	--	--
APR										
27...	1154	1.00	1220	8.1	18.0	.40	8.3	93	<1	86
27...	1155	.60	--	--	--	--	--	--	--	--
27...	1156	4.00	1220	8.1	18.0	--	8.3	93	--	--
AUG										
18...	1040	1.00	836	7.4	29.0	.64	4.8	67	K4	K59
18...	1041	1.00	--	--	--	--	--	--	--	--
18...	1042	5.00	832	7.1	28.5	--	2.9	40	--	--

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)
FEB									
01...	320	180	73	34	120	3.2	7.3	140	64
01...	--	--	--	--	--	--	--	--	--
APR									
27...	340	210	78	36	120	3.1	7.0	130	68
27...	--	--	--	--	--	--	--	--	--
27...	340	210	77	36	120	3.1	6.9	130	69
AUG									
18...	230	110	57	22	72	2.2	6.3	120	35
18...	--	--	--	--	--	--	--	--	--
18...	230	110	57	22	71	2.2	6.2	120	35

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB									
01...	280	7.3	670	--	<.10	1.70	.010	12	7
01...	--	--	--	--	--	--	--	--	--
APR									
27...	290	1.0	679	<.020	<.10	1.30	.060	300	76
27...	--	--	--	--	--	--	--	--	--
27...	290	.9	678	<.020	<.10	1.30	.040	210	54
AUG									
18...	180	7.1	452	--	<.10	1.00	.010	98	35
18...	--	--	--	--	--	--	--	--	--
18...	170	7.0	440	--	<.10	.90	.010	9	54

HORDS CREEK LAKE NEAR VALERA, TX--Continued

314959099333701 HORDS CREEK LAKE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE	FEB 1,82		APR 27,82		AUG 18,82	
TIME	1126		1106		0946	
TOTAL CELLS/ML	8100		25000		46000	
DIVERSITY: DIVISION	1.6		1.0		0.6	
.CLASS	1.6		1.0		0.6	
..ORDER	2.0		1.0		1.6	
...FAMILY	2.4		1.3		1.7	
....GENUS	2.7		1.9		2.3	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..BACILLARIALES						
...NITZSCHIACEAE						
....NITZSCHIA	100	1	--	-	*	0
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	770	9	10000#	41	690	1
....STEPHANODISCUS	*	0	--	-	--	-
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	*	0	--	-	*	0
..NAVICULALES						
...CYMBELLACEAE						
....CYMBELLA	*	0	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....TETRAEDRON	*	0	400	2	--	-
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	--	-	280	1
...OOCYSTACEAE						
....ANKISTRODESMUS	450	6	--	-	280	1
....OOCYSTIS	380	5	530	2	410	1
....SELENASTRUM	--	-	--	-	*	0
...SCENEDESMACEAE						
....CRUCIGENIA	3600#	45	9100#	37	--	-
....GLOEOACTINIUM	--	-	270	1	--	-
....SCENEDESMUS	210	3	3500	14	550	1
....TETRASTRUM	--	-	530	2	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	280	1
....CHLAMYDOMONAS	280	3	--	-	*	0
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	*	0
CHRYSOPHYTA						
.CHRYSOPHYCEAE						
..CHROMULINALES						
...CHRYSOCOCCACEAE						
....CHRYSOCOCCUS	--	-	--	-	*	0
..OCHROMONADALES						
...DINOBRYACEAE						
....DINOBRYON	--	-	--	-	*	0
...OCHROMONADACEAE						
....OCHROMONAS	560	7	--	-	480	1
...SYNURACEAE						
....MALLOMONAS	--	-	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	410	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	2800	6
....ANACYSTIS	1300#	16	--	-	20000#	44
....COCCOCHLORIS	70	1	--	-	--	-
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	5000	11
....OSCILLATORIA	140	2	--	-	14000#	30

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

HORDS CREEK LAKE NEAR VALERA, TX--Continued

314959099333701 HORDS CREEK LAKE AC--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	FEB 1,82 1126		APR 27,82 1106		AUG 18,82 0946	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	130	1	--	-
....PHACUS	--	-	--	-	*	0
....TRACHELOMONAS	100	1	--	-	*	0
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..DINOKONTAE						
...GLENODINIACEAE						
....GLENODINIUM	--	-	--	-	*	0

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

HORDS CREEK LAKE NEAR VALERA, TX--Continued

315020099344601 HORDS CREEK LAKE DC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE	APR 27,82	AUG 18,82
TIME	1155	1041
TOTAL CELLS/ML	34000	350000
DIVERSITY: DIVISION	1.2	0.2
.CLASS	1.2	0.2
..ORDER	1.2	1.3
...FAMILY	1.5	1.3
....GENUS	1.8	2.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)				
.BACILLARIOPHYCEAE				
..EUPODISCALES				
...COSCINODISCACEAE				
....CYCLOTELLA	8600#	25	--	-
..FRAGILARIALES				
...FRAGILARIACEAE				
....SYNEDRA	--	-	*	0
CHLOROPHYTA (GREEN ALGAE)				
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...CHLOROCOCCACEAE				
....TETRAEDRON	--	-	*	0
...DICTYOSPHAERIACEAE				
....DICTYOSPHAERIUM	--	-	*	0
...OOCYSTACEAE				
....ANKISTRODESMUS	420	1	*	0
....CHODATELLA	--	-	*	0
....KIRCHNERIELLA	--	-	*	0
....OOCYSTIS	1400	4	--	-
....SELENASTRUM	--	-	*	0
...SCENEDESMACEAE				
....CRUCIGENIA	20000#	59	--	-
....SCENEDESMUS	1700	5	*	0
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS	--	-	*	0
...PHACOTACEAE				
....PHACOTUS	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)				
.CRYPTOPHYCEAE				
..CRYPTOMONADALES				
...CRYPTOCHRYSIDACEAE				
....CHROOMONAS	980	3	*	0
...CRYPTOMONADACEAE				
....CRYPTOMONAS	280	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)				
.CYANOPHYCEAE				
..CHROOCOCCALES				
...CHROOCOCCACEAE				
....AGMENELLUM	--	-	64000#	18
....ANACYSTIS	--	-	150000#	42
..NOSTOCALES				
...NOSTOCACEAE				
....CYLINDROSPERMUM	--	-	14000	4
..OSCILLATORIALES				
...OSCILLATORIACEAE				
....LYNGBYA	--	-	21000	6
....OSCILLATORIA	560	2	94000#	27
EUGLENOPHYTA (EUGLENOIDS)				
.EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....EUGLENA	*	0	--	-
....TRACHELOMONAS	*	0	*	0

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

08141500 HORDS CREEK NEAR VALERA, TX

LOCATION.--Lat 31°50'03", long 99°32'26" (revised), Coleman County, Hydrologic Unit 12090108, on right bank 74 ft (23 m) downstream and 50 ft (15 m) south of bridge on Farm Road 503, 1.1 mi (1.8 km) downstream from Hords Creek Dam, 5.7 mi (9.2 km) north of Valera, 7.5 mi (12.1 km) west of Coleman, and 27.4 mi (44.1 km) upstream from mouth.

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,826.72 ft (556.784 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 1, 1979, at site 0.5 mi (0.8 km) downstream at datum 6.84 ft (2.08 m) lower.

REMARKS.--Water-discharge records good except those above 10 ft^3/s (0.28 m^3/s), which are fair. Flow is regulated by Hords Creek Lake (station 08141000).

AVERAGE DISCHARGE.--35 years, 1.60 ft^3/s (0.0453 m^3/s), 1,160 acre-ft/yr (1.43 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,860 ft^3/s (109 m^3/s) Apr. 30, 1956, gage height, 14.73 ft (4.490 m), at site 0.5 mi (0.8 km) downstream at datum 6.84 ft (2.08 m) lower, from rating curve extended above 1,900 ft^3/s (53.8 m^3/s); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 23.0 ft (7.01 m) July 3, 1932, from information by local residents (discharge not determined). Flood in July or September 1900 reached a stage of 3.7 ft (1.13 m) higher than that of July 1932, 12 mi (19 km) downstream from station, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 147 ft^3/s (4.16 m^3/s) June 27 at 0700 hours, gage height, 2.63 ft (0.802 m); no flow for most of year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.20	.05	.49	.03	.00
2	.00	.00	.00	.00	.00	.00	.00	.21	.04	.40	.01	.00
3	.00	.00	.00	.00	.00	.00	.00	.20	.03	.39	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.23	.03	.35	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.37	.02	.32	.00	.00
6	.00	.00	.00	.00	.00	.00	.01	.76	.02	.28	.00	.00
7	.00	.00	.00	.00	.00	.00	7.6	.43	.02	.29	.00	.00
8	.00	.00	.00	.00	.00	.00	2.0	.31	.01	.27	.00	.00
9	.00	.00	.00	.00	.00	.00	1.1	.22	.00	.22	.00	.00
10	.00	.00	.00	.00	.00	.00	.70	.19	.00	.21	.00	.00
11	.00	.00	.00	.00	.00	.00	.41	.17	.00	.22	.00	.00
12	.00	.00	.00	.00	.00	.00	.29	.17	.01	.27	.00	.00
13	.00	.00	.00	.00	.00	.00	.19	.31	.02	.26	.00	.00
14	.00	.00	.00	.00	.00	.00	.17	.21	.04	.25	.00	.00
15	.00	.00	.00	.00	.00	.00	.17	.11	.04	.20	.00	.00
16	.00	.00	.00	.00	.00	.00	.17	.09	.09	.18	.00	.00
17	.00	.00	.00	.00	.00	.00	.19	.08	.11	.17	.00	.00
18	.00	.00	.00	.00	.00	.00	.26	.08	.10	.14	.00	.00
19	.00	.00	.00	.00	.00	.00	.21	.08	11	.11	.00	.00
20	.00	.00	.00	.00	.00	.00	.19	.08	.47	.08	.00	.00
21	.00	.00	.00	.00	.00	.00	.19	.07	5.9	.08	.00	.00
22	.00	.00	.00	.00	.00	.00	.41	.07	.48	.08	.00	.00
23	.00	.00	.00	.00	.00	.00	.41	.07	.30	.08	.00	.00
24	.00	.00	.00	.00	.00	.00	.37	.06	.25	.06	.00	.00
25	.00	.00	.00	.00	.00	.00	.33	.14	.61	.06	.00	.00
26	.00	.00	.00	.00	.00	.00	.29	.21	.42	.07	.00	.00
27	.00	.00	.00	.00	.00	.00	.21	.10	26	.07	.00	.00
28	.00	.00	.00	.00	.00	.00	.15	.08	3.0	.06	.00	.00
29	.00	.00	.00	.00	---	.00	.15	.06	1.1	.06	.00	.00
30	.00	.00	.00	.00	---	.00	.18	.06	.64	.05	.00	.00
31	.00	---	.00	.00	---	.00	---	.06	---	.04	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	16.35	5.48	50.80	5.81	.04	.00
MEAN	.000	.000	.000	.000	.000	.000	.55	.18	1.69	.19	.001	.000
MAX	.00	.00	.00	.00	.00	.00	7.6	.76	26	.49	.03	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.06	.00	.04	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	32	11	101	12	.08	.00

CAL YR 1981 TOTAL 211.77 MEAN .58 MAX 26 MIN .00 AC-FT 420
WTR YR 1982 TOTAL 78.48 MEAN .22 MAX 26 MIN .00 AC-FT 156

08141500 HORDS CREEK AT VALERA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
APR 27...	1255	.20	1440	7.2	18.5	5	1.1	6.1	69	.8	460

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
APR 27...	270	140	26	120	2.6	4.2	190	130	310	.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
APR 27...	7.4	852	2	2	<.020	<.10	<.060	.64	.040	5.0

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
APR 27...	1255	1	170	<3	<10	1	13

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR 27...	<1	130	.1	<1	<1	<12

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 fair. Water is released into the canal from Lake Brownwood (station 08143000) at Brownwood Dam on Pecan Bayou. Diversions began Apr. 9, 1939. Water for irrigation and domestic use is diverted from the canal above the gage. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--32 years, 27.3 ft^3/s (0.773 m^3/s), 19,780 acre-ft/yr (24.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 77 ft^3/s (2.18 m^3/s) July 17, 1957; no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	41	43	38	33	31	29	29	29	25	30	42
2	43	41	44	38	32	31	27	28	29	23	29	42
3	43	41	44	38	32	30	27	24	29	23	28	42
4	43	41	44	38	32	30	27	11	31	22	28	42
5	46	36	44	37	32	30	29	21	35	17	19	42
6	50	23	45	37	32	29	34	36	36	21	41	42
7	43	39	43	37	31	30	34	30	37	21	45	42
8	35	37	36	37	31	28	32	25	38	20	41	40
9	35	35	39	37	31	27	29	25	39	25	40	15
10	35	34	39	36	31	27	29	24	50	31	39	18
11	34	32	38	36	31	27	29	24	59	29	37	19
12	15	30	38	36	30	27	22	24	52	31	38	21
13	38	35	38	36	30	27	4.5	25	43	23	42	21
14	39	37	38	36	30	28	12	24	42	23	42	21
15	39	37	36	35	30	28	27	24	42	22	42	22
16	38	38	32	35	5.0	28	34	25	41	22	42	23
17	38	36	32	35	.81	28	34	24	42	23	41	24
18	39	35	32	35	12	28	33	25	44	24	41	24
19	38	37	32	35	43	28	45	25	36	26	41	25
20	43	37	32	34	44	28	43	25	27	27	41	26
21	45	37	31	34	44	28	34	25	27	28	40	27
22	45	37	31	34	38	28	31	25	28	28	41	28
23	45	38	34	34	29	28	25	25	28	28	41	28
24	45	42	38	34	29	28	25	25	28	30	42	28
25	44	47	38	34	30	28	25	25	28	32	42	29
26	44	48	38	34	31	27	26	26	27	32	42	29
27	44	48	38	34	31	27	27	26	27	32	42	28
28	44	48	38	34	31	27	27	26	27	32	42	28
29	43	49	38	33	---	27	28	27	26	31	42	27
30	43	47	38	33	---	27	29	27	26	32	42	26
31	41	---	38	33	---	29	---	28	---	31	42	---
TOTAL	1260	1163	1169	1097	835.81	874	857.5	783	1053	814	1205	871
MEAN	40.6	38.8	37.7	35.4	29.9	28.2	28.6	25.3	35.1	26.3	38.9	29.0
MAX	50	49	45	38	44	31	45	36	59	32	45	42
MIN	15	23	31	33	.81	27	4.5	11	26	17	19	15
AC-FT	2500	2310	2320	2180	1660	1730	1700	1550	2090	1610	2390	1730

CAL YR 1981 TOTAL 12996.20 MEAN 35.6 MAX 51 MIN 3.1 AC-FT 25780
WTR YR 1982 TOTAL 11982.31 MEAN 32.8 MAX 59 MIN .81 AC-FT 23770

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.--1,565 mi² (4,053 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1933 to May 1941, November 1944 to current year. Fragmentary records July 1934 to April 1935, and October 1940 to May 1941. Prior to October 1970, published as Brownwood Reservoir.

REVISED RECORDS.--WSP 1212: 1948-50. WDR TX-81-3: Drainage area.

GAGE.--Nonrecording gage read once daily. Datum of gage is 0.50 ft (0.152 m) below National Geodetic Vertical Datum of 1929. Prior to November 1944, nonrecording gages or water-stage recorder at various sites at dam at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam, 1,580 ft (482 m) long. The dam was completed in 1933 and deliberate impoundment began in July 1933. The capacity table is based on a 1959 survey. The uncontrolled emergency spillway is a broad-crested weir 479 ft (146 m) long located 800 ft (240 m) to the left of dam. The controlled service spillway consists of two 12-foot (4 m) horseshoe-shaped concrete conduits. Water is released into Brown County canal through a 5-foot (2 m) circular conduit that is controlled by a slide gate in a service structure located near the right end of dam. Water is used for irrigation, municipal, and industrial supply by the city of Brownwood (see station 08142500). Flow is affected at times by discharge from the flood-detention pools of 59 floodwater-retarding structures with a combined capacity of 73,310 acre-ft (90.4 hm³). These structures control runoff from 353 mi² (914 km²) in the Jim Ned Creek and Pecan Bayou drainage basins. Figures given herein represent total contents. Data regarding the dam and lake are given in the fo lowing 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, 167,000 acre-ft (206 hm³) June 27, gage height, 1,428.1 ft (435.28 m); minimum, 96,750 acre-ft (119 hm³) Oct. 5, 6, gage height, 1,417.8 ft (432.15 m).

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

1,417.0	92,430	1,423.0	135,700
1,419.0	103,700	1,426.0	150,200
1,421.0	115,700	1,429.0	174,900

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 1800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97850	149400	142700	140600	138500	137800	137800	135700	144800	156600	139900	131500
2	97300	148600	142700	140600	138500	137800	137800	135700	144100	154200	139200	131500
3	97300	148600	142700	139900	138500	137800	137800	135700	144100	151800	139200	131500
4	97300	147800	142700	139900	138500	137800	137800	135700	143400	150200	139200	131500
5	96750	147800	142700	139900	138500	137800	137800	135700	143400	148600	138500	130800
6	96750	147800	142000	139900	138500	137800	137800	139900	143400	147000	138500	130800
7	97850	147000	142000	139900	138500	137800	137100	140600	142700	145500	137800	130100
8	97850	147000	142000	139900	138500	137800	137100	140600	142700	145500	137800	130100
9	97850	147000	142000	139900	137800	137800	137100	140600	142700	144800	137800	129400
10	97850	146200	142000	139200	137800	137100	137100	140600	142700	144100	137100	129400
11	97850	146200	142000	139200	137800	137100	136400	140600	142700	143400	137100	129400
12	97850	146200	142000	139200	137800	137100	136400	140600	142700	142700	137100	128700
13	103700	145500	142000	139200	137800	137100	136400	142000	142700	142700	136400	128700
14	119900	145500	142000	139200	137800	137800	136400	142000	142700	142700	136400	128000
15	129400	145500	142000	139200	137800	137800	136400	142000	142700	143400	135700	128000
16	137800	145500	142000	139200	137800	137800	136400	142000	142700	143400	135700	128000
17	143400	144800	142000	139200	137800	137800	135700	142000	142000	142700	135700	127300
18	150200	144800	142000	138500	137800	137800	135700	142000	142000	142700	135000	127300
19	155000	144100	141300	138500	137800	137800	135700	142000	148600	142700	135000	127300
20	156600	144100	141300	138500	137800	137800	135700	141300	153400	142700	134300	127300
21	157400	144100	141300	138500	137800	137800	135700	141300	153400	142000	134300	126600
22	158200	143400	141300	138500	137800	138500	135700	142000	155800	142000	134300	126600
23	157400	143400	141300	138500	137800	138500	135700	142000	157400	142000	133600	126600
24	155000	143400	141300	138500	137800	138500	135700	142700	157400	141300	132900	126600
25	154200	143400	141300	138500	137800	138500	135700	146200	158200	141300	132900	125900
26	153400	142700	141300	138500	137800	138500	135700	146200	159800	141300	132900	125900
27	151800	142700	140600	138500	137800	137800	135700	146200	167000	141300	132200	125900
28	151000	142700	140600	138500	137800	137800	135700	146200	164600	140600	130800	125200
29	150200	142700	140600	138500	---	137800	135000	146200	162200	140600	132200	125200
30	150200	142700	140600	138500	---	137800	135000	146200	159000	139900	132200	125200
31	149400	---	140600	138500	---	137800	---	145500	---	139900	132200	---
MAX	158200	149400	142700	140600	138500	138500	137800	146200	167000	156600	139900	131500
MIN	96750	142700	140600	138500	137800	137100	135000	135700	142000	139900	130800	125200
(†)	1425.9	1425.0	1424,7	1424.4	1424.3	1424.3	1423.9	1425.4	1427.1	1424.6	1423.5	1422.5
(‡)	+51550	-6700	-2100	-2100	-700	0	-2800	+10500	+13500	-19100	-7700	-7000

CAL YR 1981 MAX 158200 MIN 96750 ‡ +36300
WTR YR 1982 MAX 167000 MIN 96750 ‡ +27350

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

08143000 LAKE BROWNWOOD NEAR BROWNWOOD, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	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 04...	1445	490	16.0	150	49	43	9.2	36

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 04...	1.4	6.1	96	32	77	.3	5.9	267

08143500 PECAN BAYOU AT BROWNWOOD, TX

LOCATION.--Lat 31°43'54", long 98°58'25", Brown County, Hydrologic Unit 12090107, on right bank at Brownwood, 502 ft (153 m) upstream from city dam, 6.3 mi (10.1 km) downstream from Salt Creek, 10 mi (16 km) downstream from Lake Brownwood, and 48.6 mi (78.2 km) upstream from mouth.

DRAINAGE AREA.--1,660 mi² (4,299 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. WRD TX-81-3: Drainage area.

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 except those for June 24 to July 13, which are fair. 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. Flow is partly controlled by nine floodwater-retarding structures above this station and below Lake Brownwood. Gage-height and rainfall telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years (water years 1925-28, 1930-32) prior to completion of Lake Brownwood, 251 ft³/s (7.108 m³/s), 181,800 acre-ft/yr (224 hm³/yr); 50 years (water years 1933-82) partially regulated, 116 ft³/s (3.285 m³/s), 84,040 acre-ft/yr (104 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,600 ft³/s (895 m³/s) Oct. 14, 1930, gage height, 16.92 ft (5.157 m); no flow at times.
Flood of July 3, 1932, probably the greatest, reached a discharge of about 235,000 ft³/s (6,660 m³/s) as it entered Lake Brownwood (computed from rate of change in contents in the partially completed lake); data furnished by engineers of Brownwood County Water Improvement District No. 1.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 21.7 ft (6.61 m) in September 1900, from information by Gulf, Colorado, and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,780 ft³/s (135 m³/s) June 27 at 2100 hours, gage height, 5.20 ft (1.585 m); no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	155	2.7	1.2	1.6	.74	.60	1.4	177	1920	5.7	.08
2	.00	155	2.7	1.4	2.2	.61	.93	2.8	162	1610	1.3	.00
3	.00	155	3.5	1.3	3.0	.52	.85	2.7	155	1370	1.3	.00
4	.06	154	1.8	1.4	3.0	.49	.69	1.6	148	1170	3.2	.00
5	3.3	140	1.6	1.4	2.6	.50	.78	1.9	131	982	3.4	.82
6	1.3	128	2.0	1.2	2.1	.52	1.1	257	8.8	813	.84	3.7
7	6.4	119	2.5	1.1	1.9	.44	1.3	20	3.0	660	.90	4.3
8	10	135	1.8	.98	1.9	.37	1.2	8.2	1.2	464	1.2	.77
9	4.4	135	1.6	.76	1.7	.35	.65	5.2	.66	289	4.7	.00
10	2.0	129	1.5	.72	1.3	.40	.47	3.7	.36	164	3.6	.00
11	.83	103	1.4	.86	1.1	.48	.44	3.7	.00	70	.40	.00
12	.70	142	1.4	.99	1.4	.57	.51	3.5	.00	9.9	.00	.00
13	524	96	1.5	.97	1.7	.60	.44	11	.00	5.1	.00	.00
14	131	100	1.8	1.1	1.5	.94	.36	12	.11	2.7	.00	.00
15	40	103	1.8	1.2	1.5	1.0	.39	6.9	.16	.45	.00	.00
16	145	96	1.8	.96	1.6	.85	3.9	5.0	.19	.00	.00	.00
17	57	93	1.9	.83	1.2	.70	79	3.6	.21	.00	.00	.00
18	33	93	2.0	.76	1.1	.56	74	2.5	.16	.00	.00	.16
19	320	93	1.9	.60	1.1	.51	10	1.8	422	.00	.08	6.9
20	1250	93	1.3	.59	.81	.51	5.3	5.8	608	.37	5.9	7.3
21	1510	93	1.2	.53	.70	.99	2.9	5.5	701	1.7	5.5	7.4
22	2020	96	1.2	.61	.48	1.0	3.3	20	519	.88	5.0	4.6
23	1660	96	1.5	.60	.36	.83	4.6	51	658	.00	3.2	.55
24	1040	100	1.4	.59	.33	.70	3.2	24	637	.00	.02	.13
25	569	12	1.2	.53	.84	.55	2.7	84	1050	.05	.00	1.0
26	267	5.7	1.1	.44	1.3	.46	2.8	175	1220	5.4	.00	2.5
27	169	2.5	1.4	.41	1.1	.51	2.3	163	2940	4.5	.00	.04
28	155	1.8	1.3	.40	.85	.51	1.4	166	3470	2.8	.00	.03
29	155	1.5	1.2	.55	---	.43	1.1	258	2950	3.9	1.6	.00
30	155	2.1	.97	1.7	---	.51	.85	272	2360	2.1	3.7	.00
31	155	---	1.2	2.3	---	.56	---	270	---	5.2	2.8	---
TOTAL	10383.99	2827.6	52.17	28.98	40.27	18.71	208.06	1848.8	18322.85	9557.05	54.34	40.28
MEAN	335	94.3	1.68	.93	1.44	.60	6.94	59.6	611	308	1.75	1.34
MAX	2020	155	3.5	2.3	3.0	1.0	79	272	3470	1920	5.9	7.4
MIN	.00	1.5	.97	.40	.33	.35	.36	1.4	.00	.00	.00	.00
AC-FT	20600	5610	103	57	80	37	413	3670	36340	18960	108	80

CAL YR 1981 TOTAL 14182.87 MEAN 38.9 MAX 2020 MIN .00 AC-FT 28130
WTR YR 1982 TOTAL 43383.10 MEAN 119 MAX 3470 MIN .00 AC-FT 86050

08143600 PECAN BAYOU NEAR MULLIN, TX

LOCATION.--Lat 31°31'02", long 98°44'25", Mills County, Hydrologic Unit 12090107, on right bank 44 ft (13 m) downstream from bridge on Farm Road 573, 0.6 mi (1.0 km) downstream from Blanket Creek, 5.5 mi (8.8 km) southwest of Mullin, and 13.6 mi (21.9 km) upstream from mouth.

DRAINAGE AREA.--2,073 mi² (5,369 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-81-3: Drainage area.

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 except for June 25-28, which are fair. Flow is affected by Lake Brownwood 47 mi (76 km) upstream (see station 08143000). At end of year, flow from 152 mi² (394 km²) above this station and below Lake Brownwood was partly controlled by 41 floodwater-retarding structures with a combined detention capacity of 34,420 acre-ft (42.4 hm³) below the flood-spillway crests.

AVERAGE DISCHARGE.--15 years, 119 ft³/s (3.370 m³/s), 86,220 acre-ft/yr (106 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft³/s (388 m³/s) Jan. 23, 1968, gage height, 29.26 ft (8.918 m); no flow for many days in 1974, 1978, and 1980-81.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,370 ft³/s (152 m³/s) June 28 at 1000 hours, gage height, 15.85 ft (4.831 m), from floodmark; minimum, 0.75 ft³/s (0.021 m³/s) Sept. 6, 7.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	272	15	9.4	19	18	13	16	253	2120	15	3.1
2	2.7	227	17	9.4	14	15	16	30	163	1580	16	1.8
3	2.7	187	11	9.2	16	15	11	34	163	1220	17	1.3
4	2.2	158	9.1	8.6	21	14	14	22	150	1020	13	1.6
5	1.9	137	8.3	8.0	15	14	10	20	140	861	10	1.6
6	1.5	121	9.1	7.7	13	13	7.6	1450	121	731	8.0	.95
7	1.5	106	7.5	7.7	12	13	6.3	303	34	583	7.3	1.1
8	1.9	99	7.6	7.7	12	13	6.5	89	17	416	6.8	2.6
9	19	111	8.9	7.5	12	13	6.3	48	13	369	7.4	4.4
10	13	114	9.8	6.9	12	14	6.9	34	12	350	9.4	6.6
11	8.1	108	9.8	6.7	11	14	7.2	29	11	308	12	5.8
12	6.1	96	7.9	8.0	9.4	13	8.3	28	17	224	17	4.2
13	181	118	7.7	12	10	13	9.3	52	37	79	13	3.1
14	1140	79	7.2	13	10	14	11	80	26	38	9.4	2.9
15	135	81	7.5	11	11	23	12	54	20	42	7.0	3.3
16	55	79	8.0	14	11	21	13	36	17	34	6.2	6.0
17	213	79	7.5	13	12	15	12	29	15	26	5.8	4.2
18	87	80	7.7	11	12	13	69	24	13	22	6.3	2.8
19	49	76	7.3	9.8	14	12	95	23	624	19	6.5	1.9
20	836	74	6.7	9.3	11	12	39	22	2170	16	6.0	1.3
21	1600	78	6.5	8.8	8.2	695	34	20	1030	14	5.0	1.2
22	2420	75	6.2	8.5	7.0	230	31	21	982	14	3.6	3.5
23	2680	76	6.5	8.7	6.7	45	32	87	769	14	7.0	7.4
24	1670	76	6.5	11	7.0	24	39	143	942	13	8.3	7.5
25	1200	74	5.8	11	19	17	24	149	906	11	9.0	6.2
26	917	42	5.3	9.9	33	14	20	250	1610	12	9.8	6.2
27	687	18	5.8	9.4	42	14	15	203	1680	13	8.9	6.7
28	530	12	6.5	9.4	21	14	13	188	4590	22	4.6	5.3
29	425	9.4	8.8	9.3	---	14	12	178	3740	22	2.4	4.5
30	346	11	8.8	10	---	11	12	270	3000	18	4.0	4.2
31	297	---	9.0	19	---	11	---	257	---	16	3.9	---
TOTAL	15531.3	2873.4	256.3	304.9	401.3	1381	605.4	4189	23265	10227	265.6	113.25
MEAN	501	95.8	8.27	9.84	14.3	44.5	20.2	135	776	330	8.57	3.78
MAX	2680	272	17	19	42	695	95	1450	4590	2120	17	7.5
MIN	1.5	9.4	5.3	6.7	6.7	11	6.3	16	11	11	2.4	.95
AC-FT	30810	5700	508	605	796	2740	1200	8310	46150	20290	527	225

CAL YR 1981	TOTAL	23160.14	MEAN	63.5	MAX	2680	MIN	.00	AC-FT	45940
WTR YR 1982	TOTAL	59413.45	MEAN	163	MAX	4590	MIN	.95	AC-FT	117800

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

WATER-QUALITY RECORDS

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,230 micromhos May 14, 1978; minimum daily, 203 micromhos Sept. 18, 1974.
WATER TEMPERATURES: Maximum daily, 37.0°C July 18, 1979; minimum daily, 0.5°C Feb. 7, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,680 micromhos Mar. 7; minimum daily, 312 micromhos May 6.
WATER TEMPERATURES: Maximum daily, 32.0°C July 24; minimum daily, 3.0°C Jan. 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
06...	0841	1.5	1290	25.0	240	70	68	17	170
JUN									
08...	1011	16	600	25.0	170	54	53	10	48
21...	1445	1160	404	25.0	140	25	43	6.7	25
JUL									
13...	0851	79	434	27.0	140	35	45	7.8	26
AUG									
24...	0840	8.1	1400	28.0	290	110	84	20	170

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT								
06...	5.1	12	170	71	280	.4	9.1	730
JUN								
08...	1.7	6.2	120	38	84	.2	4.3	316
21...	1.0	6.7	110	22	51	.2	6.2	227
JUL								
13...	1.0	5.3	110	25	52	.2	5.7	233
AUG								
24...	4.6	9.7	180	110	290	.4	6.9	799

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	15531.3	496	274	11500	67	2800	39	1630	150
NOV.	1981	2873.4	578	319	2470	80	620	45	349	170
DEC.	1981	256.3	1000	555	384	170	117	75	52	250
JAN.	1982	304.9	1440	802	661	280	227	100	86	320
FEB.	1982	401.3	1420	790	856	270	291	100	111	320
MAR.	1982	1381	700	387	1440	110	408	53	198	190
APR.	1982	605.4	1000	555	907	170	279	74	122	250
MAY	1982	4189	522	288	3260	73	825	41	459	150
JUNE	1982	23265	438	241	15100	57	3570	34	2170	130
JULY	1982	10227	488	269	7430	65	1790	38	1060	150
AUG.	1982	265.6	1310	729	523	240	173	96	69	300
SEPT	1982	113.25	1510	840	257	290	90	110	33	330
TOTAL		59413.45	**	**	44800	**	11200	**	6330	**
WTD. AVG.		163	507	279	**	70	**	39	**	150

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1260	516	666	1370	1450	1430	601	981	566	483	1090	1380
2	1240	514	679	1400	1430	1450	620	999	570	485	1110	1370
3	1230	526	640	1420	1400	1440	633	1200	575	482	1130	1380
4	1260	542	638	1440	1350	1450	652	1240	581	482	1140	1370
5	1280	547	641	1430	1490	1500	690	1220	616	481	1160	1370
6	1320	557	672	1420	1470	1560	705	312	620	482	1200	1380
7	1290	571	684	1430	1480	1680	698	640	622	481	1180	1390
8	1230	569	700	1420	1510	1550	694	600	624	482	1160	1390
9	1500	566	714	1430	1550	1500	700	550	632	490	1130	1380
10	1570	610	744	1440	1580	1370	745	593	597	484	1120	1430
11	1600	596	816	1450	1540	1360	800	596	580	482	1210	1500
12	1660	589	860	1020	1540	1320	879	600	570	480	1380	1550
13	1290	612	980	1400	1460	1190	954	610	551	414	1410	1580
14	497	649	1060	1580	1470	1120	1040	628	581	480	1540	1610
15	340	602	1220	1590	1480	995	1090	571	608	511	1550	1630
16	362	596	1290	1580	1490	1030	1140	540	596	540	1560	1660
17	340	607	1240	1540	1480	1060	1210	927	610	530	1550	1650
18	320	611	1220	1500	1490	1080	800	994	653	540	1530	1640
19	322	616	1260	1450	1380	1130	650	1020	550	554	1510	1620
20	418	630	1250	1410	1340	1320	1640	1040	378	578	1480	1610
21	521	637	1240	1420	1330	443	1610	1010	440	590	1460	1600
22	477	640	1250	1430	1320	782	1530	976	470	626	1450	1580
23	411	644	1260	1440	1340	700	1370	870	450	660	1420	1550
24	506	619	1270	1300	1330	670	1060	749	424	657	1410	1450
25	539	632	1320	1360	1310	510	1030	806	448	680	1420	1460
26	518	625	1390	1380	1320	454	1010	600	440	700	1430	1480
27	516	627	1410	1400	1340	453	1000	472	430	721	1440	1500
28	553	623	1430	1470	1400	518	1010	470	350	815	1420	1490
29	555	629	1380	1480	---	538	1000	472	472	928	1410	1500
30	541	654	1360	1500	---	562	990	500	480	1020	1400	1470
31	528	---	1340	1480	---	609	---	558	---	1080	1390	---
MEAN	839	599	1050	1430	1430	1060	952	753	536	594	1350	1500

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

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

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

08144000 NOYES CANAL AT MENARD, TX

LOCATION.--Lat 30°54'57", long 99°47'02", Menard County, Hydrologic Unit 12090109, on right bank at intersection of Canal and Gay Streets in Menard and 4.7 mi (7.6 km) downstream from headgates.

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

GAGE.--Water-stage recorder. Datum of gage is 1,878.06 ft (572.433 m) National Geodetic Vertical Datum of 1929. Prior to July 23, 1940, nonrecording gage at site 2,000 ft (610 m) upstream at datum 4.99 ft (1.521 m) higher.

REMARKS.--Records good. Discharge represents flow diverted from San Saba River; local runoff between diversion point and gage excluded. Canal diverts water from right bank of San Saba River 4.7 mi (7.6 km) upstream from Menard for irrigation near Menard. First diversion was about 1890. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--58 years (water-years 1925-82), 13.6 ft³/s (0.385 m³/s), 9,850 acre-ft/yr (12.1 hm³/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 ft³/s (1.22 m³/s) Apr. 29, 30, 1928; no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	22	15	21	12	23	24	16	13	18	18	16
2	24	21	15	21	13	24	24	16	13	18	18	17
3	24	20	15	20	12	23	23	16	12	18	18	19
4	24	19	15	19	11	23	23	15	13	18	18	19
5	24	18	15	18	11	23	23	15	12	17	18	19
6	25	17	15	21	11	24	23	15	12	17	17	19
7	26	16	15	23	11	24	22	14	12	16	19	19
8	25	15	16	23	10	23	23	13	12	15	17	20
9	25	14	16	23	9.8	23	22	12	12	16	18	20
10	25	14	16	23	9.4	24	22	12	12	17	18	20
11	25	14	16	22	9.2	23	22	12	13	18	18	20
12	25	14	15	23	14	23	22	13	15	19	19	21
13	25	14	14	23	22	23	22	18	13	20	19	21
14	25	14	12	23	23	23	22	17	13	19	18	21
15	25	14	13	22	23	23	21	17	15	19	18	21
16	24	14	20	21	23	22	21	17	18	19	18	21
17	24	14	23	21	23	23	21	17	18	18	18	13
18	24	13	23	20	23	23	21	16	17	19	18	20
19	24	13	23	20	23	24	21	16	18	19	17	21
20	24	13	23	20	24	23	21	16	18	19	17	20
21	24	13	23	19	23	24	20	15	19	18	17	21
22	24	13	23	18	23	24	21	16	19	18	17	21
23	23	13	23	17	23	24	21	15	18	18	17	21
24	23	14	23	16	23	24	21	16	8.8	18	17	21
25	23	14	23	15	24	23	20	15	18	18	17	21
26	23	14	23	14	24	23	20	14	19	18	16	20
27	23	14	23	13	24	24	20	14	20	18	16	20
28	23	14	23	13	24	24	20	15	19	13	16	20
29	23	14	23	13	---	24	18	13	19	12	16	19
30	23	15	22	13	---	24	17	13	19	19	16	19
31	23	---	22	12	---	18	---	13	---	18	8.9	---
TOTAL	746	451	586	590	505.4	720	641	462	459.8	547	532.9	590
MEAN	24.1	15.0	18.9	19.0	18.1	23.2	21.4	14.9	15.3	17.6	17.2	19.7
MAX	26	22	23	23	24	24	24	18	20	20	19	21
MIN	23	13	12	12	9.2	18	17	12	8.8	12	8.9	13
AC-FT	1480	895	1160	1170	1000	1430	1270	916	912	1080	1060	1170

CAL YR 1981 TOTAL 7005.3 MEAN 19.2 MAX 26 MIN 9.6 AC-FT 13900
WTR YR 1982 TOTAL 6831.1 MEAN 18.7 MAX 26 MIN 8.8 AC-FT 13550

08144500 SAN SABA RIVER AT MENARD, TX

LOCATION.--Lat 30°55'08", long 99°47'07", Menard County, Hydrologic Unit 12090109, on downstream side of bridge on U.S. Highway 83 in Menard, 1.1 mi (1.8 km) downstream from Las Moras Creek, 1.9 mi (3.1 km) upstream from Volkmann Draw, and 116.3 mi (187.1 km) upstream from mouth.

DRAINAGE AREA.--1,335 mi² (3,458 km²), of which 6.6 mi² (17.1 km²) probably is noncontributing.

PERIOD OF RECORD.--September 1915 to current year.

REVISED RECORDS.--WRD TX-81-3: Drainage area. WSP 1512: 1918-20, 1922-25, 1926(M), 1927-32, 1934(M), 1936, 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,863.05 ft (567.858 m) National Geodetic Vertical Datum of 1929. Sept. 14, 1915, to Mar. 12, 1924, nonrecording gage at site 635 ft (194 m) downstream at datum 2.20 ft (0.671 m) lower. Mar. 13, 1924, to Feb. 21, 1939, nonrecording gage at site 1,000 ft (305 m) upstream at datum 2.00 ft (0.610 m) higher. Feb. 22, 1939, to Jan. 25, 1940, nonrecording gage at present site and datum. Jan. 26, 1940, to Sept. 19, 1957, water-stage recorder at site 240 ft (73 m) to right at present datum. Feb. 8, 1962, to Jan. 22, 1963, nonrecording gage at site 600 ft (180 m) downstream at present datum.

REMARKS.--Records good. Since about 1890, low flow during irrigation season regulated by diversions to Noyes Canal 4.5 mi (7.2 km) upstream and diversions by pumping at several locations upstream. Records of the Texas Department of Water Resources show that permits have been granted to irrigate 3,338 acres (1,400 hm²) above station. See record for (station 08144000). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--67 years, 64.6 ft³/s (1.829 m³/s), 46,800 acre-ft/yr (57.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s (3,680 m³/s) July 23, 1938, gage height, 22.2 ft (6.77 m), present site and datum, from floodmark, from rating curve extended above 56,000 ft³/s (1,590 m³/s) on basis of slope-area measurement of peak flow; no flow at times as result of upstream diversion to Noyes Canal (station 08144000).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 23.3 ft (7.10 m) June 6, 1899, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,390 ft³/s (39.4 m³/s) May 23 at 1630 hours, gage height, 6.68 ft (2.036 m)from peak-stage indicator, no other peak above base of 670 ft³/s (19.0 m³/s); minimum, 0.96 ft³/s (0.027 m³/s) Aug. 3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	27	37	35	35	35	24	24	37	27	13	14
2	16	27	37	36	40	35	23	26	36	26	7.0	12
3	15	28	37	36	40	35	22	16	36	33	1.3	12
4	16	29	37	37	35	34	20	3.4	35	32	2.1	13
5	15	30	37	37	35	33	20	57	34	29	3.1	15
6	16	31	37	36	35	32	19	44	31	30	3.2	14
7	24	32	36	32	35	33	19	42	30	31	7.1	14
8	25	35	36	31	36	32	21	38	29	30	66	13
9	20	37	36	32	36	33	20	36	29	28	34	11
10	19	35	36	33	35	34	20	37	29	27	27	10
11	20	35	36	32	37	34	20	37	25	26	22	9.6
12	23	35	36	36	37	34	20	36	39	23	19	9.2
13	110	36	36	37	34	34	20	36	35	23	17	10
14	61	37	36	37	34	34	20	34	32	26	17	11
15	36	37	35	37	34	34	19	30	29	25	16	11
16	31	37	36	37	35	33	22	28	23	23	16	11
17	29	37	32	37	33	30	22	26	21	21	8.4	12
18	28	37	30	37	35	29	19	26	21	20	10	14
19	25	37	30	36	35	27	20	26	22	18	13	12
20	21	37	31	36	36	26	21	25	28	18	11	12
21	21	37	31	36	35	25	21	25	35	18	10	12
22	33	37	32	36	36	25	24	30	31	17	11	11
23	36	37	32	36	36	26	31	281	28	18	12	11
24	32	37	30	36	36	26	26	197	26	21	12	10
25	27	37	31	36	35	25	23	64	24	22	12	9.8
26	25	37	31	36	36	23	22	39	29	21	12	10
27	24	36	29	36	35	24	21	38	36	18	12	9.6
28	24	36	30	35	35	24	25	68	38	17	11	9.5
29	25	37	30	35	---	24	24	46	36	16	13	9.4
30	26	36	32	38	---	25	20	58	29	13	13	9.3
31	28	---	34	37	---	24	---	41	---	12	13	---
TOTAL	866	1043	1046	1104	996	922	648	1514.4	913	709	444.2	341.4
MEAN	27.9	34.8	33.7	35.6	35.6	29.7	21.6	48.9	30.4	22.9	14.3	11.4
MAX	110	37	37	38	40	35	31	281	39	33	66	15
MIN	15	27	29	31	33	23	19	3.4	21	12	1.3	9.2
AC-FT	1720	2070	2070	2190	1980	1830	1290	3000	1810	1410	881	677

CAL YR 1981	TOTAL	13424.6	MEAN 36.8	MAX 1520	MIN 6.3	AC-FT	26630
WTR YR 1982	TOTAL	10547.0	MEAN 28.9	MAX 281	MIN 1.3	AC-FT	20920

08144600 SAN SABA RIVER NEAR BRADY, TX

LOCATION.--Lat 31°00'14", long 99°16'07", McCulloch County, Hydrologic Unit 12090109, on right bank at downstream side of bridge on U.S. Highways 87 and 377, 0.4 mi (0.6 km) upstream from Hudson Branch, and 8.4 mi (13.5 km) southeast of Brady, and 72.9 mi (117.3 km) upstream from mouth.

DRAINAGE AREA.--1,633 mi² (4,229 km²), of which 6.60 mi² (17.09 km²) probably is noncontributing.

PERIOD OF RECORD.--July 1979 to current year.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,530.98 ft (466.643 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diversions above station for irrigation (see station 08144000). Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,000 ft³/s (1,870 m³/s) Sept. 8, 1980, gage height, 25.50 ft (7.772 m); minimum, 0.24 ft³/s (0.007 m³/s) Aug. 1, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Highest stage since June 1899, 33.8 ft (10.30 m) July 23, 1938, from high-water mark on left bank 150 ft (46 m) upstream from present site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,250 ft³/s (63.7 m³/s) Oct. 13 at 1745 hours, gage height, 5.97 ft (1.820 m), no other peak above base of 1,000 ft³/s (28.3 m³/s); minimum, 5.7 ft³/s (0.16 m³/s) Aug. 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	54	51	43	47	63	55	45	66	49	14	17
2	23	53	52	43	48	57	50	42	51	39	11	14
3	24	49	52	43	48	55	43	41	43	37	9.7	13
4	28	50	49	45	48	54	37	45	39	34	8.7	15
5	26	50	45	45	48	53	37	47	38	34	8.9	13
6	26	48	45	45	48	50	37	355	37	37	8.6	14
7	58	49	45	45	48	50	36	112	37	37	6.5	14
8	59	60	46	45	48	50	35	77	34	34	6.1	20
9	54	61	49	45	48	50	36	66	33	32	8.1	20
10	53	54	51	45	48	50	38	58	32	28	57	19
11	184	54	52	45	48	50	33	56	28	27	47	18
12	78	54	50	46	48	52	33	53	35	25	39	14
13	514	59	48	48	48	52	39	60	40	30	36	13
14	388	61	50	48	48	52	41	63	39	26	30	14
15	179	57	50	49	48	51	40	54	37	21	26	21
16	105	57	45	50	48	51	38	51	54	19	25	21
17	77	56	43	50	46	52	47	44	42	19	21	17
18	64	55	45	50	46	49	43	41	34	19	16	17
19	60	55	43	50	46	41	43	38	29	18	13	19
20	57	54	43	50	51	40	41	34	30	17	12	17
21	55	54	43	50	60	40	33	33	33	18	11	14
22	94	54	46	50	54	40	35	33	35	18	14	12
23	100	54	46	50	54	44	43	34	41	14	12	10
24	87	54	45	50	53	47	51	152	37	15	11	8.7
25	81	54	43	49	55	46	55	211	36	16	9.3	9.0
26	70	51	43	48	67	46	51	109	36	18	9.8	13
27	62	46	46	48	63	47	44	75	39	17	10	16
28	60	48	48	47	63	48	42	116	63	24	10	19
29	58	48	48	45	---	52	41	106	58	22	13	19
30	57	50	48	45	---	57	43	80	57	18	15	18
31	57	---	46	45	---	57	---	68	---	15	15	---
TOTAL	2866	1603	1456	1457	1425	1546	1240	2399	1213	777	533.7	468.7
MEAN	92.5	53.4	47.0	47.0	50.9	49.9	41.3	77.4	40.4	25.1	17.2	15.6
MAX	514	61	52	50	67	63	55	355	66	49	57	21
MIN	23	46	43	43	46	40	33	33	28	14	6.1	8.7
AC-FT	5680	3180	2890	2890	2830	3070	2460	4760	2410	1540	1060	930

CAL YR 1981 TOTAL 29504.0 MEAN 80.8 MAX 1300 MIN 13 AC-FT 58520
WTR YR 1982 TOTAL 16984.4 MEAN 46.5 MAX 514 MIN 6.1 AC-FT 33690

08144800 BRADY CREEK NEAR EDEN, TX

LOCATION.--Lat 31°11'03", long 99°50'27", Concho County, Hydrologic Unit 12090110, on right bank at upstream side of bridge on U.S. Highway 83, 0.8 mi (1.3 km) downstream from Fitzgerald Creek, 2.2 mi (3.5 km) south of Eden, 2.4 mi (3.9 km) upstream from Hardin Branch, and 63.8 mi (102.7 km) upstream from mouth.

DRAINAGE AREA.--101 mi^2 (262 km^2).

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

REVISED RECORDS.--WRD TX-81-3: Drainage area.

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 flood-detention pools upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 1.07 ft^3/s (0.0303 m^3/s), 775 acre-ft/yr (0.956 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,110 ft^3/s (145 m^3/s) Apr. 28, 1966, gage height, 7.08 ft (2.158 m); no flow for many days most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1884, 15.8 ft (4.82 m) in July 1938, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 177 ft^3/s (5.01 m^3/s) May 5 at 2330 hours, gage height, 2.71 ft (0.826 m); minimum daily, 0.05 ft^3/s (0.001 m^3/s) Sept. 2, 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	.32	.25	.17	.30	.36	.46	.46	.63	.43	.22	.07
2	.17	.29	.20	.17	.25	.36	10	.46	.50	.51	.22	.05
3	.17	.29	.19	.16	.28	.36	1.4	.45	.51	.57	.19	.07
4	.17	.29	.17	.11	.29	.33	.65	.37	.52	.46	.17	.09
5	.17	.26	.15	.12	.29	.32	.49	13	.57	.46	.15	.09
6	.17	.30	.15	.17	.32	.29	.46	33	.57	.42	.14	.09
7	.93	.29	.15	.17	.32	.29	.43	3.1	.57	.41	.10	.09
8	.67	.32	.15	.17	.32	.29	.36	1.3	.56	.41	.26	.09
9	.46	.30	.15	.17	.36	.29	.36	.97	.51	.41	.54	.09
10	.36	.25	.15	.17	.34	.29	.36	.88	.51	.41	.44	.09
11	.30	.25	.15	.17	.34	.28	.40	.88	.51	.33	.32	.09
12	.32	.25	.15	.21	.39	.29	.41	.79	1.6	.29	.30	.07
13	1.4	.22	.16	.52	.41	.46	.40	1.4	1.1	.29	.25	.07
14	1.0	.22	.20	.53	.41	.56	.29	.82	.60	.29	.21	.09
15	.61	.22	.20	.41	.41	.55	.29	.47	.45	.27	.19	.09
16	.35	.22	.20	.44	.36	.51	.32	.46	.46	.22	.16	.06
17	.28	.22	.20	.31	.32	.51	.32	.46	.46	.25	.15	.06
18	.17	.22	.20	.28	.32	.48	.32	.46	.46	.25	.15	.06
19	.15	.22	.20	.29	.32	.51	.36	.46	.66	.25	.15	.06
20	.17	.22	.20	.26	.35	.51	.39	.40	.95	.25	.13	.06
21	.33	.22	.20	.28	.51	3.3	.41	.36	1.5	.25	.13	.08
22	6.0	.22	.19	.29	.49	1.2	1.1	.71	.98	.25	.11	.09
23	1.8	.22	.17	.23	.36	.72	1.1	.66	.64	.25	.10	.09
24	.82	.26	.17	.20	.32	.54	.71	1.1	.53	.25	.07	.09
25	.56	.29	.17	.21	.97	.41	.75	.83	1.5	.25	.07	.09
26	.46	.29	.19	.20	1.0	.41	.50	.55	1.2	.25	.07	.09
27	.41	.29	.16	.20	.60	.41	.46	.46	7.4	.30	.06	.09
28	.37	.29	.16	.22	.42	.41	.94	.78	4.4	.30	.06	.08
29	.33	.29	.17	.22	---	.45	1.8	.78	1.3	.25	.07	.05
30	.32	.32	.17	.41	---	.46	.56	.65	.60	.25	.07	.06
31	.34	---	.17	.41	---	.46	---	.64	---	.22	.07	---
TOTAL	19.93	7.86	5.49	7.87	11.37	16.61	26.80	68.11	32.75	10.00	5.32	2.34
MEAN	.64	.26	.18	.25	.41	.54	.89	2.20	1.09	.32	.17	.078
MAX	6.0	.32	.25	.53	1.0	3.3	10	33	7.4	.57	.54	.09
MIN	.15	.22	.15	.11	.25	.28	.29	.36	.45	.22	.06	.05
AC-FT	40	16	11	16	23	33	53	135	65	20	11	4.6

CAL YR 1981 TOTAL 143.41 MEAN .39 MAX 16 MIN .00 AC-FT 284
WTR YR 1982 TOTAL 214.45 MEAN .59 MAX 33 MIN .05 AC-FT 425

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.--523 mi² (1,355 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1963 to current year.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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

REMARKS.--The reservoir is formed by a compacted earthfill dam 8,400 ft (2,560 m) long. The dam was completed and storage began in May 1963. The dam was built by the city of Brady in cooperation with the Soil Conservation Service and the Farmers Home Administration for flood control, municipal, and industrial water supply. The spillway is a cut channel through natural ground 1,000 ft (305 m) wide located at right end of dam. The top of conservation pool is an uncontrolled concrete drop-inlet structure that discharges through a 7.0- by 7.0-foot (2.1 by 2.1 m) concrete box conduit and is designed to discharge 4,000 ft³/s (113 m³/s) at a 19.4-foot (5.9 m) head. The gated outlet is a 36-inch (914 mm) pipe that extends through the embankment and is equipped with three sluice gates for controlled releases downstream. Flow into reservoir is affected at times by discharge from the flood-detention pools of 35 floodwater-retarding structures with a combined detention capacity of 77,950 acre-ft (96.1 hm³). These structures were built during the period February 1955 to July 1962 and control runoff from 263 mi² (681 km²) in the Brady Creek watershed above this station. The capacity curve is based on Geological Survey topographic map but was not adjusted for borrow. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	1,783.0	-
Crest of spillway	1,762.4	90,310
Crest of spillway (top of conservation pool)	1,743.0	30,430
Lowest gated outlet (invert)	1,712.0	1,320

COOPERATION.--Records of diversions and the capacity curve were furnished by the city of Brady.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 40,880 acre-ft (50.4 hm³) Sept. 24, 1971, elevation, 1,747.70 ft (532.669 m); minimum since first appreciable storage, 1,030 acre-ft (1.27 hm³) Sept. 18, 1964, elevation, 1,710.4 ft (521.33 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 20,470 acre-ft (25.2 hm³) May 28 at 0600 hours, elevation, 1,737.42 ft (529.566 m); minimum, 17,360 acre-ft (21.4 hm³) Sept. 30, elevation, 1,735.32 ft (528.926 m).

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

1,735.0	16,910
1,736.0	18,320
1,738.0	21,370

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18140	18650	18380	18050	17910	18010	18260	18660	20360	20030	19040	18190
2	18110	18620	18360	18050	17970	18000	18500	18650	20340	20010	18980	18190
3	18080	18620	18350	18050	17940	18010	18590	18650	20320	19980	18930	18210
4	18040	18600	18330	18020	17930	17980	18630	18630	20280	19930	18890	18180
5	18040	18590	18320	18000	17910	17950	18620	18930	20230	19900	18840	18150
6	18040	18590	18320	18010	17900	17940	18590	19840	20220	19870	18810	18120
7	18160	18560	18310	17970	17900	17930	18570	20030	20200	19840	18810	18090
8	18140	18720	18310	17950	17900	17910	18570	20110	20170	19810	18990	18080
9	18140	18630	18310	17950	17880	17910	18560	20150	20140	19770	18980	18040
10	18110	18620	18310	17910	17870	17910	18540	20170	20120	19740	18950	18010
11	18120	18600	18310	17900	17870	17910	18510	20180	20040	19690	18920	17980
12	18120	18600	18290	17910	17870	17910	18510	20180	20120	19720	18890	17950
13	18440	18590	18290	17970	17850	17900	18500	20280	20110	19690	18860	17930
14	18440	18590	18280	17950	17850	17930	18500	20280	20060	19660	18810	17900
15	18420	18590	18260	17940	17870	17930	18530	20260	20110	19630	18780	17870
16	18510	18570	18250	17930	17870	17910	18620	20250	20060	19590	18750	17840
17	18500	18570	18220	17930	17850	17910	18570	20200	20040	19530	18740	17840
18	18450	18570	18210	17940	17840	17880	18570	20220	20010	19480	18710	17810
19	18410	18530	18190	17940	17840	17900	18590	20200	20010	19450	18680	17780
20	18380	18500	18190	17940	17900	17870	18560	20170	20000	19410	18650	17740
21	18410	18480	18190	17940	17910	18040	18530	20170	19980	19380	18620	17690
22	18620	18480	18160	17950	17910	18240	18620	20250	19970	19360	18590	17660
23	18690	18470	18150	17940	17900	18280	18620	20280	19950	19350	18540	17620
24	18720	18450	18140	17940	17880	18290	18630	20370	19920	19320	18500	17590
25	18710	18450	18120	17930	18040	18280	18630	20370	19970	19300	18450	17560
26	18690	18420	18120	17910	18010	18260	18620	20360	19930	19260	18410	17530
27	18690	18410	18110	17930	18010	18250	18600	20360	20040	19230	18380	17460
28	18690	18410	18090	17910	18010	18250	18600	20430	20030	19180	18330	17430
29	18680	18420	18080	17930	---	18250	18620	20430	20040	19150	18320	17400
30	18680	18440	18070	18010	---	18260	18600	20420	20060	19110	18280	17360
31	18680	---	18070	17930	---	18250	---	20390	---	19080	18240	---
MAX	18720	18720	18380	18050	18040	18290	18630	20430	20360	20030	19040	18210
MIN	18040	18410	18070	17900	17840	17870	18260	18630	19920	19080	18240	17360
(†)	1736.24	1736.08	1735.82	1735.72	1735.78	1735.95	1736.19	1737.37	1737.16	1736.51	1735.94	1735.32
(‡)	+520	-240	-370	-140	+80	+240	+350	+1790	-330	-980	-840	-880
(††)	18	12	9.2	0	0	28	18	0	0	9.2	64	21

CAL YR 1981 MAX 20790 MIN 18040 ‡ -2190 †† 39
WTR YR 1982 MAX 20430 MIN 17360 ‡ -800 †† 179

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

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 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	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 10...	1050	1760	5.0	320	160	64	40	240

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
FEB 10...	6.5	12	160	170	390	.4	8.9	1020

08145000 BRADY CREEK AT BRADY, TX

LOCATION.--Lat 31°08'17", long 99°20'05", McCulloch County, Hydrologic Unit 12090110, on left bank just upstream from bridge on U.S. Highway 377 on North Bridge Street in Brady, 0.4 mi (0.6 km) downstream from Live Oak Creek, and 30.4 mi (48.9 km) upstream from mouth.

DRAINAGE AREA.--588 mi^2 (1,523 km^2).

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

REVISED RECORDS.--WSP 1512: 1941(M), 1951(M). WRD TX-81-3: Drainage area.

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 returns sewage effluent downstream from the gage. Since May 22, 1962, flow largely controlled by Brady Creek Reservoir (station 08144900) and partly controlled by several floodwater-retarding structures upstream. 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 ft^3/s (0.714 m^3/s), 18,260 acre-ft/yr (22.5 hm^3/yr); 20 years (water years 1963-82) regulated, 10.0 ft^3/s (0.283 m^3/s), 7,240 acre-ft/yr (8.93 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,100 ft^3/s (1,110 m^3/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 ft^3/s (2,440 m^3/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 ft^3/s (1,420 m^3/s), present site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,540 ft^3/s (43.6 m^3/s) May 6 at 0230 hours, gage height, 9.40 ft (2.865 m); no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.03	.05	.07	3.3	.07	.12	.05	.00	.00	.02	.00
2	.05	.02	.06	.08	2.6	.04	.03	.08	.00	.00	.02	.00
3	.04	.03	.10	.09	.06	.03	.02	.08	.00	.00	.00	.00
4	.02	.03	.13	.13	.09	.09	.03	.05	.00	.00	.00	.00
5	.01	.04	.19	.19	.28	.28	.00	1.1	.03	.00	.00	.00
6	.01	.04	.23	.28	.43	.50	.00	320	.00	.00	.00	.00
7	2.7	.05	.09	.34	.40	.03	.00	16	.00	.00	.06	.00
8	.36	.60	.13	.37	.03	.02	.02	4.5	.00	.00	2.7	.00
9	.14	.04	.16	.41	.05	.05	.02	1.3	.00	.00	.51	.00
10	.14	.05	.05	.55	.08	.12	.00	1.3	.00	.00	.03	.00
11	.18	.06	.04	.67	.10	.24	.03	3.3	.00	.00	.00	.00
12	.21	.06	.04	1.2	.16	.51	.00	1.6	.15	4.8	.00	.00
13	18	.07	.03	1.8	.23	.75	.00	4.2	.22	.41	.00	.00
14	.68	.07	.04	1.3	.21	.05	.06	5.0	.05	.07	.00	.00
15	.53	.04	.05	.00	.03	.06	1.1	2.7	.13	.00	.00	.00
16	2.9	.05	.07	.00	.06	.20	19	.12	2.0	.00	.00	.00
17	.14	.07	.12	.00	.16	.28	14	.69	.03	.00	.00	.00
18	.60	.03	.13	.00	.27	.44	.38	.93	.00	.00	.00	.00
19	.02	.03	.09	.00	.26	.18	.15	1.0	.00	.00	.00	.00
20	.02	.04	.05	.03	1.4	.35	.07	1.6	.00	.00	.00	.00
21	.01	.04	.07	.20	.19	1.3	.00	2.4	.00	.00	.00	.00
22	11	.04	.09	.85	.05	.17	.58	5.3	.00	.00	.00	.00
23	.34	.19	.13	1.0	.08	.22	.10	19	.00	1.6	.00	.00
24	.04	.31	.14	.04	.10	.08	.11	35	.00	.47	.00	.00
25	.04	.56	.19	.16	2.9	.29	.02	22	1.0	.07	.00	.00
26	.04	.31	.14	.26	1.9	.39	.00	.28	.04	.06	.00	.00
27	.03	.07	.04	.50	.32	.07	.00	.05	2.3	.06	.00	.00
28	.02	.09	.04	.83	.16	.02	.00	2.1	.10	.05	.00	.00
29	.02	.13	.05	1.3	---	.02	.00	.23	.01	.04	.00	.00
30	.03	.19	.06	2.9	---	.02	.00	.06	.00	.04	.00	.00
31	.04	---	.07	3.1	---	.05	---	.02	---	.03	.00	---
TOTAL	38.39	3.38	2.87	18.65	15.90	6.92	35.84	452.04	6.06	7.70	3.34	.00
MEAN	1.24	.11	.093	.60	.57	.22	1.19	14.6	.20	.25	.11	.000
MAX	18	.60	.23	3.1	3.3	1.3	19	320	2.3	4.8	2.7	.00
MIN	.01	.02	.03	.00	.03	.02	.00	.02	.00	.00	.00	.00
AC-FT	76	6.7	5.7	37	32	14	71	897	12	15	6.6	.00

CAL YR 1981 TOTAL 309.29 MEAN .85 MAX 18 MIN .00 AC-FT 613
WTR YR 1982 TOTAL 591.09 MEAN 1.62 MAX 320 MIN .00 AC-FT 1170

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 16.8 mi (27.0 km) upstream from mouth.

DRAINAGE AREA.--3,046 mi^2 (7,889 km^2), of which 6.6 mi^2 (17.1 km^2) probably is noncontributing.

PERIOD OF RECORD.--December 1904 to December 1906 (gage heights only), September 1915 to current year. Published as "near San Saba" December 1904 to December 1906 and September 1915 to August 1930.

REVISED RECORDS.--WSP 458: 1915-16. WSP 1282: WRD TX-81-3: Drainage area. WSP 1512: 1918-19(M), 1922, 1931(M), 1935-WSP 1922: 1917.

GAGE.--Water-stage recorder. Datum of gage is 1,162.16 ft (354.226 m) National Geodetic Vertical Datum of 1929. See WSP 1922 for history of changes prior to July 8, 1953. Since Oct. 1, 1956, supplementary water-stage recorder 2,780 ft (847 m) to right of main-channel gage used for floodflows.

REMARKS.--Records good. Many diversions above station for irrigation and municipal use affect low flow. Flow partly affected by Brady Creek Reservoir (see station 08144900), capacity 90,300 acre-ft (111 hm^3). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--67 years, 235 ft^3/s (6.655 m^3/s), 170,300 acre-ft/yr (210 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 203,000 ft^3/s (5,750 m^3/s) July 23, 1938, gage height, 39.3 ft (11.98 m), present site and datum, from rating curve extended above 41,000 ft^3/s (1,160 m^3/s) on basis of slope-area measurement of peak flow; no flow at times in 1918, 1930, 1954-56, and 1963-64.
Maximum stage since at least 1899, that of July 23, 1938.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 6, 1899, reached a stage of 36.7 ft (11.19 m), present site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,590 ft^3/s (102 m^3/s) Oct. 14 at 0300 hours, gage height, 13.68 ft (4.170 m), no other peak above base of 3,000 ft^3/s (85.0 m^3/s); minimum, 12 ft^3/s (0.34 m^3/s) Aug. 7.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	109	101	77	78	112	79	75	112	167	39	22
2	44	111	96	78	81	106	78	92	101	133	36	22
3	45	100	95	76	84	100	74	99	94	113	29	27
4	46	104	95	73	84	94	71	85	79	97	25	28
5	41	101	88	71	82	88	66	78	72	86	17	28
6	41	100	85	72	85	81	59	383	67	79	16	27
7	63	102	84	72	87	80	56	881	64	76	13	26
8	409	109	83	71	88	79	57	352	61	75	18	23
9	210	113	82	72	86	78	55	227	60	72	30	22
10	123	129	86	74	87	77	55	174	57	67	74	22
11	100	110	87	74	88	77	59	143	53	64	56	21
12	125	104	87	76	88	77	63	127	83	57	58	28
13	366	103	87	85	86	78	54	137	119	61	82	28
14	2000	104	88	89	85	76	48	138	89	74	79	31
15	477	107	87	87	85	76	56	146	79	75	73	29
16	311	103	92	86	84	79	61	114	92	64	65	28
17	224	99	90	84	82	74	66	99	153	55	58	30
18	179	98	84	84	76	73	67	91	126	52	53	35
19	149	97	82	87	73	71	65	86	92	48	56	34
20	125	94	83	86	75	61	85	79	80	46	49	34
21	113	91	82	86	84	61	88	75	80	44	43	31
22	118	92	80	88	99	72	82	70	70	43	36	32
23	169	94	76	86	103	70	89	68	67	41	34	33
24	229	94	76	87	89	72	111	73	67	48	38	30
25	182	96	76	85	91	74	112	80	74	45	35	28
26	162	94	74	80	107	71	117	237	92	37	29	25
27	145	91	75	79	147	75	102	174	544	34	26	25
28	130	87	75	81	128	80	91	145	441	35	27	24
29	122	91	75	82	---	81	81	142	284	37	31	22
30	116	102	75	85	---	82	77	185	215	37	24	22
31	113	---	78	79	---	80	---	132	---	37	25	---
TOTAL	6723	3029	2604	2492	2512	2455	2224	4987	3667	1999	1274	817
MEAN	217	101	84.0	80.4	89.7	79.2	74.1	161	122	64.5	41.1	27.2
MAX	2000	129	101	89	147	112	117	881	544	167	82	35
MIN	41	87	74	71	73	61	48	68	53	34	13	21
AC-FT	13340	6010	5170	4940	4980	4870	4410	9890	7270	3970	2530	1620

CAL YR 1981	TOTAL	46633	MEAN	128	MAX	2000	MIN 15	AC-FT 92500
WTR YR 1982	TOTAL	34783	MEAN	95.3	MAX	2000	MIN 13	AC-FT 68990

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.--31,217 mi² (80,852 km²), approximately, of which 11,398 mi² (29,521 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1915 to October 1922 (published as "near Chadwick"), October 1923 to August 1930 (published as "near Tow"), September 1930 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 458: 1916. WSP 858: 1900(M), 1936(M). WRD TX-81-3: Drainage area. WSP 1512: 1916-18(M), 1936. WSP 1732: 1925-26(M).

GAGE.--Water-stage recorder. Datum of gage is 1,096.22 ft (334.128 m) National Geodetic Vertical Datum of 1929. See WSP 1922 for history of changes prior to May 23, 1940.

REMARKS.--Water-discharge records good. Many diversion above station for irrigation, municipal use, and oilfield operation. Flow is affected by four reservoirs upstream from Winchell and one reservoir in the San Saba River and Pecan Bayou basins; combined capacity, 1,973,000 acre-ft (2.43 km³). Flow is affected at times by discharge from the flood-detention pools of 187 floodwater-retarding structures with combined detention capacity of 203,600 acre-ft (251 hm³). These structures control runoff from 934 mi² (2,419 km²). Gage-height telemeter at this station.

AVERAGE DISCHARGE.--50 years (water years 1917-19, 1921-22, 1924-68) prior to completion of Robert Lee Dam, 1,340 ft³/s (37.95 m³/s), 970,100 acre-ft/yr (1,200 hm³/yr); 14 years (water years 1969-82) partially regulated, 677 ft³/s (19.17 m³/s), 490,500 acre-ft/yr (605 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, 21,400 ft³/s (606 m³/s) June 29 at 1330 hours, gage height, 18.63 ft (5.678 m); minimum, 32 ft³/s (0.91 m³/s) Sept. 2, 3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	847	237	196	208	289	223	148	786	7560	148	46
2	86	658	234	198	211	272	213	464	663	4640	140	35
3	84	583	233	202	211	294	240	410	521	3380	126	35
4	82	506	229	199	211	317	232	266	448	2610	111	46
5	76	473	225	192	211	290	245	207	411	2080	97	49
6	65	432	224	194	215	255	228	2790	361	1750	80	49
7	92	414	224	190	216	235	190	7770	327	1510	70	50
8	267	432	224	189	219	224	164	2120	257	1300	69	48
9	398	486	222	187	219	209	153	1020	200	1090	85	44
10	895	387	221	186	217	194	144	890	177	1180	116	43
11	749	400	224	182	212	185	131	695	172	1000	129	40
12	518	376	224	184	211	182	133	520	166	930	130	39
13	730	346	224	187	211	182	132	620	414	1560	111	50
14	3860	363	224	198	211	181	119	606	664	982	118	173
15	7310	346	220	214	211	186	113	432	412	549	133	259
16	16300	331	219	219	211	182	117	411	460	495	146	257
17	7780	326	219	219	207	182	124	341	909	573	131	660
18	2130	318	215	219	198	182	121	288	595	474	117	357
19	1450	317	211	219	192	174	121	263	407	427	109	235
20	1050	309	207	221	190	162	181	243	3970	374	102	194
21	1870	303	207	224	194	295	230	222	9580	329	90	169
22	2450	300	207	224	197	7330	194	214	14400	292	98	152
23	4840	296	207	224	209	3420	192	944	6810	260	91	136
24	3800	296	202	224	217	849	204	5020	3750	238	79	124
25	2580	296	203	224	207	536	219	2720	3120	219	73	110
26	2230	296	202	220	219	504	226	3310	3120	203	72	100
27	1740	289	199	216	238	419	208	2980	5260	183	74	89
28	1340	251	198	212	300	350	180	1790	14900	159	73	80
29	1100	228	195	211	---	301	157	1280	21000	161	71	67
30	920	230	194	213	---	267	147	1190	16800	161	64	64
31	1250	---	194	213	---	243	---	993	---	154	57	---
TOTAL	68130	11435	6668	6400	5973	18891	5281	41167	111060	36823	3110	3800
MEAN	2198	381	215	206	213	609	176	1328	3702	1188	100	127
MAX	16300	847	237	224	300	7330	245	7770	21000	7560	148	660
MIN	65	228	194	182	190	162	113	148	166	154	57	35
AC-FT	135100	22680	13230	12690	11850	37470	10470	81650	220300	73040	6170	7540

CAL YR 1981 TOTAL 182730 MEAN 501 MAX 16300 MIN 11 AC-FT 362400
WTR YR 1982 TOTAL 318738 MEAN 873 MAX 21000 MIN 35 AC-FT 632200

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 September 1982 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1947 to current year.
WATER TEMPERATURES: October 1947 to current year.
SUSPENDED SEDIMENT DISCHARGE: December 1950 to September 1962.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,660 micromhos June 28, 1962; minimum daily, 150 micromhos Sept. 14, 1981.
WATER TEMPERATURES: Maximum daily, 37.0°C Aug. 3, 1956; minimum daily, 0.0°C Jan. 29, 1948, Jan. 30, 1951.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,740 micromhos Mar. 4; minimum daily, 250 micromhos June 29.
WATER TEMPERATURES: Maximum daily, 33.0°C on several days during July and August; minimum daily, 6.0°C Jan. 14, Feb. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV										
18...	1415	315	892	8.6	19.5	13	9.6	109	3.0	K72
DEC										
16...	1215	256	1250	8.5	11.5	3.4	8.1	76	1.5	45
MAR										
03...	1350	307	1470	8.8	16.5	3.5	>20.0	>215	12	37
APR										
27...	1200	202	1120	8.0	21.0	24	9.2	106	2.4	84
JUL										
15...	1240	533	590	7.9	29.0	170	6.2	84	2.1	140
AUG										
17...	1100	130	1160	8.2	30.0	10	6.8	93	2.0	46

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)
NOV									
18...	K68	290	130	72	27	68	1.9	5.1	160
DEC									
16...	100	430	230	99	45	100	2.3	4.4	200
MAR									
03...	48	450	320	92	54	140	3.2	4.1	130
APR									
27...	130	380	190	81	42	93	2.3	3.9	190
JUL									
15...	1500	200	66	52	16	41	1.4	5.4	130
AUG									
17...	58	360	190	78	41	99	2.5	5.3	170

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, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
NOV									
18...	97	130	.3	7.3	522	503	.030	--	.82
DEC									
16...	160	220	.3	5.3	746	754	--	--	1.5
MAR									
03...	240	280	.3	4.2	898	893	--	2.5	2.5
APR									
27...	130	190	.4	7.1	705	662	--	2.3	.76
JUL									
15...	67	69	.2	10	369	339	--	--	.36
AUG									
17...	150	190	.3	11	747	677	--	--	<.10

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (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)	PHOSPHORUS, DISSOLVED (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 18...	.160	.190	1.2	1.40	.060	.010	26	22	99
DEC 16...	--	<.070	--	.99	.030	.020	38	26	93
MAR 03...	.080	.090	1.4	1.50	.080	.040	48	40	93
APR 27...	.210	.090	1.5	1.70	.060	<.010	65	35	96
JUL 15...	--	.140	--	1.30	.040	.040	155	223	100
AUG 17...	--	.090	--	1.40	.070	.050	47	16	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 DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
NOV 18...	1415	2	0	2	100	0	140	<1	<1	<10
MAR 03...	1350	1	0	1	100	0	110	<1	<10	<10
APR 27...	1200	1	0	1	200	70	130	<1	<3	<10
AUG 17...	1100	3	0	3	100	0	200	<1	<1	10

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
NOV 18...	--	<10	<1	<3	2	0	3	410	390	20
MAR 03...	--	<10	1	<1	6	5	1	160	--	<10
APR 27...	--	<10	1	<1	5	4	1	770	--	<9
AUG 17...	0	10	<1	1	2	--	<1	560	--	<3

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV 18...	2	0	4	20	20	1	<.1	<.1	<1	--
MAR 03...	12	10	2	40	40	3	<.1	<.1	4	2
APR 27...	3	1	2	70	--	<3	.1	<.1	2	1
AUG 17...	<1	--	<1	90	90	2	<.1	<.1	5	4

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 18...	<1	<1	--	1	<1	<1	10	7	3
MAR 03...	2	1	0	1	<1	<1	10	--	<3
APR 27...	1	1	0	1	<1	<1	10	--	<12
AUG 17...	1	1	0	1	<1	<1	10	--	<3

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 18...	1415	--	0	--	.0	--	.0	--	.0	--	.0
MAR 03...	1350	<.10	--	<.10	--	<.01	--	<.10	--	<.01	--
APR 27...	1200	<.10	<1	<.10	<1.0	<.01	<.1	<.10	<1.0	<.01	.1

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)	ETHION, TOTAL (UG/L)
NOV 18...	--	.8	--	.0	--	--	.1	--	--	.0	--
MAR 03...	<.01	--	<.01	--	.01	<.01	--	<.01	<.01	--	.00
APR 27...	<.01	.4	<.01	<.1	.03	<.01	<.1	<.01	<.01	<.1	<.01

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)
NOV 18...	--	.0	--	.0	--	.0	--	--	.0	--	--
MAR 03...	<.01	--	<.01	--	<.01	--	.00	<.01	--	.00	.00
APR 27...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	PERTHANE 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-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 18...	--	.0	--	--	--	.0	--	--	--	--	--
MAR 03...	<.01	--	.00	<.10	<1	--	.00	.00	.00	.00	.00
APR 27...	<.01	<.1	<.01	<.10	<1	<10	<.01	<.01	<.01	<.01	<.01

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	68130	541	298	54800	61	11300	38	7060	200
NOV.	1981	11435	811	451	13900	100	3150	68	2110	280
DEC.	1981	6668	1210	691	12400	190	3430	140	2550	390
JAN.	1982	6400	1460	843	14600	260	4430	200	3440	450
FEB.	1982	5973	1480	857	13800	260	4230	200	3300	450
MAR.	1982	18891	868	489	24900	120	6280	88	4470	290
APR.	1982	5281	936	526	7500	130	1830	90	1290	320
MAY	1982	41167	751	420	46700	100	11100	69	7620	260
JUNE	1982	111060	405	220	65800	38	11500	21	6240	150
JULY	1982	36823	562	308	30600	60	5960	36	3580	210
AUG.	1982	3110	1090	615	5160	160	1340	120	975	360
SEPT	1982	3800	1300	747	7660	220	2230	170	1700	410
TOTAL		318738	**	**	298000	**	66700	**	44300	**
WTD. AVG.		873	623	346	**	78	**	52	**	220

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	690	619	936	1410	1480	1410	705	968	650	450	892	1080
2	663	606	933	1400	1520	1420	714	1540	596	477	837	1000
3	635	625	952	1390	1550	1600	778	1510	587	500	949	964
4	621	643	1000	1400	1470	1740	829	1450	593	531	952	925
5	610	718	1040	1390	1500	1650	937	1400	579	543	975	947
6	599	729	1090	1400	1550	1470	998	1000	580	555	993	900
7	525	771	1070	1400	1580	1530	1030	341	595	567	1020	883
8	561	787	1130	1380	1500	1570	939	578	590	575	1060	917
9	421	805	1150	1400	1520	1540	866	535	582	587	1050	930
10	1500	765	1180	1360	1450	1510	800	585	557	636	1050	945
11	1240	806	1150	1380	1500	1480	724	607	572	687	822	1000
12	1490	863	1230	1400	1530	1470	699	646	587	680	994	1020
13	1160	835	1220	1410	1510	1460	676	618	622	677	1050	989
14	976	818	1250	1430	1500	1450	668	689	709	639	1040	1010
15	896	860	1260	1340	1520	1470	723	659	724	600	1000	1420
16	325	852	1250	1400	1510	1460	738	717	740	550	1140	1450
17	347	926	1260	1490	1520	1440	768	693	580	507	1210	1490
18	391	892	1280	1480	1470	1490	800	710	565	468	1230	1510
19	423	925	1290	1420	1490	1450	821	731	598	803	1300	744
20	452	954	1240	1540	1500	1430	891	841	546	884	1250	920
21	484	969	1290	1520	1540	1300	1270	821	500	878	1220	1300
22	519	959	1330	1500	1490	762	1170	898	424	900	1210	1470
23	450	957	1340	1540	1450	470	1260	941	434	935	1300	1480
24	419	964	1350	1560	1400	618	1270	716	409	951	1290	1490
25	464	970	1340	1550	1390	623	1210	503	521	924	1280	1500
26	500	973	1320	1540	1400	610	1190	557	530	908	1250	1510
27	547	975	1380	1550	1390	593	1120	1470	443	883	1230	1530
28	589	957	1360	1560	1320	631	940	1400	262	876	1200	1520
29	605	945	1410	1540	---	688	871	1050	250	866	1150	1540
30	621	935	1340	1510	---	696	900	865	444	880	1130	1480
31	654	---	1420	1530	---	692	---	722	---	896	1140	---
MEAN	657	847	1220	1460	1480	1220	910	863	546	704	1100	1200

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	19.0	15.0	---	12.0	17.0	---	24.0	---	28.0	33.0	30.0
2	26.0	18.0	14.0	14.0	11.0	17.0	23.0	24.0	28.0	29.0	26.0	---
3	26.0	---	15.0	14.0	10.0	18.0	21.0	25.0	29.0	---	31.0	30.0
4	27.0	18.0	---	13.0	8.0	17.0	23.0	26.0	29.0	30.0	32.0	30.0
5	---	19.0	12.0	13.0	---	---	22.0	24.0	28.0	29.0	---	26.0
6	25.0	19.0	14.0	14.0	6.0	13.0	20.0	21.0	29.0	30.0	31.0	---
7	22.0	19.0	15.0	9.0	8.0	14.0	19.0	21.0	28.0	30.0	---	29.0
8	20.0	20.0	15.0	10.0	10.0	15.0	21.0	21.0	---	---	31.0	28.0
9	23.0	17.0	15.0	10.0	10.0	---	18.0	21.0	30.0	30.0	30.0	---
10	23.0	16.0	17.0	7.0	9.0	18.0	---	21.0	30.0	31.0	30.0	28.0
11	24.0	18.0	17.0	---	9.0	16.0	19.0	23.0	30.0	31.0	30.0	28.0
12	24.0	16.0	15.0	9.0	10.0	22.0	23.0	24.0	27.0	---	29.0	28.0
13	24.0	17.0	13.0	---	10.0	22.0	25.0	21.0	28.0	31.0	31.0	28.0
14	25.0	17.0	12.0	6.0	12.0	23.0	24.0	26.0	29.0	31.0	32.0	28.0
15	25.0	19.0	---	8.0	15.0	23.0	24.0	27.0	28.0	31.0	31.0	26.0
16	23.0	18.0	15.0	---	15.0	---	23.0	26.0	28.0	---	32.0	29.0
17	25.0	19.0	10.0	9.0	17.0	23.0	22.0	25.0	---	31.0	33.0	30.0
18	23.0	16.0	10.0	10.0	15.0	24.0	21.0	26.0	28.0	30.0	30.0	29.0
19	22.0	---	10.0	10.0	---	25.0	24.0	28.0	30.0	31.0	31.0	27.0
20	22.0	16.0	10.0	13.0	17.0	23.0	20.0	28.0	25.0	31.0	30.0	28.0
21	21.0	18.0	13.0	---	21.0	17.0	18.0	27.0	25.0	33.0	30.0	26.0
22	19.0	18.0	12.0	14.0	19.0	14.0	17.0	28.0	25.0	---	31.0	23.0
23	---	17.0	11.0	13.0	19.0	13.0	18.0	26.0	27.0	30.0	31.0	---
24	15.0	17.0	---	14.0	16.0	20.0	18.0	21.0	28.0	33.0	31.0	26.0
25	17.0	15.0	---	13.0	13.0	16.0	22.0	26.0	28.0	32.0	30.0	27.0
26	17.0	---	10.0	13.0	10.0	---	22.0	27.0	---	27.0	---	26.0
27	18.0	15.0	13.0	15.0	14.0	13.0	---	26.0	28.0	30.0	30.0	26.0
28	19.0	17.0	10.0	15.0	15.0	15.0	23.0	27.0	27.0	32.0	30.0	---
29	---	16.0	10.0	17.0	---	15.0	24.0	28.0	28.0	33.0	31.0	27.0
30	19.0	17.0	9.0	14.0	---	19.0	22.0	29.0	27.0	33.0	---	27.0
31	20.0	---	13.0	14.0	---	21.0	---	28.0	---	33.0	30.0	---
MEAN	22.0	17.5	13.0	12.0	12.5	18.5	21.5	25.0	28.0	31.0	30.5	27.5

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.--31,910 mi² (82,647 km²), approximately, of which 11,398 mi² (29,521 km²) probably is noncontributing.

PERIOD OF RECORD.--May 1937 to current year. Prior to Oct. 1, 1968, published as Buchanan Reservoir.

REVISED RECORDS.--WSP 1118: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 0.48 ft (0.146 m) National Geodetic Vertical Datum of 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-foot (335 m) uncontrolled emergency concrete spillway, and natural ground. A net opening of 1,270 ft (387 m) is controlled by thirty 33- by 15-foot (10 by 5 m) and by seven 40- by 15-foot (12 by 5 m) tainter gates. The dam was completed and storage began May 20, 1937. Water is used for power development and for irrigation below Columbus. The power generating features consist of three generating units, each with a 12,677 kilowatt capacity. A pump-back unit, with a capacity of 840 ft³/s (23.8 m³/s), returns water from Inks Lake to Lake Buchanan during off-peak power demand periods. Inflow is largely regulated by twelve major reservoirs with a combined capacity of 2,438,000 acre-ft (3.01 km³), of which 1,091,000 acre-ft (1.35 km³) is for flood control. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08147000. The capacity table is based on a 1925 survey. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam	1,025.5	-
Crest of gravity overflow spillway (top of conservation storage)	1,020.0	992,000
Crest of spillway (15 ft gates)	1,005.0	678,000
Crest of spillway (25 ft gates)	995.0	505,000
Invert of three 12-foot-diameter penstocks	937.0	36,800

COOPERATION.--Capacity curve and gage-height record were furnished by the Lower Colorado River Authority.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 1,010,000 acre-ft (1.25 km³) Jan. 24, 1968, gage height, 1,020.8 ft (311.14 m); minimum after initial filling of lake in July 1938, 340,800 acre-ft (420 hm³) Sept. 8-10, 1952, gage height, 983.4 ft (299.74 m).

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents observed, 994,500 acre-ft (1.23 km³) June 29, gage height, 1,020.11 ft (310.930 m); minimum, 826,900 acre-ft (1.02 km³) Sept. 28-30, gage height, 1,012.52 ft (308.616 m).

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

1,012.0	816,000	1,018.0	946,000
1,016.0	902,000	1,021.0	1,015,000

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	894300	972900	951100	923100	924200	929100	939400	920700	931300	974300	900500	836600
2	893900	972200	951300	922900	925100	929300	938300	917800	927500	978200	896300	836000
3	892800	970800	951300	923300	925100	929700	937200	916300	924900	980000	894300	836000
4	892300	968300	951300	924000	925100	930800	937000	914500	922900	980300	892100	835700
5	892100	966000	951100	923600	925300	931900	936300	913000	919800	979400	889500	834700
6	891400	963900	951500	923100	925100	930400	935400	915000	917000	978400	887700	834300
7	893200	961600	952200	923600	924900	930200	935000	928200	915400	976800	885300	832000
8	894700	960700	952700	923100	925500	927700	934800	932600	913900	974800	884600	831100
9	894100	957000	953100	922700	925800	928400	935200	933200	911700	972500	883100	830100
10	894300	954100	953600	922900	925800	928200	934600	933900	910400	969700	880900	829700
11	895000	952400	954100	923600	926200	928000	933700	934300	909000	968500	879100	829200
12	896100	949500	954300	923300	926600	926400	932400	932400	909500	967600	876900	829000
13	897400	947200	951300	918500	926600	926600	930600	942300	907500	967400	874500	829000
14	899400	946700	949200	918700	926900	927100	929300	942900	907100	963700	873000	828400
15	903300	947200	949000	918700	927300	926900	928000	944000	905700	959800	870800	828800
16	914100	946500	949700	919400	927700	926000	927300	944700	906800	956600	869400	829000
17	941600	946900	949500	918500	928200	924900	925300	945100	906600	951800	863300	829200
18	965100	946700	949200	919200	928400	924400	924400	942700	906600	949500	861500	830500
19	968500	946900	949000	919600	928400	924900	922900	941800	906000	945300	860600	831800
20	970400	946700	949200	920000	928600	925100	922900	939400	906200	943800	860000	831800
21	972200	946900	949900	920500	929700	927100	921800	938700	919400	939400	858900	830700
22	972200	947400	947400	920500	929900	932800	922700	937600	942700	935900	856700	829900
23	974800	948100	942500	920900	930400	940300	922500	936800	958900	931700	853000	829200
24	977300	947600	937000	920900	930600	941800	923800	942700	964400	929100	850400	829000
25	976600	947200	931900	921400	931700	942500	924200	942700	969700	925300	849000	829000
26	975900	949000	939800	922500	928800	941800	924700	942000	971800	923100	847900	828200
27	975200	949000	923300	922200	928000	941800	924900	942700	974100	918900	846500	827100
28	974800	949500	922700	922500	928600	941200	924000	943100	983500	916500	845800	826900
29	974800	949900	922500	923100	---	940900	922900	940900	994500	911700	842300	826900
30	973100	951100	922500	924400	---	940500	922200	938100	982600	907900	840800	826900
31	974300	---	923100	924200	---	939600	---	935900	---	903300	840400	---
MAX	977300	972900	954300	924400	931700	942500	939400	945100	994500	980300	900500	836600
MIN	891400	946500	922500	918500	924200	924400	921800	913000	905700	903300	840400	826900
(†)	1019.23	1018.22	1016.96	1017.01	1017.21	1017.71	1016.92	1017.54	1019.59	1016.06	1013.16	1012.52
(‡)	+80700	-23200	-28000	+1100	+4400	+11000	-17400	+13700	+46700	-79300	-62900	-13500

CAL YR 1981 MAX 981900 MIN 889700 ‡ -26100
WTR YR 1982 MAX 994500 MIN 826900 ‡ -66700

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

08150000 LLANO RIVER NEAR JUNCTION, TX

LOCATION (revised).--Lat 30°30'15", long 99°44'03", Kimble County, Hydrologic Unit 12090204, on right bank 960 ft upstream from low-water crossing, 1.0 mi (1.6 km) east of Junction, 2.6 mi (4.2 km) downstream from bridge on Interstate Highway 10, 2.8 mi (4.5 km) downstream from confluence of North and South Llano Rivers, 5.3 mi (8.5 km) upstream from Johnson Fork, and 114.8 mi (184.7 km) upstream from mouth.

DRAINAGE AREA (revised).--1,854.14 mi² (4,802.22 km²), of which 5.14 mi² probably is noncontributing.

PERIOD OF RECORD.--September 1915 to current year.

REVISED RECORDS.--WSP 568: 1915-16, 1918-20, 1922. WRD TX-81-3: Drainage area. WSP 1922: 1920, 1923.

GAGE (revised).--Water-stage recorder. Datum of gage is 1,636.32 ft (498.750 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 14, 1925, nonrecording gage, and Aug. 14, 1925, to May 17, 1940, and Aug. 18, 1944, to Oct. 12, 1981, water-stage recorder at site 5,330 ft (1,620 m) downstream at datum 6.0 ft (1.83 m) lower, designated as regular gage (destroyed by flood of Oct. 13, 1981).

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

AVERAGE DISCHARGE.--67 years, 195 ft³/s (5.522 m³/s), 1.41 in/yr (36 mm/yr), 141,300 acre-ft/yr (174 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 former gage 5,330 ft (1,620 m) downstream, from floodmarks, from rating curve extended above 54,000 ft³/s (1,530 m³/s) on basis of slope-area measurements of 154,000 and 319,000 ft³/s (4,360 and 9,030 m³/s); minimum, 3.1 ft³/s (0.088 m³/s) Aug. 16, 17, 1956.
Maximum stage since at least 1875, that of June 14, 1935.

EXTREMES OUTSIDE PERIOD OF RECORD.--There was a major flood in 1889 which was the highest known prior to June 14, 1935.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 7	1130	6,390	181	6.06	1.847
Oct. 13	1530	*129,000	3,650	a31.11	9.432

a From supplementary gage.

Minimum daily discharge, 82 ft³/s (2.32 m³/s) Sept. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	247	188	166	156	156	141	124	203	135	102	82
2	135	239	185	163	158	154	140	124	191	129	98	83
3	135	234	185	163	156	152	134	121	181	128	97	95
4	134	228	182	161	156	149	134	120	174	125	97	100
5	131	223	182	163	156	147	134	120	169	124	96	91
6	145	223	182	163	156	145	129	205	164	125	96	89
7	2130	221	182	163	156	145	131	149	162	123	97	88
8	986	239	182	161	154	147	132	135	159	120	104	88
9	445	226	178	163	152	145	131	128	155	116	106	88
10	280	218	175	166	149	142	129	126	151	114	106	88
11	252	218	175	161	149	147	129	126	150	114	106	89
12	205	213	175	168	152	145	129	126	158	116	101	92
13	38700	213	175	168	149	142	127	202	154	119	98	96
14	4950	210	175	168	149	142	126	233	147	118	98	94
15	1260	210	175	166	149	142	126	242	143	114	96	92
16	809	208	175	163	151	142	128	190	144	111	93	97
17	635	208	170	163	149	140	127	170	141	109	92	98
18	548	208	168	166	149	138	124	162	139	107	93	92
19	491	205	168	166	149	138	126	156	136	108	94	91
20	432	205	170	163	161	138	125	149	138	107	93	89
21	373	202	170	166	168	140	123	146	136	106	91	92
22	360	202	168	166	158	142	127	146	134	106	90	90
23	339	200	166	163	154	145	132	146	136	112	87	88
24	321	197	166	163	154	145	141	189	130	124	87	87
25	306	197	163	161	170	140	136	164	140	116	86	87
26	292	195	166	161	178	140	129	151	137	111	86	86
27	281	192	166	163	166	142	127	145	139	107	87	85
28	275	192	163	163	158	142	126	206	140	104	88	84
29	269	192	163	166	---	142	125	408	133	104	87	85
30	261	195	166	163	---	145	122	287	136	104	84	87
31	258	---	166	158	---	142	---	228	---	103	83	---
TOTAL	56272	6360	5370	5077	4362	4461	3890	5324	4520	3559	2919	2693
MEAN	1815	212	173	164	156	144	130	172	151	115	94.2	89.8
MAX	38700	247	188	168	178	156	141	408	203	135	106	100
MIN	131	192	163	158	149	138	122	120	130	103	83	82
CFSM	.97	.11	.09	.09	.08	.08	.07	.09	.08	.06	.05	.05
IN.	1.12	.13	.11	.10	.09	.09	.08	.11	.09	.07	.06	.05
AC-FT	111600	12620	10650	10070	8650	8850	7720	10560	8970	7060	5790	5340

CAL YR 1981	TOTAL	138063	MEAN 378	MAX 38700	MIN 97	CFSM .20	IN 2.74	AC-FT	273800	
WTR YR 1982	TOTAL	104807	MEAN 287	MAX 38700	MIN 82	CFSM .15	IN 2.08	AC-FT	207900	

08150700 LLANO RIVER NEAR MASON, TX

LOCATION.--Lat 30°39'38", long 99°06'32", Mason County, Hydrologic Unit 12090204, on right bank 98 ft (30 m) downstream from downstream bridge on U.S. Highway 87, 1.0 mi (1.6 km) upstream from Beaver Creek, 9.1 mi (14.6 km) southeast of Mason, 10.2 mi (16.4 km) downstream from James River, and 61.1 mi (98.3 km) upstream from mouth.

DRAINAGE AREA.--3,247.14 mi^2 (8,410.09 km^2), of which 5.14 mi^2 (13.31 km^2) probably is noncontributing.

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

REVISED RECORD.--WDR TX-75-3: 1968(P). WRD TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,230.36 ft (375.014 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 19, 1971, at site 190 ft (58 m) upstream at same datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years (water years 1969-82), 355 ft^3/s (10.05 m^3/s), 1.47 in/yr (37 mm/yr), 257,200 acre-ft/yr (317 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 260,000 ft^3/s (7,360 m^3/s) Sept. 8, 1980, gage height, 37.00 ft (11.278 m), from floodmark, from rating curve extended above 151,000 ft^3/s (4,280 m^3/s) on basis of slope-area measurement and discharge measurement of 145,000 ft^3/s (4,110 m^3/s); minimum, 16 ft^3/s (0.45 m^3/s) July 23, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, about 46 ft (14.0 m) June 14, 1935, from information by State Department of Highways and Public Transportantion; discharge, about 380,000 ft^3/s (10,800 m^3/s); at site 17.0 mi (27.4 km) downstream discharge was 388,000 ft^3/s (11,000 m^3/s) by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft^3/s (85.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 8	0230	3,570	101	5.31	1.618
Oct. 13	2230	*114,000	3,230	25.06	7.638

Minimum discharge, 84 ft^3/s (2.38 m^3/s) Aug. 31.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	382	260	237	211	222	188	178	353	172	101	87
2	141	365	259	234	210	214	183	184	300	169	98	89
3	141	354	255	232	210	209	176	175	263	166	95	98
4	142	345	259	226	210	206	173	171	240	157	93	134
5	142	338	259	225	210	204	170	170	224	157	93	119
6	147	333	255	222	210	204	162	318	216	154	90	122
7	518	326	255	225	210	202	162	423	214	151	92	113
8	1980	335	255	223	211	198	166	279	210	151	109	104
9	861	342	251	221	214	197	168	215	206	145	139	102
10	524	333	251	221	214	197	173	204	203	142	215	99
11	402	316	248	221	211	196	170	200	200	136	206	97
12	362	310	244	222	212	195	164	199	199	133	148	94
13	25300	305	244	229	212	195	160	253	205	133	137	96
14	26300	299	249	227	211	195	157	392	205	139	125	98
15	2430	295	249	224	209	194	160	364	197	139	118	119
16	1400	289	247	227	207	191	167	364	283	133	114	243
17	977	284	244	225	205	189	178	296	225	124	113	146
18	796	281	241	220	203	189	163	238	200	118	114	122
19	690	277	236	221	200	187	167	219	190	118	118	124
20	627	269	240	221	206	185	178	210	187	112	111	121
21	584	264	240	221	227	188	179	208	181	112	108	107
22	613	265	242	221	222	190	201	204	184	112	105	100
23	614	263	235	220	216	189	219	204	178	118	102	103
24	541	261	236	216	208	190	241	224	196	130	98	105
25	503	259	235	215	218	190	257	256	194	130	96	102
26	476	262	232	214	301	186	211	261	190	127	94	101
27	456	258	232	212	266	184	195	216	239	124	94	99
28	436	254	238	210	239	188	184	319	338	115	93	97
29	422	258	236	213	---	188	178	519	203	109	96	96
30	408	267	236	217	---	191	174	501	181	109	92	94
31	398	---	235	214	---	191	---	465	---	106	87	---
TOTAL	69472	8989	7598	6876	6083	6044	5424	8429	6604	4141	3494	3331
MEAN	2241	300	245	222	217	195	181	272	220	134	113	111
MAX	26300	382	260	237	301	222	257	519	353	172	215	243
MIN	141	254	232	210	200	184	157	170	178	106	87	87
AC-FT	137800	17830	15070	13640	12070	11990	10760	16720	13100	8210	6930	6610

CAL YR 1981 TOTAL 211435 MEAN 579 MAX 26300 MIN 130 AC-FT 419400
WTR YR 1982 TOTAL 136485 MEAN 374 MAX 26300 MIN 87 AC-FT 270700

08150800 BEAVER CREEK NEAR MASON, TX

LOCATION.--Lat 30°38'36", long 99°05'44", Mason County, Hydrologic Unit 12090204, on left bank at downstream side of downstream bridge on U.S. Highway 87, 1.8 mi (2.9 km) upstream from Llano River, 6.4 mi (10.3 km) downstream from Spring Creek, and 11.1 mi (17.9 km) southeast of Mason.

DRAINAGE AREA.--215 mi^2 (557 km^2).

PERIOD OF RECORD.--July 1963 to current year.

REVISED RECORDS.--WSP 2122: 1964-65. WRD TX-81-3: Drainage area.

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.--19 years, 18.1 ft^3/s (0.513 m^3/s), 1.14 in/yr (29 mm/yr), 13,110 acre-ft/yr (16.2 hm^3/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 782 ft^3/s (22.1 m^3/s) Oct. 13 at 1630 hours, gage height, 3.41 ft (1.039 m), no peak above base of 1,000 ft^3/s (28.3 m^3/s); no flow Aug. 5, 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	4.3	5.8	4.3	2.7	2.5	3.2	2.3	9.0	.91	.21	.05
2	2.1	3.2	4.9	4.3	4.2	1.8	3.2	2.7	5.0	.93	.16	.05
3	2.1	2.9	6.4	4.2	5.0	1.5	3.2	2.4	4.3	.88	.03	1.8
4	3.2	2.6	4.4	3.5	3.9	1.2	3.2	2.2	4.3	.77	.03	1.1
5	2.1	2.6	5.8	3.1	3.9	1.2	3.2	2.0	3.6	.66	.00	.68
6	3.2	2.9	5.8	2.9	3.3	2.0	3.4	18	3.2	.59	.00	1.4
7	58	2.9	8.1	2.3	4.2	2.6	3.6	20	2.9	.69	.36	1.1
8	45	10	7.0	2.2	3.6	2.6	3.6	8.9	2.6	.48	33	.80
9	20	10	6.8	2.0	3.2	2.9	4.4	4.7	2.4	.74	125	.74
10	12	3.9	5.8	2.2	3.1	2.7	4.7	3.1	2.1	.70	33	.63
11	9.6	3.2	3.2	1.8	3.5	3.3	4.6	3.9	1.8	4.6	9.6	.57
12	12	2.9	2.4	3.8	3.9	2.9	4.6	3.7	14	9.0	2.4	.57
13	265	3.2	2.4	5.0	4.1	3.7	5.2	29	26	1.8	1.6	.57
14	123	3.6	2.6	4.1	4.1	3.5	4.9	34	17	1.4	1.2	.42
15	43	3.9	2.8	3.5	3.6	3.8	4.3	8.9	14	3.4	.84	1.6
16	19	3.6	2.8	2.9	3.6	4.1	4.7	4.7	10	4.9	.70	.91
17	11	3.6	2.6	2.6	3.5	4.5	5.8	2.7	7.3	5.3	1.0	.17
18	4.3	4.3	2.6	3.0	3.3	4.4	4.3	2.3	3.1	8.3	1.0	.11
19	2.4	4.4	2.6	3.0	3.2	4.0	3.5	2.6	1.2	6.6	.57	.57
20	1.8	3.7	2.8	3.3	4.4	3.7	4.6	3.2	1.4	1.0	.46	1.1
21	1.8	3.4	2.6	3.0	7.5	3.9	5.2	2.6	1.4	1.6	.36	.91
22	26	4.0	2.6	3.0	7.0	4.5	12	2.9	3.0	.70	.36	1.2
23	48	7.1	2.4	2.7	4.2	4.8	17	2.6	79	.57	.28	1.0
24	15	8.0	2.1	2.6	3.5	5.1	19	25	14	.48	.21	.70
25	8.0	7.1	2.5	3.1	7.7	3.9	17	19	1.8	.12	.12	.46
26	5.0	7.1	3.1	3.1	15	3.5	7.2	8.5	.84	.21	.12	.36
27	4.3	6.6	3.2	3.1	8.3	3.5	2.3	7.6	3.2	.36	.12	.28
28	4.3	5.8	3.2	3.3	3.9	4.2	1.7	45	3.9	.43	.09	.16
29	3.9	7.1	3.2	3.6	---	4.5	1.8	72	2.1	.13	.09	.16
30	3.6	17	3.7	4.5	---	4.2	1.7	29	1.2	.13	.06	.12
31	3.9	---	4.3	3.2	---	3.6	---	13	---	.13	.06	---
TOTAL	764.7	154.9	120.5	99.2	131.4	104.6	167.1	388.5	245.64	58.51	213.03	20.29
MEAN	24.7	5.16	3.89	3.20	4.69	3.37	5.57	12.5	8.19	1.89	6.87	.68
MAX	265	17	8.1	5.0	15	5.1	19	72	79	9.0	125	1.8
MIN	1.8	2.6	2.1	1.8	2.7	1.2	1.7	2.0	.84	.12	.00	.05
CFSM	.11	.02	.02	.02	.02	.02	.03	.06	.04	.009	.03	.003
IN.	.13	.03	.02	.02	.02	.02	.03	.07	.04	.01	.04	.00
AC-FT	1520	307	239	197	261	207	331	771	487	116	423	40

CAL YR 1981	TOTAL	7064.55	MEAN 19.4	MAX 564	MIN .46	CFSM .09	IN 1.21	AC-FT	14010	
WTR YR 1982	TOTAL	2468.37	MEAN 6.76	MAX 265	MIN .00	CFSM .03	IN .42	AC-FT	4900	

08151500 LLANO RIVER AT LLANO, TX
(National stream-gaging accounting network)

LOCATION.--Lat 30°45'04", long 98°40'10", Llano County, Hydrologic Unit 12090204, on right bank in Llano, 0.4 mi (0.6 km) downstream from bridge on State Highway 16, 7 mi (11 km) upstream from Little Llano River, and 29.3 mi (47.2 km) upstream from mouth.

DRAINAGE AREA.--4,197.14 mi² (10,870.59 km²), of which 5.14 mi² (13.31 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 970.01 ft (295.659 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Many small diversions above station. Part of low flow of Llano River disappears into various formations, many of which are faulted, between stations near Junction and Llano. Gage-height telemeter and rain gage at station.

AVERAGE DISCHARGE.--43 years, 363 ft³/s (10.28 m³/s), 1.16 in/yr (29 mm/yr), 263,000 acre-ft/yr (324 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 232,000 ft³/s (6,570 m³/s) Sept. 10, 1952, gage height, 32.6 ft (9.94 m), from rating curve extended above 129,000 ft³/s (3,650 m³/s) on basis of slope-area measurement of peak flow; no flow at times in 1952-56, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, 41.5 ft (12.65 m) June 14, 1935, discharge, 380,000 ft³/s (10,800 m³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 116,000 ft³/s (3,290 m³/s) Oct. 14 at 0045 hours, gage height, 23.79 ft (7.251 m), no other peak above base of 7,500 ft³/s (212 m³/s); minimum, 55 ft³/s (1.56 m³/s) Aug. 7.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168	387	292	230	215	273	200	185	355	200	82	72
2	164	372	287	233	215	251	192	179	289	177	79	67
3	164	369	280	227	210	236	184	185	259	159	74	75
4	164	363	279	215	205	225	174	176	237	159	70	87
5	164	358	273	217	205	215	165	162	221	146	64	101
6	180	354	273	220	199	215	164	225	200	139	64	120
7	224	350	273	217	205	210	164	312	188	134	67	111
8	1330	352	276	215	205	210	162	372	182	135	77	112
9	1120	352	279	215	210	210	177	284	171	129	452	104
10	669	358	276	214	210	210	179	235	160	121	284	94
11	467	348	279	210	210	210	174	211	153	119	323	90
12	373	333	276	221	209	210	172	195	261	112	290	88
13	16700	331	271	226	210	210	160	298	229	110	189	81
14	36700	331	265	231	210	210	153	377	218	110	144	83
15	3260	329	262	237	212	210	151	378	200	106	119	87
16	1720	325	262	233	210	210	157	326	202	116	105	367
17	1170	321	257	230	206	210	154	312	249	104	96	365
18	884	323	257	230	189	199	173	279	253	96	139	205
19	743	318	252	230	194	194	173	244	201	87	121	161
20	657	311	246	230	205	189	171	216	187	81	104	159
21	594	297	243	230	215	199	178	201	179	80	100	130
22	604	294	252	230	236	199	208	191	184	76	96	110
23	616	297	243	228	241	210	215	204	197	94	91	102
24	555	302	235	220	236	199	264	256	220	100	83	95
25	501	302	235	215	241	194	268	299	247	103	77	97
26	467	294	234	210	296	189	273	283	231	119	72	97
27	445	290	233	205	347	189	232	262	204	116	73	92
28	429	287	235	205	308	189	207	278	236	110	72	88
29	416	285	230	205	---	189	188	525	316	105	72	89
30	407	295	230	220	---	194	189	433	238	91	70	84
31	420	---	230	215	---	206	---	404	---	81	74	---
TOTAL	72475	9828	8015	6864	6254	6464	5621	8487	6667	3615	3823	3613
MEAN	2338	328	259	221	223	209	187	274	222	117	123	120
MAX	36700	387	292	237	347	273	273	525	355	200	452	367
MIN	164	285	230	205	189	189	151	162	153	76	64	67
CFSM	.55	.08	.06	.05	.05	.05	.04	.07	.05	.03	.03	.03
IN.	.64	.09	.07	.06	.05	.06	.05	.07	.06	.03	.03	.03
AC-FT	143800	19490	15900	13610	12400	12820	11150	16830	13220	7170	7580	7170

CAL YR 1981 TOTAL 247871 MEAN 679 MAX 36700 MIN 124 CFSM .16 IN 2.18 AC-FT 491700
WTR YR 1982 TOTAL 141726 MEAN 388 MAX 36700 MIN 64 CFSM .09 IN 1.25 AC-FT 281100

08151500 LLANO RIVER AT LLANO, TX --Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1979 to September 1981.
WATER TEMPERATURES: April 1979 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 487 micromhos Jan. 3, 1981; minimum daily, 191 micromhos Sept. 3, 1981.
WATER TEMPERATURES: Maximum daily, 33.0°C on several days during summer of 1980-81; minimum daily, 6.0°C Jan. 29, Feb. 9, Dec. 22, 1980, and Jan. 19, 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV												
19...	0740	318	437	8.5	18.0	3.5	8.6	92	.6	140	140	210
DEC												
17...	0800	279	450	8.6	8.5	.50	10.4	90	.5	110	84	210
MAR												
04...	1200	220	498	8.6	18.0	.80	11.5	128	1.0	26	100	200
APR												
27...	0915	251	422	7.9	21.0	.90	9.0	102	.3	140	160	180
JUL												
15...	1525	681	346	8.4	30.5	1.9	6.9	96	1.7	69	300	150
AUG												
17...	1430	102	347	8.5	32.5	1.5	4.6	66	.6	96	140	140

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV											
19...	36	48	21	14	.5	2.6	170	25	28	.3	8.7
DEC											
17...	20	48	22	15	.5	2.0	190	14	24	.2	9.9
MAR											
04...	25	44	23	19	.6	1.9	180	19	35	.3	9.1
APR											
27...	19	37	21	18	.7	2.2	160	18	29	.3	12
JUL											
15...	15	29	19	15	.6	2.3	136	15	21	.2	21
AUG											
17...	7	25	18	14	.6	2.4	130	13	22	.2	20

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
19...	251	250	1.0	.160	1.30	.010	.010	.020	15	13	70
DEC											
17...	249	249	.77	.070	.64	.010	.040	<.010	6	4.5	67
MAR											
04...	246	260	.37	<.060	.38	.030	.030	<.010	10	5.9	52
APR											
27...	239	234	<.10	<.060	.44	<.010	.040	<.010	8	5.4	80
JUL											
15...	202	204	<.10	<.060	1.00	<.010	<.010	.020	4	7.4	68
AUG											
17...	255	193	<.10	.060	.60	.040	.020	.010	3	.83	71

08151500 LLANO RIVER AT LLANO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
NOV 19...	0740	1	0	1	<100	--	62	<1	<1	<10
MAR 04...	1200	2	0	2	100	40	58	<1	<1	10
APR 27...	0915	2	1	1	<100	--	54	<1	<3	<10
AUG 17...	1430	3	0	3	<100	--	43	<1	<1	<10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)
NOV 19...	<10	<1	<3	3	0	4	80	60	21	1
MAR 04...	<10	<1	2	2	1	1	20	--	<10	2
APR 27...	<10	<1	<1	4	3	1	30	--	<9	<1
AUG 17...	<10	<1	1	1	--	<1	130	--	<3	1

DATE	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)
NOV 19...	0	4	<10	--	<1	.1	.0	.1	<1
MAR 04...	0	3	10	7	3	<.1	--	<.1	<1
APR 27...	--	1	20	--	<3	<.1	--	<.1	2
AUG 17...	--	<1	20	20	1	<.1	--	<.1	3

DATE	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 19...	--	1	<1	<1	<1	1	10	6	4
MAR 04...	--	2	<1	<1	<1	1	10	--	<3
APR 27...	--	<1	<1	<1	<1	<1	10	--	<12
AUG 17...	2	1	<1	<1	1	<1	10	--	<3

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, 6.6 mi (10.6 km) upstream from mouth, and 7.3 mi (11.7 km) south of kingsland.

DRAINAGE AREA.--346 mi^2 (896 km^2).

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

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

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

AVERAGE DISCHARGE.--16 years, 63.3 ft^3/s (1.793 m^3/s), 2.48 in/yr (63 mm/yr), 45,860 acre-ft/yr (56.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft^3/s (779 m^3/s) June 16, 1981, gage height, 17.63 ft (5.374 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Sept. 11, 1952, which was the highest since at least 1881, reached a stage of 34.2 ft (10.42 m), discharge 163,000 ft^3/s (4,620 m^3/s), from slope-area measurement at gage site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,850 ft^3/s (80.7 m^3/s) Oct. 13 at 1500 hours, gage height, 8.41 ft (2.563 m), no other peak above base of 2,500 ft^3/s (70.8 m^3/s); no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	56	15	13	13	25	11	13	16	7.0	.00	.00
2	6.5	43	13	13	14	20	11	12	15	4.8	.00	.00
3	6.7	32	12	13	13	17	9.1	11	13	3.9	.00	.08
4	6.5	27	12	12	11	15	8.6	9.2	12	3.5	.00	1.1
5	6.8	22	12	11	12	14	8.3	8.3	11	2.8	.00	1.0
6	18	22	13	12	12	14	6.8	33	9.8	2.7	.00	.80
7	121	19	14	10	12	13	6.8	43	9.0	2.5	.00	.63
8	38	24	14	9.8	12	12	7.9	30	7.9	3.5	.00	.63
9	21	22	14	9.8	13	11	7.1	22	6.9	8.2	.02	.52
10	14	20	14	11	12	12	7.1	18	6.3	4.1	.26	.46
11	12	19	14	10	12	12	7.1	18	5.5	2.6	.15	.46
12	11	19	13	14	12	11	6.9	18	15	1.9	.04	.41
13	690	18	13	16	12	11	6.6	169	16	3.4	.00	.40
14	246	18	14	16	12	11	6.3	114	16	3.6	.00	.42
15	92	18	13	15	12	10	7.7	46	11	1.8	.00	.62
16	62	17	13	14	12	11	7.5	24	26	1.0	.00	1.1
17	50	17	12	13	11	11	6.7	24	22	.86	.00	.46
18	43	17	12	13	10	10	6.1	26	18	.75	.00	.41
19	37	15	12	12	11	9.5	6.7	21	13	.54	.00	.27
20	37	14	13	13	16	9.1	12	17	10	.36	.00	1.0
21	34	14	13	14	19	10	18	16	8.3	.28	.00	.61
22	50	13	13	15	16	11	59	15	8.2	.16	.00	.32
23	58	14	12	13	14	11	48	16	14	.13	.00	.46
24	48	13	12	12	14	11	49	29	20	.12	.00	.43
25	43	14	12	12	20	10	40	37	23	.04	.00	.32
26	37	14	12	11	39	9.4	30	26	17	.04	.00	.32
27	32	13	12	11	37	13	23	21	11	.04	.00	.32
28	29	13	12	11	31	13	19	22	10	.04	.00	.27
29	27	15	11	12	---	12	15	36	13	.04	.00	.21
30	27	16	13	16	---	12	13	28	7.9	.00	.00	.22
31	37	---	14	17	---	12	---	21	---	.00	.00	---
TOTAL	1947.0	598	398	394.6	434	383.0	471.3	943.5	391.8	60.70	.47	14.25
MEAN	62.8	19.9	12.8	12.7	15.5	12.4	15.7	30.4	13.1	1.96	.015	.48
MAX	690	56	15	17	39	25	59	169	26	8.2	.26	1.1
MIN	6.5	13	11	9.8	10	9.1	6.1	8.3	5.5	.00	.00	.00
CFSM	.18	.06	.04	.04	.05	.04	.05	.09	.04	.006	.000	.001
IN.	.21	.06	.04	.04	.05	.04	.05	.10	.04	.01	.00	.00
AC-FT	3860	1190	789	783	861	760	935	1870	777	120	.9	28

CAL YR 1981 TOTAL 30679.30 MEAN 84.1 MAX 7080 MIN 6.2 CFSM .24 IN 3.30 AC-FT 60850
WTR YR 1982 TOTAL 6036.62 MEAN 16.5 MAX 690 MIN .00 CFSM .05 IN .65 AC-FT 11970

08152900 PEDERNALES RIVER NEAR FREDERICKSBURG, TX

LOCATION.--Lat 30°13'13", long 98°52'10", Gillespie County, Hydrologic Unit 12090206, on left bank at downstream side of bridge on U.S. Highway 87, 2.0 mi (3.2 km) upstream from Mueseback Creek, 3.8 mi (6.1 km) south of Fredericksburg, and 88.7 mi (142.7 km²) upstream from mouth.

DRAINAGE AREA.--369 mi² (956 km²).

PERIOD OF RECORD.--July 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,564.96 ft (477.000 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known regulation or diversions above station. Several observations of water temperature were obtained during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s (379 m³/s) June 4, 1981, gage height, 23.23 ft (7.081 m); minimum, 1.1 ft³/s (0.031 m³/s) at times each day Aug. 4-6, 1980, gage height, 4.08 ft (1.244 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Aug. 2, 1978, which is the highest since 1907, reached a stage of 41.6 ft (12.68 m), discharge not known. The highest known discharge was 64,000 ft³/s (1.810 m³/s) June 1, 1979, gage height, 34.4 ft (10.49 m), from floodmark, from rating curve extended above a discharge measurement of 42,300 ft³/s (1,200 m³/s) June 1, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,500 ft³/s (354 m³/s) Oct. 13 at 1445 hours, gage height, 22.45 ft (6.843 m), no other peak above base of 1,500 ft³/s (42.5 m³/s); minimum, 1.7 ft³/s (0.048 m³/s) Aug 6, 7.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	51	37	30	25	38	21	24	27	12	2.9	2.3
2	25	45	35	30	24	36	20	24	26	11	2.6	2.3
3	25	44	34	30	24	36	17	23	26	11	2.3	2.4
4	25	44	33	28	23	36	16	22	26	10	2.3	4.7
5	24	44	32	26	23	34	16	21	24	10	2.1	3.9
6	193	43	33	26	23	33	14	40	21	9.5	1.7	3.2
7	374	41	34	25	23	31	14	60	21	9.2	1.7	2.9
8	98	45	35	23	23	31	14	40	20	8.6	2.1	2.9
9	69	47	35	23	24	31	13	30	19	7.8	8.0	2.9
10	56	43	35	23	24	33	13	27	17	7.3	12	2.9
11	51	40	35	23	24	34	13	27	16	7.2	7.6	2.9
12	47	39	34	26	25	36	13	27	19	6.7	6.0	2.6
13	2260	39	32	28	25	36	13	371	26	6.2	5.1	2.6
14	341	39	32	29	24	35	13	152	23	6.0	4.6	2.6
15	156	39	32	29	25	33	13	74	20	5.9	4.0	2.7
16	109	38	32	27	25	33	13	55	19	5.0	3.7	3.1
17	91	38	31	26	25	33	14	46	19	4.9	3.6	3.2
18	79	39	29	26	25	32	14	43	19	4.9	3.6	2.9
19	70	38	29	27	25	31	14	39	18	4.8	3.6	2.4
20	65	35	30	27	30	29	36	35	17	4.5	3.6	8.0
21	63	35	32	27	33	24	31	33	16	4.5	3.2	4.5
22	72	35	32	28	33	23	59	31	15	4.5	3.2	3.0
23	74	36	30	27	33	28	62	29	29	4.6	3.2	2.9
24	64	36	29	24	32	29	47	71	26	5.3	3.5	2.9
25	62	36	29	23	32	25	40	61	19	4.9	2.9	2.9
26	57	36	29	23	46	22	34	42	17	4.5	2.9	2.9
27	52	36	29	22	53	22	29	35	15	4.9	2.9	2.9
28	51	35	29	23	42	22	26	33	13	4.6	2.9	2.6
29	48	35	28	23	---	22	27	51	13	4.1	2.9	2.6
30	48	38	29	27	---	21	25	43	12	3.6	2.9	2.3
31	48	---	30	27	---	22	---	33	---	2.9	2.6	---
TOTAL	4822	1189	985	806	793	931	694	1642	598	200.9	116.2	92.9
MEAN	156	39.6	31.8	26.0	28.3	30.0	23.1	53.0	19.9	6.48	3.75	3.10
MAX	2260	51	37	30	53	38	62	371	29	12	12	8.0
MIN	24	35	28	22	23	21	13	21	12	2.9	1.7	2.3
AC-FT	9560	2360	1950	1600	1570	1850	1380	3260	1190	398	230	184

CAL YR 1981 TOTAL 33116.0 MEAN 90.7 MAX 3940 MIN 16 AC-FT 65690
WTR YR 1982 TOTAL 12870.0 MEAN 35.3 MAX 2260 MIN 1.7 AC-FT 25530

08153500 PEDERNALES RIVER NEAR JOHNSON CITY, TX

LOCATION (revised).--Lat 30°17'30", long 98°23'57", Blanco County, Hydrologic Unit 12090206, near left downstream end of bridge on U.S. Highway 281, 0.2 mi (0.3 km) downstream from Towhead Creek, 1.1 mi (1.8 km) northeast of Johnston City, 3.4 mi (5.5 km) downstream from Buffalo Creek, and 48.0 mi (77.2 km) upstream from mouth.

DRAINAGE AREA.--901 mi² (2,334 km²),

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1632: 1953(M), 1957, 1958(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,096.70 ft (334.274 m) National Geodetic Vertical Datum of 1929. May 4 to Sept. 13, 1939, nonrecording gage, and Sept. 14, 1939, to Sept. 10, 1952, water-stage recorder at upstream side of bridge at same datum. Sept. 11, 1952, to June 29, 1953, nonrecording gage, and June 30, 1953, to Oct. 7, 1954, water-stage recorder at site 360 ft (110 m) downstream at same datum.

REMARKS.--Water-discharge records good. Some diversions above station for irrigation. The city of Fredericksburg discharges various amounts of sewage effluent into the river upstream from station. The city of Johnson City diverts various amounts of water from pool at gage and discharges various amounts of sewage effluent into the river below gage. Flow is affected at times by discharge from the flood-detention pools of four floodwater-retarding structures with a combined detention capacity of 4,580 acre-ft (5.65 hm³). These structures control runoff from 15.6 mi² (40.4 km²) in the Williamson Creek drainage basin. Gage-height and rain-gage telemeters at station.

AVERAGE DISCHARGE.--43 years (water years 1940-82), 179 ft³/s (5.069 m³/s), 129,700 acre-ft/yr (160 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s (12,500 m³/s) Sept. 11, 1952, gage height, 42.5 ft (12.95 m), from floodmark, from rating curve extended above 116,000 ft³/s (3,290 m³/s) on basis of slopearea measurement of 441,000 ft³/s (12,500 m³/s); no flow at times in 1951-52, 1954, 1956-57, 1963-64, 1967-68, 1971.
Maximum stage since at least 1859, 42.5 ft (12.95 m) Sept. 11, 1952.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1869 reached a stage of 33 ft (10.1 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,100 ft³/s (116 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 6	1930	4,490	127	12.11	3.691	Oct. 13	1800	*32,300	915	16.67	5.081
Oct. 7	0730	8,200	232	13.09	3.990	May 13	1130	4,690	133	12.17	3.709

Minimum daily discharge, 2.1 ft³/s (0.059 m³/s) Sept. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	245	106	80	71	97	69	88	108	45	11	5.0
2	46	187	104	80	68	88	68	80	99	44	10	5.0
3	45	162	97	76	65	72	60	80	94	46	8.5	4.7
4	45	151	95	73	66	68	57	72	88	38	8.3	25
5	43	151	94	73	62	62	50	64	85	35	7.6	17
6	1300	142	96	72	58	58	51	448	80	33	6.6	10
7	3340	136	96	69	64	58	53	234	77	31	6.1	10
8	813	148	96	66	64	58	52	145	72	31	7.5	6.9
9	372	155	96	69	58	57	51	117	67	30	15	4.1
10	218	146	96	62	64	58	51	98	64	28	28	2.4
11	168	134	96	63	63	59	51	97	64	27	49	2.1
12	145	133	96	75	57	59	51	98	76	27	41	2.8
13	9770	133	93	72	63	55	50	2210	78	27	32	3.2
14	2790	133	88	80	63	47	50	1000	85	27	26	3.6
15	757	133	88	80	62	50	51	373	73	26	23	4.0
16	459	126	88	72	62	55	51	232	106	24	19	5.3
17	349	125	83	72	58	56	48	188	84	23	16	6.2
18	275	125	86	72	58	55	51	168	76	21	20	7.6
19	234	115	85	72	56	54	57	154	65	16	20	14
20	212	114	88	75	66	54	94	141	59	12	20	27
21	202	110	89	76	75	53	239	133	57	13	21	14
22	231	108	86	78	79	56	471	126	58	14	19	14
23	275	105	83	70	77	65	433	120	73	16	16	11
24	230	105	80	71	70	89	239	164	132	19	15	11
25	199	108	80	67	74	70	170	189	81	19	9.7	14
26	180	105	76	65	97	71	133	163	65	17	10	11
27	172	105	80	66	129	71	105	143	56	15	8.8	7.2
28	164	105	76	64	107	67	96	133	51	13	8.8	5.7
29	160	108	78	67	---	69	96	129	61	15	6.8	5.0
30	160	105	79	70	---	72	88	131	53	15	6.7	4.7
31	179	---	79	70	---	69	---	121	---	13	5.9	---
TOTAL	23581	3958	2753	2217	1956	1972	3186	7639	2287	760	502.3	263.5
MEAN	761	132	88.8	71.5	69.9	63.6	106	246	76.2	24.5	16.2	8.78
MAX	9770	245	106	80	129	97	471	2210	132	46	49	27
MIN	43	105	76	62	56	47	48	64	51	12	5.9	2.1
AC-FT	46770	7850	5460	4400	3880	3910	6320	15150	4540	1510	996	523

CAL YR 1981	TOTAL	120485.0	MEAN 330	MAX 14000	MIN 40	AC-FT	239000	
WTR YR 1982	TOTAL	51074.8	MEAN 140	MAX 9770	MIN 2.1	AC-FT	101300	

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 07...	1245	3890	257	22.0	120	7	33	8.4	5.9
NOV 18...	0805	118	610	19.0	260	28	44	36	29
JAN 06...	0925	74	683	12.0	280	44	46	41	39
MAR 23...	1402	71	654	17.5	270	36	39	41	40
MAY 05...	0945	69	594	23.0	230	25	38	34	30
JUN 17...	0821	86	547	28.0	220	32	36	32	32
AUG 31...	1315	7.2	725	32.5	240	45	20	45	62

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 07...	.3	4.3	110	5.0	15	.2	11	138
NOV 18...	.9	2.4	230	38	44	.4	5.2	337
JAN 06...	1.2	2.3	240	41	75	.4	3.1	392
MAR 23...	1.2	3.0	230	39	65	.3	5.0	371
MAY 05...	1.0	2.9	210	27	53	.4	5.0	317
JUN 17...	1.1	2.7	190	32	49	.4	15	313
AUG 31...	2.1	3.8	190	43	100	.4	25	413

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.-38,755 mi² (100,375 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing.

PERIOD OF RECORD.--September 1940 to current year. Prior to October 1948, published as Marshall Ford Reservoir near Austin.

REVISED RECORDS.--WSP 1342: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 0.12 ft (0.037 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Dec. 26, 1940, staff gages on left bank near dam, datum is NGVD, unadjusted. Dec. 26, 1940, to February 1942, mercury manometer in powerhouse, datum is NGVD, unadjusted.

REMARKS.--The lake is formed by a 7,098-foot-long (2,163 m) concrete gravity, earth, and rockfill dam. Storage began Sept. 9, 1940, and dam was completed in early 1942. Capacity curve is based on October 1939 survey. Capacity between gage heights 681.0 and 714.0 ft (207.57 and 217.63 m) is 778,000 acre-ft (959 hm³) and is reserved for flood control. Water is used for power development and for irrigation below Columbus. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08153500. Diversion for municipal and irrigation purposes are pumped from lake and minor amounts of sewage efficient are discharged into the lake. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam (roadway)	750.1	-
Design flood	748.9	3,223,000
Crest of spillway	714.0	1,950,000
Top of power storage	681.0	1,172,000
Lowest gated outlet (invert)	535.8	27,900

COOPERATION.--Records of daily gage heights and capacity curve furnished by Lower Colorado River Authority.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 1,770,000 acre-ft (2.18 km³) May 18, 1957, gage height, 707.4 ft (215.62 m); minimum, 332,600 acre-ft (410 hm³) Aug. 13, 14, 1951, gage height, 614.2 ft (187.21 m).

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 1,203,000 acre-ft (1.48 km³) Oct. 17, gage height, 682.53 ft (208.035 m); minimum, 908,200 acre-ft (1.12 km³) Sept. 30, minimum gage height, 665.55 ft (202.860 m).

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

665.0	899,700	680.0	1,152,000
670.0	976,900	685.0	1,252,000
675.0	1,062,000		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1008000	1182000	1155000	1154000	1173000	1146000	1129000	1101000	1143000	1152000	1114000	1009000
2	1008000	1179000	1149000	1153000	1169000	1146000	1127000	1099000	1142000	1175000	1111000	1007000
3	1008000	1177000	1144000	1154000	1165000	1146000	1126000	1101000	1145000	1177000	1110000	1004000
4	1007000	1174000	1142000	1155000	1160000	1146000	1123000	1100000	1144000	1173000	1106000	997800
5	1006000	1173000	1141000	1155000	1160000	1146000	1121000	1100000	1142000	1170000	1103000	994500
6	1009000	1171000	1142000	1155000	1158000	1146000	1119000	1099000	1139000	1169000	1099000	988200
7	1030000	1168000	1142000	1157000	1155000	1146000	1119000	1099000	1141000	1166000	1097000	983000
8	1045000	1167000	1143000	1158000	1153000	1144000	1118000	1099000	1135000	1163000	1090000	979800
9	1049000	1169000	1143000	1158000	1153000	1145000	1116000	1100000	1133000	1162000	1090000	975000
10	1052000	1170000	1144000	1158000	1150000	1145000	1115000	1100000	1130000	1159000	1086000	971300
11	1056000	1168000	1150000	1158000	1147000	1145000	1115000	1100000	1127000	1156000	1083000	967300
12	1062000	1168000	1163000	1160000	1056000	1147000	1113000	1099000	1123000	1153000	1077000	963100
13	1066000	1166000	1173000	1162000	1146000	1149000	1112000	1102000	1123000	1152000	1075000	958600
14	1087000	1167000	1171000	1163000	1144000	1147000	1115000	1128000	1122000	1151000	1072000	956000
15	1189000	1168000	1169000	1164000	1143000	1147000	1111000	1134000	1118000	1152000	1068000	951300
16	1201000	1167000	1167000	1166000	1143000	1147000	1111000	1133000	1115000	1147000	1065000	948100
17	1203000	1168000	1165000	1165000	1143000	1147000	1110000	1132000	1115000	1142000	1062000	959500
18	1201000	1166000	1169000	1164000	1144000	1148000	1110000	1134000	1112000	1142000	1063000	940900
19	1196000	1166000	1168000	1165000	1143000	1147000	1108000	1135000	1109000	1139000	1059000	937800
20	1192000	1163000	1165000	1165000	1142000	1147000	1106000	1134000	1105000	1136000	1056000	935800
21	1187000	1160000	1164000	1165000	1143000	1145000	1108000	1135000	1101000	1133000	1049000	934700
22	1185000	1158000	1163000	1165000	1143000	1145000	1104000	1135000	1097000	1132000	1045000	930900
23	1186000	1156000	1165000	1169000	1143000	1142000	1109000	1136000	1099000	1130000	1043000	926700
24	1187000	1153000	1163000	1169000	1144000	1143000	1107000	1135000	1096000	1128000	1041000	924200
25	1187000	1152000	1162000	1169000	1144000	1140000	1109000	1137000	1095000	1127000	1037000	921100
26	1187000	1150000	1162000	1170000	1149000	1140000	1107000	1139000	1094000	1127000	1034000	918600
27	1185000	1151000	1159000	1170000	1148000	1138000	1104000	1140000	1092000	1123000	1029000	915400
28	1185000	1149000	1157000	1170000	1146000	1136000	1103000	1141000	1097000	1122000	1026000	911900
29	1182000	1154000	1156000	1170000	---	1133000	1101000	1144000	1101000	1121000	1021000	909700
30	1180000	1154000	1155000	1170000	---	1131000	1101000	1146000	1112000	1118000	1019000	908200
31	1179000	---	1153000	1174000	---	1130000	---	1142000	---	1116000	1015000	---
MAX	1203000	1182000	1173000	1174000	1173000	1149000	1129000	1146000	1145000	1177000	1114000	1009000
MIN	1006000	1149000	1141000	1153000	1056000	1130000	1101000	1099000	1092000	1116000	1015000	908200
(†)	681.35	680.09	680.07	681.10	679.69	678.78	677.18	679.47	677.80	677.99	672.34	665.55
(‡)	+171000	-25000	-1000	+21000	-28000	-16000	-29000	+41000	-30000	+4000	-101000	-106800

CAL YR 1981 MAX 1345000 MIN 1006000 ‡ -8000
WTR YR 1982 MAX 1203000 MIN 908200 ‡ -99800

† 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.--38,755 mi² (100,375 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Water-discharge records fair.

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

AVERAGE DISCHARGE.--8 years, 1,704 ft³/s (48.26 m³/s), 1,235,000 acre-ft/yr (1.52 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 25,300 ft³/s (716 m³/s) Apr. 17-19, 1977; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 3,630 ft³/s (103 m³/s) Oct. 26; no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	420	3200	3060	299	2680	457	1750	1520	3030	3440	2460	2510
2	781	2960	3090	244	2730	586	1860	1490	2950	2980	2540	2370
3	527	3030	1330	193	1850	328	1510	1770	3030	3450	2400	2680
4	498	3030	92	.00	.00	328	1540	1620	3020	3020	2380	2270
5	.00	3030	.00	.00	1760	562	2400	1780	3050	3540	2530	2540
6	.00	3080	.00	.00	1390	1010	857	1600	3020	3230	2240	2550
7	418	2320	.00	.00	863	861	874	980	3000	3130	3570	2520
8	25	2370	.00	.00	1200	1840	803	1080	2500	3220	1910	2360
9	.00	2280	.00	.00	2250	.00	859	1190	2870	2930	2580	2360
10	.00	2290	225	.00	1640	317	767	1410	2850	3120	2580	1710
11	.00	2320	.00	1220	1070	580	750	1050	2820	2600	3190	2160
12	.00	2320	1070	.00	1540	937	1350	817	2000	2690	3020	2200
13	101	2320	1110	.00	1010	617	1450	1160	2420	2500	2890	1680
14	2830	1110	1090	.00	255	656	1630	1330	2690	2880	1720	2280
15	3220	233	982	.00	235	725	1480	1490	2670	3420	2600	1670
16	3030	1320	490	.00	1290	663	1620	1910	2640	3620	2280	2080
17	3090	1010	.00	.00	1240	616	1350	1610	2640	2850	2320	1830
18	3260	1350	485	.00	1210	588	1630	2110	2630	2930	2460	1690
19	2970	1900	978	.00	1180	645	1760	2210	2680	2530	2620	1610
20	3270	1230	515	.00	157	682	1400	1710	2320	2800	2600	1600
21	3360	1020	515	.00	.00	986	1680	1880	2610	2880	2660	2010
22	3030	1200	776	.00	1030	1740	1550	1530	2360	3140	2400	1900
23	3030	1850	693	.00	189	1480	1720	1350	2310	2930	2450	1920
24	3030	1780	559	.00	.00	1710	1310	1370	2420	2150	2220	1340
25	3550	1240	1020	.00	1440	1550	1420	2340	2650	1750	1910	1130
26	3630	610	672	.00	2320	2240	1580	3290	3260	2290	2080	1380
27	3200	2140	636	.00	353	1730	1400	3010	3090	2150	1880	1380
28	3030	663	756	.00	96	1760	1430	3020	3190	2340	1890	1040
29	3420	773	667	.00	---	1570	1620	3010	3580	2400	3190	835
30	3030	1930	941	.00	---	1580	1580	2930	3240	2840	2160	930
31	3160	---	.00	.00	---	1570	---	1800	---	2950	2780	---
TOTAL	59910.00	55909	21752.00	1956.00	30978.00	30914.00	42930	55367	83540	88700	76510	56535
MEAN	1933	1864	702	63.1	1106	997	1431	1786	2785	2861	2468	1885
MAX	3630	3200	3090	1220	2730	2240	2400	3290	3580	3620	3570	2680
MIN	.00	233	.00	.00	.00	.00	750	817	2000	1750	1720	835
AC-FT	118800	110900	43150	3880	61440	61320	85150	109800	165700	175900	151800	112100

CAL YR 1981 TOTAL 772722.00 MEAN 2117 MAX 22700 MIN .00 AC-FT 1533000
WTR YR 1982 TOTAL 605001.00 MEAN 1658 MAX 3630 MIN .00 AC-FT 1200000

08154510 COLORADO RIVER BELOW MANSFIELD DAM, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1980 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	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										
16...	1245	1320	425	7.6	20.0	5.6	62	.8	170	20
DEC										
14...	1150	1090	448	8.1	18.5	6.7	72	.4	170	30
MAR										
02...	0940	586	447	8.2	11.5	10.2	95	.4	190	41
APR										
26...	1340	1580	446	8.0	13.0	8.9	86	.0	180	39
JUL										
12...	1445	2690	456	7.6	18.0	5.2	56	1.3	190	37
AUG										
16...	1110	2280	484	7.7	21.0	4.4	50	.0	180	33

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV									
16...	40	17	20	.7	3.7	150	28	33	.3
DEC									
14...	40	17	21	.8	3.7	140	23	40	.3
MAR									
02...	42	21	21	.7	3.6	150	28	45	.2
APR									
26...	42	18	21	.7	3.5	140	26	38	.2
JUL									
12...	45	18	22	.8	3.6	150	30	39	.2
AUG									
16...	42	19	24	.8	3.5	150	28	46	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
NOV									
16...	9.6	252	.32	.020	.34	.150	.95	1.10	.020
DEC									
14...	9.5	238	--	<.020	.22	<.070	--	.65	.020
MAR									
02...	9.3	260	--	<.020	.20	<.060	--	.33	.050
APR									
26...	9.4	242	--	<.020	.28	<.060	--	.46	.060
JUL									
12...	9.4	257	--	<.020	.25	<.060	--	.80	<.010
AUG									
16...	8.4	261	--	<.020	.17	.120	.68	.80	.020

08154660 MAYFIELD CREEK AT ALTA VERDE DRIVE, AUSTIN, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°22'42", long 97°45'26", Travis County, Hydrologit Unit 12090205, at intersection of Hayes Lane and Alta Verde Drive, and 7.3 mi (11.7 km) north of the State Capitol Building in Austin.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--July to September 1982.

GAGE.--Flood-hydrograph recorder. Datum of gage is about 8868 ft (264.6 m) National Geodetic Vertical Datum of 1929, from engineering plans.

REMARKS.--This station is part of a hydrologic project to study the effects of engineering-control structures on the quantity and quality of runoff.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period July to September, probably occurred Sept. 19, discharge unknown.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June to September 1982.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	DISCHARGE, IN CUBIC FEET PER SECOND	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
SEP										
19...	2250	--	.67	93	62	7.2	K12000	120000	5.0	70
19...	2257	--	.62	47	34	3.8	14000	59000	1.7	38
19...	2312	--	.58	46	28	2.6	12000	47000	1.9	38
19...	2327	--	.46	54	17	1.6	21000	43000	2.7	36
19-20	--	.18	--	53	14	2.2	12000	53000	2.3	38

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CADMIUM DISSOLVED (UG/L AS CD)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	ZINC, DISSOLVED (UG/L AS ZN)
SEP										
19...	81	22	.50	1.00	.630	14	<1	10	<1	20
19...	48	10	.20	.80	.270	5.2	<1	20	5	10
19...	10	12	.10	.70	.280	4.3	<1	10	3	10
19...	9	11	.10	.70	.370	4.0	<1	10	6	10
19-20	16	14	.20	.80	.300	4.6	<1	10	4	10

08154680 MAYFIELD CREEK AT STECK AVENUE, AUSTIN, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°22'42", long 97°45'27", Travis County, Hydrologit Unit 12090205, at intersection of Adirondack Trail and Steck Avenue, and 7.3 mi (11.7 km) north of the State Capitol Building in Austin.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--July to September 1982.

GAGE.--Flood-hydrograph recorder. Datum of gage is about 842.25 ft (256.718 m) National Geodetic Vertical Datum of 1929, from engineering plans.

REMARKS.--This station is part of a hydrologic project to study the effects of engineering-control structures on the quantity and quality of runoff.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period July to September, probably occurred Sept. 19, discharge unknown.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June to September 1982.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
SEP										
19...	--	.03	--	130	31	3.9	20000	52000	11	86
19...	2239	--	.45	127	44	4.0	21000	79000	9.2	88
19...	2248	--	1.5	149	46	4.8	31000	68000	11	108
19...	2300	--	.68	104	63	2.2	21000	48000	7.8	72
19...	2340	--	.05	115	45	2.0	10000	48000	9.1	78

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CADMIUM DIS-SOLVED (UG/L AS CD)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	ZINC, DIS-SOLVED (UG/L AS ZN)
SEP										
19...	22	22	.50	1.60	1.10	11	<1	40	<1	10
19...	118	26	.50	1.30	.750	9.5	<1	73	<1	14
19...	24	33	.70	2.10	1.30	14	<1	40	<1	20
19...	16	19	.40	1.00	1.00	7.9	<1	40	<1	10
19...	16	18	.30	1.30	1.10	6.5	<1	40	1	10

08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX

LOCATION.--Lat 30°22'19", long 97°47'04", Travis County, Hydrologic Unit 12090205, on right bank at downstream side of bridge at Loop 360, 1.0 mi (1.6 km) upstream from West Fork Bull Creek and Farm Road 2222, and 7.1 mi (11.4 km) northwest of the State Capitol Building in Austin.

DRAINAGE AREA.--22.3 mi² (57.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1976 to July 1978 (operated as a flood-hydrograph partial-record station only), July 1978 to current year.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is 534.08 ft (162.788 m) National Geodetic Vertical Datum of 1929 (levels from city of Austin bench mark).

REMARKS.--Water-discharge records good. No known regulation or diversion above station. There are two recording rain gages in the watershed. This station is part of a hydrologic research project to study the rainfall-runoff relationship for the Austin urban-rural areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft³/s (388 m³/s) May 13, 1982, gage height, 11.96 ft (3.645 m); minimum discharge not determined.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 6	0930	423	12.0	4.65	1.417
May 13	0900	*13,700	388	11.96	3.645

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.92	8.8	3.4	2.7	3.9	4.7	4.6	7.5	5.9	2.9	.25	.25
2	.92	6.0	3.4	2.7	3.7	4.7	4.4	6.9	5.1	2.5	.24	.25
3	2.4	5.4	3.4	2.7	3.7	4.7	3.9	6.4	5.0	2.0	.20	.33
4	2.1	4.9	3.4	2.7	3.7	4.6	3.4	6.0	4.7	1.8	.16	.32
5	1.6	4.7	3.3	2.7	3.7	4.3	3.4	5.7	3.4	1.7	.16	.21
6	91	4.5	3.0	2.8	4.0	4.4	3.2	16	4.0	1.4	.16	.15
7	24	4.2	3.0	3.0	4.2	4.3	3.0	8.4	3.9	1.3	.12	.11
8	12	6.5	3.0	2.9	3.7	4.1	3.0	6.7	3.4	1.1	.15	.12
9	11	5.8	3.0	2.7	3.6	4.1	3.3	6.3	3.4	1.0	.22	.12
10	8.3	5.0	3.0	2.7	3.4	4.1	3.4	6.1	3.3	.89	.20	.12
11	7.7	4.7	3.2	2.7	3.4	4.1	3.3	6.1	3.0	.81	.12	.12
12	6.8	4.7	3.5	3.5	3.4	4.1	3.0	6.1	6.8	.72	.14	.12
13	11	4.7	3.4	3.7	3.4	4.1	3.0	1170	4.4	.63	.16	.15
14	6.4	4.6	3.3	3.5	3.4	4.4	3.0	66	3.6	.61	.16	.20
15	5.7	4.4	3.2	3.4	3.4	4.4	3.0	37	3.2	.54	.16	.23
16	5.4	4.2	3.0	3.4	3.4	4.4	3.0	26	5.1	.50	.12	.22
17	5.0	4.1	3.0	3.4	3.4	4.4	2.9	24	3.9	.42	.12	.20
18	4.4	3.9	3.0	3.9	3.2	4.3	2.7	19	3.3	.38	.12	.16
19	3.4	3.7	3.0	4.6	3.0	3.8	3.4	17	3.0	.37	.12	.62
20	3.0	3.5	3.0	3.7	4.3	4.1	7.4	14	2.7	.34	.12	2.7
21	2.7	3.4	3.0	3.7	3.7	4.1	5.9	13	2.4	.34	.12	.68
22	3.7	3.4	3.0	3.7	3.3	4.1	38	12	2.5	.52	.11	.45
23	3.4	3.3	2.9	3.3	3.0	4.7	18	12	2.7	.61	.09	.34
24	3.0	3.4	2.7	3.0	3.0	4.6	24	19	2.4	.36	.09	.34
25	2.7	3.4	2.7	3.0	3.9	4.1	18	14	2.8	.33	.09	.34
26	2.7	3.4	2.7	3.0	6.7	3.8	13	12	4.5	.29	.09	.34
27	2.4	3.4	2.7	3.0	5.0	4.4	11	10	18	.29	.09	.33
28	2.4	3.4	2.7	3.0	4.8	5.0	9.8	9.3	4.9	.29	.09	.29
29	2.2	3.4	2.7	3.0	---	5.0	8.6	8.1	3.9	.29	.12	.29
30	6.8	3.4	2.7	4.6	---	5.0	7.7	7.1	3.3	.29	.65	.29
31	13	---	2.7	4.5	---	4.9	---	6.7	---	.25	.40	---
TOTAL	258.04	132.2	94.0	101.2	105.3	135.8	224.3	1584.4	128.5	25.77	5.14	10.39
MEAN	8.32	4.41	3.03	3.26	3.76	4.38	7.48	51.1	4.28	.83	.17	.35
MAX	91	8.8	3.5	4.6	6.7	5.0	38	1170	18	2.9	.65	2.7
MIN	.92	3.3	2.7	2.7	3.0	3.8	2.7	5.7	2.4	.25	.09	.11
CFSM	.37	.20	.14	.15	.17	.20	.34	2.29	.19	.04	.008	.02
IN.	.43	.22	.16	.17	.18	.23	.37	2.64	.21	.04	.01	.02
AC-FT	512	262	186	201	209	269	445	3140	255	51	10	21

CAL YR 1981 TOTAL 6972.91 MEAN 19.1 MAX 760 MIN .88 CFSM .86 IN 11.63 AC-FT 13830
WTR YR 1982 TOTAL 2805.04 MEAN 7.69 MAX 1170 MIN .09 CFSM .35 IN 4.68 AC-FT 5560

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: April 1978 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
APR												
23...	0810	20	498	8.2	14.0	5	7.6	9.8	96	1.4	880	6400
MAY												
13...	0240	190	475	--	--	--	--	--	--	--	10000	35000
13...	0300	308	380	--	--	15	330	--	--	3.4	12000	64000
13...	1415	416	359	8.2	19.5	40	90	9.0	101	1.8	7200	34000
JUL												
26...	0915	.29	571	8.1	27.0	5	1.1	7.5	96	.8	920	460

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
APR												
23...	220	47	62	15	20	.6	2.1	170	40	29	.2	7.8
MAY												
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
26...	220	57	57	18	29	.9	2.8	160	68	40	.3	12

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
APR											
23...	278	15	15	--	<.020	.66	.070	.53	.60	.030	3.8
MAY											
13...	--	--	--	--	<.020	.13	.200	3.0	3.20	.320	30
13...	--	426	57	.26	.060	.32	.150	1.5	1.60	.320	20
13...	--	179	34	.77	.020	.79	.120	.82	.94	.120	13
JUL											
26...	323	<2	<2	--	<.020	<.10	.060	1.2	1.30	<.010	2.4

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
APR							
23...	0810	1	44	<3	<10	1	11
MAY							
13...	0240	1	40	<3	<10	2	20
JUL							
26...	0915	1	41	<1	<10	<1	4

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR						
23...	<1	<3	<.1	<1	<1	<12
MAY						
13...	6	<3	<.1	<1	1	<12
JUL						
26...	<1	2	<.1	<1	<1	<3

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR 23...	0810	<.10	<.10	.10	<.10	<.10	<2.0	<.1
MAY 13...	0240	<.10	<.10	<.10	<.10	<.10	<2.0	<.1
JUL 26...	0915	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR 23...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
MAY 13...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUL 26...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08154900 LAKE AUSTIN AT AUSTIN, TX

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

DRAINAGE AREA.--38,240 mi² (99,040 km4), of which 12,880 mi² (33,360 km²), revised, probably is noncontributing.

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

301739097471601 LAKE AUSTIN SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
16...	1010	1.00	443	8.4	11.0	10.9	99
16...	1012	10.0	443	8.4	10.5	10.8	97
16...	1014	20.0	443	8.4	10.5	10.8	97
16...	1016	30.0	443	8.4	10.5	10.8	97
16...	1018	40.0	443	8.4	10.5	10.5	95
16...	1020	52.0	443	8.4	10.5	10.1	91
AUG							
19...	0845	1.00	482	7.8	25.5	6.4	80
19...	0847	10.0	480	7.6	22.5	4.3	51
19...	0849	20.0	480	7.6	22.5	3.9	46
19...	0851	30.0	480	7.5	22.0	3.7	43
19...	0853	40.0	480	7.5	22.0	3.0	35
19...	0855	48.0	480	7.5	21.5	2.1	24

301739097471201 LAKE AUSTIN SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (FTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
FEB												
16...	0945	1.00	443	8.4	11.0	1.10	--	3.3	10.7	97	.9	K9
16...	0947	10.0	443	8.4	11.0	--	--	--	10.7	97	--	--
16...	0949	20.0	443	8.4	11.0	--	--	--	10.7	97	--	--
16...	0951	33.0	443	8.4	10.5	--	--	3.6	10.5	95	.9	--
AUG												
19...	0905	1.00	481	7.8	25.5	1.30	<1	3.1	6.4	80	.0	K6
19...	0907	10.0	480	7.7	23.5	--	--	--	5.5	65	--	--
19...	0909	20.0	480	7.6	22.5	--	--	--	3.9	46	--	--
19...	0911	30.0	480	7.6	22.0	--	--	--	3.5	41	--	--
19...	0913	38.0	480	7.6	22.0	--	10	60	3.2	37	.4	--

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)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
FEB												
16...	31	180	34	44	18	22	.8	3.4	150	30	38	.2
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	180	34	44	18	22	.8	3.4	150	29	38	.2
AUG												
19...	K6	180	32	43	18	23	.8	3.1	150	30	42	.2
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	180	33	42	19	24	.8	3.1	150	29	43	.2

LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 LAKE AUSTIN SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	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)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
FEB												
16...	9.3	255	5	5	--	<.020	.23	<.060	--	.73	.96	.010
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	<.020	.27	<.060	--	.99	1.3	.010
16...	9.3	254	7	5	--	<.020	.23	<.060	--	.76	.99	.010
AUG												
19...	8.5	258	11	6	--	<.020	.10	.060	.84	.90	1.0	.030
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	<.020	.12	.120	.98	1.10	1.2	.020
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	8.9	259	105	20	.10	.020	.12	.110	1.6	1.70	1.8	.080

DATE	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)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
FEB												
16...	2	65	<1	<10	7	<10	3	2	<.1	<1	<1	<3
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	30	--	<10	--	--	--	--
16...	2	68	<1	<10	7	<10	5	6	<.1	<1	<1	<3
AUG												
19...	1	66	<1	<10	1	4	2	1	<.1	<1	<1	<3
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	30	--	<10	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	1	66	<1	<10	1	7	<1	18	<.1	<1	<1	<3

DATE	TIME	SAM-PLING DEPTH (FEET)	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)
FEB								
16...	0945	1.00	.00	.00	.00	.00	.00	.0
16...	0951	33.0	.00	.00	.00	.00	.00	.0
AUG								
19...	0905	1.00	<.10	<.10	<.10	<.10	<.10	<2.0
19...	0913	38.0	<.10	<.10	<.10	<.10	<.10	<2.0

DATE	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
FEB								
16...	.0	.0	.00	.0	.00	.00	.00	.0
16...	.0	.0	.00	.0	.00	.00	.00	.0
AUG								
19...	<.1	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
19...	<.1	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

301739097470901 LAKE AUSTIN SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
FEB							
16...	1032	1.00	443	8.4	11.0	10.9	99
16...	1034	10.0	443	8.4	11.0	10.8	98
16...	1036	14.0	443	8.4	11.0	10.7	97
AUG							
19...	0900	1.00	481	7.8	25.5	6.4	80
19...	0902	10.0	480	7.6	22.5	3.9	46
19...	0903	15.0	480	7.6	22.5	3.6	42

LAKE AUSTIN AT AUSTIN, TX--Continued

302043097472401 LAKE AUSTIN SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRITE TOTAL (MG/L AS N)
FEB									
16...	1054	1.00	443	8.4	11.5	1.90	10.4	95	<.020
16...	1056	10.0	443	8.4	11.5	--	10.4	95	--
16...	1058	20.0	443	8.4	11.5	--	10.1	93	--
16...	1100	27.0	443	8.3	12.0	--	10.0	93	<.020
AUG									
19...	0940	1.00	480	7.7	23.5	1.50	5.5	65	<.020
19...	0942	10.0	480	7.7	22.5	--	4.5	53	--
19...	0944	20.0	480	7.7	22.5	--	4.5	53	--
19...	0946	27.0	480	7.7	22.5	--	4.3	51	<.020

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB								
16...	.26	<.060	--	1.00	1.3	.010	<10	10
16...	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--
16...	.21	.090	.91	1.00	1.2	.010	20	10
AUG								
19...	.10	.080	.52	.60	.70	.030	20	<10
19...	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--
19...	.10	.180	1.7	1.90	2.0	.030	10	20

302044097472301 LAKE AUSTIN SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
16...	1045	1.00	443	8.5	12.0	10.7	99
16...	1047	7.00	443	8.4	12.0	10.7	99

301926097502201 LAKE AUSTIN SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (FTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
FEB												
16...	1124	1.00	440	8.3	12.0	2.60	--	3.7	10.0	93	.3	K3
16...	1126	10.0	440	8.3	11.5	--	--	--	10.0	92	--	--
16...	1128	20.0	440	8.3	11.5	--	--	--	10.0	92	--	--
16...	1130	24.0	440	8.3	12.0	--	--	2.5	9.9	92	.4	--
AUG												
19...	1000	1.00	482	7.6	22.0	2.00	5	2.0	4.2	49	.1	K5
19...	1002	10.0	482	7.6	22.0	--	--	--	4.1	48	--	--
19...	1004	20.0	482	7.6	22.0	--	--	--	4.0	47	--	--
19...	1006	28.0	482	7.6	22.0	--	<1	2.4	4.0	47	.2	--

LAKE AUSTIN AT AUSTIN, TX--Continued

301926097502201 LAKE AUSTIN SITE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
FEB												
16...	K18	180	34	44	18	22	.8	3.8	150	28	39	.3
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	180	34	44	18	22	.8	3.8	150	28	42	.3
AUG												
19...	K39	180	29	42	18	23	.8	3.0	150	31	43	.2
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	180	29	42	18	23	.8	3.1	150	30	43	.2

DATE	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, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC DISSOLVED (UG/L AS AS)
FEB												
16...	9.5	255	0	0	<.020	.21	<.070	--	.73	.94	.010	1
16...	--	--	--	--	<.020	.26	.060	.56	.62	.88	.010	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	9.5	258	6	1	<.020	.23	.060	.65	.71	.94	.010	2
AUG												
19...	8.3	259	9	1	<.020	.10	.070	.93	1.00	1.1	.020	1
19...	--	--	--	--	<.020	.11	.100	1.1	1.20	1.3	.020	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	8.3	258	8	8	<.020	.12	.130	.87	1.00	1.1	.020	1

DATE	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)	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)
FEB											
16...	66	<1	<10	3	<10	1	3	<.1	<1	<1	<3
16...	--	--	--	--	10	--	10	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	66	<1	<10	3	<10	5	3	<.1	<1	<1	<3
AUG											
19...	65	<1	<10	1	<3	<1	7	<.1	<1	<1	<3
19...	--	--	--	--	10	--	10	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	64	<1	<10	2	<3	<1	7	<.1	<1	<1	<3

DATE	TIME	SAMPLING DEPTH (FEET)	AMETRYNE TOTAL	ATRATONE TOTAL (UG/L)	ATRAZINE, TOTAL (UG/L)	CYANAZINE TOTAL (UG/L)	CYPRAZINE TOTAL (UG/L)	METHOMYL TOTAL (UG/L)
FEB								
16...	1124	1.00	.00	.00	.00	.00	.00	.0
16...	1130	24.0	.00	.00	.00	.00	.00	.0
AUG								
19...	1000	1.00	<.10	<.10	<.10	<.10	<.10	<2.0
19...	1006	28.0	<.10	<.10	<.10	<.10	<.10	<2.0

DATE	PROMETONE TOTAL (UG/L)	PROMETRYNE TOTAL (UG/L)	PROPAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)	SIMETONE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)
FEB								
16...	.0	.0	.00	.0	.00	.00	.00	.0
16...	.0	.0	.00	.0	.00	.00	.00	.0
AUG								
19...	<.1	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
19...	<.1	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

LAKE AUSTIN AT AUSTIN, TX--Continued

302021097540001 LAKE AUSTIN SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRITE TOTAL (MG/L AS N)
FEB									
16...	1210	1.00	437	8.4	12.5	2.30	10.2	96	<.020
16...	1212	10.0	437	8.4	12.0	--	10.1	94	--
16...	1214	17.0	437	8.3	12.5	--	10.0	94	<.020
AUG									
19...	1030	1.00	479	7.6	21.0	2.80	2.7	31	<.020
19...	1032	10.0	479	7.6	21.0	--	2.5	28	--
19...	1034	14.0	479	7.6	21.0	--	2.5	28	<.020

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB								
16...	.25	<.060	--	.78	1.0	.010	10	<10
16...	--	--	--	--	--	--	--	--
16...	.25	.070	.80	.87	1.1	.010	20	10
AUG								
19...	.12	.130	.67	.80	.92	.020	20	20
19...	--	--	--	--	--	--	--	--
19...	.12	.120	.78	.90	1.0	.020	60	20

302314097544901 LAKE AUSTIN SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (FTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
FEB												
16...	1237	1.00	435	8.6	12.5	1.40	--	5.0	11.3	107	.4	K3
16...	1239	5.00	435	8.5	13.0	--	--	3.1	11.3	108	.4	--
AUG												
19...	1100	1.00	483	7.6	20.5	1.80	<1	1.0	3.0	34	.2	K4
19...	1102	6.00	483	7.6	20.5	--	<1	1.7	2.9	33	.2	--

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)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
FEB												
16...	K1	180	32	43	18	22	.8	3.8	150	27	39	.3
16...	--	180	32	43	18	22	.8	3.7	150	27	39	.2
AUG												
19...	K8	180	29	42	18	23	.8	3.1	150	30	43	.2
19...	--	180	32	43	18	24	.8	3.2	150	30	43	.2

DATE	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, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC DISSOLVED (UG/L AS AS)
FEB												
16...	9.5	253	0	0	<.020	.21	<.060	--	.57	.78	<.010	1
16...	9.4	253	14	7	<.020	.22	<.060	--	.64	.86	<.010	2
AUG												
19...	8.4	258	11	6	<.020	.14	.110	.89	1.00	1.1	.030	1
19...	8.5	260	7	8	<.020	<.10	.090	.81	.90	--	.030	1

LAKE AUSTIN AT AUSTIN, TX--Continued

302314097544901 LAKE AUSTIN SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	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)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
FEB											
16...	66	<1	<10	2	<10	1	2	<.1	<1	<1	<3
16...	64	<1	<10	2	<10	<1	1	<.1	<1	<1	<3
AUG											
19...	65	<1	<10	1	<3	<1	23	<.1	<1	<1	<3
19...	66	<1	<10	1	<3	1	22	<.1	1	<1	<3

DATE	TIME	SAM-PLING DEPTH (FEET)	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)
FEB								
16...	1237	1.00	.00	.00	.00	.00	.00	.0
16...	1239	5.00	.00	.00	.00	.00	.00	.0
AUG								
19...	1100	1.00	<.10	<.10	<.10	<.10	<.10	<2.0
19...	1102	6.00	<.10	<.10	<.10	<.10	<.10	<2.0

DATE	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
FEB								
16...	.0	.0	.00	.0	.00	.00	.00	.0
16...	.0	.0	.00	.0	.00	.00	.00	.0
AUG								
19...	<.1	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
19...	<.1	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

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

LOCATION.--Lat 30°17'46", long 97°55'31", Travis County, Hydrologic Unit 12090205, at downstream side of bridge on State Highway 71, 0.1 mi (0.2 km) downstream from Little Barton Creek, and 5.8 mi (9.3 km) northwest of Oak Hill.

DRAINAGE AREA.--89.7 mi² (232.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1975 to February 1978 (periodic gage heights and discharge measurements only), February 1978 to September 1982 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 737.04 ft (224.650 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. No known regulation or diversions. There are two recording rain gages in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,120 ft³/s (230 m³/s) June 11, 1981, gage height, 15.64 ft (4.767 m); no flow for many days each year except 1981.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 6	1300	3,880	110	a10.4	3.17
May 13	1300	*7,120	202	a14.5	4.42

a From floodmark.

Minimum daily discharge, 0.02 ft³/s (0.001 m³/s) Sept. 28-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.51	33	15	7.0	4.1	3.1	3.3	23	27	9.9	.64	.10
2	.42	27	14	7.0	4.0	3.0	3.2	22	26	9.4	.60	.09
3	.48	24	14	6.7	3.5	2.9	3.1	22	24	8.7	.55	.09
4	.45	23	13	5.8	3.3	2.9	2.8	20	30	8.2	.50	.11
5	.42	22	12	5.6	3.2	2.8	2.8	19	39	8.1	.45	.10
6	854	22	11	6.0	3.2	2.8	2.6	29	30	7.8	.42	.09
7	176	21	11	6.1	3.1	2.8	2.6	28	25	7.0	.70	.09
8	96	26	11	5.6	3.1	2.8	2.7	23	22	5.6	1.1	.08
9	61	30	11	5.6	3.1	2.8	2.7	21	20	4.3	.41	.08
10	47	23	11	5.6	3.1	2.8	2.7	21	21	4.1	.32	.07
11	43	22	11	5.6	3.1	2.9	2.7	21	18	3.6	.27	.07
12	38	21	10	6.3	3.0	2.9	2.8	22	25	3.6	.25	.07
13	37	19	9.6	6.8	2.9	2.9	2.5	1720	29	3.6	.23	.07
14	34	18	8.7	7.0	2.9	2.9	2.7	298	22	3.5	.21	.08
15	30	17	9.0	7.0	2.9	2.9	2.7	172	19	3.1	.19	.08
16	28	16	9.5	6.3	2.9	2.9	2.6	145	21	2.9	.18	.08
17	26	17	9.6	6.1	2.9	2.9	2.5	215	19	2.7	.17	.07
18	25	17	8.6	5.8	2.8	2.9	2.5	150	15	2.2	5.6	.05
19	23	17	7.8	5.8	2.7	2.9	2.9	118	13	1.9	1.1	.15
20	22	17	8.4	5.8	2.7	2.8	3.4	98	12	1.8	.21	.15
21	22	16	9.0	5.8	2.7	2.8	3.9	84	12	1.5	.17	.05
22	24	16	9.0	5.8	2.7	2.8	20	75	68	1.5	.18	.05
23	27	16	7.8	5.6	2.8	3.4	31	65	83	1.4	.20	.04
24	24	16	7.6	5.4	2.8	3.5	31	78	22	1.3	.20	.04
25	23	16	7.1	5.2	2.8	3.4	36	67	17	1.2	.19	.04
26	21	16	7.3	4.8	3.7	3.2	29	54	16	1.1	.18	.03
27	20	16	7.0	4.8	3.2	3.3	27	48	15	1.0	.17	.03
28	19	15	7.0	4.8	2.8	3.3	25	44	12	.90	.14	.02
29	19	15	6.8	4.8	---	3.4	24	39	11	.84	.12	.02
30	19	15	6.8	5.2	---	3.5	23	35	10	.76	.10	.02
31	24	---	6.9	4.6	---	3.4	---	31	---	.70	.10	---
TOTAL	1784.28	589	297.5	180.3	86.0	93.6	305.7	3807	723	114.20	15.85	2.11
MEAN	57.6	19.6	9.60	5.82	3.07	3.02	10.2	123	24.1	3.68	.51	.070
MAX	854	33	15	7.0	4.1	3.5	36	1720	83	9.9	5.6	.15
MIN	.42	15	6.8	4.6	2.7	2.8	2.5	19	10	.70	.10	.02
CFSM	.64	.22	.11	.07	.03	.03	.11	1.37	.27	.04	.006	.001
IN.	.74	.24	.12	.07	.04	.04	.13	1.58	.30	.05	.01	.00
AC-FT	3540	1170	590	358	171	186	606	7550	1430	227	31	4.2

CAL YR 1981 TOTAL 30423.12 MEAN 83.4 MAX 3000 MIN .42 CFSM .93 IN 12.62 AC-FT 60340
WTR YR 1982 TOTAL 7998.54 MEAN 21.9 MAX 1720 MIN .02 CFSM .24 IN 3.32 AC-FT 15870

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: April 1978 to September 1982 (discontinued). Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
06...	1115	2220	131	8.2	22.5	90	530	--	--	5.6	44000	100000
APR												
23...	1340	31	396	8.2	16.5	5	1.0	10.3	106	1.9	440	540
JUL												
26...	1034	1.2	387	8.1	28.5	<1	.70	7.3	96	.3	96	1300

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT												
06...	70	4	21	4.3	4.1	.2	2.1	66	5.0	2.7	.1	6.1
APR												
23...	190	19	51	15	6.8	.2	1.1	170	18	11	.2	7.7
JUL												
26...	190	11	50	16	7.4	.3	1.2	180	18	11	.3	11

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
06...	78	604	100	.12	.070	.19	.180	1.1	1.30	.130	32
APR											
23...	213	4	4	--	<.020	<.10	<.060	--	.28	.010	1.9
JUL											
26...	223	<2	<2	--	<.020	.10	.100	.40	.50	.180	1.7

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT							
06...	1115	2	5	<1	0	2	68
APR							
23...	1340	1	21	<3	<10	1	<9
JUL							
26...	1034	1	25	2	<10	<1	5

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT						
06...	2	7	.0	0	0	7
APR						
23...	4	<3	<.1	<1	<1	<12
JUL						
26...	<1	2	<.1	<1	<1	3

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
OCT								
06...	1115	.00	.00	.00	.00	.00	.0	.0
APR								
23...	1340	<.10	<.10	<.10	<.10	<.10	<2.0	<.1
JUL								
26...	1034	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
OCT							
06...	.0	.00	.0	.00	.00	.00	.0
APR							
23...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUL							
26...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX

LOCATION.--Lat 30°14'40", long 97°48'07", Travis County, Hydrologic Unit 12090205, on Loop 360, 0.9 mi (1.4 km) west of the intersection of Ben White and Lamar Boulevards, and 4.3 mi (6.9 km) southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--116 mi² (300 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1975 to January 1977 (periodic gage heights and discharge measurements only), February 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 510.32 ft (155.546 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Water discharge records fair except those below 5 ft³/s (0.14 m³/s), which are poor. No known regulation or diversions. There are three recording rain gages located in the watershed.

AVERAGE DISCHARGE.--5 years, 39.6 ft³/s (1.12 m³/s), 4.64 in/yr (118 mm/yr), 28,700 acre-ft/yr (35.4 hm³/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,100 ft³/s (513 m³/s) May 25, 1981, gage height, 15.03 ft (4.581 m); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of May 28, 1929, was probably the highest since that date, discharge 39,400 ft³/s (1,120 m³/s), based on a slope-area measurement of peak flow at a site about 2 mi (3 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,740 ft³/s (219 m³/s) May 13 at 1600 hours, gage height, 9.83 ft (2.996 m), 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 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	6.5	.00	.00	.00	.00	.00	.00	42	.00	.00	.00
2	.00	12	.00	.00	.00	.00	.00	.00	33	.00	.00	.00
3	.00	3.4	.00	.00	.00	.00	.00	.00	26	.00	.00	.00
4	.00	.64	.00	.00	.00	.00	.00	.00	24	.00	.00	.00
5	.00	.10	.00	.00	.00	.00	.00	.00	15	.00	.00	.00
6	935	.00	.00	.00	.00	.00	.00	10	12	.00	.00	.00
7	230	.00	.00	.00	.00	.00	.00	15	6.3	.00	.00	.00
8	119	.00	.00	.00	.00	.00	.00	8.7	3.7	.00	.00	.00
9	69	.00	.00	.00	.00	.00	.00	4.1	1.2	.00	.00	.00
10	43	.00	.00	.00	.00	.00	.00	1.6	.42	.00	.00	.00
11	33	.00	.00	.00	.00	.00	.00	.42	.10	.00	.00	.00
12	26	.00	.00	.00	.00	.00	.00	.14	.04	.00	.00	.00
13	17	.00	.00	.00	.00	.00	.00	1780	1.2	.00	.00	.00
14	10	.00	.00	.00	.00	.00	.00	342	1.4	.00	.00	.00
15	6.3	.00	.00	.00	.00	.00	.00	177	.37	.00	.00	.00
16	4.8	.00	.00	.00	.00	.00	.00	136	.04	.00	.00	.00
17	1.6	.00	.00	.00	.00	.00	.00	168	.00	.00	.00	.00
18	.52	.00	.00	.00	.00	.00	.00	148	.00	.00	.00	.00
19	.16	.00	.00	.00	.00	.00	.00	116	.00	.00	.00	.00
20	.05	.00	.00	.00	.00	.00	2.6	103	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	93	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	83	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	9.6	73	79	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	16	90	27	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	25	92	2.0	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	18	78	.02	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	12	51	9.5	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	3.0	60	.25	.00	.00	.00
29	.00	.00	.00	.00	---	.00	1.0	57	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.14	60	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	53	---	.00	.00	---
TOTAL	1495.43	22.64	.00	.00	.00	.00	87.34	3799.96	284.54	.00	.00	.00
MEAN	48.2	.75	.000	.000	.000	.000	2.91	123	9.48	.000	.000	.000
MAX	935	12	.00	.00	.00	.00	25	1780	79	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.42	.006	.000	.000	.000	.000	.03	1.06	.08	.000	.000	.000
IN.	.48	.01	.00	.00	.00	.00	.03	1.22	.09	.00	.00	.00
AC-FT	2970	45	.00	.00	.00	.00	173	7540	564	.00	.00	.00

CAL YR 1981	TOTAL	40502.08	MEAN	111	MAX	6430	MIN	.00	CFSM .96	IN 12.99	AC-FT	80340
WTR YR 1982	TOTAL	5689.91	MEAN	15.6	MAX	1780	MIN	.00	CFSM .13	IN 1.82	AC-FT	11290

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

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1979 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
06...	1505	256	306	--	--	20	1100	--	--	12	78000	86000
06...	1535	3050	248	--	--	30	660	--	--	5.4	30000	21000
06...	1735	5240	166	7.7	--	60	960	--	--	6.7	80000	38000
06...	1835	3920	145	--	--	120	900	--	--	5.6	70000	48000
06...	2135	912	141	7.9	--	120	660	--	--	5.0	50000	18000
07...	0940	172	228	8.1	23.5	40	130	--	--	2.1	14000	8400
MAY												
13...	0835	410	233	8.0	21.0	40	780	8.4	98	2.4	8000	12000
13...	0900	1200	290	--	--	--	--	--	--	--	--	--
13...	1400	3360	203	--	--	60	270	--	--	2.6	26000	85000
13...	1502	4160	196	--	--	90	440	--	--	4.3	35000	80000
14...	0930	382	366	8.0	20.0	20	64	8.4	94	.8	5100	4000

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT												
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	79	2	24	4.6	1.8	.1	2.4	77	5.0	3.5	.1	5.8
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	70	1	22	3.7	1.2	.1	2.5	69	5.0	3.5	.1	5.6
07...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
13...	110	15	32	6.2	3.4	.2	1.8	90	15	5.2	.2	5.2
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
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)
OCT											
06...	--	1180	136	.20	.080	.28	.240	2.0	2.20	.320	45
06...	--	776	116	.12	.070	.19	.170	1.8	2.00	.100	27
06...	86	1240	148	.09	.100	.19	.250	3.3	3.50	.120	41
06...	--	810	125	.11	.080	.19	.200	1.1	1.30	.530	35
06...	79	716	120	.10	.090	.19	.230	1.3	1.50	.060	25
07...	--	135	12	.20	.030	.23	.160	.62	.78	.040	9.4
MAY											
13...	123	1320	151	--	<.020	.20	.170	1.2	1.40	.730	27
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	342	39	.23	.040	.27	.140	1.2	1.30	.280	13
13...	--	744	90	.14	.030	.17	.090	2.2	2.30	.270	31
14...	--	86	25	--	<.020	.37	.110	.68	.79	.050	5.5

08155300 BARTON CR AT LOOP 360, AUSTIN, TX.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT							
06...	1505	1	31	<1	0	1	<10
06...	1735	1	12	<1	0	6	16
07...	0940	1	19	<1	0	1	<10
MAY							
13...	0900	1	24	<3	<10	3	42
SEP							
19...	2313	--	--	0	--	--	89

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						
06...	1	<1	.0	0	0	5
06...	2	1	.0	0	0	<3
07...	6	<1	.0	0	0	3
MAY						
13...	5	<3	<.1	<1	<1	<12
SEP						
19...	1	--	--	--	--	220

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
OCT								
06...	1505	.00	.00	.00	.00	.00	.0	.0
07...	0940	.00	.00	.00	.00	.00	.0	.0
MAY								
13...	0900	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
OCT							
06...	.0	.00	.0	.00	.00	.00	.0
07...	.0	.00	.0	.00	.00	.00	.0
MAY							
13...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08155330 SKUNK HOLLOW CREEK ABOVE POND 1, AUSTIN, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°15'32", long 97°48'21", Travis County, Hydrologit Unit 12090205, on inlet control structure to Pond 1 Barton Creek Mall Shopping Center, 0.2 mi (0.3 km) north of intersection of Tamarron Blvd. and State Highway 1, and 4.0 mi (6.4 km) west-southwest of State Capitol Building in Austin.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--July to September 1982.

GAGE.--Flood-hydrograph recorder. Datum of gage is about 596 ft (178.6 m) National Geodetic Vertical Datum of 1929, from engineering plans.

REMARKS.--This station is part of a hydrologic project to study the effects of engineering-control structures on the quantity and quality of runoff.

EXTREMES FOR PERIOD OR RECORD.--Maximum discharge, 53 ft³/s (1.50 m³/s) Sept. 19, 1982, gage height, 7.82 ft (2.384 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period July to September, 53 ft³/s (1.50 m³/s) Sept. 19, gage height, 7.82 ft (2.384 m).

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June to September 1982.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	DISCHARGE, IN CUBIC FEET PER SECOND	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	TEMPERATURE (DEG C)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
SEP											
03...	--	.29	--	407	--	760	82	--	76000	26	411
03...	2130	--	16	491	--	900	>44	--	120000	39	518
03...	2137	--	11	428	--	700	>46	--	100000	28	434
03...	2153	--	3.4	313	--	420	56	--	190000	16	324
03...	2223	--	1.5	267	--	270	37	--	62000	12	262
03...	2300	--	.42	251	25.0	240	36	--	8800	24	264
19...	2313	--	4.1	369	--	420	82	2200000	470000	27	394
19...	2328	--	29	140	--	180	25	2000000	160000	4.4	126
19...	2358	--	20	67	--	26	5.8	30000	38000	1.1	56
19-20	--	.72	--	86	--	49	8.2	400000	46000	2.2	69
20...	0028	--	12	75	--	30	4.0	25000	34000	1.3	66
20...	0052	--	3.6	82	23.0	--	--	6300	44000	--	--

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CADMIUM DISSOLVED (UG/L AS CD)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	ZINC, DISSOLVED (UG/L AS ZN)
SEP										
03...	816	186	.55	7.80	.430	160	<1	350	3	70
03...	1530	228	.30	16.0	.340	200	<1	380	3	50
03...	876	189	.60	2.80	.420	180	<1	290	4	40
03...	442	146	.80	2.20	.980	130	<1	300	2	50
03...	94	122	1.1	1.40	.270	85	<1	180	5	200
03...	69	126	1.0	3.30	.150	74	1	160	8	220
19...	288	200	1.9	8.50	.760	150	<1	89	<1	220
19...	274	56	1.1	4.20	.420	44	<1	30	<1	30
19...	163	27	.40	.60	.180	12	<1	17	<1	8
19-20	103	30	.50	.80	.210	16	<1	21	<1	13
20...	35	28	.40	1.30	.120	8.4	<1	16	<1	13
20...	--	--	--	--	--	--	--	--	--	--

08155370 SKUNK HOLLOW CREEK BELOW POND 1, AUSTIN TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°15'33", long 97°48'17", Travis County, Hydrologic Unit 12090205, on outlet control structure to pond 1 at Barton Creek Square Mall, 0.2 mi (0.3 km) north of intersection of Tamarron Blvd., and State Highway 1, and 4.0 mi (6.4 km) west-southwest of State Capitol Building in Austin.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--August to September 1982.

GAGE.--Flood-hydrograph recorder. Datum of gage is about 586 ft (178.6 m) National Geodetic Vertical Datum of 1929, from engineering plans.

REMARKS.--This station is part of a hydrologic project to study the effects of engineering-control structures on the quantity and quality of runoff.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3.1 ft³/s (0.088 m³/s) Sept. 19, 1982, gage height, 2.53 ft (0.771 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period August to September, 3.1 ft³/s (0.088 m³/s) Sept. 19, gage height, 2.53 ft (0.771 m).

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June to September 1982.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	DISCHARGE, IN CUBIC FEET PER SECOND	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	TEMPERATURE (DEG C)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
SEP											
03...	2225	--	1.5	434	--	190	33	--	8800	30	356
03...	2310	--	1.1	364	29.5	310	39	--	--	13	342
03...	2355	--	.65	402	--	210	36	--	4600	25	340
03-04	--	.07	--	418	--	210	35	--	2400	26	352
04...	0055	--	.35	388	--	230	37	--	4300	24	338
20...	--	.64	--	161	--	42	3.3	8400	19000	4.6	113
20...	0001	--	1.3	360	--	120	14	33000	46000	21	265
20...	0045	--	3.1	257	--	40	6.0	6400	8800	10	185
20...	0108	--	--	229	27.5	--	--	K5000	K7800	--	--
20...	0245	--	2.7	152	--	23	2.4	6400	9200	3.5	106
20...	0800	--	1.8	130	--	35	2.1	17000	14000	3.0	92

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CADMIUM DISSOLVED (UG/L AS CD)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	ZINC, DISSOLVED (UG/L AS ZN)
SEP										
03...	198	132	5.8	3.40	.080	59	<1	10	8	20
03...	18	144	3.3	3.10	.040	76	<1	20	10	30
03...	53	134	4.8	3.50	.080	67	<1	30	<5	20
03-04	117	136	5.5	3.70	.130	65	<1	30	9	10
04...	27	131	4.4	3.10	.050	69	<1	20	5	20
20...	50	39	1.1	.80	.080	12	<1	10	<1	10
20...	200	89	1.5	2.00	.170	40	<1	10	<1	20
20...	67	63	2.3	1.60	.090	21	<1	20	<1	10
20...	--	--	--	--	--	--	--	--	--	--
20...	48	41	.90	.40	.080	11	<1	20	<1	10
20...	42	29	.60	1.30	.070	9.9	<1	20	<1	10

08155500 BARTON SPRINGS AT AUSTIN, TX

LOCATION.--Lat 30°15'48", long 97°46'16", Travis County, Hydrologic Unit 12090205, at ground-water well (YD 58-42-903), on right bank 0.4 mi (0.6 km) upstream from Barton Springs Road bridge over Barton Creek, 0.7 mi (1.1 km) upstream from mouth, and 1.8 mi (2.9 km) southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--Not applicable. Only flow from springs is published for this station.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1894 to April 1917, and October 1918 to February 1978 (discharge measurements only), May 1917 to September 1918 (published as "Barton Creek at Austin, Texas"), and March 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage, at ground-water well (YD 58-42-903), is 462.34 ft (140.92 m) National Geodetic Vertical Datum of 1929. May 1917 to September 1918, nonrecording gage at site 1,000 ft (305 m) downstream at different datum.

REMARKS.--Water-discharge records fair. Entire flow published is springflow from the Edwards and associated limestones in the Balcones Fault Zone. This station is part of an urban hydrologic project to study the ground-water resources in the Austin urban area.

EXTREMES FOR PERIOD OF RECORD (DISCHARGE MEASUREMENTS ONLY).--Maximum measured discharge, 166 ft^3/s (4.70 m^3/s) May 10, 1941; minimum measured, 9.6 ft^3/s (0.27 m^3/s) Mar. 29, 1956.

EXTREMES FOR PERIOD OF RECORD (1917-18 AND SINCE MARCH 1978).--Maximum daily discharge, 108 ft^3/s (3.06 m^3/s) June 9-11, 16, 20, 21, 1979; minimum daily, 12 ft^3/s (0.34 m^3/s) Feb. 25, 1918.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 91 ft^3/s (2.58 m^3/s) Oct. 11, 12; minimum daily, 34 ft^3/s (0.96 m^3/s) Sept. 21-27.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	85	80	67	56	51	42	50	70	66	49	38
2	81	86	79	67	57	51	41	49	70	65	49	38
3	81	86	79	67	56	51	41	49	69	65	47	38
4	81	86	79	67	55	51	41	48	69	64	47	38
5	81	85	79	66	55	51	41	48	70	64	47	38
6	82	85	79	64	54	50	40	48	70	63	47	38
7	84	85	78	63	54	49	40	48	70	62	46	38
8	86	85	78	63	51	48	40	48	69	61	46	37
9	88	85	78	62	50	48	41	49	69	60	46	37
10	90	85	77	62	50	48	41	49	68	60	45	37
11	91	85	77	62	49	47	40	48	68	59	45	36
12	91	85	75	62	49	47	40	48	70	59	45	37
13	90	84	76	62	50	46	40	54	70	59	44	36
14	90	84	76	62	53	45	40	60	70	57	44	36
15	89	84	76	61	53	45	38	66	69	56	44	35
16	88	84	75	61	53	44	37	71	69	56	44	35
17	88	84	75	60	53	44	38	72	68	55	43	35
18	87	84	75	59	52	43	38	72	67	55	43	35
19	87	83	75	58	52	42	38	73	66	54	43	35
20	87	82	74	58	52	42	41	73	65	54	43	35
21	86	82	72	57	52	42	41	73	64	53	43	34
22	86	81	72	57	52	46	46	73	65	53	42	34
23	85	81	71	56	52	46	50	72	67	52	42	34
24	84	81	70	56	51	47	51	72	67	52	41	34
25	84	81	70	56	50	46	51	72	67	51	41	34
26	85	81	70	55	51	44	51	72	67	51	40	34
27	85	80	69	55	52	42	51	71	67	50	40	34
28	85	80	69	55	51	43	51	71	67	50	40	35
29	85	80	68	54	---	42	50	71	67	50	40	36
30	85	80	68	55	---	42	50	71	67	50	40	36
31	85	---	68	55	---	42	---	70	---	50	39	---
TOTAL	2658	2499	2307	1864	1465	1425	1290	1911	2041	1756	1355	1077
MEAN	85.7	83.3	74.4	60.1	52.3	46.0	43.0	61.6	68.0	56.6	43.7	35.9
MAX	91	86	80	67	57	51	51	73	70	66	49	38
MIN	81	80	68	54	49	42	37	48	64	50	39	34
AC-FT	5270	4960	4580	3700	2910	2830	2560	3790	4050	3480	2690	2140

CAL YR 1981 TOTAL 27266 MEAN 74.7 MAX 105 MIN 46 AC-FT 54080
WTR YR 1982 TOTAL 21648 MEAN 59.3 MAX 91 MIN 34 AC-FT 42940

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: December 1978 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT									
05...	1340	81	589	6.7	22.0	7.0	81	88	45
06...	1325	82	600	7.0	22.0	6.6	77	53	K72
07...	0930	84	574	6.9	22.0	6.5	76	2100	4200
08...	1130	86	573	6.8	21.5	6.8	78	720	2700
09...	0950	88	558	6.9	21.5	6.6	77	150	420
13...	1310	90	438	7.6	24.5	8.5	102	260	180
19...	1345	87	530	7.5	20.0	9.2	100	33	22
26...	0900	85	531	7.6	16.5	9.1	96	61	150
NOV									
02...	0840	86	564	7.2	22.0	8.5	98	83	540
09...	0900	85	566	7.0	21.0	7.2	82	K11	38
16...	1400	84	566	7.1	20.0	7.0	77	K8	K4
24...	0900	81	588	7.2	21.0	6.5	73	K1	22
30...	0830	80	580	7.2	21.0	6.8	78	<1	K2
DEC									
07...	1015	78	585	7.1	21.0	7.0	80	K6	K3
14...	1045	76	590	7.2	21.0	6.4	72	K2	K1
21...	0905	72	583	7.1	21.0	6.4	74	K3	K5
29...	0930	68	583	7.1	20.0	6.6	73	34	K2
JAN									
05...	1045	66	588	7.2	21.0	5.3	60	K1	K8
11...	1330	62	598	7.2	20.5	6.2	69	K9	K4
18...	0900	59	604	7.2	21.0	6.8	77	31	K6
25...	0910	56	602	7.2	21.0	7.3	81	K8	K2
30...	1600	55	591	7.2	21.0	6.2	71	520	39
31...	0911	55	586	7.3	21.0	6.2	70	1400	1300
FEB									
01...	0905	56	577	--	14.0	8.8	86	K8	50
08...	0925	51	604	7.2	20.5	6.6	74	32	K4
16...	1415	53	618	7.2	21.0	5.6	64	4500	520
22...	0830	52	618	7.2	21.5	6.6	76	1100	120
MAR									
01...	1100	51	634	7.2	21.0	6.4	72	820	270
08...	0830	48	621	7.1	21.5	5.6	64	240	24
10...	0826	48	619	6.9	21.0	--	--	23	K6
15...	0845	45	624	7.1	21.0	5.8	67	170	K17
17...	0830	44	--	--	--	--	--	K9	K4
22...	0915	46	613	7.2	21.0	5.6	64	130	31
23...	0820	46	626	7.2	21.0	6.2	71	23	23
24...	1300	47	604	--	--	--	--	520	3200

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	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									
05...	16	--	<.020	1.4	.120	.49	.61	.010	.1
06...	19	--	<.020	1.5	.130	.87	1.00	.010	.5
07...	21	--	<.020	1.4	.120	.26	.38	.010	.3
08...	2	1.3	.020	1.3	.140	.17	.31	.010	.8
09...	2	1.3	.020	1.3	.100	.32	.42	.010	.2
13...	4	.51	.030	.54	.110	.27	.38	<.010	2.2
19...	6	--	<.020	.92	<.060	--	.45	.070	.8
26...	2	--	<.020	1.2	.070	.44	.51	.010	1.3
NOV									
02...	0	--	<.020	1.3	.090	.42	.51	.020	.1
09...	1	--	<.020	1.2	.120	.68	.80	.020	.4
16...	0	--	<.020	1.2	<.060	--	.59	<.010	.6
24...	0	--	<.020	1.4	.140	.10	.24	<.010	.5
30...	0	--	<.020	1.4	.160	.38	.54	<.010	.7
DEC									
07...	2	1.4	.020	1.4	.110	.16	.27	<.010	.2
14...	13	--	<.020	1.4	<.070	--	.81	.020	1.1
21...	14	--	<.020	1.4	<.070	--	.51	.010	.6
29...	40	--	<.020	1.4	.070	.53	.60	.020	1.5
JAN									
05...	11	--	<.020	1.4	<.070	--	.53	.020	1.0
11...	0	--	<.020	1.5	.070	.45	.52	.010	.6
18...	0	--	<.020	1.4	<.070	--	.71	.020	.9
25...	6	--	<.020	1.4	.070	.20	.27	.010	.1
30...	--	--	--	--	--	--	--	--	--
31...	2	--	<.020	1.4	<.070	--	.28	<.010	.6
FEB									
01...	--	--	--	--	--	--	--	--	--
08...	0	--	<.020	1.4	<.070	--	.22	<.010	.4
16...	9	--	<.020	1.6	<.060	--	.89	.020	.2
22...	0	--	<.020	1.5	<.060	--	.39	.010	.0
MAR									
01...	0	--	<.020	1.5	<.060	--	.38	.040	.2
08...	0	--	<.020	1.5	<.060	--	.45	.030	.2
10...	--	--	--	--	--	--	--	--	--
15...	4	--	<.020	1.3	.300	.17	.47	.010	.5
17...	--	--	--	--	--	--	--	--	--
22...	5	1.5	.000	1.5	.160	.56	.72	.000	.0
23...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
MAR										
29...	0815	42	608	7.2	20.5	5.8	65	--	51	65
APR										
05...	0845	41	625	7.2	21.0	5.4	62	--	K16	K7
12...	0915	40	628	7.2	20.5	5.7	64	--	54	130
19...	0930	38	638	7.2	21.0	5.5	63	--	K12	K8
22...	0830	46	628	7.2	21.0	6.8	77	--	700	4800
23...	0955	50	564	7.2	21.0	5.6	63	--	1800	9600
24...	1035	51	577	7.2	20.5	6.2	70	--	960	1900
26...	1100	51	589	7.1	21.0	6.4	73	--	230	380
MAY										
03...	0900	49	584	7.2	20.5	6.2	70	--	48	K10
10...	0905	49	585	7.1	21.5	6.4	74	--	K11	K12
13...	1145	54	580	7.2	21.0	7.0	80	--	820	190
14...	0830	60	505	7.2	21.0	7.5	86	--	6100	11000
15...	1045	66	519	7.2	21.0	7.2	82	--	K1700	3000
17...	0800	72	552	7.2	21.0	7.2	82	--	180	500
24...	0830	72	560	7.2	21.5	6.8	79	--	K17	25
JUN										
01...	0825	70	565	7.2	21.5	5.8	67	--	K5	K5
07...	0830	70	549	7.1	22.0	6.2	72	--	K4	K3
14...	0825	70	570	7.0	22.0	6.4	74	--	K390	93
21...	0835	64	575	7.2	22.0	6.7	78	--	K9	K17
28...	0925	67	527	7.1	22.0	6.5	76	--	K340	3000
JUL										
06...	0900	63	585	7.1	22.0	6.2	72	--	K10	30
12...	1210	59	595	7.3	22.0	6.6	77	.7	K4	K3
21...	0820	53	574	7.1	21.5	5.3	61	--	K2	25
26...	0840	51	608	7.1	21.5	6.0	69	--	K4	24
AUG										
03...	0850	47	638	7.0	20.5	6.2	70	--	<1	K10
09...	0900	46	631	7.1	22.0	6.0	70	--	<1	K9
18...	0730	43	648	7.1	21.5	6.3	72	--	K1	K11
23...	0938	42	641	7.1	22.0	5.1	59	--	K3	K5
30...	0920	40	653	7.2	22.0	6.0	70	--	K4	45
SEP										
07...	0815	38	662	7.1	22.0	5.8	67	--	180	K5
13...	0855	36	668	7.1	22.0	5.5	64	--	K7	K3
20...	0856	35	674	7.1	22.0	5.1	59	--	K12	K5
27...	1000	34	682	7.2	22.0	5.4	64	--	K2	K5

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
MAR										
29...	2	--	--	<.020	1.5	.060	.71	.77	<.010	.2
APR										
05...	3	--	--	<.020	1.5	.070	.28	.35	<.010	.0
12...	<1	--	--	<.020	1.5	<.060	--	.27	<.010	.9
19...	<1	--	--	<.020	1.5	<.060	--	.36	<.010	1.0
22...	4	--	--	<.020	1.4	.080	.42	.50	.010	.4
23...	9	--	--	<.020	1.4	.090	.50	.59	.020	.8
24...	3	--	--	<.020	1.4	.080	.36	.44	.010	.6
26...	2	--	--	<.020	1.3	<.060	--	.38	.100	.7
MAY										
03...	<1	--	--	<.020	1.0	<.060	--	.49	.250	1.2
10...	<2	--	--	<.020	1.2	.060	.21	.27	<.010	.3
13...	<2	--	--	<.020	1.3	.100	.89	.99	.030	.8
14...	31	--	--	<.020	1.2	.080	.57	.65	.050	2.5
15...	6	--	--	<.020	1.0	.100	.55	.65	.030	1.9
17...	6	--	--	<.020	.98	.080	.47	.55	.030	1.0
24...	<2	--	--	<.020	.87	.060	.84	.90	.040	.8
JUN										
01...	3	--	.88	.020	.90	.110	.00	<.20	<.010	.7
07...	5	--	--	<.020	1.0	.040	.96	1.00	<.010	1.1
14...	3	--	--	<.020	1.1	<.060	--	.80	.050	.6
21...	<1	--	--	<.020	1.2	<.060	--	.80	.020	.5
28...	4	--	--	<.020	.96	.080	2.6	2.70	.010	.9
JUL										
06...	<2	--	--	<.020	1.2	<.060	--	.90	.060	.7
12...	<2	<2	--	<.020	1.3	<.060	--	2.30	<.010	--
21...	<2	--	--	<.020	1.4	.060	1.8	1.90	.040	.1
26...	2	--	--	<.020	1.5	.070	1.4	1.50	.050	.3
AUG										
03...	5	--	--	<.020	1.5	.080	.72	.80	<.010	.3
09...	<2	<1	--	<.020	1.5	.110	1.9	2.00	.020	.5
18...	6	--	--	<.020	1.5	.080	.72	.80	.010	.3
23...	7	--	--	<.020	1.5	.120	.38	.50	.020	.4
30...	2	--	--	<.020	1.4	<.060	--	1.20	<.010	<.1
SEP										
07...	<1	--	--	<.020	1.6	.180	.52	.70	<.010	.1
13...	4	--	--	<.020	1.5	.070	.33	.40	.080	<.1
20...	2	--	--	<.020	1.5	.070	.43	.50	.060	<.1
27...	6	--	--	<.020	1.6	.070	.63	.70	.030	<.1

DATE	TIME	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
MAY								
14...	0830	15	44	256	36	76	16	8.2
JUL								
12...	1210	<1	.90	280	20	79	20	15
AUG								
09...	0900	<1	.50	293	33	81	22	19

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
MAY								
14...	.2	1.6	220	22	14	.4	12	282
JUL								
12...	.4	1.3	260	24	23	.2	11	330
AUG								
09...	.5	1.4	260	25	30	.3	11	346

08155505 BARTON CREEK BELOW BARTON SPRINGS AT AUSTIN, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 30°15'50", long 97°46'03", Travis County, Hydrologic Unit 12090205, 800 ft (240 m) upstream from bridge on Barton Springs Road and 1.8 mi (2.9 km) southwest of State Capitol at Austin.

DRAINAGE AREA.--125.3 mi² (324.5 km²).

PERIOD OF RECORD.--Occasional discharge measurements: January 1975 to current year. Chemical, biochemical, and pesticide analyses: January 1975 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JUL 26...	1115	51	607	7.6	21.5	<1	.50	8.3	97	.0	130	160

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JUL 26...	280	24	79	21	16	.4	1.3	260	28	26	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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)
JUL 26...	11	339	<2	<2	<.020	1.4	.090	.71	.80	<.010	. .5

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JUL 26...	1115	<1	51	<1	<10	<1	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JUL 26...	<1	2	<.1	<1	<1	5

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
JUL 26...	1115	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
JUL 26...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

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 (revised).--6.52 mi^2 (16.89 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 661.34 ft (201.576 m) National Geodetic Vertical Datum of 1929 (city of Austin bench mark).

REMARKS.--Records fair. The city of Austin diverts water into the channel above gage during the summer months from a swimming pool at Northwest Park. There is some diversion into and out of the drainage area by storm sewers. This station is part of a hydrologic project to study the rainfall-runoff relationship for the Austin urban area. There are two recording rain gages in the watershed. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years, 3.23 ft^3/s (0.0915 m^3/s), 6.73 in/yr (171 mm/yr), 2,340 acre-ft/yr (2.89 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,600 ft^3/s (413 m^3/s) May 24, 1981, gage height, 18.00 ft (5.486 m) from rating curve extended above 1,100 ft^3/s (31.2 m^3/s) on basis of slope-area measurement of 14,600 ft^3/s (413 m^3/s); no flow for several days each year except 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1885, occurred Apr. 22, 1915, stage and discharge unknown. Flood on Sept. 9, 1921, probably lower than the 1915 flood.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 750 ft^3/s (21.2 m^3/s), and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 6	0830	1,360	38.5	7.70	2.347
May 13	0800	*2,920	82.7	11.95	3.642
June 27	0010	1,020	28.9	7.65	2.332

Minimum discharge, no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.35	.10	.04	.04	.08	.04	.12	.02	.00	.00	.02
2	.05	.03	.05	.04	.07	.08	.04	.12	.02	.00	.00	.02
3	1.4	.02	.04	.05	.04	.09	.04	.14	.02	.00	.00	2.1
4	.10	.03	.04	.02	.04	.05	.02	.14	.02	.01	.00	.05
5	.07	.12	.04	.05	.07	.05	.02	.17	.00	.02	.00	.04
6	209	.59	.24	.07	.04	1.3	.03	42	.00	.02	.00	.03
7	30	.01	.14	.08	.03	.10	.04	.17	.00	.02	.00	.03
8	.68	24	.10	.04	.03	.06	.08	.08	.00	.02	.01	.03
9	4.4	.23	.14	.04	.04	.05	1.3	.07	.00	.00	.05	.03
10	.12	.06	.10	.04	.03	.11	.04	.10	.01	.00	.04	.02
11	.08	.04	.14	.03	.03	.09	.02	.07	.01	.00	.04	.02
12	.04	.04	.10	3.8	.03	.06	.02	1.4	20	.00	.04	.02
13	44	.04	.05	.20	.03	.06	.01	392	.17	.00	.04	.04
14	.27	.04	.05	.28	.03	.98	.02	12	.06	.00	.03	.02
15	.07	.04	.05	.05	.04	.18	.04	5.5	.04	.00	.02	.01
16	.04	.04	.82	.07	.05	.10	.04	4.1	16	.00	.01	.02
17	.03	.04	.04	.07	.05	.05	.04	29	.20	.00	.03	.03
18	.03	.02	.03	.08	.05	.05	.07	4.5	.10	.00	.04	.03
19	.03	.02	.03	.10	.04	.04	5.1	.82	.06	.00	.04	2.1
20	.03	.02	.20	.48	10	.05	25	.14	.02	.00	.04	8.7
21	.29	.02	.20	.05	.12	.05	1.2	.05	.02	.00	.02	.05
22	9.7	.02	.05	.05	.05	.78	136	11	.41	8.8	.01	.04
23	.24	.02	.04	.04	.04	16	6.5	2.6	.35	.70	.01	.04
24	.02	.02	.04	.04	.04	.18	25	60	.17	.04	.00	.04
25	.00	.03	.04	.04	9.2	.03	.82	1.5	4.4	.02	.00	.04
26	.00	.04	.04	.04	15	.71	.28	.48	10	.02	.00	.04
27	.00	.03	.04	.05	.24	6.0	.12	.20	46	.00	.00	.04
28	.00	.02	.03	.07	.12	.17	.10	.08	.01	.00	.00	.04
29	.00	.03	.03	.10	---	1.0	.10	.04	.04	.00	.00	.04
30	6.5	.27	.61	7.8	---	.89	.14	.03	.02	.00	.04	.04
31	14	---	.14	.11	---	.07	---	.02	---	.00	.03	---
TOTAL	321.24	26.28	3.76	14.02	35.59	29.51	202.27	568.64	98.17	9.67	.54	13.77
MEAN	10.4	.88	.12	.45	1.27	.95	6.74	18.3	3.27	.31	.017	.46
MAX	209	24	.82	7.8	15	16	136	392	46	8.8	.05	8.7
MIN	.00	.01	.03	.02	.03	.03	.01	.02	.00	.00	.00	.01
CFSM	1.60	.14	.02	.07	.20	.15	1.03	2.81	.50	.05	.003	.07
IN.	1.83	.15	.02	.08	.20	.17	1.15	3.24	.56	.06	.00	.08
AC-FT	637	52	7.5	28	71	59	401	1130	195	19	1.1	27

CAL YR 1981	TOTAL 3529.08	MEAN 9.67	MAX 803	MIN .00	CFSM 1.48	IN 20.13	AC-FT 7000
WTR YR 1982	TOTAL 1323.46	MEAN 3.63	MAX 392	MIN .00	CFSM .56	IN 7.55	AC-FT 2630

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.--12.3 mi² (31.9 km²), revised.

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 latest report, "Hydrologic Data for Urban Studies in the Austin, Texas Metropolitan Area, 1981." Two recording rain gages are located in the watershed above this site.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s (453 m³/s) May 24, 1981, gage height, 23.22 ft (7.077 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,310 ft³/s (207 m³/s) May 13, gage height, 12.70 ft (3.871 m).

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1975 to current year. Water temperatures: January 1975 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
APR 22...	1145	661	117	8.0	11.0	50	460	11.2	101	6.7	50000	290000

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
APR 22...	55	19	20	1.3	2.0	.1	2.1	36	18	2.9	.2	2.8

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
APR 22...	71	304	36	.43	.040	.47	.140	1.2	1.30	.440	18

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
APR 22...	1145	2	18	<3	<10	1	66

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR 22...	1145	<.10	<.10	.10	<.10	<.10	<2.0	.6

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR 22...	<.1	<.10	<2.0	<2.0	.10	<.10	<.1

08157900 TOWN LAKE AT AUSTIN, TX

LOCATION.--Lat 30°14'56", long 97°43'03", Travis County, Hydrologic Unit 12090205, at Longhorn Dam on the Colorado River at Austin, 1.5 mi (2.4 km) downstream from Interstate Highway 35, and 2.3 mi (3.7 km) southeast of the State Capitol in Austin.

DRAINAGE AREA.--38,390 mi² (99,430 km²), approximately, of which 12,880 mi² (33,360 km²) probably is noncontributing.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: February 1975 to current year.

301559097424801 TOWN LAKE SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
17...	0946	1.00	466	8.2	12.5	10.4	100
17...	0948	14.0	466	8.2	11.5	10.2	95
AUG							
20...	0945	1.00	480	7.7	27.0	5.4	68
20...	0947	10.0	480	7.6	25.0	5.2	63
20...	0949	20.0	480	7.6	24.5	4.9	59
20...	0951	24.0	480	7.6	24.5	4.2	51

301500097424801 TOWN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (FTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
FEB												
17...	0921	1.00	466	8.2	13.0	2.60	5	1.3	10.3	100	.6	88
17...	0923	10.0	466	8.2	12.0	--	--	--	10.2	97	--	--
17...	0925	20.0	466	8.3	11.0	--	--	--	9.9	92	--	--
17...	0927	25.0	466	8.3	10.5	--	5	1.3	9.7	89	.6	--
AUG												
20...	0920	1.00	481	7.7	26.5	1.70	5	3.0	5.3	66	.3	160
20...	0922	10.0	480	7.7	25.5	--	--	--	5.3	65	--	--
20...	0924	20.0	480	7.6	25.0	--	--	--	5.0	61	--	--
20...	0926	28.0	478	7.6	25.0	--	15	13	5.0	61	.3	--

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)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
FEB												
17...	K6	190	32	47	18	22	.8	3.3	160	32	38	.2
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	190	29	46	18	22	.8	3.3	160	29	38	.3
AUG												
20...	42	190	37	45	18	24	.8	3.3	150	30	43	.2
20...	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	180	34	44	18	23	.8	3.4	150	29	43	.2

DATE	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, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC DISSOLVED (UG/L AS AS)
FEB												
17...	9.1	266	0	0	<.020	.33	<.060	--	.66	.99	.010	1
17...	--	--	--	--	<.020	.34	<.060	--	.62	.96	.010	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	9.2	262	0	0	<.020	.31	.080	.51	.59	.90	.010	1
AUG												
20...	8.9	263	5	3	<.020	.15	<.060	--	.50	.65	.030	1
20...	--	--	--	--	<.020	.14	<.060	--	.50	.64	.020	--
20...	--	--	--	--	--	--	--	--	--	--	--	--
20...	8.9	260	23	12	<.020	.15	<.060	--	.50	.65	.030	1

TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 TOWN LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	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)	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...	65	<1	<10	4	<10	1	4	<.1	<1	<1	<3
17...	--	--	--	--	30	--	20	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	65	<1	<10	3	<10	4	5	<.1	<1	<1	<3
AUG											
20...	68	<1	<10	1	9	<1	4	<.1	<1	<1	6
20...	--	--	--	--	80	--	20	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	66	<1	<10	<1	3	<1	18	<.1	<1	<1	<3

DATE	TIME	SAM-PLING DEPTH (FEET)	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)
FEB								
17...	0921	1.00	.00	.00	.00	.00	.00	.0
17...	0927	25.0	.00	.00	.00	.00	.00	.0
AUG								
20...	0920	1.00	<.10	<.10	<.10	<.10	<.10	<2.0
20...	0926	28.0	<.10	<.10	<.10	<.10	<.10	<2.0

DATE	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
FEB								
17...	.0	.0	.00	.0	.00	.00	.00	.0
17...	.0	.0	.00	.0	.00	.00	.00	.0
AUG								
20...	<.1	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
20...	<.1	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

301503097424701 TOWN LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
FEB							
17...	0910	1.00	466	8.3	13.0	10.0	97
17...	0912	10.0	466	8.3	12.5	10.0	96
17...	0914	15.0	466	8.3	12.0	10.0	95
AUG							
20...	0940	1.00	480	7.7	26.0	5.6	69
20...	0942	10.0	480	7.7	25.0	5.3	65
20...	0944	14.0	480	7.6	25.0	5.2	63

301500097440801 TOWN LAKE SITE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
FEB							
17...	1015	1.00	466	8.0	12.5	10.0	96
17...	1017	13.0	466	8.0	12.0	10.0	95
AUG							
20...	1008	1.00	482	7.7	25.0	5.3	65
20...	1010	10.0	482	7.7	24.5	5.2	63
20...	1012	14.0	482	7.6	25.0	5.1	62

TOWN LAKE AT AUSTIN, TX--Continued

301504097440901 TOWN LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
17...	1000	1.00	466	8.0	12.0	9.9	94
17...	1002	10.0	466	8.1	12.0	9.9	94
17...	1004	20.0	466	8.1	11.5	9.9	93
17...	1006	27.0	466	8.1	11.5	9.8	92
AUG							
20...	1000	1.00	482	7.7	25.0	5.2	63
20...	1002	10.0	482	7.7	24.5	5.2	63
20...	1004	20.0	482	7.7	24.5	5.2	63
20...	1005	23.0	482	7.7	24.5	5.2	63

301544097445201 TOWN LAKE SITE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
17...	1033	1.00	460	8.1	13.0	9.9	96
17...	1035	10.0	460	8.1	12.5	10.0	96
AUG							
20...	1026	1.00	480	7.6	24.0	5.0	60
20...	1028	8.00	480	7.6	24.0	5.0	60

301546097445101 TOWN LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
17...	1025	1.00	460	8.3	12.0	9.9	94
17...	1027	10.0	460	8.3	12.0	9.9	94
17...	1029	17.0	460	8.2	12.5	9.8	94
AUG							
20...	1020	1.00	482	7.6	24.0	5.2	62
20...	1022	10.0	480	7.6	24.0	4.9	58
20...	1024	15.0	480	7.6	24.0	4.9	58

301556097452301 TOWN LAKE SITE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
17...	1041	1.00	460	8.2	12.0	10.0	95
17...	1043	13.0	460	8.1	12.0	10.1	96
AUG							
20...	1045	1.00	482	7.6	24.0	5.0	60
20...	1047	11.0	482	7.6	24.0	4.9	58

TOWN LAKE AT AUSTIN, TX--Continued

301556097452301 TOWN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (FTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
FEB												
17...	1049	1.00	460	8.5	12.5	2.40	0	2.0	9.8	94	.4	96
17...	1051	10.0	460	8.5	12.0	--	--	--	9.9	94	--	--
17...	1053	17.0	460	8.5	12.0	--	5	2.0-	10.0	95	.5	--
AUG												
20...	1034	1.00	482	7.6	24.0	1.00	3	7.5	5.0	60	.1	80
20...	1036	10.0	481	7.6	24.0	--	--	--	4.8	57	--	--
20...	1038	20.0	481	7.6	24.0	--	3	11	4.8	57	.1	--

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)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
FEB												
17...	22	190	27	45	18	22	.8	3.6	160	30	40	.3
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	190	37	45	18	22	.8	3.2	150	31	38	.2
AUG												
20...	190	190	42	44	20	24	.8	3.3	150	32	43	.2
20...	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	190	38	44	19	23	.8	3.3	150	33	45	.2

DATE	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, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB												
17...	9.2	264	0	0	<.020	.30	<.060	.61	.91	.010	<10	<1
17...	--	--	--	--	<.020	.27	<.060	.81	1.1	.010	30	10
17...	9.2	257	6	4	<.020	.26	<.060	.66	.92	.010	12	7
AUG												
20...	9.1	266	14	8	<.020	.14	<.060	.40	.54	.040	<3	8
20...	--	--	--	--	<.020	.15	<.060	.50	.65	.030	140	40
20...	9.1	267	21	13	<.020	.19	<.060	.40	.59	.040	<3	7

301712097470701 TOWN LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (FTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
FEB												
17...	1120	1.00	452	8.4	13.0	1.50	0	2.7	10.4	101	.9	K6
17...	1122	10.0	452	8.5	12.5	--	--	--	10.3	99	--	--
17...	1124	19.0	452	8.3	13.0	--	5	2.3	10.1	98	.8	--
AUG												
20...	1105	1.00	478	7.7	23.5	.90	5	2.8	4.9	58	.3	K30
20...	1107	10.0	478	7.7	23.5	--	--	--	4.8	56	--	--
20...	1109	20.0	479	7.7	23.5	--	5	12	4.8	56	--	--

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)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
FEB												
17...	K15	190	37	45	18	23	.8	3.8	150	28	38	.3
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	180	34	44	18	22	.8	3.8	150	30	39	.3
AUG												
20...	120	180	34	44	18	24	.8	3.4	150	30	43	.2
20...	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	180	34	44	18	23	.8	3.4	150	29	43	.2

TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 TOWN LAKE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)
FEB												
17...	9.2	256	16	0	<.020	.26	<.060	--	.74	1.0	.010	1
17...	--	--	--	--	<.020	.26	<.060	--	.73	.99	.020	--
17...	9.0	256	8	5	<.020	.23	.060	.80	.86	1.1	.010	1
AUG												
20...	8.7	262	17	<2	<.020	.12	<.060	--	.60	.72	.030	1
20...	--	--	--	--	<.020	.12	<.060	--	.50	.62	.030	--
20...	8.7	260	26	8	<.020	.12	<.060	--	.70	.82	.030	1

DATE	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)	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...	65	<1	<10	3	<10	3	2	<.1	<1	<1	<3
17...	--	--	--	--	<10	--	10	--	--	--	--
17...	64	<1	<10	4	<10	<1	2	<.1	<1	<1	<3
AUG											
20...	66	<1	<10	<1	<3	<1	2	<.1	<1	<1	<3
20...	--	--	--	--	10	--	10	--	--	--	--
20...	65	<1	<10	<1	<3	<1	2	<.1	<1	<1	<3

DATE	TIME	SAM-PLING DEPTH (FEET)	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)
FEB								
17...	1120	1.00	.00	.00	.00	.00	.00	.0
17...	1124	19.0	.00	.00	.00	.00	.00	.0
AUG								
20...	1105	1.00	<.10	<.10	<.10	<.10	<.10	<2.0
20...	1109	20.0	<.10	<.10	<.10	<.10	<.10	<2.0

DATE	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
FEB								
17...	.0	.0	.00	.0	.00	.00	.00	.0
17...	.0	.0	.00	.0	.00	.00	.00	.0
AUG								
20...	<.1	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
20...	<.1	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

301601097454001 TOWN LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
FEB							
17...	1110	1.00	562	7.6	19.0	7.2	79
AUG							
20...	1050	1.00	650	7.2	22.5	6.9	80
20...	1052	3.00	650	7.3	22.5	7.0	81

08158000 COLORADO RIVER AT AUSTIN, TX
(National stream-quality accounting network)

LOCATION.--Lat 30°14'40", long 97°41'39", Travis County, Hydrologic Unit 12090205, on right bank 1,000 ft (305 m) upstream from upstream bridge on U.S. Highway 183 in Austin, 1.4 mi (2.3 km) downstream from Longhorn Dam, and at mile 290.3 (467.1 km).

DRAINAGE AREA.-39,009 mi² (101,033 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1898 to current year. Records of daily discharge for Dec. 13-26, 1914, and Feb. 9-17, 1915, published in WSP 408, have been found unreliable and should not be used.

REVISED RECORDS.--WSP 508: 1915(m). WSP 528: 1900(M), 1918(m). WSP 548: 1901-16. WSP 1342: Drainage area. WSP 1562: 1908, 1929(M), 1936.

GAGE.--Water-stage recorder. Datum of gage is 402.27 ft (122.612 m) National Geodetic Vertical Datum of 1929. Prior to June 19, 1939, all records collected at or near Congress Avenue Bridge 3.9 mi (6.3 km) upstream at datum 19.6 ft (5.97 m) higher; prior to June 18, 1915, nonrecording gages, recording gages thereafter; June 20, 1939, to Oct. 16, 1963, at site 1,000 ft (305 m) downstream from present site at datum 5.0 ft (1.52 m) higher.

REMARKS.--Water-discharge records fair. Since 1937, at least 10 percent of drainage area regulated by reservoirs. Flow largely regulated by Lake Travis (station 08154500). The city of Austin diverts water for municipal use upstream from station and returns sewage effluent downstream. Many other diversions above Lake Buchanan for irrigation, municipal supplies, and oilfield operations. Gage-height telemeter at station.

AVERAGE DISCHARGE.--38 years (water years 1899-1936) unregulated, 2,711 ft³/s (76.78 m³/s), 1,964,000 acre-ft/yr (2.42 km³/yr); 46 years (water years 1937-82) regulated, 2,010 ft³/s (56.92 m³/s), 1,456,000 acre-ft/yr (1.80 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 481,000 ft³/s (13,600 m³/s) June 15, 1935, gage height, 50 ft (15.2 m), present site and datum, from floodmark; minimum daily, 10 ft³/s (0.28 m³/s) Dec. 17, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 51 ft (15.5 m) July 7, 1869, present site and datum (adjusted to present site on basis of record for flood of June 15, 1935), determined from information concerning stage at former site furnished by Dean T. U. Taylor.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,500 ft³/s (637 m³/s) May 13 at 1100 hours, gage height, 19.27 ft (5.873 m); minimum daily, 56 ft³/s (1.59 m³/s) Feb. 21.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	562	3560	3160	458	92	484	1960	1710	3430	3690	2540	2850
2	928	3120	3310	432	91	726	2160	1680	3070	3620	2210	2710
3	586	3180	1960	344	68	404	1950	1810	3370	3720	2600	2750
4	575	3240	176	2430	73	382	1860	1830	3270	3430	2290	2650
5	106	3270	92	3780	1920	638	2580	1700	3360	3720	2920	2730
6	2240	3350	105	1850	1310	1380	999	2120	3190	3730	2720	2770
7	1240	2510	102	105	1040	1370	956	1340	3070	3230	2870	2640
8	274	2850	96	97	1160	2080	1220	1290	2840	3730	2540	2350
9	310	2580	94	91	2290	198	1130	1280	2750	3400	3060	2490
10	164	2310	91	90	1950	162	1040	1290	2750	3290	2450	2170
11	163	2690	94	1170	1240	162	996	1260	2610	2780	3320	2140
12	555	2130	1160	335	1150	367	1230	1300	2710	3550	3020	2150
13	319	2680	1320	92	1300	659	1620	7250	2460	2270	2980	2180
14	2260	1430	1370	82	252	722	2050	2700	2680	2930	1910	2120
15	3510	355	1020	90	258	860	1820	2390	2740	3630	2510	2240
16	3520	1350	628	85	672	847	1820	2290	2820	3680	2660	2130
17	3570	1220	185	77	604	906	1770	2360	2600	3470	2560	1910
18	3140	1510	589	78	820	900	1740	2640	2660	2810	2520	1930
19	3270	1830	1130	117	415	1200	2150	2710	2760	2840	2710	1870
20	3520	1530	673	83	270	1350	2020	2200	2750	2910	2630	2090
21	3260	1280	706	72	56	1500	1860	2270	2760	3330	2570	1930
22	3580	1210	666	72	97	1800	2950	1830	2810	3330	2590	2280
23	3550	1790	825	63	308	2100	1800	1850	2790	3280	2490	1940
24	3550	1960	739	61	72	2300	1840	2070	2760	2540	2130	1630
25	3580	1420	1170	70	1360	2000	1730	2730	2750	2010	2260	1440
26	3550	795	713	58	2870	2350	1690	3650	3650	2060	2100	1460
27	3530	2360	809	61	551	2320	1670	3360	3920	2180	1880	1460
28	3570	855	1040	78	110	1940	1790	3290	3700	2250	2010	1040
29	3560	956	776	63	---	1960	1830	3290	3700	2850	3000	959
30	3320	1970	846	129	---	1920	1720	3270	3670	2880	2510	984
31	3540	---	126	61	---	1940	---	3080	---	3600	2630	---
TOTAL	69402	61291	25771	12674	22399	37927	51951	73840	90400	96740	79190	61993
MEAN	2239	2043	831	409	800	1223	1732	2382	3013	3121	2555	2066
MAX	3580	3560	3310	3780	2870	2350	2950	7250	3920	3730	3320	2850
MIN	106	355	91	58	56	162	956	1260	2460	2010	1880	959
AC-FT	137700	121600	51120	25140	44430	75230	103000	146500	179300	191900	157100	123000

CAL YR 1981 TOTAL 930815 MEAN 2550 MAX 22100 MIN 52 AC-FT 1846000
WTR YR 1982 TOTAL 683578 MEAN 1873 MAX 7250 MIN 56 AC-FT 1356000

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1947 to October 1973. Chemical and biochemical analyses: October 1973 to current year. Sediment records: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1947 to current year.
WATER TEMPERATURES: October 1947 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 737 micromhos Jan. 12, 1964; minimum daily, 243 micromhos Dec. 2, 1953.
WATER TEMPERATURES: Maximum daily, 33.0°C July 25, 1979;minimum daily, 6.0°C Jan. 28, 1948, Feb. 4, 1949.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 643 micromhos Jan. 26; minimum daily, 289 micromhos Oct. 7.
WATER TEMPERATURES: Maximum daily, 25.0°C on several days during May and October; minimum daily, 7.0°C Feb. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV 16...	1000	1460	436	7.4	19.5	3.3	10.0	109	1.0	480	110	190
DEC 14...	0820	156	495	7.9	18.0	.90	7.3	78	.8	170	680	210
MAR 01...	0925	2910	459	8.2	14.5	1.5	10.6	104	.9	80	100	190
APR 29...	0745	89	471	7.5	18.0	.80	6.6	70	.2	480	60	200
JUL 12...	1020	3600	466	7.8	22.5	3.9	8.3	98	.9	92	560	190
AUG 18...	0905	2760	476	7.8	26.0	2.0	7.4	92	.6	5000	350	190

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	IODIDE, DIS-SOLVED (MG/L AS I)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 16...	37	45	18	21	.7	3.3	150	34	34	1.3	--	10
DEC 14...	26	53	18	20	.6	3.1	180	30	35	.3	--	9.9
MAR 01...	39	46	18	22	.7	3.5	150	29	40	.3	--	8.7
APR 29...	39	50	18	22	.7	3.2	160	29	41	.3	--	7.1
JUL 12...	35	46	18	22	.7	3.3	154	21	39	.2	--	9.5
AUG 18...	41	45	19	24	.8	3.4	150	30	42	.2	--	9.0

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 16...	260	257	--	.34	.170	1.20	.020	.010	4	16	44
DEC 14...	277	278	--	.49	.100	.57	.020	.040	3	1.3	89
MAR 01...	259	258	--	.25	.110	.48	.050	.050	11	86	82
APR 29...	271	267	--	.26	.080	.49	<.010	<.010	7	1.7	100
JUL 12...	270	252	<.020	.26	.060	2.60	<.010	.020	9	87	95
AUG 18...	337	263	--	.15	.100	.90	.040	.030	18	134	32

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

	TIME	ARSENIC TOTAL (UG/L	ARSENIC SUS-PENDED TOTAL (UG/L	ARSENIC DIS-SOLVED (UG/L	BARIUM, TOTAL RECOV-ERABLE (UG/L	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L	BARIUM, DIS-SOLVED (UG/L	CADMIUM TOTAL RECOV-ERABLE (UG/L	CADMIUM DIS-SOLVED (UG/L	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L	CHRO-MIUM, DIS-SOLVED (UG/L	COBALT, TOTAL RECOV-ERABLE (UG/L
NOV												
16...	1000	1	0	1	100	40	65	<1	<1	<10	<10	<1
MAR												
01...	0925	2	0	2	100	40	65	<1	1	10	<10	<1
APR												
29...	0745	1	0	1	100	30	69	<1	<3	<10	<10	<1
AUG												
18...	0905	1	0	1	100	30	66	<1	<1	<10	<10	<1

DATE	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, 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)
NOV												
16...	<3	4	0	5	80	<10	4	0	4	10	7	3
MAR												
01...	<3	11	8	3	70	<10	4	2	2	10	8	2
APR												
29...	<1	12	11	1	30	<9	6	5	1	20	10	6
AUG												
18...	1	4	2	2	170	<3	3	--	<1	30	30	4

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV												
16...	.1	<.1	<1	--	<1	<1	<1	<1	<1	10	6	4
MAR												
01...	<.1	<.1	1	--	<1	<1	<1	<1	<1	20	--	<3
APR												
29...	<.1	<.1	<1	--	<1	<1	<1	<1	<1	10	--	<12
AUG												
18...	<.1	<.1	7	4	3	<1	<1	<1	<1	10	6	4

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	69402	437	237	44500	36	6720	27	5010	170
NOV.	1981	61291	448	244	40300	37	6140	28	4560	180
DEC.	1981	25771	468	254	17700	39	2730	29	2010	190
JAN.	1982	12674	473	257	8800	40	1370	29	1000	190
FEB.	1982	22399	473	257	15500	40	2410	29	1770	190
MAR.	1982	37927	464	252	25900	39	3980	29	2940	180
APR.	1982	51951	452	246	34500	38	5260	28	3900	180
MAY	1982	73840	446	242	48300	37	7340	27	5460	180
JUNE	1982	90400	461	250	61100	38	9380	28	6930	180
JULY	1982	96740	466	253	66200	39	10200	29	7520	180
AUG.	1982	79190	479	260	55600	40	8660	30	6340	190
SEPT	1982	61993	510	277	46400	44	7390	32	5340	200
TOTAL		683578	**	**	465000	**	71600	**	52800	**
WTD. AVG.		1873	463	252	**	39	**	29	**	180

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	460	443	464	515	554	500	453	448	471	465	467	512
2	458	444	445	500	567	491	455	450	478	459	469	507
3	449	444	442	532	578	477	465	449	461	465	472	500
4	430	443	463	475	541	483	455	451	467	461	465	497
5	459	445	497	445	450	473	461	456	461	463	473	500
6	350	444	512	443	460	478	468	440	455	464	478	505
7	289	454	491	493	505	476	463	447	461	473	467	510
8	393	462	524	505	494	490	456	458	454	464	489	501
9	413	452	528	511	460	480	454	456	463	451	472	495
10	433	467	546	523	466	505	457	454	470	461	484	504
11	415	446	499	475	483	523	456	457	456	465	470	506
12	433	456	489	468	443	467	457	455	446	466	471	510
13	459	442	460	510	471	459	453	422	463	474	472	508
14	440	438	449	516	468	466	456	400	466	478	475	514
15	433	442	472	515	467	464	451	379	461	468	478	526
16	430	436	452	508	486	460	456	436	427	438	476	511
17	436	443	471	515	483	457	461	450	461	483	478	512
18	443	445	497	519	490	462	456	433	462	478	479	511
19	442	443	479	536	473	466	454	453	458	479	486	514
20	440	448	460	523	478	461	451	451	460	477	492	512
21	444	447	474	528	492	460	457	455	469	466	489	511
22	445	470	461	523	500	461	395	451	462	461	483	526
23	441	474	486	527	486	455	442	461	469	466	485	521
24	438	446	459	557	492	454	461	462	468	469	482	514
25	439	444	470	556	511	458	446	461	466	461	483	516
26	449	443	506	643	457	467	467	457	456	469	481	517
27	451	447	501	563	474	454	456	459	444	470	484	519
28	449	442	491	514	491	455	459	467	462	471	487	521
29	446	451	488	551	---	460	448	456	463	468	485	525
30	453	448	469	548	---	455	451	455	462	467	486	520
31	448	---	465	565	---	459	---	458	---	465	487	---
MEAN	433	448	481	519	490	470	454	448	461	467	479	512

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.5	21.5	18.5	13.5	14.0	13.5	---	15.5	20.5	19.5	---	24.0
2	25.0	20.5	18.0	---	14.0	14.0	14.5	16.5	20.5	19.5	22.0	24.0
3	25.0	20.5	17.0	13.5	14.0	14.5	14.0	16.5	20.5	19.0	22.0	---
4	25.0	21.0	17.0	---	14.0	14.5	15.5	16.0	24.5	19.0	21.5	---
5	25.0	---	17.0	13.0	14.0	14.0	15.0	17.0	---	19.0	21.5	---
6	25.0	20.5	16.5	13.0	10.0	13.5	13.0	17.0	18.0	20.0	22.0	---
7	24.5	21.0	16.5	14.5	7.0	13.0	15.5	16.5	18.0	20.0	23.0	24.0
8	24.5	20.5	16.5	13.0	8.5	13.0	15.0	15.5	18.5	20.0	21.5	24.0
9	23.0	20.5	17.0	13.0	8.5	13.0	15.5	18.5	18.5	19.5	22.0	---
10	23.0	20.0	18.5	13.0	8.5	13.5	15.5	18.0	18.5	20.0	22.0	24.0
11	24.0	21.5	17.0	10.5	9.0	---	14.0	18.0	18.5	20.0	22.0	24.0
12	23.5	19.0	18.5	9.0	---	16.0	15.0	18.0	18.5	20.0	21.5	24.0
13	23.0	18.5	16.0	9.0	9.0	15.5	15.0	18.5	18.5	20.5	22.0	24.0
14	24.5	18.5	16.0	9.0	9.5	---	15.5	---	19.0	20.5	23.0	24.0
15	24.5	18.5	15.5	9.0	9.5	15.5	15.5	---	18.5	20.0	23.0	24.0
16	24.5	19.5	15.0	10.5	10.0	15.5	15.5	23.0	19.0	20.5	23.0	24.0
17	25.0	19.0	15.5	10.0	11.5	---	16.5	23.0	20.0	21.0	23.5	24.0
18	24.5	19.0	14.0	10.0	12.0	16.5	15.5	---	18.5	21.0	23.5	23.5
19	23.5	19.5	13.0	10.5	13.0	17.0	15.0	24.0	18.5	21.0	23.5	24.0
20	23.0	18.5	13.0	10.5	13.0	17.0	16.0	24.0	20.0	21.0	23.0	24.5
21	23.0	18.5	13.5	12.0	13.5	17.0	---	25.0	19.0	21.0	23.0	24.5
22	23.0	18.5	14.0	12.0	14.5	---	15.0	22.0	20.0	21.5	23.0	23.5
23	22.0	19.0	14.0	12.0	14.0	18.0	15.0	20.5	19.0	21.5	23.5	23.5
24	21.0	18.5	13.5	12.0	14.0	17.0	14.0	20.5	18.5	21.5	22.0	23.5
25	23.0	18.5	13.0	14.5	15.0	17.0	15.0	22.0	18.5	21.0	23.0	23.5
26	21.0	19.0	13.0	14.5	11.5	16.5	15.0	20.5	20.0	21.0	23.0	24.0
27	20.0	18.5	13.0	14.5	13.0	16.5	15.5	25.0	19.5	21.0	23.5	24.0
28	20.5	18.5	13.0	14.5	13.0	13.5	15.0	25.0	19.0	21.0	23.5	23.5
29	21.0	18.5	13.0	14.5	---	13.5	15.0	---	19.0	21.0	23.0	24.0
30	21.0	19.0	13.0	14.5	---	13.5	15.5	21.0	19.0	21.0	24.0	23.0
31	21.0	---	13.0	15.0	---	13.5	---	25.0	---	21.5	24.0	---
MEAN	23.5	19.5	15.0	12.0	12.0	15.0	15.0	20.0	19.0	20.5	22.5	24.0

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX

LOCATION.--Lat 30°15'47", long 97°40'20", Travis County, Hydrologic Unit 12090205, on U.S. Highway 183, 1.6 mi (2.6 km) south of the intersection of Webberville Road and U.S. Highway 183, 4.1 mi (6.6 km) east of the State Capitol Building in Austin, and 0.7 mi (1.1 km) upstream from mouth.

DRAINAGE AREA.--13.1 mi^2 (33.9 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January to July 1975 (periodic discharge measurements only), August 1975 to June 1977 (operated as a flood-hydrograph partial-record station only), June 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 411.29 ft (125.361 m) National Geodetic Vertical Datum of 1929 (levels from city of Austin bench mark).

REMARKS.-- Water-discharge records fair. No known regulation or diversions. There is a recording rain gage in the watershed. The station is part of a hydrologic research project to study the rainfall-runoff relationship for the Austin urban area.

AVERAGE DISCHARGE.--5 years (water years 1978-82), 6.66 ft^3/s (0.189 m^3/s), 6.90 in/yr (175 mm/yr), 7,830 acre-ft/yr (5.96 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,100 ft^3/s (173 m^3/s) May 23, 1975, gage height, 17.03 ft (5.191 m), from floodmark, from rating curve extended above 500 ft^3/s (14.2 m^3/s) on basis of slope-area measurement of peak flow; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 971 ft^3/s (27.5 m^3/s) May 13 at 0315 hours, gage height, 9.20 ft (2.804 m), no peak above base of 1,500 ft^3/s (42.5 m^3/s); no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.33	.07	.04	.04	.14	.08	.05	.46	.47	.04	.00
2	.00	.09	.04	.04	.05	.12	.07	.04	.64	.12	.00	.00
3	.01	.07	.06	.03	.04	.12	.10	.03	.80	.18	.00	4.1
4	.00	.05	.05	.03	.03	.12	.21	.01	.14	.23	.00	6.7
5	.00	.05	.05	.03	.03	.09	.29	.00	.64	.09	.35	.00
6	83	.05	.05	.03	.02	.10	.21	43	.77	.00	.08	.00
7	36	.04	.05	.02	.03	.14	.16	.08	.50	.10	.52	.00
8	1.0	25	.06	.02	.03	.13	.16	.04	.16	.21	.57	.00
9	23	.32	.09	.02	.03	.10	.99	.03	.21	.60	.95	.00
10	.29	.16	.07	.02	.02	.10	.34	.02	.27	.47	.63	.00
11	.14	.14	.08	.02	.03	.10	.09	.03	.23	.03	.43	.00
12	.09	.10	.05	2.8	.03	.10	.10	.39	56	.06	.44	.00
13	.42	.14	.06	.34	.03	.10	.13	239	.62	.06	.15	3.5
14	.17	.11	.10	.34	.03	.11	.11	16	.24	.08	.45	3.2
15	.06	.10	.09	.21	.04	.11	.12	9.8	.49	.51	.14	.00
16	.05	.10	.07	.15	.03	.11	.14	7.5	21	.47	.06	.00
17	.04	.09	.05	.13	.03	.13	.18	23	.28	.65	.00	.00
18	1.9	.11	.05	.08	.03	.15	.11	8.8	.32	.44	.00	.00
19	.05	.11	.05	.08	.03	.15	.11	6.9	.16	.00	.34	.00
20	.04	.11	.06	.09	.13	.21	30	6.9	.09	.05	.51	28
21	.11	.09	.07	.10	.04	.21	6.6	6.3	.09	.02	.62	.02
22	5.1	.09	.06	.09	.03	.67	205	5.0	.92	.17	.00	.00
23	.18	.10	.04	.05	.03	19	9.9	6.1	.44	.87	.16	.00
24	.04	.07	.04	.05	.03	.73	25	60	.21	.51	.27	.00
25	.03	.08	.03	.05	.04	.41	.40	1.7	1.8	.51	.00	.00
26	.02	.10	.03	.05	11	.33	.17	.71	.12	.60	.00	.00
27	.00	.12	.03	.05	.20	4.2	.10	.75	59	.00	.00	.00
28	.00	.15	.04	.05	.16	.57	.08	.70	.77	.18	.00	.00
29	.00	.12	.03	.07	---	.21	.07	.75	.47	.31	.00	.00
30	.02	.13	.03	1.8	---	.31	.06	.75	.86	.57	1.4	.00
31	28	---	.10	.10	---	.13	---	.34	---	.46	.94	---
TOTAL	179.76	28.32	1.75	6.98	12.26	29.20	281.08	444.72	148.70	9.02	9.05	45.52
MEAN	5.80	.94	.056	.23	.44	.94	9.37	14.3	4.96	.29	.29	1.52
MAX	83	25	.10	2.8	11	19	205	239	59	.87	1.4	28
MIN	.00	.04	.03	.02	.02	.09	.06	.00	.09	.00	.00	.00
CFSM	.44	.07	.004	.02	.03	.07	.72	1.09	.38	.02	.02	.12
IN.	.51	.08	.00	.02	.03	.08	.80	1.26	.42	.03	.03	.13
AC-FT	357	56	3.5	14	24	58	558	882	295	18	18	90

CAL YR 1981 TOTAL 3011.00 MEAN 8.25 MAX 360 MIN .00 CFSM .63 IN 8.55 AC-FT 5970
WTR YR 1982 TOTAL 1196.36 MEAN 3.28 MAX 239 MIN .00 CFSM .25 IN 3.40 AC-FT 2370

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1975 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
MAR												
23...	0945	260	292	--	--	50	2500	--	--	>46	--	--
23...	1000	301	297	--	--	30	2400	--	--	>46	--	--
23...	1015	284	304	--	--	40	2200	--	--	>47	--	--
23...	1030	193	322	--	--	--	--	--	--	>47	--	--
APR												
22...	0515	260	183	--	--	--	--	--	--	16	39000	180000
22...	0530	505	166	--	--	--	--	--	--	--	55000	220000
22...	0545	566	166	--	--	50	930	--	--	12	--	--
22...	0600	600	144	--	--	--	--	--	--	14	64000	340000
22...	0630	700	128	--	--	60	820	--	--	14	46000	160000
23...	0945	480	333	8.0	14.0	15	24	9.3	90	2.5	16000	24000
MAY												
13...	0315	783	146	--	--	--	--	--	--	17	130000	210000
13...	0415	653	143	--	--	--	--	--	--	12	190000	240000
24...	0730	258	255	--	--	--	--	--	--	18	210000	670000
24...	0745	527	287	--	--	--	--	--	--	--	250000	490000
24...	0800	674	231	7.9	--	--	--	--	--	35	290000	620000
24...	0815	628	243	--	--	40	600	--	--	18	120000	620000
24...	0830	544	222	--	--	--	--	--	--	13	200000	540000
24...	0845	396	210	--	--	60	760	--	--	11	160000	100000
JUN												
27...	0100	263	303	--	--	--	--	--	--	10	--	--
27...	0115	664	305	--	--	--	--	--	--	9.0	--	--
27...	0130	611	310	--	--	--	--	--	--	9.0	--	--
27...	0145	544	273	--	--	--	--	--	--	7.2	--	--
27...	0200	496	250	--	--	--	--	--	--	6.6	--	--
27...	0215	480	228	--	--	--	--	--	--	6.6	--	--

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
MAR												
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
23...	140	26	49	3.3	11	.4	3.5	110	29	14	.2	7.3
MAY												
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	96	17	34	2.8	11	.5	3.1	79	22	13	.3	7.4
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	
27...	--	--	--	--	--	--	--	--	--	--	--	
27...	--	--	--	--	--	--	--	--	--	--	--	
27...	--	--	--	--	--	--	--	--	--	--	--	
27...	--	--	--	--	--	--	--	--	--	--	--	

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
MAR											
23...	--	4960	460	--	--	--	--	--	--	--	--
23...	--	5070	434	--	--	--	--	--	--	--	--
23...	--	5080	440	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
APR											
22...	--	--	--	.00	.690	.62	.380	3.2	3.60	.900	33
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	1480	152	.59	.070	.66	.180	2.1	2.30	1.60	27
22...	--	--	--	.57	.040	.61	.120	3.1	3.20	.680	--
22...	--	1710	156	.55	.030	.58	.140	3.2	3.30	1.10	31
23...	184	46	46	.91	.020	.93	.100	.70	.80	.140	6.2
MAY											
13...	--	--	--	.13	.260	.39	1.20	3.3	4.50	2.60	49
13...	--	--	--	.40	.100	.50	.530	1.9	2.40	.930	33
24...	--	--	--	.51	.020	.53	.080	7.5	7.60	1.70	51
24...	--	--	--	--	--	--	--	--	--	--	--
24...	141	--	--	.45	.020	.47	.080	8.4	8.50	2.20	52
24...	--	6550	510	.35	.020	.37	.080	3.7	3.80	1.50	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	1680	72	.14	.250	.39	.690	2.9	3.60	1.60	33
JUN											
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
APR							
22...	0515	9	<100	<1	<10	3	50
23...	0945	2	50	<3	<10	2	31
MAY							
24...	0730	3	<100	<1	10	3	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)
APR						
22...	<1	<10	<.1	<1	<1	<10
23...	2	<3	<.1	<1	<1	<12
MAY						
24...	<1	<10	<.1	1	<1	10

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR								
22...	0530	<.10	<.10	<.10	<.10	<.10	<2.0	8.4
23...	0945	<.10	<.10	<.10	<.10	<.10	<2.0	2.0
MAY								
24...	0745	<.10	<.10	<.10	<.10	<.10	<2.0	2.4

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR							
22...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
23...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
MAY							
24...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08158200 WALNUT CREEK AT DESSAU ROAD, AUSTIN, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°22'30", long 97°39'37", Travis County, Hydrologic Unit 12090205, on downstream side of bridge on Dessau Road and 8.4 mi (13.5 km) northeast of the State Capitol Building in Austin.

DRAINAGE AREA.--26.2 mi² (67.9 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Digital water-stage recorder and crest-stage gage. Datum of gage is 553.44 ft (168.689 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Additional storm rainfall-runoff data for this site can be obtained from the report "Hydrologic Data for Urban Studies in the Austin, Texas Metropolitan Area, 1981". Two recording rain gages are located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft³/s (612 m³/s) May 25, 1981, gage height, 26.20 ft (7.986 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,150 ft³/s (202 m³/s) May 13, gage height, 18.30 ft (5.578 m).

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 06...	1315	76	159	7.0	22.0	55	310	8.3	95	5.6	K180000	260000
APR 22...	1350	110	217	7.9	11.0	50	200	10.8	97	4.2	22000	70000
MAY 13...	0930	5660	124	7.8	17.0	90	1200	9.4	99	6.2	93000	110000

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 06...	66	0	23	2.0	6.0	.3	3.8	68	5.0	6.6	.2	5.3
APR 22...	88	15	32	1.9	5.2	.2	3.4	73	18	6.7	.2	5.0
MAY 13...	51	5	19	.9	1.4	.1	2.8	46	8.0	2.2	.2	6.4

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 06...	93	400	46	.40	.060	.46	.180	1.0	1.20	.080	19
APR 22...	116	368	52	.68	.070	.75	.270	1.6	1.90	.500	12
MAY 13...	69	2180	62	.21	.110	.32	.200	3.2	3.40	2.10	46

08158200 WALNUT CREEK AT DESSAU ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 06...	1315	1	15	<1	0	2	55
APR 22...	1350	2	23	<3	<10	1	52

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 06...	1	6	.0	0	0	6
APR 22...	1	<3	<.1	<1	<1	<12

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR 22...	1350	<.10	<.10	.10	<.10	<.10	<2.0	1.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR 22...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

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, 5.2 mi (8.4 km) east of the State Capitol Building in Austin, and 2.8 mi (4.5 km) upstream from mouth.

DRAINAGE AREA.--51.3 mi^2 (132.9 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 425.96 ft (129.833 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. No known regulation or diversion. Station is part of hydrologic research project to study rainfall-runoff relation for urban areas. Five recording rain gages are located in the watershed above this station.

AVERAGE DISCHARGE.--16 years, 24.8 ft^3/s (0.702 m^3/s), 6.56 in/yr (167 mm/yr), 17,970 acre-ft/yr (22.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,300 ft^3/s (405 m^3/s) May 25, 1981, gage height, 27.24 ft (8.303 m); no flow at times in 1967 and 1971.
Maximum stage since at least 1891, that of May 25, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 15, 1935, reached a stage of 24 ft (7.3 m), backwater from Colorado River. A flood in 1919 reached a stage of 22 ft (6.7 m), from information by local residents.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 6	1030	1,800	51.0	12.26	3.737
May 13	1015	*9,540	270	25.10	7.650

Minimum daily discharge, no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	13	4.9	4.0	4.7	5.2	5.4	17	7.6	2.3	.15	.83
2	2.0	8.3	4.2	3.8	4.4	4.7	5.1	17	7.2	.91	.05	.75
3	2.1	6.9	4.7	3.8	4.3	4.7	5.1	16	6.8	.31	.04	.11
4	2.7	6.1	4.4	3.5	4.1	4.4	5.1	16	5.7	.07	.13	12
5	2.5	5.8	4.1	3.2	4.1	4.1	5.1	16	5.4	.02	.03	1.0
6	359	5.2	4.1	3.2	4.1	5.9	5.1	69	4.7	.00	.08	.60
7	74	4.7	4.1	3.2	4.1	5.2	5.1	14	4.4	.00	.09	.60
8	17	28	4.1	3.2	4.1	4.7	5.1	11	4.4	.02	.43	.60
9	24	11	4.1	3.2	4.1	4.4	6.1	9.8	4.1	.02	7.2	.60
10	11	7.4	3.8	3.2	3.8	4.4	7.6	8.6	3.8	.00	1.2	.60
11	9.1	6.7	3.8	3.2	3.8	6.6	6.1	8.8	3.5	.00	.57	.60
12	8.3	6.4	3.8	13	3.8	8.3	5.4	12	51	.00	.13	.60
13	14	6.0	3.8	7.2	3.8	8.2	5.0	3200	8.7	.01	.04	7.0
14	10	5.7	3.8	5.6	3.8	8.3	4.7	113	6.8	.02	.04	4.7
15	7.7	5.7	3.8	5.2	3.8	10	4.7	55	5.7	.02	.04	.32
16	6.7	5.1	3.5	4.3	3.6	9.2	4.7	43	27	.04	.04	.15
17	6.1	5.1	3.5	3.8	3.5	9.0	4.7	44	8.7	.02	.04	.15
18	7.2	5.1	3.5	3.8	3.5	8.7	4.1	34	7.2	.03	.04	.15
19	5.4	5.0	3.5	3.8	3.5	8.7	9.3	30	6.4	.02	.07	3.7
20	5.4	4.7	3.5	4.3	13	8.7	61	28	5.7	.02	.09	61
21	6.1	4.7	3.2	4.8	6.1	8.7	22	25	5.1	.04	.10	1.6
22	16	4.7	3.2	4.1	4.6	9.6	351	25	6.3	.07	.15	.73
23	10	4.4	3.2	4.0	4.3	26	36	23	6.4	14	.35	.32
24	7.4	4.4	3.2	3.8	4.1	9.1	66	97	5.1	4.4	.40	.32
25	6.5	4.4	3.2	3.8	4.1	6.0	28	21	9.9	.07	.07	.27
26	5.7	4.4	3.2	3.4	29	4.9	22	15	5.8	.13	.04	.34
27	5.2	4.4	3.0	3.2	8.5	17	21	14	99	.07	.07	.62
28	4.7	4.4	3.0	3.2	5.9	10	20	12	3.6	.04	.07	.13
29	4.7	4.1	3.0	3.2	---	7.2	18	11	1.6	.04	.07	.07
30	6.1	4.5	4.0	10	---	9.4	18	10	5.5	.05	5.9	.07
31	26	---	5.7	6.1	---	6.6	---	8.4	---	.12	3.8	---
TOTAL	674.7	196.3	116.9	138.1	154.5	247.9	766.5	4023.6	333.1	22.86	21.52	111.42
MEAN	21.8	6.54	3.77	4.45	5.52	8.00	25.6	130	11.1	.74	.69	3.71
MAX	359	28	5.7	13	29	26	351	3200	99	14	7.2	61
MIN	2.0	4.1	3.0	3.2	3.5	4.1	4.1	8.4	1.6	.00	.03	.07
CFSM	.43	.13	.07	.09	.11	.16	.50	2.53	.22	.01	.01	.07
IN.	.49	.14	.08	.10	.11	.18	.56	2.92	.24	.02	.02	.08
AC-FT	1340	389	232	274	306	492	1520	7980	661	45	43	221

CAL YR 1981	TOTAL	23568.80	MEAN 64.6	MAX 4100	MIN 2.0	CFSM 1.26	IN 17.09	AC-FT	46750	
WTR YR 1982	TOTAL	6807.40	MEAN 18.7	MAX 3200	MIN .00	CFSM .37	IN 4.94	AC-FT	13500	

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 1982 (discontinued). Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
OCT 06...	1130	1300	167	7.2	22.0	40	1800	8.4	97	11
APR 22...	1515	334	251	7.9	11.5	30	780	11.6	105	5.3
MAY 13...	1040	9100	173	7.9	17.0	90	2000	9.6	101	4.9
JUL 27...	0925	.07	402	7.9	27.5	<1	1.2	4.8	62	.3

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)
OCT 06...	120000	220000	72	17	26	1.7	5.5	.3	2.8
APR 22...	42000	90000	100	32	37	2.7	7.2	.3	3.5
MAY 13...	52000	190000	76	23	27	2.0	3.3	.2	3.1
JUL 27...	420	360	170	29	60	4.6	16	.5	2.5

DATE	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
OCT 06...	55	30	5.8	.2	4.2	109	2230	235	.30
APR 22...	72	44	8.5	.3	4.4	151	1320	128	.83
MAY 13...	53	25	3.2	.3	6.6	102	3590	61	.49
JUL 27...	140	37	23	.4	6.8	235	9	<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)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
OCT 06...	.080	.38	.200	.80	1.00	.110	39	--	--
APR 22...	.030	.86	.180	1.7	1.90	.870	23	--	--
MAY 13...	.040	.53	.140	4.5	4.60	2.00	41	--	--
JUL 27...	<.020	.10	.070	.83	.90	.110	4.5	16	.00

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 06...	1130	1	35	<1	0	2	21
APR 22...	1515	2	28	<3	<10	1	35
JUL 27...	0925	1	56	<1	<10	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 06...	1	2	.0	0	0	<3
APR 22...	2	<3	<.1	<1	<1	<12
JUL 27...	1	15	<.1	<1	<1	4

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR 22...	1515	<.10	<.10	.20	<.10	<.10	<2.0	1.0
JUL 27...	0925	<.10	<.10	<.10	<.10	<.10	<2.0	.6

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR 22...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUL 27...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08158640 WALNUT CREEK AT SOUTHERN PACIFIC RAILROAD BRIDGE, AUSTIN, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 30°15'58", long 97°39'24", Travis County, Hydrologic Unit 12090205, at Southern Pacific Railroad bridge, 1.2 mi (1.9 km) south of Webberville Road, and 5.0 mi (8.0 km) east of the State Capitol in Austin.

DRAINAGE AREA.--53.5 mi² (138.6 km²).

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1975 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
APR 23...	0905	150	517	7.5	16.5	20	72	9.1	94	1.8	73	220
JUL 26...	1335	177	711	7.8	30.0	15	2.1	6.5	88	5.2	150	440

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
APR 23...	170	50	57	6.6	32	1.1	5.0	120	65	41	1.1	8.1
JUL 26...	140	23	34	14	74	2.9	10	120	67	82	1.6	13

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
APR 23...	288	82	13	--	<.020	4.4	.330	1.8	2.10	4.20	7.6
JUL 26...	368	10	2	5.5	1.00	6.5	5.50	2.2	7.70	8.60	10

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
APR 23...	0905	2	37	<3	<10	3	15
JUL 26...	1335	2	15	<1	<10	6	12

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR 23...	<1	4	<.1	1	<1	<12
JUL 26...	<1	31	<.1	<1	<1	16

08158640 WALNUT CREEK AT SOUTHERN PACIFIC RAILROAD BRIDGE, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR								
23...	0905	<.10	<.10	.10	<.10	<.10	--	1.1
JUL								
26...	1335	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR							
23...	<.1	<.10	--	--	<.10	<.10	<.1
JUL							
26...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08158650 COLORADO RIVER BELOW AUSTIN, TX
(Low-flow partial-record station)

LOCATION.--Lat 30°12'28", long 97°38'15", Travis County, Hydrologic Unit 12090205, at bridge on Farm Road 973, 0.3 mi (0.5 km) northeast of intersection of State Highway 71 and Farm Road 973, 8.8 mi (14.2 km) downstream from Govalle Sewage Treatment Plant outfall, and 9.6 mi (15.4 km) downstream from gaging station at Austin.

PERIOD OF RECORD.--Periodic chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: October 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV												
02...	1045	2800	470	8.0	20.0	5	3.3	8.6	95	.4	270	100
DEC												
10...	1035	160	595	7.6	17.5	5	1.6	5.7	59	3.2	200	50
MAR												
08...	1055	2000	466	8.1	13.0	5	4.0	12.4	118	1.7	71	33
APR												
12...	1045	100	481	7.2	17.0	<1	1.5	11.2	117	1.0	190	76
JUN												
21...	1110	1130	473	8.1	22.0	5	2.1	9.3	107	.8	83	140
AUG												
23...	1205	--	505	7.2	26.5	5	2.3	6.8	85	1.1	400	440

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV												
02...	180	27	43	17	23	.8	3.5	150	28	41	.2	8.8
DEC												
10...	200	27	51	17	39	1.3	5.8	170	42	56	.9	12
MAR												
08...	190	32	47	18	25	.9	3.5	160	33	31	.3	8.4
APR												
12...	190	34	48	18	22	.7	3.5	160	31	41	.3	8.9
JUN												
21...	190	39	46	18	24	.8	3.6	150	29	39	.3	9.6
AUG												
23...	190	27	45	18	25	.9	3.3	160	30	44	.3	9.2

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV											
02...	255	1	1	.41	.040	.45	.260	.64	.90	.130	3.4
DEC											
10...	326	10	17	2.7	.240	2.9	2.50	1.1	3.60	1.70	5.7
MAR											
08...	262	8	8	.52	.020	.54	.560	.44	1.00	.240	3.7
APR											
12...	269	3	3	1.1	.070	1.2	.460	.64	1.10	.360	3.6
JUN											
21...	260	9	10	.55	.020	.57	.210	.89	1.10	.160	3.3
AUG											
23...	271	4	<1	.46	.040	.50	.220	.68	.90	.210	6.0

08158650 COLORADO RIVER BELOW AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 02...	1045	2	63	<1	<10	1	<10
MAR 08...	1055	1	64	<1	<10	1	5
APR 12...	1045	1	64	<3	<10	2	<9
AUG 23...	1205	1	68	<1	<10	2	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 02...	1	3	<.1	<1	<1	<3
MAR 08...	3	8	.1	<1	<1	4
APR 12...	<1	8	<.1	<1	<1	<12
AUG 23...	1	6	<.1	1	<1	5

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
MAR 08...	1055	.00	.00	.00	.00	.00	<2.0	.0
JUN 21...	1110	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
MAR 08...	.0	.00	<2.0	<2.0	.00	.00	.0
JUN 21...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08158700 ONION CREEK NEAR DRIFTWOOD, TX

LOCATION.--Lat 30°04'59", long 98°00'29", Hays County, Hydrologic Unit 12090205, on left bank at upstream side of low-water crossing on Farm Road 150, 3.2 mi (5.1 km) southeast of Driftwood, and 10 mi (16 km) west of Buda.

DRAINAGE AREA.--124 mi² (321 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958, November 1961 to June 1979 (periodic discharge measurements only), July 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 878.13 ft (267.654 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. Station is part of hydrologic research project to study rainfall-runoff relationship in the Austin urban-rural areas. There is a recording rain gage located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,010 ft³/s (227 m³/s) June 11, 1981, gage height, 15.24 ft (4.645 m); minimum daily, 0.27 ft³/s (0.008 m³/s) Sept. 5, 1980.
Flood of Mar. 20, 1979, reached a stage of 11.48 ft (3.499 m), discharge, 4,980 ft³/s (141 m³/s), on basis of peak flow over dam, 1.5 mi (2.4 km) downstream. Flood of June 11, 1981, peaked at a depth of 5 ft (1.5 m) over this dam.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 6	1300	6,920	196	13.88	4.231
May 13	1145	*7,640	216	14.74	4.493

Minimum daily discharge, 0.48 ft³/s (0.014 m³/s) Sept. 28, 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	51	18	11	8.3	6.5	5.2	14	38	12	1.0	2.2
2	1.8	32	17	11	8.5	6.5	5.2	13	36	12	1.1	2.1
3	1.8	28	16	11	8.6	6.1	5.2	13	34	12	.92	4.1
4	1.8	27	15	9.8	8.6	6.1	4.8	12	32	12	1.0	4.1
5	1.8	26	15	9.8	8.6	6.1	4.8	11	30	11	.75	2.4
6	1150	25	16	10	8.0	6.1	3.8	16	27	11	.75	1.9
7	139	24	15	9.7	7.9	6.2	3.4	17	26	11	.75	1.5
8	93	26	15	9.1	7.5	4.8	4.0	15	24	10	1.0	1.6
9	65	38	15	8.6	7.4	4.8	3.4	13	23	10	.92	1.6
10	53	28	15	8.2	7.0	4.8	3.3	13	20	10	1.2	1.5
11	45	27	15	7.8	7.0	4.8	2.6	13	18	9.7	1.5	1.3
12	40	26	15	9.8	7.0	4.8	2.2	14	22	8.9	1.8	1.3
13	40	26	14	9.8	7.0	4.8	2.2	1960	25	8.3	1.9	.99
14	43	27	14	9.8	7.0	4.8	1.7	201	21	7.8	1.6	1.2
15	36	25	13	9.8	7.0	4.8	2.0	133	19	7.2	1.6	1.4
16	30	25	14	9.8	7.0	4.8	2.2	115	21	6.4	1.5	1.6
17	27	24	13	9.4	7.0	3.8	2.0	117	21	5.6	1.0	1.5
18	23	24	13	9.4	7.0	3.8	1.4	109	17	5.0	.75	1.2
19	20	23	12	9.4	6.5	3.8	2.0	102	15	4.5	.71	1.2
20	21	22	12	9.4	6.5	3.8	6.2	96	14	4.3	.72	3.2
21	21	21	12	9.4	6.6	3.8	4.3	85	13	3.4	.70	2.8
22	22	21	12	9.4	6.5	3.2	8.4	78	16	2.8	1.1	1.1
23	26	21	12	9.3	6.5	3.2	14	72	19	2.1	1.6	1.1
24	26	20	12	9.0	6.3	3.2	20	74	18	3.6	1.3	1.1
25	22	20	11	9.0	6.1	3.2	23	71	15	2.1	1.2	1.0
26	20	20	11	9.0	7.2	3.2	19	62	15	2.0	1.7	.69
27	18	20	11	9.0	6.5	5.4	17	58	16	1.8	1.6	.58
28	17	19	11	8.6	6.5	6.1	16	55	14	1.2	1.6	.48
29	16	19	11	8.6	---	5.6	15	51	12	1.3	1.7	.48
30	18	19	11	8.6	---	5.6	15	46	13	1.0	2.1	.50
31	27	---	11	8.3	---	5.2	---	42	---	1.0	2.2	---
TOTAL	2067.0	754	417	290.8	201.6	149.7	219.3	3691	634	201.0	39.27	47.72
MEAN	66.7	25.1	13.5	9.38	7.20	4.83	7.31	119	21.1	6.48	1.27	1.59
MAX	1150	51	18	11	8.6	6.5	23	1960	38	12	2.2	4.1
MIN	1.8	19	11	7.8	6.1	3.2	1.4	11	12	1.0	.70	.48
CFSM	.54	.20	.11	.08	.06	.04	.06	.96	.17	.05	.01	.01
IN.	.62	.23	.13	.09	.06	.04	.07	1.11	.19	.06	.01	.01
AC-FT	4100	1500	827	577	400	297	435	7320	1260	399	78	95

CAL YR 1981 TOTAL 27585.60 MEAN 75.6 MAX 1990 MIN 1.6 CFSM .61 IN 8.28 AC-FT 54720
WTR YR 1982 TOTAL 8712.39 MEAN 23.9 MAX 1960 MIN .48 CFSM .19 IN 2.61 AC-FT 17280

08158700 ONION CREEK NEAR DRIFTWOOD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
APR 22...	1335	12	439	8.4	15.5	5	10	9.3	95	1.2	800	3400
JUL 26...	0946	1.8	411	8.0	28.0	<1	.70	6.4	84	.4	43	170

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
APR 22...	210	27	58	15	16	.5	1.2	180	38	11	.3
JUL 26...	190	12	52	15	8.0	.3	1.4	180	27	10	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 22...	7.8	256	4	<1	<.020	.14	.140	.35	.49	.020	1.8
JUL 26...	11	233	4	<2	<.020	<.10	.070	.73	.80	.020	1.7

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
APR 22...	1335	1	25	<3	<10	1	<9
JUL 26...	0946	1	26	<1	<10	<1	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR 22...	<1	<3	<.1	1	<1	<12
JUL 26...	<1	<1	<.1	<1	<1	3

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR 22...	1335	<.10	<.10	<.10	<.10	<.10	<2.0	<.1
JUL 26...	0946	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR 22...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUL 26...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08158800 ONION CREEK AT BUDA, TX

LOCATION.--Lat 30°05'09", long 97°50'52", Hays County, Hydrologic Unit 12090205, on left bank at downstream side of bridge on Farm Road 967 and 0.4 mi (0.6 km) northwest of Buda.

DRAINAGE AREA.--166 mi² (430 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- November 1961 to September 1973, January 1978 to July 1979 (periodic discharge measurements only), July 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 657.39 ft (200.372 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. The station is part of a hydrologic-research project to study rainfall-runoff relation for the Austin urban-rural areas. There are two recording rain gages located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft³/s (493 m³/s) June 13, 1981, gage height, 17.59 ft (5.361 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 28, 1929, reached a stage of about 36.2 ft (11.03 m), present datum, discharge, 53,200 ft³/s (1,510 m³/s), from slope-area indirect measurement of peak flow. This is probably the highest flood since that date.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 6	1630	7,490	212	11.81	3.600
May 13	1230	*9,390	266	13.13	4.002

Minimum discharge, no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	1.3	1.1	.00	.00	1.2	.00	.00	.00
2	.00	.00	.00	.00	1.3	1.2	.00	.00	.63	.00	.00	.00
3	.00	.00	.00	.00	1.3	1.2	.00	.00	.12	.00	.00	.00
4	.00	.00	.00	.00	1.3	1.2	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	1.3	1.2	.00	.00	.00	.00	.00	.00
6	1080	.00	.00	.00	1.3	1.1	.00	.00	.00	.00	.00	.00
7	308	.00	.00	.00	1.2	1.0	.00	.00	.00	.00	.00	.00
8	63	.00	.00	.00	1.2	1.1	.00	.00	.00	.00	.00	.00
9	11	.00	.00	.00	1.2	1.1	.00	.00	.00	.00	.00	.00
10	3.6	.00	.00	.00	1.2	1.1	.00	.00	.00	.00	.00	.00
11	1.5	.00	.00	.08	1.2	1.1	.00	.00	.00	.00	.00	.00
12	.60	.00	.00	1.4	1.2	1.1	.00	.00	.00	.00	.00	.00
13	.37	.00	.00	2.0	1.2	.86	.00	3640	.00	.00	.00	.00
14	.33	.00	.00	2.2	1.1	.52	.00	542	.00	.00	.00	.00
15	.28	.00	.00	2.4	1.1	.26	.00	260	.00	.00	.00	.00
16	.14	.00	.00	2.4	1.1	.02	.00	156	.00	.00	.00	.00
17	.04	.00	.00	2.2	1.1	.00	.00	125	.00	.00	.00	.00
18	.00	.00	.00	2.3	1.0	.00	.00	104	.00	.00	.00	.00
19	.00	.00	.00	2.3	.54	.00	.00	65	.00	.00	.00	.00
20	.00	.00	.00	2.3	.27	.00	.00	43	.00	.00	.00	.00
21	.00	.00	.00	2.3	.55	.00	.00	27	.00	.00	.00	.00
22	.00	.00	.00	2.2	.48	.00	.00	16	.00	.00	.00	.00
23	.00	.00	.00	2.0	.16	.00	.00	13	.00	.00	.00	.00
24	.00	.00	.00	1.8	.01	.00	.50	14	.00	.00	.00	.00
25	.00	.00	.00	1.6	.00	.00	.75	15	.00	.00	.00	.00
26	.00	.00	.00	1.3	.91	.00	.55	10	.00	.00	.00	.00
27	.00	.00	.00	1.2	1.1	.00	.17	7.1	.87	.00	.00	.00
28	.00	.00	.00	1.1	1.1	.00	.00	5.3	.17	.00	.00	.00
29	.00	.00	.00	1.0	---	.00	.00	4.6	.00	.00	.00	.00
30	.00	.00	.00	1.2	---	.00	.00	3.4	.00	.00	.00	.00
31	.00	---	.00	1.3	---	.00	---	2.0	---	.00	.00	---
TOTAL	1468.86	.00	.00	36.58	26.72	15.16	1.97	5052.40	2.99	.00	.00	.00
MEAN	47.4	.000	.000	1.18	.95	.49	.066	163	.10	.000	.000	.000
MAX	1080	.00	.00	2.4	1.3	1.2	.75	3640	1.2	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.29	.000	.000	.007	.006	.003	.000	.98	.001	.000	.000	.000
IN.	.33	.00	.00	.01	.01	.00	.00	1.13	.00	.00	.00	.00
AC-FT	2910	.00	.00	73	53	30	3.9	10020	5.9	.00	.00	.00

CAL YR 1981	TOTAL	36836.75	MEAN	101	MAX	5400	MIN	.00	CFSM .61	IN 8.25	AC-FT	73070
WTR YR 1982	TOTAL	6604.68	MEAN	18.1	MAX	3640	MIN	.00	CFSM .11	IN 1.48	AC-FT	13100

08158800 ONION CREEK AT BUDA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1978 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEC C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
06...	0800	388	178	7.9	22.0	--	--	--	--	--	--	--
06...	1530	1600	368	8.2	24.5	20	720	--	--	10	54000	70000
06...	1600	6980	209	8.0	23.5	75	1200	--	--	12	46000	74000
07...	0800	352	214	7.9	22.0	55	290	8.1	93	3.6	36000	42000
MAY												
13...	1100	8320	115	8.1	18.5	90	150	8.8	98	4.2	35000	84000

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT												
06...	88	4	27	4.9	2.1	.1	2.3	84	5.0	3.7	.1	6.7
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	97	4	29	5.9	2.7	.1	2.8	93	5.0	5.1	.1	6.4
07...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
13...	45	4	15	1.9	1.3	.1	3.1	41	7.0	2.4	.1	8.8

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
06...	94	--	--	--	--	--	--	--	--	--	--
06...	--	1150	212	.13	.070	.20	.190	6.5	6.70	.280	48
06...	104	1520	200	.12	.110	.23	.290	2.8	3.10	.250	77
07...	--	234	90	.24	.070	.31	.170	.78	.95	.070	12
MAY											
13...	64	235	57	.13	.040	.17	.160	2.2	2.40	.300	22

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							
06...	0800	1	14	<1	0	2	12
06...	1530	1	21	<1	0	1	<10
06...	1600	1	15	<1	0	4	10
MAY							
13...	1100	1	9	<3	<10	1	190

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						
06...	1	<1	.0	0	0	<3
06...	1	<1	.0	0	0	<3
06...	3	2	.0	0	0	<3
MAY						
13...	15	3	<.1	<1	<1	18

08158800 ONION CREEK AT BUDA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
OCT								
06...	0800	.00	.00	.00	.00	.00	.0	.0
06...	1530	.00	.00	.00	.00	.00	.0	.0
MAY								
13...	1100	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
OCT							
06...	.0	.00	.0	.00	.00	.00	.0
06...	.0	.00	.0	.00	.00	.00	.0
MAY							
13...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX

LOCATION.--Lat 30°09'19", long 97°56'23", Hays County, Hydrologic Unit 12090205, 0.8 mi (1.3 km) southeast of Farm Road 1826 and 5.9 mi (9.5 km) northeast of Driftwood.

DRAINAGE AREA.--12.2 mi² (31.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to July 1979 (periodic discharge measurements only), October 1978 to June 1979 (peak discharges above base only), July 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 860 ft (262.1 m), from topographic map.

REMARKS.--Water-discharge records good. Station is part of a hydrologic research project to study rainfall-runoff relation for the Austin urban-rural areas. There is a recording rain gage located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maxumum discharge, 8,330 ft³/s (236 m³/s) June 11, 1981, gage height, 13.05 ft (3.978 m) from floodmarks, from slope-area measurements of peak flow; no flow Aug. 28 to Sept. 5, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 9, 1939, reached a stage of 16.2 ft (4.938 m), discharge unknown, and was the highest since at least 1924, from information by local resident. A flood in 1915 was 2 ft (0.6 m) higher than the 1939 flood; from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,210 ft³/s (119 m³/s) May 13 at 0900 hours, gage height, 10.41 ft (3.173 m), no other peak above base of 500 ft³/s (14.2 m³/s); no flow Sept. 13, 18, 19.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	2.9	1.6	1.2	.57	.45	.37	2.2	7.5	3.4	.36	.04
2	.93	2.5	1.4	1.0	.57	.45	.36	2.0	6.9	2.9	.30	.04
3	.91	2.5	1.4	1.0	.63	.45	.33	1.9	6.9	2.6	.30	.03
4	.91	2.3	1.4	1.0	.57	.45	.33	1.7	6.6	2.4	.27	.04
5	.86	2.2	1.4	.91	.57	.45	.32	1.7	6.0	2.3	.26	.04
6	19	2.1	1.4	.80	.51	.45	.28	3.4	5.7	2.1	.25	.04
7	8.1	2.1	1.4	.91	.57	.40	.29	2.2	5.4	1.9	.24	.05
8	6.1	2.7	1.4	.91	.50	.40	.31	1.8	4.9	1.7	.20	.04
9	5.7	2.3	1.4	.80	.51	.40	.30	1.7	4.3	1.3	.19	.04
10	4.9	2.3	1.5	.80	.51	.40	.33	1.7	3.8	1.3	.20	.03
11	4.7	2.3	1.3	.90	.51	.40	.30	1.8	3.3	1.1	.20	.03
12	4.7	2.3	1.3	1.2	.51	.42	.30	2.0	4.9	1.1	.22	.02
13	4.6	2.1	1.4	.85	.51	.45	.30	258	3.6	1.2	.19	.00
14	4.5	2.1	1.4	.91	.51	.45	.28	22	3.1	1.4	.15	.02
15	4.1	2.1	1.1	.91	.45	.45	.28	19	2.9	1.2	.14	.02
16	4.0	2.1	1.2	.90	.45	.45	.28	21	3.6	1.1	.14	.02
17	3.8	2.1	1.2	.71	.51	.45	.28	22	2.9	1.0	.14	.01
18	3.5	2.1	1.0	.70	.51	.44	.28	19	2.7	.97	.14	.00
19	3.3	2.1	1.0	.80	.45	.40	.28	18	2.5	.95	.13	.00
20	3.3	1.9	1.2	.79	.45	.40	.86	16	2.3	.88	.11	.07
21	3.2	1.9	1.1	.70	.45	.40	.41	15	2.1	.74	.10	.06
22	3.9	1.7	1.0	.70	.51	.40	3.2	14	17	.70	.09	.04
23	3.7	1.7	1.0	.70	.45	.52	2.6	12	7.8	.66	.09	.04
24	3.3	1.7	1.1	.70	.44	.42	2.8	14	4.1	.62	.09	.03
25	3.3	1.7	1.0	.69	.46	.39	3.2	12	3.1	.59	.08	.03
26	3.1	1.7	1.0	.62	.63	.37	3.0	11	2.7	.54	.07	.02
27	2.9	1.7	1.0	.63	.52	.36	2.7	11	5.2	.45	.06	.02
28	2.8	1.7	1.2	.57	.50	.37	2.6	10	3.6	.42	.05	.02
29	2.8	1.7	1.0	.62	---	.37	2.4	9.6	2.9	.40	.05	.02
30	2.7	1.7	1.0	.81	---	.37	2.3	8.7	3.9	.40	.04	.02
31	3.3	---	1.2	.64	---	.37	---	8.1	---	.37	.04	---
TOTAL	123.91	62.3	38.0	25.38	14.33	12.95	31.87	544.5	142.2	38.69	4.89	.88
MEAN	4.00	2.08	1.23	.82	.51	.42	1.06	17.6	4.74	1.25	.16	.029
MAX	19	2.9	1.6	1.2	.63	.52	3.2	258	17	3.4	.36	.07
MIN	.86	1.7	1.0	.57	.44	.36	.28	1.7	2.1	.37	.04	.00
CFSM	.33	.17	.10	.07	.04	.03	.09	1.44	.39	.10	.01	.002
IN.	.38	.19	.12	.08	.04	.04	.10	1.66	.43	.12	.01	.00
AC-FT	246	124	75	50	28	26	63	1080	282	77	9.7	1.7

CAL YR 1981 TOTAL 5930.04 MEAN 16.2 MAX 915 MIN .84 CFSM 1.33 IN 18.08 AC-FT 11760
WTR YR 1982 TOTAL 1039.90 MEAN 2.85 MAX 258 MIN .00 CFSM .23 IN 3.17 AC-FT 2060

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: March 1978 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
APR 22...	1435	5.4	359	8.2	14.5	25	24	9.4	94	1.6	2300	12000
JUL 26...	0958	.57	476	8.0	28.0	<1	1.2	5.9	78	.1	420	240

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
APR 22...	170	4	50	12	4.8	.2	1.8	170	5.0	9.1	.2	11
JUL 26...	240	30	68	17	8.5	.3	1.1	210	30	15	.2	12

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
APR 22...	196	22	5	.23	.020	.25	.160	.60	.76	.040	4.9
JUL 26...	278	3	<2	--	<.020	<.10	.060	.64	.70	.020	1.3

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
APR 22...	1435	1	22	<3	<10	1	29
JUL 26...	0958	1	31	<1	<10	<1	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR 22...	1	<3	<.1	<1	<1	<12
JUL 26...	<1	2	<.1	<1	<1	3

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR 22...	1435	<.10	<.10	<.10	<.10	<.10	--	<.1
JUL 26...	0958	<.10	<.10	<.10	<.10	<.10	<2.0	.2

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR 22...	<.1	<.10	--	--	<.10	<.10	<.1
JUL 26...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08158825 LITTLE BEAR CREEK AT FARM ROAD 1626 NEAR MANCHACA, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°07'31", long 97°51'43", Hays County, Hydrologic Unit 12090205, at downstream side of culvert on Farm Road 1626 and 2.1 mi (3.4 km) southwest of Manchaca.

DRAINAGE AREA.--21.0 mi² (54.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1979 to current year.

GAGE.--Flood-hydrograph recorder and crest-stage gage. Datum of gage is 668.67 ft (203.811 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Additional storm rainfall-runoff data for this site can be obtained from the report "Hydrologic Data for Urban Studies in the Austin, Texas Metropolitan Area, 1981." A recording rain gage is located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,530 ft³/s (157 m³/s) June 11, 1981, gage height, 12.30 ft (3.749 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,170 ft³/s (61.5 m³/s) May 13, gage height, 8.35 ft (2.545 m).

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1978 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
MAY 13...	1120	5310	96	8.3	19.0	90	65	7.4	83	4.4	23000	70000

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
MAY 13...	41	0	14	1.4	.9	.0	3.8	43	5.0	1.8	<.1	11

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
MAY 13...	64	132	44	.13	.020	.15	.120	2.0	2.10	.210	19

08158825 LITTLE BEAR CREEK AT FARM ROAD 1626 NEAR MANCHACA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAY 13...	1120	1	8	<3	<10	1	180

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAY 13...	14	3	<.1	<1	<1	13

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
MAY 13...	1120	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
MAY 13...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08158840 SLAUGHTER CREEK AT FARM ROAD 1826 NEAR AUSTIN, TX

LOCATION.--Lat 30°12'32", long 97°54'11", Travis County, Hydrologic Unit 12090205, 1.7 mi (2.7 km) south of the intersection of U.S. Highway 290 and Farm Road 1826 and 11.9 mi (19.1 km) southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--8.24 mi^2 (21.3 km^2).

PERIOD OF RECORD.--January 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.14 ft (267.047 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known regulation or diversion. There is a recording rain gage in the watershed. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,080 ft^3/s (116 m^3/s) June 11, 1981, gage height, 10.79 ft (3.289 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,290 ft^3/s (64.9 m^3/s) May 13 at 0930 hours, gage height, 8.86 ft (2.701 m), no other peak above base of 500 ft^3/s (14.2 m^3/s); no flow for several days in August and September.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	4.5	1.1	.53	.34	.21	.27	3.6	4.1	1.2	.05	.00
2	.04	3.1	1.0	.52	.34	.21	.27	3.1	3.7	.95	.03	.00
3	.04	2.6	.91	.52	.32	.21	.24	2.8	3.7	.73	.03	.00
4	.03	2.4	.85	.46	.30	.21	.24	2.6	3.4	.65	.02	.00
5	.02	2.2	.82	.46	.30	.21	.22	2.4	3.1	.64	.02	.00
6	3.2	2.0	.90	.46	.30	.20	.18	7.7	2.6	.57	.01	.00
7	2.5	1.8	.91	.46	.30	.18	.20	3.6	2.6	.50	.00	.00
8	2.0	4.2	.91	.42	.30	.18	.23	3.1	2.2	.44	.00	.00
9	.76	3.4	.91	.42	.30	.18	.27	2.8	2.0	.40	.00	.00
10	.47	2.5	.90	.42	.30	.18	.30	2.6	1.6	.42	.00	.00
11	1.8	2.4	.91	.42	.30	.18	.27	2.6	1.5	.42	.00	.00
12	.92	2.4	.82	.56	.29	.18	.25	3.4	2.0	.42	.00	.00
13	1.6	2.4	.75	.50	.27	.18	.24	249	1.6	.44	.00	.00
14	2.1	2.0	.73	.46	.27	.18	.21	31	1.3	.46	.00	.00
15	1.4	2.0	.73	.46	.27	.18	.21	25	1.2	.42	.00	.00
16	1.2	1.8	.73	.44	.27	.18	.21	44	1.8	.40	.00	.00
17	1.1	1.8	.70	.42	.26	.18	.21	42	1.2	.35	.00	.00
18	.90	1.8	.59	.42	.24	.18	.21	23	1.0	.28	.00	.00
19	.82	1.7	.59	.42	.24	.18	.21	16	.82	.22	.00	.00
20	.82	1.5	.63	.42	.24	.18	.47	12	.74	.20	.00	.03
21	.85	1.5	.81	.42	.24	.17	.07	11	.66	.18	.00	.00
22	1.6	1.5	.72	.42	.21	.21	7.9	9.1	37	.17	.00	.00
23	1.5	1.5	.59	.39	.23	.74	6.7	7.8	6.5	.15	.00	.00
24	1.2	1.4	.59	.38	.21	.30	9.4	16	1.9	.17	.00	.00
25	1.2	1.3	.59	.37	.22	.23	8.6	9.8	1.5	.15	.00	.00
26	.96	1.2	.59	.34	.36	.21	5.9	7.8	1.4	.11	.00	.00
27	.91	1.1	.59	.34	.27	.25	5.1	7.2	2.1	.09	.00	.00
28	.91	1.1	.59	.34	.24	.27	4.7	6.2	1.3	.08	.00	.00
29	.91	1.1	.59	.34	---	.28	4.0	5.3	1.1	.06	.00	.00
30	1.0	1.2	.59	.52	---	.30	3.7	4.8	1.1	.05	.00	.00
31	4.8	---	.59	.37	---	.28	---	4.1	---	.05	.00	---
TOTAL	37.61	61.4	23.23	13.42	7.73	7.01	60.98	571.4	96.72	11.37	.16	.03
MEAN	1.21	2.05	.75	.43	.28	.23	2.03	18.4	3.22	.37	.005	.001
MAX	4.8	4.5	1.1	.56	.36	.74	9.4	249	37	1.2	.05	.03
MIN	.02	1.1	.59	.34	.21	.17	.07	2.4	.66	.05	.00	.00
CFSM	.15	.25	.09	.05	.03	.03	.25	2.23	.39	.05	.001	.000
IN.	.17	.28	.10	.06	.03	.03	.28	2.58	.44	.05	.00	.00
AC-FT	75	122	46	27	15	14	121	1130	192	23	.3	.06

CAL YR 1981 TOTAL 3930.93 MEAN 10.8 MAX 901 MIN .02 CFSM 1.31 IN 17.74 AC-FT 7800
WTR YR 1982 TOTAL 891.06 MEAN 2.44 MAX 249 MIN .00 CFSM .30 IN 4.02 AC-FT 1770

08158860 SLAUGHTER CREEK AT FARM ROAD 2304 NEAR AUSTIN, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 30°09'43", long 97°49'55", Travis County, Hydrologic Unit 12090205, at downstream side of bridge on Farm Road 2304 and 9.4 mi (15.1 km) southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--23.1 mi² (59.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to current year.

GAGE.--Flood-hydrograph recorder and crest-stage gage. Datum of gage is 654.80 ft (199.583 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Additional storm rainfall-runoff data for this site can be obtained from the report "Hydrologic Data for Urban Studies in the Austin, Texas Metropolitan Area, 1981." Two recording rain gages are located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,340 ft³/s (236 m³/s) June 11, 1981, gage height, 12.40 ft (3.780 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,370 ft³/s (95.4 m³/s) May 13, gage height, 7.80 ft (2.377 m).

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
MAY 13...	1000	391	121	8.0	18.5	120	150	8.4	92	4.2	25000	110000

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
MAY 13...	46	0	17	.8	1.0	.1	4.6	46	6.0	2.1	.2	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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
MAY 13...	74	303	47	.21	.050	.26	.110	2.1	2.20	.390	15

08158860 SLAUGHTER CREEK AT FARM ROAD 2304 NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAY 13...	1000	2	10	<3	<10	2	210

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

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
MAY 13...	1000	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
MAY 13...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08158920 WILLIAMSON CREEK AT OAK HILL, TX

LOCATION.--Lat 30°14'06", long 97°51'36", Travis County, Hydrologic Unit 12090205, on downstream side of bridge on U.S. Highway 290 in Oak Hill, 0.8 mi (1.3 km) east of the intersection of U.S. Highway 290 and State Highway 71, and 7.7 mi (12.4 km) southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--6.30 mi² (16.32 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1974 to February 1977 (periodic discharge measurements only), January 1978 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 798.68 ft (243.438 m) National Geodetic Vertical Datum of 1929 (levels from city of Austin bench mark).

REMARKS.--Water-discharge records fair. Station is part of a hydrologic-research project to study rainfall-runoff relation for the Austin urban-rural areas. Station is equipped with automatic water-quality sampler. Two recording rain gages are located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,170 ft³/s (118 m³/s) June 11, 1981, gage height, 8.55 ft (2.606 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 13	0815	*1,580	44.7	5.69	1.734
Aug. 18	1900	619	17.5	4.08	1.244

Minimum discharge, no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.22	.02	.00	.00	.00	.02	2.6	.34	.00	.00	.00
2	.00	.13	.02	.00	.00	.00	.05	2.4	.23	.00	.00	.00
3	.00	.06	.02	.00	.00	.00	.00	2.0	.23	.00	.00	.00
4	.00	.04	.02	.00	.00	.00	.00	1.7	.23	.00	.00	.00
5	.00	.04	.01	.00	.00	.00	.00	1.5	.23	.00	.00	.00
6	12	.04	.00	.00	.00	.00	.00	14	.23	.00	.00	.00
7	3.6	.04	.00	.00	.00	.00	.00	2.7	.23	.00	.00	.00
8	.09	.87	.00	.00	.00	.00	.00	2.0	.32	.00	.00	.00
9	.06	.16	.00	.00	.00	.00	.28	1.7	.29	.00	.00	.00
10	.00	.12	.00	.00	.00	.00	.05	1.7	.28	.00	.00	.00
11	2.3	.12	.00	.00	.00	.00	.02	1.7	.25	.00	.00	.00
12	.14	.12	.00	.01	.00	.00	.00	4.9	.81	.00	.00	.00
13	.05	.12	.00	.00	.00	.00	.00	194	.26	.00	.00	.00
14	.03	.12	.00	.00	.00	.00	.00	27	.23	.00	.00	.00
15	.04	.12	.00	.00	.00	.00	.00	14	.21	.00	.00	.00
16	.02	.12	.00	.00	.00	.00	.00	12	2.3	.00	.00	.00
17	.00	.12	.00	.00	.00	.00	.00	14	.15	.00	.00	.00
18	.00	.15	.00	.00	.00	.00	.00	7.4	.11	.00	31	.00
19	.00	.08	.00	.00	.00	.00	.00	4.8	.04	.00	.09	.00
20	.02	.07	.00	.00	.00	.00	2.4	3.2	.02	.00	.00	.31
21	.02	.07	.00	.00	.00	.00	.15	2.5	.03	.00	.00	.00
22	.36	.09	.00	.00	.00	.17	30	2.0	7.9	.00	.00	.00
23	.05	.09	.00	.00	.00	4.3	14	1.6	.62	.00	.00	.00
24	.02	.07	.00	.00	.00	.16	15	9.5	.04	.00	.00	.00
25	.01	.06	.00	.00	.00	.00	8.8	2.7	.02	.00	.00	.00
26	.00	.04	.00	.00	.01	.00	6.7	2.0	.02	.00	.00	.00
27	.00	.04	.00	.00	.00	.20	4.9	1.5	.71	.00	.00	.00
28	.00	.04	.00	.00	.00	.06	4.4	1.2	.02	.00	.00	.00
29	.00	.03	.00	.00	---	.12	3.4	.86	.00	.00	.00	.00
30	.06	.03	.00	.00	---	.11	3.0	.61	.00	.00	.00	.00
31	1.6	---	.00	.00	---	.01	---	.44	---	.00	.00	---
TOTAL	20.47	3.42	.09	.01	.01	5.13	93.17	340.21	16.35	.00	31.09	.31
MEAN	.66	.11	.003	.000	.000	.17	3.11	11.0	.55	.000	1.00	.010
MAX	12	.87	.02	.01	.01	4.3	30	194	7.9	.00	31	.31
MIN	.00	.03	.00	.00	.00	.00	.00	.44	.00	.00	.00	.00
CFSM	.11	.02	.000	.000	.000	.03	.49	1.75	.09	.000	.16	.002
IN.	.12	.02	.00	.00	.00	.03	.55	2.01	.10	.00	.18	.00
AC-FT	41	6.8	.2	.02	.02	10	185	675	32	.00	62	.6

CAL YR 1981	TOTAL 3707.09	MEAN 10.2	MAX 977	MIN .00	CFSM 1.62	IN 21.89	AC-FT 7350		
WTR YR 1982	TOTAL 510.26	MEAN 1.40	MAX 194	MIN .00	CFSM .22	IN 3.01	AC-FT 1010		

08158920 WILLIAMSON CREEK AT OAK HILL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Occasional discharge measurements: January 1974 to current year. Chemical, biochemical, and pesticide analyses: January 1974 to current year. Radiochemcial analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
06...	1040	23	215	7.8	23.0	30	400	--	--	5.1	120000	210000
APR												
22...	1510	16	350	8.3	13.5	10	43	10.0	98	2.4	16000	46000
MAY												
13...	0915	1260	181	8.0	18.0	60	390	8.9	97	5.6	74000	160000
AUG												
18...	1900	117	210	--	--	--	--	--	--	--	--	--
18...	1915	623	157	8.0	--	--	--	--	--	--	--	--
18...	1930	254	153	--	--	--	--	--	--	--	--	--

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT												
06...	95	6	28	6.2	4.9	.2	2.7	89	5.0	9.1	.1	3.7
APR												
22...	160	39	47	10	6.5	.2	2.6	120	24	21	.2	5.4
MAY												
13...	81	6	24	5.0	2.3	.1	2.3	75	6.0	4.0	.1	5.1
AUG												
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	64	2	21	2.9	6.8	.4	3.5	62	14	3.8	.2	7.0
18...	--	--	--	--	--	--	--	--	--	--	--	--

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											
06...	106	376	68	.32	.050	.37	.140	.71	.85	.040	15
APR											
22...	189	34	6	.92	.040	.96	.280	.72	1.00	.160	5.1
MAY											
13...	94	813	112	.21	.070	.28	.200	2.1	2.30	.440	32
AUG											
18...	--	--	--	--	--	--	--	--	--	--	--
18...	97	295	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--

08158920 WILLIAMSON CREEK AT OAKHILL, TX-Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT							
06...	1040	1	14	<1	0	1	15
APR							
22...	1510	1	24	<3	<10	1	27
AUG							
18...	1915	8	21	<1	<10	3	200

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						
06...	0	<1	.0	0	0	<3
APR						
22...	1	<3	<.1	<1	<1	<12
AUG						
18...	<1	9	<.1	<1	<1	8

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR								
22...	1510	<.10	<.10	.10	<.10	<.10	<2.0	.2
AUG								
18...	1900	<.10	<.10	<.10	<.10	<.10	<2.0	3.6
18...	1930	<.10	<.10	<.10	<.10	<.10	<2.0	.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR							
22...	<.1	<.10	<2.0	<2.0	.10	<.10	<.1
AUG							
18...	<.1	<.10	<2.0	<2.0	.80	<.10	<.1
18...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX

LOCATION.--Lat 30°11'21", long 97°43'56", Travis County, Hydrologic Unit 12090205, at Jimmy Clay Road, 0.5 mi (0.8 km) southeast of the intersection of Jimmy Clay and Nuckles Crossing Roads, and 5.9 mi (9.5 km) south of the State Capitol in Austin.

DRAINAGE AREA.--27.6 mi² (71.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1974 to September 1975 (periodic discharge measurements only), September 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 497.18 ft (151.540 m) National Geodetic Vertical Datum of 1929 (city of Austin bench mark).

REMARKS.--Water-discharge records fair. No known regulation or diversion in watershed. There are three recording rain gages located in the watershed. The station is part of a hydrologic research project to study the rainfall-runoff relationships for the Austin urban-rural areas.

AVERAGE DISCHARGE.--7 years, 9.54 ft³/s (0.270 m³/s), 4.69 in/yr (119 mm/yr), 6,910 acre-ft/yr (8.52 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft³/s (399 m³/s) June 11, 1981, gage height, 17.25 ft (5.258 m); minimum daily, 0.03 ft³/s (0.001 m³/s) Sept. 16, 24, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--The maximum flood since 1869 occurred on Sept. 9 or 10, 1921, stage and discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,830 ft³/s (80.1 m³/s) May 13 at 1215 hours, gage height, 9.69 ft (2.954 m), no other peak above base of 500 ft³/s (14.2 m³/s); minimum daily, 0.22 ft³/s (0.006 m³/s) Aug. 10.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.54	4.7	2.2	.93	1.1	1.2	1.2	1.7	1.7	.72	.38	.72
2	.54	1.6	2.0	1.0	1.1	1.0	.98	1.7	1.8	.57	.32	.72
3	.54	1.2	1.9	.93	.94	1.0	.93	1.7	2.0	.37	.38	.75
4	.54	.96	1.9	.82	.91	1.0	.93	1.7	2.0	.33	.38	.87
5	.54	.93	1.7	.89	.93	.93	1.1	1.8	2.0	.26	.63	.72
6	56	.93	1.8	.93	.95	1.0	1.0	15	1.9	.33	.63	.78
7	12	.84	1.7	.80	1.1	1.2	1.0	3.0	1.9	.44	.72	.82
8	2.5	6.0	1.6	.77	1.0	1.2	1.0	1.9	2.1	.52	1.1	.82
9	16	2.3	1.6	.91	.97	1.0	1.5	1.7	2.3	.62	.30	.81
10	2.0	1.3	1.6	.77	.94	1.2	3.2	1.7	2.4	.54	.22	.72
11	1.1	.93	1.6	.76	.97	1.0	1.8	1.2	2.3	.50	.23	.72
12	.82	.82	1.4	1.9	1.0	1.2	1.4	2.2	13	.45	.26	.71
13	1.5	.66	1.2	1.4	1.0	1.2	1.2	613	2.2	.46	.29	.72
14	2.5	.72	1.2	1.2	1.1	1.2	1.2	26	1.3	.32	.31	1.0
15	1.4	1.0	1.0	1.1	1.4	1.2	1.3	12	1.4	.39	.31	1.0
16	.88	1.3	1.0	.96	1.2	1.2	1.3	9.3	7.6	.32	.49	1.1
17	.75	.86	1.0	1.1	1.1	1.2	1.3	18	1.7	.34	.26	1.1
18	.67	1.0	1.2	1.0	1.1	1.2	1.4	4.9	1.0	.32	.26	1.2
19	.63	1.3	1.2	.96	1.2	1.3	1.4	3.5	.96	.32	.24	1.2
20	.66	1.4	.96	1.0	1.3	1.2	13	3.2	1.1	.32	.24	1.4
21	.79	1.5	.92	1.1	1.4	1.2	3.8	2.9	1.1	.32	.23	1.2
22	3.8	1.6	.89	1.0	1.3	2.0	68	2.7	1.6	.32	.24	1.1
23	3.6	1.6	.93	.95	1.3	6.5	15	2.5	2.3	.32	.28	1.2
24	1.2	1.6	.82	.98	1.2	2.4	14	16	1.1	.26	.30	1.2
25	.91	1.6	.78	.96	1.3	1.3	4.6	3.4	1.8	.26	.35	1.2
26	.73	1.7	.82	.93	4.0	.95	2.8	2.4	1.0	.26	.42	1.3
27	.63	1.7	.82	.97	1.9	3.0	2.1	2.1	25	.32	.43	1.3
28	.63	1.6	.82	1.2	1.3	2.2	1.9	2.1	2.1	.32	.48	2.0
29	.63	1.8	.82	1.1	---	1.6	1.8	2.3	.81	.32	.52	2.4
30	.80	2.1	.82	2.9	---	1.4	1.7	2.2	.58	.38	.88	1.2
31	12	---	1.0	1.8	---	1.3	---	1.9	---	.38	.90	---
TOTAL	127.83	47.55	39.20	34.02	35.01	46.48	153.84	765.7	90.05	11.90	12.98	31.98
MEAN	4.12	1.59	1.26	1.10	1.25	1.50	5.13	24.7	3.00	.38	.42	1.07
MAX	56	6.0	2.2	2.9	4.0	6.5	68	613	25	.72	1.1	2.4
MIN	.54	.66	.78	.76	.91	.93	.93	1.2	.58	.26	.22	.71
CFSM	.15	.06	.05	.04	.05	.05	.19	.90	.11	.01	.02	.04
IN.	.17	.06	.05	.05	.05	.06	.21	1.03	.12	.02	.02	.04
AC-FT	254	94	78	67	69	92	305	1520	179	24	26	63

CAL YR 1981 TOTAL 9544.30 MEAN 26.1 MAX 3260 MIN .08 CFSM .95 IN 12.86 AC-FT 18930
WTR YR 1982 TOTAL 1396.54 MEAN 3.83 MAX 613 MIN .22 CFSM .14 IN 1.88 AC-FT 2770

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1975 to current year. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
APR 23...	1235	7.9	299	7.7	14.0	35	40	8.8	86	3.0	42000	62000
MAY 13...	1300	33	156	7.9	18.0	120	1000	9.3	100	7.2	110000	410000
JUL 26...	1115	.26	794	7.9	26.0	<1	.70	5.3	66	1.6	720	1200

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
APR 23...	120	24	44	3.3	7.7	.3	3.2	100	23	10	.3	6.0
MAY 13...	76	14	26	2.6	2.1	.1	3.3	62	14	3.4	.2	6.8
JUL 26...	290	0	93	15	48	1.3	3.6	320	21	57	.5	15

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
APR 23...	158	38	5	.64	.040	.68	.350	.75	1.10	.210	5.7
MAY 13...	96	382	75	.16	.240	.40	.400	5.3	5.70	1.40	33
JUL 26...	446	5	<2	1.0	.360	1.4	.840	.86	1.70	.020	3.5

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
APR 23...	1235	2	39	<3	<10	1	23
JUL 26...	1115	3	130	<1	<10	<1	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR 23...	1	3	<.1	<1	<1	<12
JUL 26...	<1	24	<.1	<1	<1	4

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR								
23...	1235	<.10	<.10	.30	<.10	<.10	<2.0	.3
JUL								
26...	1115	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR							
23...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUL							
26...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX

LOCATION.--Lat 30°10'40", long 97°41'18", Travis County, Hydrologic Unit 12090205, on right bank at downstream side of downstream bridge on U.S. Highway 183, 2.4 mi (3.9 km) downstream from Williamson Creek, 3.2 mi (5.1 km) southwest of Del Valle, and 7.5 mi (11.7 km) southeast of the State Capitol Building in Austin.

DRAINAGE AREA.--321 mi² (831 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to March 1930, March 1976 to current year. In 1924-30 station was published as "near Del Valle."

GAGE.--Water-stage recorder. Datum of gage is 442.85 ft (134.981 m) State Department of Highways and Public Transportation datum. May 15, 1924, to Mar. 15, 1930, nonrecording gage at highway bridge 1,700 ft (518 m) upstream at 6.42-foot (1.957 m) higher datum.

REMARKS.--Water-discharge records fair. Flow is slightly regulated by several small ponds on main channel and tributaries above station. There are eleven recording rain gages located in the watershed.

AVERAGE DISCHARGE.--11 years (water years 1925-29, 1977-82), 85.1 ft³/s (2.410 m³/s), 3.60 in/yr (91 mm/yr), 61,650 acre-ft/yr (76.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,000 ft³/s (2,150 m³/s) May 28, 1929, gage height, 30.5 ft (9.30 m), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1869 occurred about July 3, 1869, stage about 38 ft (11.6 m) from newspaper accounts, and Sept. 9, 1921, stage 38.0 ft (11.58 m) from floodmark, present site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 6	2300	5,230	148	14.08	4.292
May 13	1730	*13,300	377	21.28	6.486

Minimum daily discharge, 0.01 ft³/s (0.0003 m³/s) Sept. 11-13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.79	70	9.1	6.3	7.9	7.0	7.2	8.2	19	9.6	1.4	.30
2	.57	17	8.4	6.3	7.2	6.8	7.1	7.4	17	9.6	1.7	.30
3	.57	13	7.3	6.3	7.0	6.4	5.8	6.7	15	8.6	1.4	.30
4	.41	12	7.2	6.3	6.8	6.2	4.9	6.3	14	7.6	1.4	.57
5	.41	11	7.2	6.3	6.8	5.8	4.9	5.8	13	6.8	.76	.76
6	705	10	7.4	6.3	6.8	5.8	4.9	55	12	6.2	.57	.57
7	811	9.4	9.1	6.3	6.8	5.8	4.9	16	11	5.8	.57	.57
8	187	35	9.3	6.2	6.8	5.8	4.9	8.6	9.7	5.4	1.4	.30
9	193	27	8.6	5.8	6.7	5.8	4.6	6.9	9.4	4.6	4.5	.14
10	90	15	8.2	5.5	6.3	5.8	7.2	6.8	8.0	4.9	3.7	.04
11	32	13	8.2	4.5	6.3	5.8	7.5	6.8	8.2	4.5	3.3	.01
12	20	11	8.1	7.2	6.3	5.3	6.6	8.1	54	4.1	3.3	.01
13	16	11	7.2	16	6.2	5.1	5.5	6510	19	3.7	2.6	.01
14	19	9.9	6.8	8.2	5.8	5.3	5.0	1790	12	3.7	1.7	.05
15	16	9.2	6.8	8.7	5.8	4.9	4.9	516	10	3.7	1.4	.09
16	13	8.7	6.8	8.6	5.8	5.0	4.9	322	28	3.7	1.2	.14
17	12	8.7	6.8	7.3	5.8	5.8	4.4	334	14	3.3	1.2	.14
18	11	9.0	6.6	7.2	5.8	5.4	3.3	266	9.5	3.0	1.2	.14
19	11	8.7	6.3	7.2	5.7	5.1	3.3	184	8.7	2.3	1.2	.05
20	8.7	8.2	6.5	7.8	4.9	4.8	39	142	8.2	2.0	.76	.57
21	8.7	8.2	7.2	8.4	5.2	4.5	22	115	7.6	1.7	.57	.41
22	14	8.2	7.1	8.1	5.4	4.5	254	99	6.8	1.4	.41	.21
23	37	8.2	6.3	7.2	5.4	27	137	82	44	1.2	.41	.30
24	13	8.6	5.8	6.8	5.4	21	83	183	29	1.2	.41	.30
25	11	9.2	5.8	6.3	5.4	9.0	44	116	14	1.4	.41	.30
26	9.3	9.8	5.4	5.4	20	6.6	21	84	12	1.4	.30	.41
27	8.2	8.7	5.4	5.6	12	10	14	62	430	1.4	.30	.41
28	8.2	8.7	5.4	6.2	8.0	14	12	44	64	1.4	.30	.51
29	8.2	8.8	5.4	6.8	---	9.1	9.2	36	20	1.4	.30	.99
30	7.5	9.3	5.5	7.4	---	8.3	8.5	31	13	1.2	.30	1.4
31	56	---	6.1	11	---	8.1	---	25	---	1.2	.30	---
TOTAL	2328.55	404.5	217.3	223.5	194.3	235.8	745.5	11083.6	940.1	118.0	39.27	10.30
MEAN	75.1	13.5	7.01	7.21	6.94	7.61	24.9	358	31.3	3.81	1.27	.34
MAX	811	70	9.3	16	20	27	254	6510	430	9.6	4.5	1.4
MIN	.41	8.2	5.4	4.5	4.9	4.5	3.3	5.8	6.8	1.2	.30	.01
CFSM	.23	.04	.02	.02	.02	.02	.08	1.12	.10	.01	.004	.001
IN.	.27	.05	.03	.03	.02	.03	.09	1.28	.11	.01	.00	.00
AC-FT	4620	802	431	443	385	468	1480	21980	1860	234	78	20

CAL YR 1981	TOTAL	81760.32	MEAN	224	MAX	14500	MIN	.41	CFSM .70	IN 9.47	AC-FT	162200
WTR YR 1982	TOTAL	16540.72	MEAN	45.3	MAX	6510	MIN	.01	CFSM .14	IN 1.92	AC-FT	32810

08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1976 to current year. Sediment analyses: October 1976 to September 1982 (discontinued). Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)
APR 23...	1155	148	287	7.9	14.0	30	60	9.7	95	2.8
MAY 13...	1200	8180	175	7.8	18.0	90	810	9.2	99	7.5
JUL 26...	1210	1.2	496	8.1	31.5	<1	.90	7.8	108	.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)
APR 23...	24000	58000	120	23	42	4.3	9.9	.4	3.3
MAY 13...	46000	310000	72	6	25	2.2	6.8	.4	3.7
JUL 26...	48	230	170	13	51	11	35	1.2	3.0

DATE	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
APR 23...	100	24	11	.3	6.7	162	95	9	.66
MAY 13...	66	15	7.5	.2	8.3	108	374	68	.11
JUL 26...	160	36	41	.4	12	286	5	<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, 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)
APR 23...	.040	.70	.290	.81	1.10	.210	5.8	--	--
MAY 13...	.210	.32	.340	4.0	4.30	1.60	20	--	--
JUL 26...	<.020	<.10	.060	1.7	1.80	.030	3.1	18	.06

08159000 ONION CREEK AT U.S. HIGHWAYY 183, NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
APR 23...	1155	2	37	<3	<10	1	34
JUL 26...	1210	2	52	<1	<10	<1	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR 23...	1	<3	<.1	<1	<1	<12
JUL 26...	<1	8	<.1	<1	<1	3

DATE	TIME	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)
APR 23...	1155	<.10	<.10	.40	<.10	<.10	<2.0	.2
JUL 26...	1210	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
APR 23...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUL 26...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

08159165 BIG SANDY CREEK NEAR MCDADE, TX

LOCATION.--Lat 30°18'18", long 97°17'48", Bastrop County, Hydrologic Unit 12090301, on left bank at upstream side of left abutment of U.S. Highway 290 bridge, 3.8 mi (6.1 km) northwest of McDade, 5.3 mi (8.5 km) southeast of Elgin, and 14.2 mi (22.8 km) upstream from mouth.

DRAINAGE AREA.--38.7 mi² (100.2 km²).

PERIOD OF RECORD.--July 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 422 ft (128.6 m), from topographic map.

REMARKS.--Records fair except those for Oct. 1 to Nov. 19, which are poor. No known regulation or diversion. Two recording rain gages are located in the watershed. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,410 ft³/s (125 m³/s) June 11, 1981 and May 13, 1982, gage height, 15.74 ft (4.798 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,410 ft³/s (125 m³/s) May 13 at 1115 hours, gage height, 15.74 ft (4.798 m), no other peak above base of 325 ft³/s (9.20 m³/s); no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	298	.90	.75	.94	.89	.83	1.6	.73	1.5	.00	.00
2	.00	459	.63	.75	.82	.89	.75	1.4	1.0	.75	.00	.00
3	.00	324	.63	1.4	1.0	.83	.75	1.2	1.1	.40	.00	.00
4	.00	65	.63	1.2	.92	.75	.75	1.2	1.2	.22	.00	.00
5	.00	26	.90	.90	.68	.75	.74	1.2	1.2	.14	.00	.00
6	.00	2.6	1.3	.89	.56	.75	.55	2.0	.76	.03	.00	.00
7	.00	1.8	1.3	.88	.51	.63	.51	2.1	.37	.00	.00	.00
8	.00	2.5	1.4	.75	.58	.63	.67	1.5	.30	.00	.00	.00
9	.00	74	1.3	.75	.75	.63	1.0	1.3	.51	.00	.00	.00
10	.00	144	1.3	.67	.75	.63	1.4	1.1	.63	.00	.00	.00
11	.00	83	1.2	.63	.94	.95	1.0	1.0	.30	.00	.00	.00
12	.00	9.4	.90	1.0	1.0	1.4	.76	1.0	.51	.00	.00	.00
13	.00	4.8	.90	1.3	.89	1.4	.66	1550	.75	.00	.00	.00
14	13	3.0	1.0	1.2	.63	1.1	.63	85	.63	.00	.00	.00
15	118	2.2	.90	1.1	.63	.89	.63	10	.40	.00	.00	.00
16	227	1.8	.40	.93	.68	.98	.63	6.4	.63	.00	.00	.00
17	405	1.5	.30	.55	.82	1.0	.56	4.7	.63	.00	.00	.00
18	395	1.3	.40	.59	.77	.76	.41	3.2	.51	.00	.00	.00
19	115	1.0	.51	.76	.75	.65	.40	3.1	.51	.00	.00	.00
20	29	.90	.63	.98	.79	.67	1.4	3.4	.40	.00	.00	.00
21	2.5	.90	.40	1.2	.97	.75	2.5	4.6	.40	.00	.00	.00
22	1.7	.90	.30	1.2	1.0	.75	13	3.8	.40	.00	.00	.00
23	1.3	1.0	.30	.99	.97	.86	16	2.3	.22	.00	.00	.00
24	1.2	.90	.40	.66	1.1	1.1	7.3	4.9	.22	.00	.00	.00
25	.99	.90	.51	.63	.77	1.2	7.4	3.8	.14	.00	.00	.00
26	.87	.63	.63	.63	.97	.92	4.5	2.8	.14	.00	.00	.00
27	.87	.51	.58	.68	1.0	1.4	2.9	2.1	.14	.00	.00	.00
28	.84	.51	.56	.81	.90	1.8	2.2	1.6	.03	.00	.00	.00
29	.72	.75	.64	.89	---	1.4	1.8	1.2	.03	.00	.00	.00
30	.67	.90	.75	1.2	---	1.3	1.7	.80	.30	.00	.00	.00
31	68	---	.75	1.4	---	1.3	---	.75	---	.00	.00	---
TOTAL	1381.66	1513.70	23.25	28.27	23.09	29.96	74.33	1711.05	15.09	3.04	.00	.00
MEAN	44.6	50.5	.75	.91	.82	.97	2.48	55.2	.50	.098	.000	.000
MAX	405	459	1.4	1.4	1.1	1.8	16	1550	1.2	1.5	.00	.00
MIN	.00	.51	.30	.55	.51	.63	.40	.75	.03	.00	.00	.00
CFSM	1.15	1.31	.02	.02	.02	.03	.06	1.43	.01	.003	.000	.000
IN.	1.33	1.45	.02	.03	.02	.03	.07	1.64	.01	.00	.00	.00
AC-FT	2740	3000	46	56	46	59	147	3390	30	6.0	.00	.00
(††)	-	-	.54	.63	.72	1.53	3.05	6.35	2.65	.07	1.18	2.93

CAL YR 1981 TOTAL 7397.42 MEAN 20.3 MAX 1550 MIN .00 CFSM .53 IN 7.11 AC-FT 14670 †† -
WTR YR 1982 TOTAL 4803.44 MEAN 13.2 MAX 1550 MIN .00 CFSM .34 IN 4.62 AC-FT 9530 †† -

†† Weighted-mean rainfall, in inches.

08159170 BIG SANDY CREEK NEAR ELGIN, TX

LOCATION.--Lat 30°15'54", long 97°19'39", Bastrop County, Hydrologic Unit 12090301, on right bank at downstream side of bridge on State Highway 95, 6.1 mi (9.8 km) south of Elgin, 10.7 mi (17.2 km) north of Bastrop, and 10.8 mi (17.4 km) upstream from mouth.

DRAINAGE AREA.--63.8 mi² (165.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 392 ft (119.5 m), from topographic map.

REMARKS.--Water-discharge records fair except those for Oct. 1 to Nov. 17 and June 10 to July 26, which are poor. No known regulation or diversion. Three recording rain gages are located in the watershed. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,760 ft³/s (163 m³/s) June 11, 1981, gage height, 21.54 ft (6.565 m); no flow for several days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,540 ft³/s (157 m³/s) May 13 at 1500 hours, gage height, 21.34 ft (6.504 m), no other peak above base of 500 ft³/s (14.2 m³/s); no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	300	.80	.80	1.6	1.5	1.3	2.8	1.5	.55	.03	.00
2	.00	490	.91	1.1	1.6	1.4	1.3	5.1	1.5	.51	.03	.00
3	.00	340	.74	.97	1.6	1.4	1.6	1.6	1.6	.47	.03	.01
4	.00	100	.64	1.1	1.7	1.5	1.4	.55	1.6	.41	.03	.01
5	.00	30	.64	.80	1.6	1.4	1.2	.38	1.5	.41	.03	.01
6	.00	5.2	.69	.74	1.4	1.4	.91	.64	1.6	.38	.03	.00
7	.00	2.3	.91	.64	1.3	1.3	.80	.80	1.2	.33	.03	.00
8	.00	4.0	1.3	.51	1.2	1.3	.74	.69	1.1	.33	.03	.00
9	.00	90	1.3	.60	1.2	1.2	.74	.44	.87	.28	.02	.00
10	.00	160	1.4	.74	1.2	1.2	.91	.33	.85	.26	.02	.00
11	.00	96	1.3	.47	1.2	1.2	.97	.24	.79	.24	.02	.00
12	.00	25	1.2	.80	1.5	1.3	.91	.20	.98	.24	.02	.00
13	.00	6.0	1.2	1.3	1.4	1.7	.80	2180	.92	.20	.02	.01
14	20	3.1	.97	1.6	1.3	1.9	.69	356	.78	.20	.02	.01
15	170	2.4	.80	1.8	1.3	1.8	.64	13	.70	.16	.01	.00
16	330	2.0	.91	1.7	1.3	1.6	.55	7.3	.74	.15	.01	.01
17	450	1.7	1.1	1.5	1.2	1.7	.51	5.4	.69	.13	.01	.02
18	390	1.5	.91	1.5	1.3	1.3	.44	3.8	.69	.12	.01	.01
19	90	1.3	.74	1.3	1.3	1.5	.44	3.4	.69	.11	.01	.01
20	38	1.1	.74	1.3	1.4	1.4	.64	3.2	.69	.10	.01	.02
21	5.0	1.1	.74	1.5	1.5	1.1	1.5	3.8	.69	.09	.01	.02
22	2.3	.97	.97	1.6	1.5	1.1	5.7	3.6	.64	.08	.01	.01
23	1.8	1.1	.91	1.4	1.4	1.3	19	3.0	.64	.06	.00	.01
24	1.6	.97	.74	1.3	1.4	1.4	9.3	4.3	.64	.06	.00	.01
25	1.4	.94	.64	1.3	1.3	1.4	8.9	5.6	.60	.05	.00	.02
26	1.3	1.0	.64	1.2	1.3	1.4	5.9	3.2	.60	.05	.00	.02
27	1.3	.99	.51	1.3	1.5	1.6	3.9	2.8	.60	.04	.00	.02
28	1.3	.89	.51	1.2	1.6	2.2	2.4	2.4	.55	.04	.00	.02
29	1.2	.90	.47	1.2	---	2.1	1.6	2.1	.55	.04	.00	.02
30	1.1	1.7	.51	1.3	---	1.7	1.1	1.9	.55	.03	.00	.02
31	80	---	.64	1.6	---	1.6	---	1.7	---	.03	.00	---
TOTAL	1586.30	1672.16	26.48	36.17	39.1	45.9	76.79	2620.27	27.05	6.15	.44	.29
MEAN	51.2	55.7	.85	1.17	1.40	1.48	2.56	84.5	.90	.20	.014	.010
MAX	450	490	1.4	1.8	1.7	2.2	19	2180	1.6	.55	.03	.02
MIN	.00	.89	.47	.47	1.2	1.1	.44	.20	.55	.03	.00	.00
CFSM	.80	.87	.01	.02	.02	.02	.04	1.32	.01	.003	.000	.000
IN.	.92	.97	.02	.02	.02	.03	.04	1.53	.02	.00	.00	.00
AC-FT	3150	3320	53	72	78	91	152	5200	54	12	.9	.6
(††)	-	-	.53	.82	.73	1.67	2.77	7.13	2.84	.06	1.37	2.42

CAL YR 1981 TOTAL 9523.86 MEAN 26.1 MAX 2350 MIN .00 CFSM .41 IN 5.55 AC-FT 18890 †† -
WTR YR 1982 TOTAL 6137.10 MEAN 16.8 MAX 2180 MIN .00 CFSM .26 IN 3.58 AC-FT 12170 †† -

†† Weighted-mean rainfall, in inches.

08159200 COLORADO RIVER AT BASTROP, TX

LOCATION.--Lat 30°06'20", long 97°19'08", Bastrop County, Hydrologic Unit 12090301, on left bank in city park at Bastrop, 400 ft (122 m) upstream from bridge on State Highway 71, 0.3 mi (0.5 km) upstream from Gills Creek, 1.1 mi (1.8 km) downstream from Piney Creek, and at mile 236.7 (380.9 km), revised.

DRAINAGE AREA.--39,979 mi² (103,546 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 307.38 ft (93.689 m) National Geodletic Vertical Datum of 1929. Prior to May 10, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. There are many diversions above stations for irrigation and municipal supply. Regulation is the same as that for Colorado River at Austin (station 08158000). The city of Austin diverts water upstream from station by pumping into Decker Lake. The Lower Colorado River Authority diverts water upstream from station by pumping into Lake Bastrop. Gage-height telemeter at station.

AVERAGE DISCHARGE.--22 years, 2,174 ft³/s (61.57 m³/s), 1,575,000 acre-ft yr (1.94 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,600 ft³/s (2,250 m³/s) Oct. 29, 1960, gage height, 34.45 ft (10.500 m); minimum daily, 75 ft³/s (2.12 m³/s) Apr. 1, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 60.3 ft (18.38 m) July 7 or 8, 1869. Flood of June 16, 1935, reached a stage of 57.0 ft (17.37 m), and flood of Dec. 4, 1913, reached a stage of 53.3 ft (16.25 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 44,600 ft³/s (1,260 m³/s) May 14 at 0600 hours, gage height, 25.01 ft (7.623 m); minimum daily, 222 ft³/s (6.29 m³/s) Feb. 5.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	866	3840	2280	530	270	478	1990	2000	3190	3600	3330	2610
2	755	3600	3140	539	237	557	1980	2020	3400	3550	2430	2720
3	869	3330	3280	556	240	679	2190	1910	3190	3580	2320	2650
4	826	3260	2140	561	237	576	1940	2000	3400	3610	2530	2780
5	715	3220	714	2260	222	552	1930	2020	3350	3390	2360	2680
6	613	3280	548	3650	1230	560	2450	1970	3400	3560	2890	2700
7	3240	3180	472	2080	1350	1420	1360	2370	3260	3520	2790	2680
8	2000	2780	443	532	1100	1300	1020	1700	3160	3250	2830	2570
9	900	3150	427	376	1290	1950	1370	1500	2980	3530	2640	2370
10	799	2720	409	323	2060	833	1210	1500	2830	3320	2920	2430
11	572	2550	396	296	2020	400	1220	1520	2870	3220	2660	2220
12	468	2770	378	797	1490	379	1150	1440	2810	2820	3150	2180
13	511	2280	861	829	1050	348	1260	11500	2890	3350	2980	2170
14	923	2750	1380	399	1450	687	1590	33700	2580	2470	2920	2240
15	2370	1650	1490	319	643	714	2020	5350	2800	2960	2280	2190
16	3360	981	1210	287	411	872	1840	3360	2860	3460	2430	2250
17	3440	1270	858	277	723	839	1830	2980	2950	3540	2560	2180
18	3580	1450	686	273	750	814	1770	3150	2800	3360	2540	1970
19	2990	1650	419	266	770	832	1790	3180	2780	2850	2540	2000
20	3310	1890	1150	269	724	1170	2120	3040	2850	2880	2650	1990
21	3500	1790	1010	295	542	1320	2190	2590	2870	2940	2600	2190
22	3280	1570	806	277	421	1470	2150	2660	2840	3200	2590	1900
23	3600	1410	739	255	286	1780	4910	2230	2880	3260	2550	2210
24	3530	1760	907	246	288	2000	2510	2640	2890	3220	2490	2000
25	3570	1950	913	237	418	2210	2750	3420	2840	2560	2280	1720
26	3580	1700	1140	229	948	1960	2270	2880	2990	2060	2220	1480
27	3560	995	861	232	2600	2310	1980	3740	3780	2170	2130	1500
28	3540	2260	888	229	1130	2410	1960	3530	3890	2280	2010	1480
29	3570	1210	1070	228	---	2060	2030	3440	3660	2320	2120	1240
30	3570	1140	910	243	---	1990	2070	3410	3630	2510	2720	998
31	3520	---	962	234	---	1980	---	3370	---	2870	2480	---
TOTAL	71927	67386	32887	18124	24900	37450	58850	122120	92620	95210	79940	64298
MEAN	2320	2246	1061	585	889	1208	1962	3939	3087	3071	2579	2143
MAX	3600	3840	3280	3650	2600	2410	4910	33700	3890	3610	3330	2780
MIN	468	981	378	228	222	348	1020	1440	2580	2060	2010	998
AC-FT	142700	133700	65230	35950	49390	74280	116700	242200	183700	188800	158600	127500

CAL YR 1981 TOTAL 1206378 MEAN 3305 MAX 47300 MIN 264 AC-FT 2393000
WTR YR 1982 TOTAL 765712 MEAN 2098 MAX 33700 MIN 222 AC-FT 1519000

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 02...	1310	3700	462	8.1	20.0	9.0	99	.6	180	42
DEC 10...	0910	370	608	7.6	15.5	9.1	91	1.0	240	40
MAR 08...	1305	1410	480	8.3	18.0	13.8	134	.7	200	41
APR 12...	1300	1070	497	7.2	19.0	11.4	123	.5	200	38
JUN 21...	1350	3420	452	8.1	26.0	8.4	105	.7	190	39
AUG 23...	1400	3040	499	8.0	28.0	7.4	96	.2	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)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 02...	43	18	24	.8	3.5	140	30	40	.2
DEC 10...	63	20	32	1.0	4.0	200	37	56	.4
MAR 08...	49	19	26	.9	3.7	160	35	40	.4
APR 12...	48	19	27	.9	3.6	160	36	44	.4
JUN 21...	46	18	24	.8	3.5	150	29	37	.3
AUG 23...	44	19	26	.9	3.2	150	33	47	.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
NOV 02...	8.9	252	.45	.040	.49	.120	.57	.69	.110
DEC 10...	9.7	342	2.1	.030	2.1	.080	.72	.80	.400
MAR 08...	6.0	275	.80	.040	.84	.390	.42	.81	.340
APR 12...	9.1	283	.79	.030	.82	.150	.44	.59	.300
JUN 21...	9.4	257	.57	.020	.59	.090	.61	.70	.130
AUG 23...	8.8	271	--	<.020	.34	.140	.46	.60	.110

08160800 REDGATE CREEK NEAR COLUMBUS, TX

LOCATION.--Lat 29°47'56", long 96°31'55", Colorado County, Hydrologic Unit 12090301, on left bank 68 ft (21 m) downstream from bridge on Farm Road 109, 1.9 mi (3.1 km) upstream from Cummins Creek, and 7.0 mi (11.3 km) north of Columbus.

DRAINAGE AREA.--17.3 mi² (44.8 km²).

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

REVISED RECORDS.--WSP 2122: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 210.82 ft (64.258 m), corrected, 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.--20 years, 5.99 ft³/s (0.170 m³/s), 4.70 in/yr (119 mm/yr), 4,340 acre-ft/yr (5.35 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,360 ft³/s (152 m³/s) May 22, 1979, gage height, 27.19 ft (8.288 m), from rating curve extended above 2,170 ft³/s (61.5 m³/s) on basis of slope-area measurement of peak flow of Jan. 22, 1965; no flow for many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, about 33.4 ft (10.18 m) in late June or early July 1940, from information by State Department of Highways and Public Transportation and local resident.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 31	1245	*3,220	91.2	22.31	6.800
May 6	0715	1,510	42.8	17.94	5.468
May 13	1130	3,130	88.6	22.10	6.736

Minimum discharge, 0.03 ft³/s (0.001 m³/s) for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.55	36	1.8	1.4	1.1	1.6	1.5	1.1	2.3	.30	.04	.04
2	.56	5.4	1.5	1.3	1.6	1.5	1.2	1.6	2.1	.27	.04	.04
3	.54	3.7	1.4	1.3	1.8	1.5	.99	1.3	2.0	.25	.04	.04
4	.54	3.0	1.4	1.2	1.4	1.5	1.1	1.2	2.0	.25	.04	.04
5	.54	2.5	1.3	1.2	1.4	1.4	1.2	1.1	1.9	.25	.04	.04
6	.91	2.3	1.8	1.2	1.4	1.5	1.0	142	1.7	.20	.04	.03
7	.92	2.1	2.1	1.1	1.2	1.5	1.0	6.3	1.6	.21	.04	.03
8	.79	4.5	3.1	1.1	1.3	1.4	1.2	3.8	1.6	.27	.07	.04
9	.63	3.7	1.9	1.1	1.4	1.3	1.2	3.3	1.5	.27	.07	.04
10	.63	2.4	1.7	1.1	1.3	1.3	1.4	2.9	1.4	.22	.08	.03
11	.66	2.1	1.7	.90	1.3	1.3	1.5	2.7	1.4	.20	.10	.03
12	.73	2.0	1.5	2.7	1.2	1.3	1.3	8.8	1.3	.20	.12	.04
13	.68	2.0	1.4	2.1	1.2	1.3	1.2	474	1.3	.18	.09	.04
14	.69	1.9	1.5	1.5	1.2	1.3	1.2	18	1.2	.28	.06	.04
15	.61	1.9	1.6	1.6	1.2	1.5	1.2	7.6	1.1	.25	.05	.43
16	.70	1.7	1.5	1.4	1.2	1.6	1.2	5.6	4.7	.23	.04	.48
17	.71	2.0	1.4	1.1	1.2	1.6	1.2	7.5	1.0	.19	.04	.41
18	1.0	1.7	1.2	1.2	1.2	1.5	1.1	7.7	.80	.15	.04	.26
19	.54	1.6	1.2	1.4	1.2	1.4	1.2	5.0	.68	.13	.05	.23
20	.47	1.5	1.2	1.4	2.9	1.4	1.7	4.4	.66	.12	.04	.27
21	.50	1.5	1.3	1.4	2.1	1.4	4.3	4.0	.54	.12	.04	.27
22	.63	1.5	1.3	1.4	1.5	1.4	4.2	5.0	.50	.16	.04	.27
23	.68	1.5	1.1	1.2	1.5	1.6	2.9	71	.46	.23	.04	.20
24	.59	1.5	.99	1.1	1.5	1.7	5.1	16	.40	.12	.04	.22
25	.65	1.6	1.0	1.1	3.4	1.5	3.4	7.2	.37	.08	.04	.21
26	.63	1.6	1.1	1.1	7.7	1.2	2.0	4.3	.37	.07	.04	.15
27	.51	1.5	1.2	1.0	2.4	3.0	1.5	3.6	.42	.08	.04	.15
28	.52	1.5	1.2	1.1	1.9	1.9	1.4	3.4	.30	.06	.03	.14
29	.50	3.2	1.1	1.2	---	1.6	1.2	3.0	.30	.05	.03	.14
30	.58	2.7	1.2	1.3	---	2.0	1.2	2.6	.30	.05	.03	.13
31	767	---	1.5	1.2	---	1.7	---	2.5	---	.05	.04	---
TOTAL	786.19	102.1	45.19	40.40	49.7	47.7	51.79	828.5	36.20	5.49	1.54	4.48
MEAN	25.4	3.40	1.46	1.30	1.78	1.54	1.73	26.7	1.21	.18	.050	.15
MAX	767	36	3.1	2.7	7.7	3.0	5.1	474	4.7	.30	.12	.48
MIN	.47	1.5	.99	.90	1.1	1.2	.99	1.1	.30	.05	.03	.03
CFSM	1.47	.20	.08	.08	.10	.09	.10	1.54	.07	.01	.003	.009
IN.	1.69	.22	.10	.09	.11	.10	.11	1.78	.08	.01	.00	.01
AC-FT	1560	203	90	80	99	95	103	1640	72	11	3.1	8.9

CAL YR 1981 TOTAL 2567.43 MEAN 7.03 MAX 767 MIN .40 CFSM .41 IN 5.52 AC-FT 5090
WTR YR 1982 TOTAL 1999.28 MEAN 5.48 MAX 767 MIN .03 CFSM .32 IN 4.30 AC-FT 3970

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.--41,640 mi² (107,848 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing; 41,730 mi² (108,080 km²), revised approximately, at site "near Eagle Lake".

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.
Water-quality records: Chemical analyses: October 1967 to September 1971. Chemical and biochemical analysis: February 1968 to September 1981.

REVISED RECORDS.-- WSP 1562: 1920-21(M), 1922. WRD TX-81-3: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 155.52 ft (47.402 m) National Geodetic Vertical Datum of 1929. Prior to May 1, 1919, various nonrecording gages at sites in the immediate vicinity at datum 3.00-foot (0.914 m) lower. May 1, 1919, to Nov. 23, 1930, water-stage recorder at site about 300 ft (91 m) downstream at datum 3.00-foot (0.914 m) lower. Sept. 17, 1930, to June 12, 1939 (Oct. 1, 1930, to May 31, 1939, used herein), waterstage 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.--Records good. At times, low-flow releases from Lake Travis (station 08154500) are made for generation of electric power and (or) to fulfill downstream water contracts. The Lower Colorado River Authority reported that 14,000 acre-ft (17.3 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. Flow is also affected at times by discharge from flood-detention pools of 20 floodwater-retarding structures with a combined detention capacity of 25,570 acre-ft (31.5 hm³). These structures control runoff from 73.1 mi² (189.3 km²) in the Cummins Creek watershed. There are 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); 46 years (water years 1937-82) regulated, 2,935 ft³/s (83.12 m³/s), 2,126,000 acre-ft/yr (2.62 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, 70,000 ft³/s (1,980 m³/s) Nov. 1 at 1200 hours, gage height, 29.50 ft (8.992 m); minimum daily, 365 ft³/s (10.3 m³/s) Feb. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1040	64000	1490	1060	365	2250	1960	1930	3520	3690	2390	2300
2	1020	33200	1370	1070	393	1300	1970	2140	3460	3600	3050	2280
3	818	8850	2840	895	887	877	1940	1920	3260	3560	2740	2430
4	726	6240	3470	693	678	706	1990	1880	3360	3470	2110	2440
5	756	5800	3360	718	509	757	2010	1780	3440	3540	2280	2460
6	771	5240	2050	711	439	797	1850	3550	3470	3420	2240	2540
7	1970	4980	1290	2670	417	725	1940	4350	3470	3340	2380	2550
8	1500	4910	1040	3420	752	710	2290	3200	3430	3480	2470	2560
9	3200	6710	910	1780	1310	1190	1340	2430	3270	3160	2590	2510
10	2050	6600	837	1020	1190	1360	1120	1690	3360	3340	2510	2320
11	1410	4870	792	796	1310	1800	1450	1480	2790	3210	2350	2260
12	1060	3930	748	748	2050	1130	1290	2310	2890	3100	2390	2230
13	844	3610	711	724	1880	776	1230	15700	2900	2880	2780	2060
14	682	3460	685	843	1540	654	1160	36600	2830	2960	2790	2040
15	627	3190	819	1100	1250	610	1200	40100	2680	2730	2750	2070
16	1010	3140	1400	819	1440	639	1540	26600	2720	2460	2510	2100
17	2840	2230	1520	699	932	867	1810	7340	2820	3150	2380	2130
18	3410	1580	1310	653	728	936	1720	5370	2920	3310	1990	2160
19	3520	1690	1090	628	697	958	1720	4570	2780	3390	2330	2020
20	3530	1760	947	608	882	941	1690	4270	2750	2940	2330	1890
21	3030	1940	775	593	951	937	1820	3910	2770	2720	2380	1890
22	3520	2130	1070	560	962	1110	2150	3390	2780	2750	2410	1960
23	3430	2020	1160	510	806	1280	2400	3260	2770	2990	2370	1890
24	3470	1780	970	495	714	1460	3960	2970	2760	3060	2380	1860
25	3620	1680	882	476	605	1820	3890	3200	2810	3030	2280	1990
26	3570	1940	986	442	670	2000	2990	4670	2820	3000	2200	1810
27	3580	2130	1060	421	666	2110	2750	3290	2740	2210	2120	1620
28	3570	1810	1200	412	862	2020	2180	3840	3340	1860	1970	1450
29	3550	1440	1030	400	---	2430	1930	3960	3980	2060	1920	1440
30	3570	2440	1010	403	---	2290	1860	3700	3690	2150	1850	1360
31	19000	---	1160	389	---	2040	---	3590	---	2220	2100	---
TOTAL	86694	195300	39982	26756	25885	39480	59150	208990	92580	92780	73340	62620
MEAN	2797	6510	1290	863	924	1274	1972	6742	3086	2993	2366	2087
MAX	19000	64000	3470	3420	2050	2430	3960	40100	3980	3690	3050	2560
MIN	627	1440	685	389	365	610	1120	1480	2680	1860	1850	1360
AC-FT	172000	387400	79300	53070	51340	78310	117300	414500	183600	184000	145500	124200

CAL YR 1981 TOTAL 1461288 MEAN 4004 MAX 64000 MIN 209 AC-FT 2898000
WTR YR 1982 TOTAL 1003557 MEAN 2749 MAX 64000 MIN 365 AC-FT 1991000

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.--42,003 mi² (108,788 km²), approximately, of which 11,403 mi² (29.534 km²) probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1916 to August 1918 (intermittent periods), March 1919 to September 1925, July and August 1938 (flood discharge measurements only), October 1938 to current year. June to November 1901 and May to September 1902, daily records published in U.S. Department of Agriculture, Office of Experiment Stations, Bulletin Nos. 119 and 133. Gage-height records collected in this vicinity since 1935 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 878: 1938(M). WDR TX-81-3: Drainage area

GAGE.--Water-stage recorder. Datum of gage is 62.42 ft (19.026 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1938, various types of recording and nonrecording gages 800 ft (244 m) upstream at different datum. Oct. 1, 1938, to June 1, 1966, nonrecording gage 100 ft (30 m) upstream at datum 3.00-foot (0.914 m) higher. June 1, 1966, to Sept. 30, 1975, water-stage recorder at present site at datum 3.00-foot (0.914 m) higher.

REMARKS.--Water-discharge records 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. Gage-height telemeter at station.

AVERAGE DISCHARGE.--5 years (water years 1920-25) unregulated, 3,680 ft³/s (104.2 m³/s), 2,666,000 acre-ft/yr (3.29 km³/yr); 44 years (water years 1939-82) regulated, 2,712 ft³/s (76.80 m³/s), 1,965,000 acre-ft/yr (2.42 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 100,000 ft³/s (2,830 m³/s) July 3, 1940, gage height, 38.99 ft (11.884 m); no flow Aug. 6, 1925 (result of pumping).
Flood of July 30, 1938, reached a stage of 40.4 ft (12.31 m), present datum, observed by Geological Survey engineers, discharge, 145,000 ft³/s (4,110 m³/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1869, 41.9 ft (12.77 m) Dec. 8, 1913, present datum, from information by local residents; below Wharton floodwater combined with that of the Brazos River. Flood of about July 12, 1869, reached about same height. Flood of June 20, 1935, reached a stage of 41.2 ft (12.56 m), present datum, furnished by National Weather Service, discharge, 159,000 ft³/s (4,500 m³/s) from rating curve defined by current-meter measurements below 145,000 ft³/s (4,110 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 49,300 ft³/s (1,400 m³/s) Nov. 3 at 0100 hours, gage height, 30.55 ft (9.312 m); minimum daily, 440 ft³/s (12.5 m³/s) Feb. 3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1180	26700	2730	1240	491	1020	2000	1690	3010	2830	1240	1100
2	1300	45800	2030	1260	462	2000	1870	1710	2890	2800	1360	1320
3	1330	40700	1800	1230	440	1720	1850	1800	2680	2780	1830	1630
4	1230	11400	2630	1190	594	1300	1920	1630	2500	2770	1800	1820
5	1090	7120	3250	977	875	1030	1930	1430	2560	2650	1310	2030
6	1100	6390	3240	876	674	940	1770	2730	2620	2670	1270	2020
7	1350	5730	2390	895	523	977	1690	4180	2650	2650	1350	2050
8	2330	5490	1710	1860	485	946	1750	4310	2610	2510	1360	2000
9	1890	5560	1390	2970	499	900	2070	3130	2570	2650	1610	2000
10	3060	7060	1240	2050	1100	1100	1490	2420	2440	2530	1650	1950
11	2400	6650	1150	1370	1240	1370	1150	1690	2490	2650	1700	1750
12	1880	5110	1060	1080	1290	1780	1360	1310	2140	2650	1640	1550
13	1570	4280	1010	954	1740	1410	1280	2810	2150	2620	1710	1540
14	1430	3940	979	868	1930	1020	1160	21800	2100	2470	1830	1480
15	1220	3710	922	825	1680	851	998	35400	2030	2490	1990	1510
16	1110	3460	911	1120	1380	758	903	37800	1920	2570	1950	1630
17	1230	3410	1380	1010	1540	728	987	27900	1810	2140	1810	1670
18	2550	2720	1560	837	1220	893	1330	9400	1860	2600	1420	1730
19	3220	2230	1530	758	962	987	1290	6380	2010	2840	1380	1780
20	3360	2090	1400	713	1210	1000	1310	5050	1970	2850	1560	1670
21	3420	2160	1190	661	1390	1000	1390	4430	1930	2510	1610	1540
22	3110	2260	1060	645	1130	974	1870	3860	1960	2290	1620	1570
23	3430	2410	1060	615	1120	1010	2240	3360	1910	2250	1660	1620
24	3420	2330	1360	577	1010	1250	2510	3150	1890	2430	1660	1760
25	3460	2170	1200	542	946	1410	3670	3120	1900	2580	1660	1660
26	3580	2060	1120	527	1490	1540	4000	3060	1970	2450	1600	1840
27	3560	2200	1120	501	1420	1750	3000	4260	2120	2370	1510	1720
28	3580	2320	1220	497	1270	1920	2820	3390	2040	1620	1380	1550
29	3590	2210	1300	504	---	1870	2240	3500	2350	1200	1190	1300
30	3590	1940	1280	491	---	2170	1900	3620	2890	1200	1070	1330
31	4300	---	1210	507	---	2180	---	3300	---	1250	996	---
TOTAL	74870	221610	47432	30150	30111	39804	55748	213620	67970	74870	47726	50120
MEAN	2415	7387	1530	973	1075	1284	1858	6891	2266	2415	1540	1671
MAX	4300	45800	3250	2970	1930	2180	4000	37800	3010	2850	1990	2050
MIN	1090	1940	911	491	440	728	903	1310	1810	1200	996	1100
AC-FT	148500	439600	94080	59800	59730	78950	110600	423700	134800	148500	94660	99410

CAL YR 1981 TOTAL 1412760 MEAN 3871 MAX 45800 MIN 368 AC-FT 2802000
WTR YR 1982 TOTAL 954031 MEAN 2614 MAX 45800 MIN 440 AC-FT 1892000

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1944 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: February 1968 to current year. Sediment analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1944 to current year.
WATER TEMPERATURES: October 1945 to September 1948, March 1950 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 904 micromhos Oct. 29, 1963; minimum daily, 146 micromhos Sept. 27, 1957.
WATER TEMPERATURES: Maximum daily, 35.0°C July 26, 1954; minimum daily, 2.0°C Dec. 23, 1963, Jan. 14, 1964.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 685 micromhos Feb. 7; minimum daily, 168 micromhos Nov. 2.
WATER TEMPERATURES: Maximum daily, 31.0°C July 25; minimum daily, 3.0°C Jan. 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV 18...	0920	2760	500	8.1	19.5	10	58	8.2	89	1.0	84
DEC 29...	1130	1260	600	8.7	13.5	--	3.0	10.5	100	1.2	K27
MAR 23...	1030	960	580	8.3	21.0	5	22	9.1	102	1.4	K60
MAY 05...	1100	1490	500	8.2	24.0	--	74	9.5	113	1.0	2400
JUN 14...	1935	2000	--	--	30.0	--	--	--	--	--	--
JUL 28...	1145	1680	495	8.5	29.5	5	44	6.8	89	1.0	84
SEP 08...	1615	1970	486	8.3	28.0	5	52	7.5	96	1.0	160

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV 18...	520	200	36	52	16	23	.8	3.8	160	39	38
DEC 29...	K32	240	24	68	18	31	.9	3.6	220	41	45
MAR 23...	700	230	26	59	19	32	1.0	4.3	200	42	50
MAY 05...	270	200	40	52	17	24	.8	4.0	160	38	41
JUN 14...	--	--	--	--	--	--	--	--	--	--	--
JUL 28...	200	200	34	50	19	27	.9	3.6	169	30	41
SEP 08...	210	190	39	46	18	27	.9	3.6	150	33	48

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV 18...	.3	12	283	280	87	13	<.030	.44	.44	.080
DEC 29...	.4	6.0	344	345	--	--	--	--	.84	--
MAR 23...	.4	5.5	326	333	36	6	--	.42	.44	.060
MAY 05...	.4	11	287	284	--	--	--	--	.86	--
JUN 14...	--	--	--	--	--	--	--	--	--	--
JUL 28...	.3	8.7	278	281	109	20	--	.28	.28	.100
SEP 08...	.3	6.1	374	272	122	23	--	.20	.18	.060

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA DISSOLVED (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)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, 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
NOV 18...	.080	.42	.50	.140	.140	.120	3.3	139	1040	75
DEC 29...	<.070	--	.57	.150	.150	.140	--	22	75	65
MAR 23...	<.060	.70	.76	.250	.240	.250	3.3	37	96	95
MAY 05...	.170	--	.90	.360	.200	.200	--	151	607	91
JUN 14...	--	--	--	--	--	--	--	--	--	--
JUL 28...	.100	1.2	1.30	.190	.080	.070	4.1	141	640	83
SEP 08...	.080	.94	1.00	.220	.130	.100	4.3	165	878	75

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)
NOV 18...	0920	3	1	2	100	0	110	6	2	4
MAR 23...	1030	3	0	3	<100	--	110	<1	--	<1
JUL 28...	1145	2	0	2	<100	--	90	<1	--	<1
SEP 08...	1615	2	0	2	<100	--	88	<1	--	1

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
NOV 18...	<10	<10	1	<3	8	6	2	2800	2800	12
MAR 23...	10	<10	10	<1	5	4	1	890	890	4
JUL 28...	10	<10	<1	<1	4	2	2	2000	2000	12
SEP 08...	<10	<10	<1	<1	8	5	3	2400	2400	23

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
NOV 18...	36	30	6	120	120	3	.2	--	<.3	5
MAR 23...	6	2	4	60	60	3	.1	--	<.1	11
JUL 28...	7	4	3	70	70	3	.2	--	<.1	<1
SEP 08...	5	0	6	80	30	54	.1	.0	.1	10

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 18...	4	1	<1	<1	<1	<1	30	30	3
MAR 23...	2	9	<1	<1	<1	<1	10	0	11
JUL 28...	--	1	<1	<1	<1	<1	40	20	19
SEP 08...	8	2	<1	<1	<1	<1	30	10	17

DATE	TIME	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
NOV 18...	0920	8.2	<9.7	12	<4.3	5.6	<4.1	5.4	.11	1.5
JUL 28...	1145	2.4	<6.1	3.5	3.7	3.1	3.6	3.0	.09	1.0

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV 18...	0920	--	0	--	.0	--	.0	--	.0	--	.0
MAR 23...	1030	<.10	--	<.10	--	<.01	--	<.10	--	<.01	---
JUN 14...	1935	<.10	<1	<.10	<1.0	<.01	<.1	<.10	<1.0	<.01	<.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)	ETHION, TOTAL (UG/L)
NOV 18...	--	.0	--	.0	--	--	.0	--	--	.0	--
MAR 23...	<.01	--	<.01	--	.01	<.01	--	<.01	<.01	--	.00
JUN 14...	<.01	<.1	<.01	<.1	.01	<.01	<.1	<.01	<.01	<.1	<.01

DATE	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)
NOV 18...	--	.0	--	.0	--	.0	--	--	.0	--	--
MAR 23...	<.01	--	<.01	--	<.01	--	.00	<.01	--	.00	.00
JUN 14...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 18...	--	.0	--	--	--	.0	--	--	--	--	--
MAR 23...	<.01	--	.00	<.10	<1	--	.00	.01	<.01	<.01	<.01
JUN 14...	<.01	<.1	<.01	<.10	<1	<10	<.01	<.01	<.01	<.01	<.01

08162000 COLORADO RIVER AT WHARTON, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	74870	456	251	50700	37	7500	31	6350	170
NOV.	1981	221610	316	175	104000	25	15100	22	13200	120
DEC.	1981	47432	559	307	39300	47	5960	38	4840	210
JAN.	1982	30150	555	304	24800	46	3760	37	3050	210
FEB.	1982	30111	560	307	25000	47	3800	38	3070	210
MAR.	1982	39804	536	294	31600	44	4770	36	3910	200
APR.	1982	55748	487	268	40300	40	6010	33	5020	190
MAY	1982	213620	311	172	99200	25	14300	22	12600	120
JUNE	1982	67970	483	266	48700	40	7250	33	6070	180
JULY	1982	74870	480	264	53400	39	7940	33	6660	180
AUG.	1982	47726	493	271	34900	40	5210	34	4340	190
SEPT	1982	50120	511	281	38000	42	5700	35	4720	190
TOTAL		954031	**	**	590000	**	87300	**	73900	**
WTD. AVG.		2614	416	229	**	34	**	29	**	160

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	509	356	502	495	633	450	486	460	483	477	502	515
2	510	168	501	525	638	523	490	470	487	472	498	510
3	512	177	511	544	642	578	492	475	490	454	494	509
4	511	235	543	568	634	564	500	484	492	464	485	503
5	515	338	512	511	649	418	498	490	490	472	486	493
6	505	385	498	552	664	462	426	512	489	477	496	498
7	491	406	484	545	685	500	418	308	488	478	494	475
8	410	419	495	516	677	566	503	394	490	481	490	488
9	504	416	518	469	646	572	498	381	487	484	492	459
10	495	427	545	519	585	565	444	445	491	481	490	500
11	487	383	564	516	652	556	507	406	483	483	486	502
12	461	358	573	511	676	554	515	440	486	482	481	506
13	417	372	593	524	660	549	519	481	488	481	489	510
14	422	431	607	545	600	551	523	335	497	482	487	512
15	401	462	619	569	569	553	538	213	460	484	486	515
16	452	475	631	566	561	545	551	216	459	475	487	508
17	458	485	611	584	553	558	550	233	470	487	486	517
18	478	489	633	598	539	564	543	258	465	490	490	520
19	467	503	632	603	544	569	537	315	482	484	493	523
20	422	518	636	607	432	565	524	343	481	486	497	515
21	439	537	638	613	400	568	501	399	480	481	494	519
22	437	547	602	619	514	569	491	435	486	484	491	522
23	434	550	600	622	547	571	485	443	483	483	499	526
24	440	549	586	643	552	592	478	451	480	484	498	527
25	447	536	598	659	557	570	482	458	487	481	496	535
26	451	535	596	667	424	542	477	467	485	480	494	530
27	452	538	595	666	455	530	487	483	468	479	498	532
28	453	543	592	669	436	522	460	463	482	482	500	534
29	455	533	602	656	---	501	430	450	476	490	502	540
30	454	525	584	647	---	490	456	451	478	500	504	545
31	430	---	579	652	---	486	---	470	---	503	510	---
MEAN	462	440	574	580	576	539	494	407	482	481	493	513

08162000 COLORADO RIVER AT WHARTON, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	19.0	18.0	12.0	12.0	13.0	20.0	---	26.0	29.0	30.0	29.0
2	26.0	19.0	15.0	15.0	13.0	14.0	20.0	23.0	28.0	29.0	---	29.0
3	27.0	19.0	16.0	18.0	9.0	15.0	20.0	23.0	27.0	29.0	30.0	29.0
4	27.0	19.0	15.0	13.0	10.0	16.0	21.5	24.0	28.0	---	29.0	28.0
5	27.0	19.0	15.0	13.0	10.0	17.0	22.0	24.0	28.0	29.0	29.0	28.0
6	26.0	18.0	15.0	---	4.0	12.0	19.0	23.0	28.0	29.0	29.0	27.5
7	25.0	19.0	15.0	16.0	6.0	---	18.0	19.0	---	29.0	---	28.0
8	23.0	20.0	16.0	9.0	8.0	13.0	21.0	19.0	---	29.0	28.5	28.0
9	23.0	18.0	17.0	10.0	10.0	14.0	20.0	22.0	28.0	29.0	28.0	27.0
10	---	15.0	16.0	10.0	9.0	15.0	18.0	22.0	28.0	29.0	28.0	27.0
11	26.0	17.0	18.0	5.0	9.0	17.0	15.0	23.0	28.0	29.0	28.0	---
12	26.0	16.0	19.0	---	12.0	16.0	18.0	---	27.0	29.0	27.0	29.0
13	26.0	17.0	16.0	6.0	11.0	18.0	20.0	24.0	28.0	29.0	28.0	28.0
14	26.0	17.0	15.0	3.0	---	17.0	22.0	22.0	28.0	29.0	---	28.0
15	26.0	18.0	13.0	6.0	13.0	16.0	23.0	22.0	28.0	30.0	29.0	27.0
16	26.0	18.0	13.0	9.0	14.0	17.0	24.0	22.0	28.0	30.0	29.5	27.0
17	26.0	18.0	14.0	5.0	14.0	17.0	24.0	22.0	---	30.0	30.0	28.0
18	24.0	20.0	9.0	6.0	15.0	18.0	23.0	23.0	29.0	30.0	30.0	---
19	22.0	20.0	9.0	11.0	16.0	18.0	23.0	24.0	29.0	29.0	29.0	29.0
20	21.0	19.0	12.0	14.0	15.0	---	24.0	25.0	30.0	---	29.0	28.0
21	22.0	16.0	13.0	17.0	15.0	19.0	21.0	25.0	29.0	29.5	---	25.5
22	22.0	16.0	17.0	18.0	17.0	21.0	18.0	26.0	30.0	29.0	28.0	27.0
23	19.0	18.0	13.0	16.0	18.0	20.0	17.0	25.0	29.0	29.5	29.0	27.5
24	17.0	18.0	13.0	13.0	18.0	19.0	17.0	26.0	30.0	30.0	28.0	23.0
25	18.0	19.0	11.0	14.0	18.0	20.0	17.0	25.0	30.0	31.0	28.5	24.0
26	22.0	20.0	13.0	13.0	12.0	18.0	18.0	27.0	29.0	30.0	29.0	25.0
27	16.0	18.0	13.0	13.0	10.0	---	18.0	27.0	29.0	30.0	29.0	---
28	16.0	19.0	15.0	15.0	11.0	13.0	21.0	27.0	29.0	30.0	---	25.0
29	18.0	20.0	13.0	17.0	---	16.0	22.0	28.0	29.0	30.0	29.0	25.0
30	19.0	21.0	12.0	19.0	---	18.0	22.0	28.0	29.0	30.0	29.0	25.0
31	---	---	12.0	13.0	---	19.0	---	28.0	---	30.0	28.5	---
MEAN	23.0	18.5	14.0	12.0	12.0	16.5	20.0	24.0	28.5	29.5	29.0	27.0

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.--42,240 mi² (109,402 km²), approximately, of which 11,403 mi² (29,534 km²) probably is noncontributing.

PERIOD OF RECORD.--July 1940 (in WSP 1046), April 1948 to current year. Records of elevation collected in this vicinity since 1946 are contained in reports of the National Weather Service.
Water-quality records: Chemical and biochemical analyses: October 1974 to September 1975.

REVISED RECORDS.--WRD TX-81-3: 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 good. Diversions above station for irrigation and municipal supply. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08161000. Gage-height telemeter at station.

AVERAGE DISCHARGE.--34 years (water years 1949-82), 2,415 ft³/s (68.39 m³/s), 1,750,000 acre-ft/yr (2.16 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 84,100 ft³/s (2,380 m³/s) June 26, 1960; maximum elevation, 48.2 ft (14.69 m), present datum, July 4, 1940, at site 6,300 ft (1,920 m) upstream at bridge on State Highway 35, observed by Corps of Engineers, elevation 46.6 ft (14.20 m), adjusted to present site; no flow at times in 1951-53 and 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation since 1869, 56.1 ft (17.10 m) Dec. 10, 1913. Flood in July 1869 probably reached about same elevation. Elevation of other floods are as follows: May 8, 1922, 55.4 ft (16.89 m); June 1929, 55.0 ft (16.76 m); June 22, 1935, 54.6 ft (16.64 m); Oct. 5, 1936, 52.2 ft (15.91 m); Aug. 2, 1938, 53.4 ft (16.28 m); Nov. 27, 1940, 47.6 ft (14.51 m). All above flood data from information by Texas and New Orleans Railroad Co. and adjusted to present site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 46,400 ft³/s (1,310 m³/s) Nov. 3 at 0700 hours, elevation, 32.48 ft (9.900 m); minimum daily, 314 ft³/s (8.89 m³/s) Sept. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	586	20800	2420	1290	667	1470	1740	1510	1970	1870	697	314
2	613	40500	2470	1360	636	1430	1600	1230	1780	1750	675	418
3	829	43500	2120	1300	606	1940	1490	1150	1600	1700	759	605
4	906	19300	2040	1270	597	1240	1500	1020	1380	1720	1220	586
5	847	9280	3090	1150	818	1200	1500	728	1370	1680	935	791
6	875	7430	3400	993	852	1010	1480	5530	1370	1630	624	871
7	1040	6560	2910	970	717	1000	1240	19300	1470	1710	654	857
8	1800	6010	2040	990	665	1020	1170	14100	1430	1670	645	871
9	2320	6010	1620	2590	626	948	1310	9410	1480	1710	852	871
10	2330	6630	1410	2590	701	937	1250	4140	1400	1860	1130	915
11	2620	7600	1310	1620	1270	1250	765	2170	1340	1750	1280	896
12	1900	6060	1220	1210	1290	1530	664	1230	1270	1990	1350	675
13	1510	4810	1150	1020	1410	1720	801	1990	1020	1990	1360	601
14	1250	4260	1090	902	1910	1300	635	17400	1010	2020	1220	564
15	1130	4080	1040	838	1810	1040	628	32500	957	1820	1370	564
16	1060	3590	1010	896	1600	907	518	34600	950	2240	1330	624
17	997	3680	1190	1080	1410	826	474	30800	810	1800	1210	666
18	1470	3060	1600	966	1470	807	605	13000	796	1900	915	675
19	2990	2550	1640	862	1130	945	829	6930	791	2390	891	755
20	3280	2150	1530	819	1360	902	799	4890	904	2480	746	750
21	3350	2180	1340	782	3330	929	955	3820	799	2320	847	688
22	3180	2210	1160	771	2050	827	1350	3010	769	1960	833	679
23	3110	2380	1090	754	1450	843	1930	2470	784	2020	828	688
24	3390	2430	1360	734	1280	921	2240	1940	737	2100	800	814
25	3320	2290	1300	707	1170	1060	2750	1980	765	2340	768	857
26	3490	2100	1200	662	4270	1160	4240	1710	858	2300	723	910
27	3500	2100	1150	635	3990	1320	3100	2490	966	2120	645	990
28	3510	2260	1220	637	2130	1630	2730	2700	1060	1820	545	950
29	3500	2340	1250	768	---	1660	2210	1970	993	1150	506	805
30	3510	2060	1370	728	---	1720	1720	2390	1570	857	447	645
31	4690	---	1380	732	---	1900	---	2220	---	791	356	---
TOTAL	68903	230210	50120	32626	41215	37392	44223	230328	34399	57458	27161	21895
MEAN	2223	7674	1617	1052	1472	1206	1474	7430	1147	1853	876	730
MAX	4690	43500	3400	2590	4270	1940	4240	34600	1970	2480	1370	990
MIN	586	2060	1010	635	597	807	474	728	737	791	356	314
AC-FT	136700	456600	99410	64710	81750	74170	87720	456900	68230	114000	53870	43430

CAL YR 1981 TOTAL 1375039 MEAN 3767 MAX 43500 MIN 15 AC-FT 2727000
WTR YR 1982 TOTAL 875930 MEAN 2400 MAX 43500 MIN 314 AC-FT 1737000

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 mi^2 (376 km^2).

PERIOD OF RECORD.--June 1970 to current year. Prior to October 1973, published as Tres Palacios Creek near Midfield. Water-quality records: Chemical, biochemical, and pesticide analyses: October 1968 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 5.38 ft (1.640 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Ten known diversions above stations (amounts unknown). An undetermined amount of water from irrigated ricefields enters stream upstream at various points.

AVERAGE DISCHARGE.--12 years (water years 1971-82), 154 ft^3/s (4.361 m^3/s), 111,600 acre-ft/yr (138 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,810 ft^3/s (249 m^3/s) Sept. 20, 1979, gage height, 31.73 ft (9.671 m), from floodmarks; minimum daily, 1.0 ft^3/s (0.028 m^3/s) Nov. 3-5, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1885, 37 ft (11.3 m) in June 1960 and 35 ft (10.7 m) in August 1945, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft^3/s (45.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 1	2300	4,010	114	28.29	8.623	May 7	1800	*6,670	189	30.56	9.315
Feb. 26	1900	2,280	64.6	24.65	7.513	May 14	2000	3,700	105	27.86	8.492

Minimum daily discharge, 8.1 ft^3/s (0.23 m^3/s) Feb. 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	3440	18	43	11	133	14	14	30	50	23	13
2	34	3660	15	26	12	64	13	14	29	41	18	15
3	34	2410	13	20	10	41	12	12	31	37	22	16
4	99	1490	12	15	10	32	11	17	30	36	19	17
5	145	568	11	12	10	26	11	22	29	34	17	20
6	72	243	11	11	11	22	10	1520	26	35	16	21
7	141	141	13	11	10	19	13	6370	26	33	21	21
8	265	87	14	10	10	18	17	6010	32	32	18	20
9	218	173	15	9.9	11	16	16	3910	30	34	72	20
10	121	123	13	10	9.8	15	16	2660	24	33	93	15
11	71	69	13	9.7	9.2	15	18	1860	23	31	47	13
12	47	46	11	11	9.6	14	22	676	24	44	41	12
13	36	34	11	13	9.1	13	21	630	24	72	28	12
14	27	28	11	19	8.9	13	24	3250	32	56	21	16
15	27	25	10	15	8.6	13	32	3190	27	45	16	24
16	33	22	9.5	12	8.1	12	24	1860	50	49	15	24
17	31	21	9.4	12	8.3	12	23	686	198	50	14	23
18	32	20	8.8	12	8.3	11	28	196	159	43	13	22
19	84	19	8.9	11	8.9	11	27	96	91	39	12	25
20	81	17	22	18	464	11	28	57	59	43	21	31
21	38	16	41	15	1020	11	47	44	47	38	29	21
22	26	16	21	13	325	11	92	37	41	38	28	15
23	25	16	16	11	93	66	64	37	34	41	28	15
24	29	15	12	10	44	52	67	37	32	37	23	15
25	29	15	11	10	176	21	205	51	34	31	16	19
26	22	14	9.8	8.9	1900	14	100	58	42	38	14	17
27	19	14	9.8	8.6	1590	11	42	41	47	34	12	17
28	16	13	9.7	8.8	482	23	24	37	90	31	10	18
29	15	13	9.3	9.4	---	22	18	32	90	23	10	21
30	14	14	16	10	---	16	15	34	63	22	11	24
31	681	---	115	11	---	14	---	34	---	33	12	---
TOTAL	2549	12782	520.2	416.3	6277.8	772	1054	33492	1494	1203	740	562
MEAN	82.2	426	16.8	13.4	224	24.9	35.1	1080	49.8	38.8	23.9	18.7
MAX	681	3660	115	43	1900	133	205	6370	198	72	93	31
MIN	14	13	8.8	8.6	8.1	11	10	12	23	22	10	12
AC-FT	5060	25350	1030	826	12450	1530	2090	66430	2960	2390	1470	1110

CAL YR 1981 TOTAL 75627.7 MEAN 207 MAX 4090 MIN 4.5 AC-FT 150000
WTR YR 1982 TOTAL 61862.3 MEAN 169 MAX 6370 MIN 8.1 AC-FT 122700

08162700 EAST CARANCAHUA CREEK NEAR BLESSING, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 28°51'48", long 96°17'05", Matagorda County, Hydrologic Unit 12100401, at bridge on Farm Road 616, 100 ft (30 m) downstream from Missouri Pacific Railroad bridge, and 4.2 mi (6.8 km) west of Blessing.

DRAINAGE AREA.--81.2 mi² (210.3 km²).

PERIOD OF RECORD.--Periodic discharge measurements: September 1967 to July 1968, February 1970 to current year. Periodic water-quality data: February 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 17...	1515	6.7	885	7.8	22.5	35	8.0	92	1.2	260	32
FEB 10...	0948	1.7	1610	8.2	10.0	2.3	9.7	84	1.2	440	95
MAR 24...	1033	2.9	1520	8.1	19.5	8.5	7.0	76	1.1	400	49
MAY 05...	0850	4.9	1110	7.9	23.0	43	6.7	77	2.7	190	0
JUL 28...	1040	8.7	892	8.2	28.5	24	5.4	69	2.1	230	0
SEP 01...	0956	5.1	1080	7.9	27.0	32	4.3	54	2.9	220	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 17...	62	26	89	2.6	5.2	230	46	130	.4	22
FEB 10...	89	54	180	4.1	2.8	350	87	310	.9	11
MAR 24...	82	47	160	3.9	3.4	350	35	270	.9	12
MAY 05...	43	19	160	5.6	3.8	240	10	210	1.2	15
JUL 28...	55	22	94	3.0	6.6	250	18	130	.5	39
SEP 01...	49	24	140	4.5	10	250	27	200	.6	49

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 17...	519	21	--	.020	<.09	.090	1.3	1.40	.130	8.0
FEB 10...	945	2	--	<.020	<.10	.060	.53	.59	.170	3.0
MAR 24...	821	9	--	<.020	<.10	.100	2.4	2.50	.030	5.0
MAY 05...	606	49	.47	.040	.51	.110	1.2	1.30	.120	6.8
JUL 28...	516	51	--	<.020	<.10	.100	2.0	2.10	.160	4.8
SEP 01...	650	49	.06	.040	.10	.230	1.4	1.60	.200	12

08162700 EAST CARANCAHUA CREEK NEAR BLESSING, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAR 24...	1033	2	280	<3	<10	2	9
JUL 28...	1040	7	180	<1	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)
MAR 24...	2	18	.3	<1	<1	<12
JUL 28...	2	3	.1	<1	<1	14

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.--43 years, 52.8 ft³/s (1.495 m³/s), 6.64 in/yr (169 mm/yr), 38,250 acre-ft/yr (47.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 99,500 ft³/s (2,820 m³/s) Aug. 31, 1981, gage height, 41.1 ft (12.53 m), from floodmark, from rating curve extended above 23,000 ft³/s (651 m³/s) on basis of slope-area measurement of peak flow; no flow at times in 1953 and 1956.
Maximum stage since at least 1840, that of Aug. 31, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage from about 1870 to 1940, 32.8 ft (10.00 m) July 16, 1936, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,300 ft³/s (65.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 31	1300	15,500	439	a28.10	8.565
May 13	1930	*28,400	804	32.16	9.802

a From floodmark.

Minimum daily discharge, 0.72 ft³/s (0.020 m³/s) Aug. 30 to Sept. 1.

CORRECTIONS.--The maximum discharge for the water year 1981 has been revised to 99,500 ft³/s (2,820 ft³/s) Aug. 31, 1981, gage height, 41.1 ft (12.53 m), from floodmark, superseding figures published in the report for 1981.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	2060	24	13	15	21	13	6.3	14	6.1	1.2	.72
2	10	119	18	13	31	18	12	6.5	14	5.9	1.1	1.0
3	10	56	16	13	67	16	12	6.5	13	5.7	1.0	1.0
4	10	41	15	12	26	15	11	6.6	12	5.7	.88	1.0
5	10	34	14	12	19	15	10	6.4	12	5.4	.98	1.1
6	22	30	16	12	17	14	9.5	11	11	5.0	1.0	1.1
7	202	27	18	12	15	14	9.2	16	11	4.7	.94	1.1
8	64	31	33	11	14	14	9.2	13	9.8	4.1	1.2	1.1
9	20	139	22	11	13	14	9.1	9.2	9.5	3.9	1.1	1.2
10	14	40	19	11	13	14	8.9	8.2	8.9	3.7	1.1	1.2
11	11	27	17	11	12	14	8.8	7.9	8.4	3.5	3.0	1.2
12	9.9	23	16	15	12	14	8.6	7.9	8.4	3.8	2.5	1.5
13	9.8	21	16	24	11	14	8.7	9500	8.3	3.7	2.0	1.9
14	12	20	15	21	10	14	8.9	2150	8.2	4.4	1.7	3.1
15	11	19	15	17	11	14	8.3	86	8.9	3.9	1.5	59
16	14	18	15	15	12	14	8.2	54	11	3.3	1.4	23
17	14	23	14	14	12	14	7.9	446	9.9	3.1	1.3	8.9
18	12	22	14	14	12	14	7.7	623	9.7	2.8	1.2	4.5
19	12	16	13	14	11	13	7.9	57	9.3	2.6	1.2	12
20	12	15	13	14	29	12	8.3	38	8.6	2.4	1.0	383
21	10	14	14	15	77	11	9.9	31	8.1	2.5	1.5	22
22	11	13	15	16	24	11	10	27	7.8	2.3	2.0	11
23	11	13	14	16	17	12	11	24	7.0	2.0	1.5	8.4
24	12	13	12	15	15	12	12	24	6.7	1.9	.93	7.3
25	11	14	11	14	170	12	12	42	7.5	1.7	.90	6.5
26	11	14	12	14	349	11	11	31	7.2	1.6	.90	5.9
27	11	13	12	13	63	12	9.4	22	6.9	1.9	.86	5.7
28	10	13	12	14	30	12	8.0	20	6.7	1.8	.80	5.7
29	10	39	11	15	---	12	7.1	18	6.5	1.6	.76	5.4
30	11	34	11	16	---	14	6.5	17	6.5	1.5	.72	5.0
31	8300	---	12	16	---	14	---	16	---	1.4	.72	---
TOTAL	8897.7	2961	479	443	1107	425	284.1	13331.5	276.8	103.9	38.89	591.52
MEAN	287	98.7	15.5	14.3	39.5	13.7	9.47	430	9.23	3.35	1.25	19.7
MAX	8300	2060	33	24	349	21	13	9500	14	6.1	3.0	383
MIN	9.8	13	11	11	10	11	6.5	6.3	6.5	1.4	.72	.72
AC-FT	17650	5870	950	879	2200	843	564	26440	549	206	77	1170

CAL YR 1981 TOTAL 24212.61 MEAN 66.3 MAX 8300 MIN .72 AC-FT 48030
WTR YR 1982 TOTAL 28939.41 MEAN 79.3 MAX 9500 MIN .72 AC-FT 57400

08164000 LAVACA RIVER NEAR EDNA, TX
(National stream-quality accounting network)

LOCATION.--Lat 28°57'35", long 96°41'10", Jackson County, Hydrologic Unit 12100101, at downstream side near center of upstream bridge of two bridges on U.S. Highway 59, 660 ft (201 m) upstream from Texas and New Orleans Railroad Co. bridge, and 2.8 mi (4.5 km) southwest of Edna.

DRAINAGE AREA.--817 mi² (2,116 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 1923: 1955. WRD TX-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 13.88 ft (4.231 m) National Geodetic Vertical Datum of 1929. Prior to June 6, 1939, nonrecording gage (property of Corps of Engineers); June 6, 1939, to Apr. 3, 1957, nonrecording gage at site 110 ft (34 m) downstream; Apr. 4, 1957, to Mar. 21, 1961, nonrecording gage; all at same datum.

REMARKS.--Water-discharge records good except those for period on no gage-height record, June 15 to July 27, which are fair. Small diversions above station for irrigation.

AVERAGE DISCHARGE.--44 years, 332 ft³/s (9.402 m³/s), 5.52 in/yr (140 mm/yr), 240,500 acre-ft/yr (297 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)
Nov. 2	1200	*21,000	595	26.21	7.989	May 19	1500	11,000	312	23.92	7.291
Feb. 27	1400	5,480	155	20.74	6.322	May 26	0100	18,500	524	25.75	7.849
May 15	1400	19,900	564	26.01	7.928						

Minimum daily discharge, 19 ft³/s (0.54 m³/s) Sept. 13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	10000	459	103	86	514	110	72	320	88	36	23
2	104	19400	258	104	91	361	109	71	293	88	36	23
3	119	12500	192	105	92	296	109	70	269	86	35	26
4	161	2600	160	103	184	260	99	68	248	85	34	28
5	155	801	142	102	203	233	96	66	229	83	33	23
6	356	596	138	101	126	209	91	904	212	81	33	22
7	939	480	141	99	107	192	87	2020	200	79	34	27
8	886	415	140	96	104	178	88	527	186	77	34	24
9	587	419	176	94	96	170	86	275	176	76	36	22
10	289	632	181	95	92	161	85	191	167	74	36	21
11	179	448	151	92	91	154	86	147	160	73	37	21
12	133	332	136	95	90	148	84	122	153	71	36	20
13	112	296	129	98	87	143	83	1490	149	70	35	19
14	101	274	126	105	85	138	87	9540	146	68	34	24
15	96	256	121	137	85	134	84	19300	141	66	32	29
16	110	240	119	122	85	131	88	12500	133	65	31	34
17	94	227	118	108	83	128	81	2480	127	63	30	188
18	134	215	115	103	83	128	76	3760	134	61	31	100
19	235	205	112	101	83	124	78	9620	122	60	29	50
20	196	194	111	100	207	120	78	5860	114	58	28	37
21	110	182	112	100	2070	118	179	923	110	57	28	332
22	98	174	113	100	1280	111	258	647	104	56	28	342
23	106	167	111	98	406	107	197	656	101	54	27	89
24	98	161	109	98	260	105	145	2560	101	51	27	57
25	96	157	107	96	418	107	171	10200	98	48	29	44
26	90	153	104	92	3070	107	129	12400	98	46	28	37
27	81	148	103	89	5170	108	108	1950	96	44	26	33
28	73	141	103	88	1810	105	95	714	94	41	24	34
29	70	139	101	88	---	104	84	511	92	39	24	34
30	73	342	101	89	---	108	77	417	90	38	24	32
31	2390	---	103	87	---	112	---	358	---	37	23	---
TOTAL	8378	52294	4392	3088	16644	5114	3228	100419	4663	1983	958	1795
MEAN	270	1743	142	99.6	594	165	108	3239	155	64.0	30.9	59.8
MAX	2390	19400	459	137	5170	514	258	19300	320	88	37	342
MIN	70	139	101	87	83	104	76	66	90	37	23	19
AC-FT	16620	103700	8710	6130	33010	10140	6400	199200	9250	3930	1900	3560

CAL YR 1981 TOTAL 235032 MEAN 644 MAX 30800 MIN 22 AC-FT 466200
WTR YR 1982 TOTAL 202956 MEAN 556 MAX 19400 MIN 19 AC-FT 402600

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1960 to September 1977. Chemical and biochemical analyses: October 1977 to current year. Pesticide analyses: January 1968 to September 1981.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1977 to September 1981.
WATER TEMPERATURES: November 1977 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 899 micromhos April 22, 1978; minimum daily, 100 micromhos May 5, 1979, and May 20, 1980.
WATER TEMPERATURES: Maximum daily, 33.0°C July 16, 1978; minimum daily, 5.0°C January 22, 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV 17...	1228	227	757	8.0	20.0	15	7.6	83	1.1	310
FEB 09...	1140	96	1870	7.8	11.5	--	10.3	94	.7	110
MAR 31...	1320	114	775	8.3	21.0	10	9.0	100	1.2	100
MAY 05...	1340	65	809	8.1	24.0	17	8.4	100	1.0	72
JUL 27...	1800	41	708	8.1	31.5	4.6	6.4	86	2.0	200
SEP 01...	1300	23	704	8.3	28.0	10	6.8	75	1.2	110

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV 17...	52	300	0	110	6.1	40	1.0	2.7	310	17
FEB 09...	78	430	160	128	26	250	5.5	3.7	270	64
MAR 31...	130	300	12	110	6.5	58	1.5	2.5	290	19
MAY 05...	200	280	0	100	6.3	60	1.6	2.6	290	24
JUL 27...	290	280	0	100	6.3	48	1.3	2.3	300	19
SEP 01...	--	270	0	99	6.2	48	1.3	2.4	280	17

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, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV 17...	52	.2	27	468	441	<.020	--	.33	<.060
FEB 09...	460	.3	40	1200	1140	<.020	--	.55	.130
MAR 31...	74	.3	21	480	465	--	--	.38	--
MAY 05...	77	.4	20	486	464	--	--	.20	--
JUL 27...	53	.3	28	412	437	--	--	<.10	--
SEP 01...	56	.3	26	481	423	--	<.10	<.10	.220

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA DISSOLVED (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)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 17...	<.060	--	1.40	.090	.070	<.020	114	70	48
FEB 09...	.130	.80	.93	.100	.090	.100	64	17	53
MAR 31...	.110	--	.49	.100	.080	.100	107	33	39
MAY 05...	.070	--	.53	.180	.090	.130	223	39	16
JUL 27...	.120	--	.90	.100	.090	.060	79	8.7	67
SEP 01...	<.060	.48	.70	.110	.110	.040	94	5.8	58

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
NOV 17...	1228	4	1	3	500	90	410	<1	<1	10
FEB 09...	1140	8	1	7	500	0	560	<1	<1	10
MAY 05...	1340	4	0	4	400	50	350	<1	<3	<10
SEP 01...	1300	5	0	5	300	0	300	<1	<1	<10

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
NOV 17...	<10	<1	<3	5	3	2	600	<10	11
FEB 09...	<10	3	<3	9	--	<1	250	<10	4
MAY 05...	<10	1	<1	2	--	<1	230	<9	7
SEP 01...	<10	1	<1	<1	--	<1	350	<3	<1

DATE	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
NOV 17...	7	4	70	50	22	.1	.0	.1	1
FEB 09...	3	1	160	40	120	.1	.0	.1	3
MAY 05...	--	<1	60	50	13	.1	--	<.1	7
SEP 01...	--	<1	120	100	22	.1	--	<.1	5

DATE	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 17...	0	3	1	0	1	<1	<1	20	<3
FEB 09...	--	<1	1	0	1	<1	<1	20	<3
MAY 05...	6	1	<1	--	<1	<1	<1	20	<12
SEP 01...	4	1	<1	--	<1	<1	<1	10	<3

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.--21 years, 161 ft³/s (4.560 m³/s), 6.59 in/yr (167 mm/yr), 116,600 acre-ft/yr (144 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,500 ft³/s (1,520 m³/s) Sept. 13, 1974, gage height, 36.05 ft (10.988 m); no flow Aug. 5-7, 22, Sept. 2-16, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, 40 ft (12.2 m) in June 1940; flood in July 1936 reached a stage of 39 ft (11.9 m), from information by local residents and Southern Pacific Railroad Co.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 1	0600	*23,800	674	31.15	9.495
May 14	0800	22,900	649	30.94	9.431

Minimum daily discharge, 1.7 ft³/s (0.048 m³/s) Aug 28-30, Sept. 1-3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	17900	116	43	38	77	43	28	48	15	3.6	1.7
2	23	2970	78	45	38	66	42	28	44	13	3.5	1.7
3	22	268	66	45	210	62	40	27	43	12	3.5	1.7
4	24	202	60	41	97	60	36	26	40	12	3.3	1.9
5	24	166	55	38	59	56	37	26	38	11	3.1	2.1
6	23	139	57	38	49	52	34	82	36	10	2.9	2.0
7	43	123	62	38	46	53	32	433	33	9.7	2.9	1.8
8	60	118	71	35	45	54	33	104	32	9.3	2.7	1.8
9	48	330	69	35	44	51	33	61	30	9.1	3.5	1.8
10	35	179	60	35	41	50	32	47	28	8.7	3.9	1.8
11	30	116	57	34	40	49	31	41	27	8.4	5.0	1.8
12	28	97	55	40	39	50	33	103	26	7.8	5.6	1.8
13	27	88	52	69	36	49	33	2560	27	7.8	4.9	1.8
14	26	82	51	70	36	49	32	17500	26	7.8	4.0	2.6
15	25	77	51	55	36	49	32	2910	25	7.6	3.4	3.0
16	25	73	51	49	37	47	32	250	31	7.5	2.8	4.9
17	25	71	50	43	37	47	31	197	41	7.2	2.3	6.0
18	26	69	46	42	35	46	29	203	27	6.7	2.1	6.9
19	26	66	46	42	34	44	30	158	23	6.6	2.2	5.4
20	26	59	46	42	42	42	30	132	21	5.8	3.4	40
21	25	56	49	43	152	41	32	113	21	5.8	2.9	18
22	24	55	50	43	88	39	35	102	20	7.6	2.5	8.6
23	27	55	46	42	54	39	42	95	18	8.3	2.5	5.3
24	28	55	43	39	45	42	46	85	17	7.0	2.2	4.3
25	28	54	42	38	119	43	47	177	17	5.6	1.9	4.1
26	28	53	42	36	521	40	42	119	16	5.3	1.8	3.9
27	25	50	42	35	227	39	36	83	16	5.0	1.8	3.6
28	24	47	42	35	105	45	32	70	16	4.8	1.7	3.2
29	23	87	40	36	---	48	30	63	15	4.3	1.7	2.8
30	24	246	39	37	---	46	29	57	14	4.3	1.7	2.7
31	4380	---	42	41	---	45	---	52	---	3.9	1.8	---
TOTAL	5226	23951	1676	1304	2350	1520	1046	25932	816	244.9	91.1	149.0
MEAN	169	798	54.1	42.1	83.9	49.0	34.9	837	27.2	7.90	2.94	4.97
MAX	4380	17900	116	70	521	77	47	17500	48	15	5.6	40
MIN	22	47	39	34	34	39	29	26	14	3.9	1.7	1.7
AC-FT	10370	47510	3320	2590	4660	3010	2070	51440	1620	486	181	296

CAL YR 1981	TOTAL 98580.2	MEAN 270	MAX 30000	MIN 3.8	AC-FT 195500		
WTR YR 1982	TOTAL 64306.0	MEAN 176	MAX 17900	MIN 1.7	AC-FT 127600		

08164450 SANDY CREEK NEAR LOUISE, TX

LOCATION.--Lat 29°09'36", long 96°32'46", Jackson County, Hydrologic Unit 12100102, on left bank at downstream end of bridge on Farm Road 710, 0.9 mi (1.4 km) upstream from Goldenrod Creek, and 9.1 mi (14.6 km) northwest of Louise.

DRAINAGE AREA.--289 mi² (749 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 59.72 ft (18.203 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Much of the low flow during the irrigation season (April to September) comes from drainage from ricefields irrigated by water originally diverted from the Colorado River. No known diversion above station.

AVERAGE DISCHARGE.--5 years, 190 ft³/s (5.381 m³/s), 8.93 in/yr (227 mm/yr), 137,700 acre-ft/yr (170 hm³/yr).

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), from rating curve extended above 7,800 ft³/s (221 m³/s); 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)
Oct. 8	0400	2,070	586	12.58	3.834	May 7	1400	1,700	48.1	11.77	3.587
Nov. 2	0300	*5,270	149	17.4	5.30	May 14	2100	5,230	148	17.36	5.291
Feb. 26	2300	2,330	66.0	13.24	4.036						

Minimum discharge, no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	3880	178	.50	.00	279	3.8	.93	21	56	1.3	6.3
2	96	4450	77	.30	.17	136	6.3	.41	8.0	82	.73	6.4
3	80	2850	46	.20	.00	84	3.6	.24	5.0	120	10	7.8
4	91	1830	32	.14	.00	53	2.3	.11	3.8	110	6.3	19
5	133	963	22	.10	.00	35	1.4	.11	4.0	82	2.8	63
6	526	473	21	.14	.00	23	1.1	506	3.8	100	3.2	103
7	800	216	22	.05	.00	17	.79	1620	2.9	152	2.4	84
8	1690	146	42	.05	.02	12	.73	904	3.1	169	3.6	66
9	892	259	39	.05	.00	9.2	.66	332	2.7	151	5.0	51
10	434	328	30	.04	.00	6.8	.71	125	3.1	153	14	42
11	213	193	26	.02	.00	5.4	.66	49	6.7	152	15	38
12	127	103	18	.20	.00	4.3	7.7	25	13	131	21	34
13	86	68	12	.04	.00	3.7	7.9	900	6.7	105	21	23
14	77	52	10	.02	.02	3.2	5.2	4450	13	58	23	24
15	72	41	10	.02	.01	2.9	3.1	3760	13	76	16	48
16	62	34	8.9	.02	.01	3.0	2.8	2240	16	109	12	76
17	36	29	30	.02	.01	3.1	1.7	1190	20	83	7.5	121
18	99	20	12	.02	.01	3.1	4.9	771	15	45	2.8	165
19	158	13	5.0	.02	.02	2.4	6.3	429	13	28	2.0	158
20	73	10	5.2	11	26	1.7	2.4	195	18	24	6.1	129
21	37	10	5.4	20	787	1.1	47	88	20	21	6.2	128
22	21	12	5.2	6.5	635	1.4	510	71	14	4.2	7.7	132
23	24	11	5.0	1.3	183	3.0	811	113	22	7.9	8.3	135
24	26	9.5	4.3	.93	89	3.1	554	107	13	6.3	7.2	136
25	22	9.1	3.5	.44	116	1.0	436	234	11	2.9	5.7	113
26	17	8.8	3.0	.07	1590	.68	277	205	12	6.0	1.8	96
27	14	7.6	2.5	.02	1840	1.5	108	121	20	22	.14	69
28	14	6.4	1.7	.02	842	8.1	49	63	43	17	.20	41
29	11	9.4	1.3	.02	---	6.0	25	43	48	7.0	.71	42
30	8.4	628	1.0	.06	---	2.9	8.7	28	46	2.6	1.9	36
31	871	---	.70	.00	---	3.6	---	21	---	1.9	2.4	---
TOTAL	6944.4	16669.8	679.70	42.31	6108.27	720.18	2889.75	18591.80	440.8	2084.8	217.98	2192.5
MEAN	224	556	21.9	1.36	218	23.2	96.3	600	14.7	67.3	7.03	73.1
MAX	1690	4450	178	20	1840	279	811	4450	48	169	23	165
MIN	8.4	6.4	.70	.00	.00	.68	.66	.11	2.7	1.9	.14	6.3
CFSM	.78	1.92	.08	.005	.75	.08	.33	2.08	.05	.23	.02	.25
IN.	.89	2.15	.09	.01	.79	.09	.37	2.39	.06	.27	.03	.28
AC-FT	13770	33060	1350	84	12120	1430	5730	36880	874	4140	432	4350

CAL YR 1981 TOTAL 94387.16 MEAN 259 MAX 7430 MIN .00 CFSM .90 IN 12.15 AC-FT 187200
WTR YR 1982 TOTAL 57582.29 MEAN 158 MAX 4450 MIN .00 CFSM .55 IN 7.41 AC-FT 114200

08164450 SANDY CREEK NEAR LOUISE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1977 to current year. Pesticide analyses: October 1977 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV											
18...	1212	20	203	7.4	22.0	26	8.2	94	1.2	61	7
MAR											
23...	1140	3.0	235	7.4	19.5	5.1	8.4	91	3.2	78	12
MAY											
04...	1210	.12	301	7.4	25.5	5.0	6.9	83	2.6	100	12
JUL											
27...	1300	19	648	8.2	30.5	5.4	7.7	103	6.4	230	36

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV										
18...	17	4.6	13	.8	4.8	54	7.0	23	.1	15
MAR										
23...	23	4.9	16	.8	4.7	66	6.0	26	.2	12
MAY										
04...	30	6.6	17	.8	4.2	90	6.0	36	.3	16
JUL										
27...	59	19	38	1.2	14	190	32	77	.4	42

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV										
18...	116	8	--	<.020	<.09	.080	1.4	1.50	.110	9.6
MAR										
23...	133	7	--	<.020	<.10	.100	.21	.31	.060	8.2
MAY										
04...	170	<2	--	<.020	<.10	.250	.85	1.10	.200	7.6
JUL										
27...	396	23	.18	.040	.22	.160	1.2	1.40	.260	13

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAR							
23...	1140	1	97	<3	<10	2	140
JUL							
27...	1300	6	150	<1	10	2	56

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR						
23...	<1	4	.3	<1	<1	<12
JUL						
27...	2	8	.1	<1	<1	10

08164503 WEST MUSTANG CREEK NEAR GANADO, TX

LOCATION.--Lat 29°04'17", long 96°28'01", Jackson County, Hydrologic Unit 12100102, on right bank at downstream end of downstream bridge on U.S. Highway 59, 2.1 mi (3.4 km) upstream from Middle Mustang Creek, and 3.6 mi (5.8 km) east of Ganado.

DRAINAGE AREA.--178 mi² (461 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 39.67 ft (12.091 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation.

REMARKS.--Water-discharge records good. Much of low flow during irrigation season (April to September) comes from drainage from ricefields irrigated by water originally diverted from the Colorado River.

AVERAGE DISCHARGE.--5 years (water years 1978-82), 169 ft³/s (4.786 m³/s), 12.9 in/yr (328 mm/yr), 122,400 acre-ft/yr (151 hm³/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s (379 m³/s) Jan. 21, 1980, gage height, 24.49 ft (7.465 m), from floodmark and rating extended above 8,800 ft³/s (249 m³/s); minimum daily 0.03 ft³/s (0.001 m³/s) Jan. 18, 19, 1981.

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)
Nov. 1	0800	3,200	90.6	15.89	4.843	May 7	2400	*5,070	144	17.87	5.447
Feb. 27	0400	1,500	42.5	13.42	4.090	May 14	2300	4,080	116	a16.86	5.139

a From floodmark.

Minimum daily discharge, 0.19 ft³/s (0.005 m³/s) Feb. 13-15.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	3130	34	.65	.26	105	4.6	9.4	18	60	43	5.8
2	67	2660	24	.62	.25	66	4.2	4.5	12	62	34	10
3	62	1680	11	.62	.25	52	2.8	5.1	18	57	19	12
4	58	1170	4.3	.50	.23	40	5.4	3.3	16	58	16	12
5	60	711	2.8	.50	.23	24	4.4	3.8	11	58	20	24
6	283	166	2.7	.50	.21	13	2.1	520	10	57	13	42
7	913	70	3.2	.53	.21	8.0	1.2	3860	5.7	65	19	71
8	1090	54	2.9	.43	.21	5.9	1.0	4020	5.5	56	13	111
9	1320	135	2.6	.42	.23	5.8	6.3	1510	8.9	58	35	86
10	913	134	11	.42	.23	5.1	12	269	14	58	39	82
11	308	70	15	.40	.22	3.4	12	108	13	54	38	56
12	129	52	8.4	.53	.20	2.7	15	64	11	54	50	34
13	84	44	5.0	.66	.19	2.1	38	563	23	64	39	21
14	66	35	3.2	.66	.19	1.8	42	3230	29	72	27	21
15	58	25	2.4	.66	.19	1.6	36	3240	32	70	25	31
16	58	19	2.0	.57	.20	1.3	16	1830	35	65	16	39
17	51	14	1.8	.53	.22	1.3	24	1120	51	66	6.8	52
18	62	11	1.7	.50	.22	1.1	48	442	60	61	6.2	75
19	86	8.7	1.3	.50	.20	.98	47	201	46	48	8.3	74
20	61	6.1	1.7	.87	9.0	.87	44	131	36	50	5.3	76
21	52	4.6	1.7	2.9	451	.76	46	59	36	49	11	85
22	46	3.8	1.6	3.0	401	.63	216	42	36	49	48	87
23	50	3.0	1.7	1.8	93	.63	306	38	29	49	61	101
24	46	2.6	1.2	.92	59	.59	243	39	27	47	47	104
25	36	2.2	.92	.62	99	.54	382	99	20	40	34	82
26	22	2.0	.81	.42	1030	.48	246	130	21	43	20	78
27	13	1.8	.71	.36	1400	1.1	71	80	45	41	16	63
28	8.1	1.6	.66	.33	489	13	48	53	53	32	11	52
29	6.1	1.5	.62	.33	---	27	37	42	58	34	14	47
30	6.8	1.4	.62	.30	---	12	19	27	54	39	9.4	52
31	1110	---	.62	.30	---	7.6	---	24	---	39	4.9	---
TOTAL	7190.0	10219.3	152.16	22.35	4035.14	406.28	1980.0	21767.1	834.1	1655	748.9	1685.8
MEAN	232	341	4.91	.72	144	13.1	66.0	702	27.8	53.4	24.2	56.2
MAX	1320	3130	34	3.0	1400	105	382	4020	60	72	61	111
MIN	6.1	1.4	.62	.30	.19	.48	1.0	3.3	5.5	32	4.9	5.8
CFSM	1.30	1.92	.03	.004	.81	.07	.37	3.94	.16	.30	.14	.32
IN.	1.50	2.14	.03	.00	.84	.08	.41	4.55	.17	.35	.16	.35
AC-FT	14260	20270	302	44	8000	806	3930	43180	1650	3280	1490	3340

CAL YR 1981 TOTAL 69775.49 MEAN 191 MAX 3660 MIN .03 CFSM 1.07 IN 14.58 AC-FT 138400
WTR YR 1982 TOTAL 50696.13 MEAN 139 MAX 4020 MIN .19 CFSM .78 IN 10.59 AC-FT 100600

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1977 to current year. Pesticide analyses: October 1977 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 18...	1445	11	295	7.6	22.5	52	7.8	91	1.6	100	8
FEB 10...	1155	.23	848	8.3	9.0	5.7	10.4	88	4.7	280	57
MAR 23...	1345	.68	691	7.7	20.0	23	5.6	62	2.4	210	42
MAY 05...	1050	4.6	627	7.8	25.0	15	7.5	90	3.2	190	46
JUL 28...	1300	30	860	8.2	29.5	19	5.8	75	2.9	260	64
AUG 31...	1325	4.4	791	7.9	28.0	33	6.0	76	3.1	240	37

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 18...	30	6.1	22	1.0	7.2	92	15	35	.1	21
FEB 10...	86	15	70	1.9	6.1	220	40	140	.3	20
MAR 23...	65	12	53	1.7	5.7	170	32	100	.3	17
MAY 05...	58	10	47	1.6	4.2	140	16	89	.4	20
JUL 28...	81	15	68	1.9	5.3	200	21	150	.4	38
AUG 31...	72	14	67	2.0	11	200	13	130	.3	61

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 18...	191	24	.09	.030	.12	.140	1.4	1.50	.180	12
FEB 10...	509	19	--	<.020	<.10	.060	1.9	2.00	.110	9.3
MAR 23...	387	33	--	<.020	<.10	.120	2.1	2.20	.120	9.1
MAY 05...	329	29	2.5	.260	2.8	.110	1.4	1.50	.110	5.8
JUL 28...	499	43	.14	.040	.18	.150	1.4	1.50	.110	8.9
AUG 31...	489	45	.06	.040	.10	.220	1.4	1.60	.240	16

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAR 23...	1345	3	180	<3	<10	1	16
JUL 28...	1300	5	200	2	<10	2	13

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR 23...	3	3	.3	<1	<1	<12
JUL 28...	2	8	.1	<1	<1	22

08164600 GARCITAS CREEK NEAR INEZ, TX

LOCATION.--Lat 28°53'28", long 96°49'08", Victoria County, Hydrologic Unit 12100402, at right downstream end of bridge on U.S. Highway 59 access road, 0.3 mi (0.5 km) upstream from Southern Pacific Railroad bridge, 2.0 mi (3.2 km) southwest of Inez, and 3.6 mi (5.8 km) upstream from Casa Blanca Creek.

DRAINAGE AREA.--91.7 mi^2 (238 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 29.16 ft (8.888 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No known diversion above station. An undetermined amount of return water from irrigation enters stream above station. Recording rain gage at station.

AVERAGE DISCHARGE.--12 years (water years 1971-82), 58.5 ft^3/s (1.657 m^3/s), 8.66 in/yr (220 mm/yr), 42,380 acre-ft/yr (52.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,700 ft^3/s (558 m^3/s) June 12, 1981, gage height, 29.00 ft (8.839 m); no flow May 22, 23, May 26 to June 17, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage during period 1903-70, 24.5 ft (7.47 m) Oct. 26, 1960. In 1929, a flood nearly as high as the 1960 flood occurred, and a flood in September 1967 reached a stage of 23.4 ft (7.13 m), from information by local resident.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 26	1700	1,580	44.6	14.43	4.398
May 14	0500	*5,870	166	a20.72	6.315
May 25	0700	5,700	161	a20.54	6.261

a From floodmark.

Minimum daily discharge, 0.12 ft^3/s (0.003 m^3/s) Sept. 10.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1350	3.3	2.4	1.9	78	4.4	4.8	29	1.4	.60	.28
2	1.4	351	3.0	2.4	2.0	44	3.6	4.0	23	9.0	.53	.24
3	1.6	116	3.0	2.4	1.9	29	3.1	3.3	19	4.3	.48	.27
4	1.5	62	3.0	2.3	1.8	22	2.7	2.9	16	2.9	.44	.37
5	2.8	38	2.7	2.2	1.8	16	2.8	2.5	13	2.7	.47	.39
6	1.8	26	3.3	2.2	1.7	13	2.7	135	11	2.7	.45	.32
7	4.0	18	3.7	2.4	1.7	10	2.6	909	9.7	2.6	.67	.24
8	4.2	15	3.7	2.3	1.7	8.5	2.6	185	8.4	2.4	2.8	.24
9	1.9	15	3.4	2.3	1.6	7.5	2.8	84	7.9	2.3	1.5	.15
10	1.6	12	3.4	2.3	1.5	6.9	2.6	44	7.5	2.3	.42	.12
11	1.4	9.8	3.2	1.9	1.5	6.4	2.6	39	7.9	2.2	.30	4.0
12	1.4	8.3	3.2	2.4	1.5	5.9	2.6	28	6.9	2.0	.30	5.5
13	1.3	7.3	2.8	2.5	1.4	5.5	2.9	1300	6.2	1.8	.29	2.3
14	1.3	6.5	2.7	2.3	1.4	5.1	3.3	4140	5.6	1.8	.30	1.8
15	1.3	6.0	2.7	2.3	1.4	4.9	6.3	534	5.0	1.7	.29	2.3
16	1.2	5.6	2.7	2.3	1.4	4.7	5.4	177	4.4	1.5	.56	3.2
17	1.1	5.3	2.7	2.0	1.4	4.6	4.8	144	4.0	1.4	1.2	2.6
18	8.9	4.7	2.5	2.0	1.4	4.4	3.9	295	3.6	1.4	1.4	2.2
19	3.4	4.3	2.3	2.0	3.9	4.1	3.9	173	3.4	1.3	1.4	1.7
20	2.1	4.1	2.3	2.1	56	3.9	3.0	91	3.2	1.2	1.3	1.3
21	1.7	3.9	2.4	2.2	97	3.8	8.7	52	3.0	1.1	1.2	1.0
22	2.6	3.9	2.5	2.2	48	3.6	24	35	2.7	1.1	1.1	.89
23	6.0	3.9	2.6	2.0	21	3.4	26	27	2.6	.92	1.0	.72
24	4.2	3.8	2.4	2.0	10	3.4	27	846	2.4	.84	.80	.58
25	3.2	3.5	2.3	2.0	118	3.4	80	4400	2.2	.75	.68	2.2
26	2.7	3.7	2.3	2.0	1310	3.4	39	716	2.0	.75	.60	3.0
27	2.1	3.5	2.3	1.9	533	3.4	22	195	1.9	.68	.53	2.9
28	1.9	3.4	2.3	1.9	142	3.4	13	118	1.8	.58	.46	2.3
29	1.7	3.4	2.2	1.9	---	4.1	8.2	79	1.7	.57	.40	1.5
30	1.7	3.4	2.3	1.9	---	5.7	5.9	51	1.5	1.0	.40	1.1
31	546	---	2.4	1.9	---	5.3	---	36	---	.72	.34	---
TOTAL	619.4	2101.3	85.6	66.9	2367.9	327.3	322.4	14850.5	216.5	57.91	23.21	45.71
MEAN	20.0	70.0	2.76	2.16	84.6	10.6	10.7	479	7.22	1.87	.75	1.52
MAX	546	1350	3.7	2.5	1310	78	80	4400	29	9.0	2.8	5.5
MIN	1.1	3.4	2.2	1.9	1.4	3.4	2.6	2.5	1.5	.57	.29	.12
AC-FT	1230	4170	170	133	4700	649	639	29460	429	115	46	91

CAL YR 1981 TOTAL 28313.73 MEAN 77.6 MAX 9040 MIN .09 AC-FT 56160
WTR YR 1982 TOTAL 21084.63 MEAN 57.8 MAX 4400 MIN .12 AC-FT 41820

08164600 GARCITAS CREEK NEAR INEZ, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1969 to current year. Pesticide analyses: October 1969 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
NOV 17...	0955	5.5	471	7.4	20.0	13	7.6	83	2.5	200
FEB 09...	1630	1.6	672	7.9	13.0	2.5	11.0	103	1.2	270
MAR 31...	1025	5.2	620	8.1	21.0	4.1	8.2	92	1.5	260
MAY 05...	1020	2.6	421	7.8	25.0	16	7.1	86	1.8	150
JUL 28...	1830	.62	681	8.4	32.5	2.0	7.3	100	2.2	180
SEP 01...	1030	.31	530	8.3	31.0	2.0	8.4	112	--	170

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 17...	17	66	7.7	28	.9	2.5	180	27	37	.2
FEB 09...	32	89	12	43	1.2	1.5	240	56	59	.2
MAR 31...	28	85	11	34	1.0	1.9	230	33	41	.2
MAY 05...	24	51	6.4	26	.9	3.0	130	27	33	.4
JUL 28...	0	55	11	78	2.6	2.0	190	31	89	.3
SEP 01...	20	50	11	50	1.8	1.4	150	54	61	.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	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 17...	27	303	11	<.020	<.09	.070	1.3	1.40	.030	6.5
FEB 09...	28	433	8	<.020	<.10	.060	.60	.66	<.010	3.9
MAR 31...	24	368	9	<.020	<.10	.090	.40	.49	<.010	4.9
MAY 05...	20	245	6	<.020	<.10	.100	1.0	1.10	.060	11
JUL 28...	39	420	52	<.020	<.10	.100	1.2	1.30	.040	9.4
SEP 01...	38	356	<1	<.020	<.10	.200	1.0	1.20	.110	4.7

08164600 GARCITAS CREEK NEAR INEZ, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
FEB 09...	1630	2	220	<1	<10	1	10
MAY 05...	1020	4	180	<3	<10	2	140
SEP 01...	1030	4	210	<1	<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 09...	3	15	<.1	<1	<1	<3
MAY 05...	2	5	<.1	<1	<1	17
SEP 01...	<1	35	<.1	<1	<1	12

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).

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

GAGE.--Water-stage recorder. Datum of gage is 5.58 ft (1.701 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years, 71.1 ft³/s (2.014 m³/s), 51,510 acre-ft/yr (63.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,300 ft³/s (518 m³/s) Oct. 31, 1981, gage height, 30.8 ft (9.388 m); no flow at times in 1971, and 1981-82.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1930, 31.9 ft (9.72 m) in September 1967 and 30.4 ft (9.27 m) in 1960 (probably October), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) 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. 31	2100	*18,300	518	a30.80	9.388	May 14	0100	3,280	92.9	21.78	6.639
Feb. 20	2200	2,640	74.8	20.88	6.364	May 25	0300	4,710	133	23.36	7.120
Feb. 26	0400	4,690	133	23.34	7.114						

a From floodmark.

Minimum discharge, no flow for several days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.66	11400	1.8	1.7	.89	32	3.7	1.1	5.1	.41	.00	1.8
2	.65	2010	1.4	1.5	.83	18	3.7	.99	4.1	.40	.00	2.6
3	.79	302	1.5	1.5	.95	11	3.3	.97	3.7	.32	.00	1.2
4	.85	99	1.4	1.4	.97	8.1	2.9	.93	3.3	.29	.00	44
5	.77	44	1.4	1.2	.97	6.0	3.1	.83	2.9	.29	.01	2.6
6	.97	21	1.7	1.4	.97	4.6	2.9	381	2.6	.29	.02	.08
7	1.4	12	2.6	1.4	1.0	4.2	2.6	608	2.3	.27	.02	.00
8	28	8.1	2.8	1.3	1.1	4.0	2.6	88	2.1	.21	.02	.00
9	40	7.8	2.6	1.3	1.4	3.8	2.6	26	1.7	.12	2.1	.00
10	17	5.9	1.8	1.3	1.4	3.7	2.6	12	1.5	.06	2.7	.00
11	7.5	4.3	1.4	1.3	1.4	3.2	2.6	6.0	1.2	.04	2.4	.00
12	3.9	3.6	1.4	1.7	1.7	3.1	2.6	4.1	1.1	.01	4.8	.00
13	2.8	3.6	1.4	2.0	1.8	3.1	2.6	864	1.1	.01	2.6	.00
14	2.1	3.5	1.4	1.9	1.8	3.1	2.7	1730	1.1	.01	1.2	.01
15	1.6	3.4	1.4	1.9	1.8	3.1	2.6	222	1.1	.03	.49	.05
16	1.3	3.4	1.4	1.9	1.4	3.6	2.6	67	1.1	.05	.23	.06
17	1.4	3.1	1.4	1.9	.89	4.0	2.4	127	.95	.48	.13	.03
18	3.2	2.8	1.4	1.9	.82	4.2	2.3	270	.64	2.6	.10	.01
19	32	2.8	1.4	1.9	.72	3.8	2.2	46	.55	1.7	.34	.00
20	26	2.7	1.5	2.0	945	3.4	2.2	17	.38	2.4	.36	.00
21	11	2.5	1.8	2.0	961	3.4	3.4	8.8	.39	1.3	.15	.00
22	9.6	2.5	1.7	2.0	111	3.2	4.1	5.7	.53	3.4	.13	.00
23	37	2.4	1.4	1.6	32	3.2	8.9	4.6	.77	.22	.13	.00
24	104	2.4	1.1	1.1	15	3.4	5.0	1200	.77	.04	.09	.00
25	50	2.2	1.1	.97	823	3.3	7.7	3100	.79	.02	.06	.00
26	22	2.2	1.1	.97	2920	2.9	13	364	1.0	.01	.03	.00
27	11	1.9	1.1	.97	345	2.8	4.3	89	.55	.00	.02	.00
28	5.8	1.7	1.2	.97	81	3.2	1.9	35	.45	.00	.02	.00
29	3.5	1.7	1.4	.97	---	3.4	1.3	19	.45	.00	.01	.00
30	2.4	2.0	1.5	.92	---	3.5	1.1	9.8	.41	.00	.00	.00
31	6980	---	2.1	.90	---	3.7	---	6.5	---	.00	.04	---
TOTAL	7409.19	13964.5	48.6	45.77	6255.81	166.0	105.5	9315.32	44.63	14.98	18.20	52.44
MEAN	239	465	1.57	1.48	223	5.35	3.52	300	1.49	.48	.59	1.75
MAX	6980	11400	2.8	2.0	2920	32	13	3100	5.1	3.4	4.8	44
MIN	.65	1.7	1.1	.90	.72	2.8	1.1	.83	.38	.00	.00	.00
AC-FT	14700	27700	96	91	12410	329	209	18480	89	30	36	104

CAL YR 1981 TOTAL 51076.95 MEAN 140 MAX 11400 MIN .00 AC-FT 101300
WTR YR 1982 TOTAL 37440.94 MEAN 103 MAX 11400 MIN .00 AC-FT 74260

08164850 CHOCOLATE BAYOU NEAR PORT LAVACA, TX
(Reconnaissance partial-record station)

LOCATION.--Lat 28°35'40", long 96°41'48", Calhoun County, Hydrologic Unit 12100402, at bridge on Sweetwater Road, 2.3 mi (3.7 km) upstream from State Highway 35, and 4.5 mi (7.2 km) southwest of Port Lavaca.

DRAINAGE AREA.--53.7 mi² (139.1 km²).

PERIOD OF RECORD.--Periodic discharge measurements: September 1967 to July 1968, February 1970 to current year. Periodic water-quality data: June 1970 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEC C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT											
21...	1150	.39	3170	8.2	24.0	10	7.2	86	1.8	720	500
APR											
07...	1030	.49	4950	7.5	20.0	9.0	7.1	79	4.3	1100	840
MAY											
26...	1100	418	111	6.8	27.5	96	4.5	58	2.3	37	0
JUN											
30...	1020	2.5	2180	7.3	29.3	5.0	3.5	46	1.8	390	180

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT										
21...	210	47	380	6.2	8.7	220	200	840	.5	25
APR										
07...	320	82	620	8.0	5.8	300	320	1400	.7	22
MAY										
26...	12	1.7	7.7	.6	3.9	41	7.0	7.9	.2	19
JUN										
30...	110	27	300	6.6	6.7	210	67	560	.5	23

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										
21...	1840	15	--	<.020	<.09	.080	1.0	1.10	.290	24
APR										
07...	2950	21	--	<.020	<.10	<.060	--	1.50	.260	6.8
MAY										
26...	84	107	.14	.160	.30	.300	1.2	1.50	.320	12
JUN										
30...	1220	6	.24	.040	.28	.220	1.8	2.00	.150	7.7

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT							
21...	1150	14	400	1	0	<1	10
MAY							
26...	1100	6	41	2	10	4	160

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT						
21...	<1	130	.0	<1	<1	20
MAY						
26...	2	6	<.1	<1	<1	57

08165300 NORTH FORK GUADALUPE RIVER NEAR HUNT, TX

LOCATION.--Lat 30°03'36", long 99°23'40", Kerr County, Hydrologic Unit 12100201, on right bank 410 ft (125 m) downstream from Ranch Road 1340, 1.3 mi (2.1 km) downstream from Bear Creek, 3.7 mi (6.0 km) west of Hunt, and 4.1 mi (6.6 km) upstream from Honey Creek.

DRAINAGE AREA.--168 mi^2 (435 km^2).

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

REVISED RECORDS.--WRD TX-74-1: 1971(P).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,800.10 ft (548.670 m) National Geodetic Vertical Datum of 1929.

REMARKS--Records good. There is a permit issued by the Texas Department of Water Resources to impound and use 20.33 acre-ft (25,100 m^3) of water on a game preserve upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years, 39.8 ft^3/s (1.127 m^3/s), 3.22 in/yr (82 mm/yr), 28,840 acre-ft/yr (35.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,300 ft^3/s (1,110 m^3/s) Aug. 3, 1978, gage height, 26.80 ft (8.169 m), from high-water mark and from rating curve extended above 170 ft^3/s (4.81 m^3/s) on basis of slope-area measurements of 7,460 and 38,400 ft^3/s (211 and 1,090 m^3/s); minimum, 0.68 ft^3/s (0.019 m^3/s) May 30, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900 occurred July 1, 1932, gage height, 37.3 ft (11.37 m), discharge 140,000 ft^3/s (3,960 m^3/s), by slope-area measurements, combined flow of North Fork Guadalupe River 5 mi (8 km) upstream and Bear Creek 2 mi (3 km) upstream from mouth, and adjusted for difference in drainage area.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s (14.2 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 13	1130	*21,000	595	21.22	6.468
May 13	1030	664	18.8	6.95	2.118

Minimum daily discharge, 18 ft^3/s (0.51 m^3/s) July 17, Aug. 3, 4, 25-29, Aug. 31 to Sept. 2, 7-12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	53	41	38	31	31	26	26	26	24	19	18
2	33	52	40	38	32	31	25	26	25	23	19	18
3	33	51	39	38	32	30	26	25	29	22	18	19
4	32	51	40	37	31	30	25	24	28	22	18	20
5	31	50	39	36	31	30	26	24	28	25	19	19
6	43	50	39	36	31	28	25	28	28	25	19	19
7	58	49	40	36	31	28	25	28	28	24	19	18
8	51	51	41	35	30	28	26	25	28	23	21	18
9	50	49	40	35	31	28	26	24	27	22	26	18
10	46	48	39	36	31	27	26	24	26	22	24	18
11	50	48	39	35	31	27	26	25	26	22	22	18
12	48	48	38	37	30	27	26	27	28	22	21	18
13	3030	48	38	37	30	27	25	208	29	21	21	21
14	220	48	38	37	30	27	26	79	28	23	20	22
15	115	47	37	35	30	27	26	54	27	23	20	20
16	100	47	37	35	29	27	27	45	28	21	20	21
17	90	47	38	34	29	27	26	42	28	18	20	21
18	80	47	37	34	29	27	26	37	27	20	19	20
19	76	45	36	36	29	26	26	35	27	20	20	20
20	73	43	36	34	30	26	26	33	28	20	20	25
21	70	44	37	34	33	26	25	32	27	20	19	23
22	76	43	38	34	31	27	27	32	26	20	19	20
23	68	44	38	33	29	28	29	30	25	25	19	20
24	66	43	38	32	29	27	27	30	25	26	19	20
25	64	42	37	33	30	27	27	29	27	23	18	20
26	62	43	38	32	39	26	26	29	28	21	18	20
27	60	42	38	32	35	26	26	28	26	20	18	20
28	59	41	38	32	32	26	25	29	26	20	18	20
29	58	42	38	32	---	26	24	30	26	20	18	20
30	56	42	38	33	---	27	24	27	25	19	19	20
31	55	---	39	32	---	27	---	27	---	19	18	---
TOTAL	4986	1398	1189	1078	866	852	776	1162	810	675	608	594
MEAN	161	46.6	38.4	34.8	30.9	27.5	25.9	37.5	27.0	21.8	19.6	19.8
MAX	3030	53	41	38	39	31	29	208	29	26	26	25
MIN	31	41	36	32	29	26	24	24	25	18	18	18
CFSM	.96	.28	.23	.21	.18	.16	.15	.22	.16	.13	.12	.12
IN.	1.10	.31	.26	.24	.19	.19	.17	.26	.18	.15	.13	.13
AC-FT	9890	2770	2360	2140	1720	1690	1540	2300	1610	1340	1210	1180

CAL YR 1981	TOTAL	28434	MEAN 77.9	MAX 4640	MIN 21	CFSM .46	IN 6.30	AC-FT	56400	
WTR YR 1982	TOTAL	14994	MEAN 41.1	MAX 3030	MIN 18	CFSM .25	IN 3.32	AC-FT	29740	

08165500 GUADALUPE RIVER AT HUNT, TX

LOCATION.--Lat 30°04'08", long 99°19'23", Kerr County, Hydrologic Unit 12100201, on right bank 56 ft (17 m) upstream and 137 ft (42 m) right of right end of bridge on State Highway 39, 0.6 mi (1.0 km) downstream from confluence of North and South Forks, 0.8 mi (1.3 km) east of Hunt, and at mile 430.9 (693.3 km).

DRAINAGE AREA.--288 mi² (746 km²).

PERIOD OF RECORD.--October 1941 to September 1949, discharge not computed above 600 ft³/s (17.0 m³/s), and April 1965 to current year. Occasional discharge measurements made 1950-64.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,722.7 ft (525.08 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Numerous diversions for irrigation above station, amounts unknown. Gage-height telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years, 75.1 ft³/s (2.127 m³/s), 3.54 in/yr (90 mm/yr), 54,410 acre-ft/yr (67.1 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)
Oct. 7	0215	1,170	33.1	5.72	1.743
Oct. 13	1315	*15,100	428	15.37	4.685
May 13	0930	5,040	143	10.99	3.350

Minimum daily discharge, 29 ft³/s (0.82 m³/s) Sept. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	100	77	73	65	71	58	56	61	51	41	34
2	59	96	76	74	66	70	58	60	60	50	39	45
3	59	97	76	74	66	70	53	68	57	50	38	38
4	59	96	75	70	65	69	53	64	59	48	38	41
5	58	95	74	70	66	67	53	54	57	55	37	39
6	179	94	78	71	65	64	52	52	57	58	36	31
7	577	93	80	70	64	64	51	58	58	53	36	30
8	193	97	80	68	64	63	54	52	54	51	40	31
9	142	94	79	69	64	64	53	49	54	50	48	31
10	120	89	77	68	63	64	52	52	55	48	48	30
11	116	89	78	66	64	63	52	56	53	47	45	29
12	111	89	78	73	66	63	52	67	57	46	43	31
13	2720	89	76	72	64	62	52	1910	60	45	41	39
14	515	89	76	73	64	62	50	275	57	47	42	50
15	259	89	75	72	65	61	51	155	55	47	41	42
16	211	89	75	70	65	62	52	124	56	47	40	47
17	182	88	74	68	64	61	52	120	59	42	37	40
18	159	88	72	68	63	61	50	101	56	43	38	36
19	146	87	72	70	65	58	51	99	54	43	47	33
20	138	81	75	72	71	58	51	85	57	42	41	44
21	134	81	76	71	72	59	51	78	58	43	39	42
22	145	82	75	71	69	60	55	65	58	43	38	36
23	136	83	72	67	66	63	62	76	56	60	38	34
24	123	83	71	65	65	61	57	88	54	53	37	33
25	120	83	70	66	70	59	56	77	56	49	37	35
26	114	82	72	65	95	57	53	73	60	45	36	35
27	110	79	72	65	80	57	54	58	56	46	36	35
28	110	80	74	68	74	58	51	74	53	42	36	32
29	108	82	72	69	---	58	50	74	53	41	38	31
30	107	81	73	71	---	60	51	67	51	40	33	30
31	105	---	75	66	---	60	---	63	---	42	33	---
TOTAL	7374	2645	2325	2155	1890	1929	1590	4350	1691	1467	1217	1084
MEAN	238	88.2	75.0	69.5	67.5	62.2	53.0	140	56.4	47.3	39.3	36.1
MAX	2720	100	80	74	95	71	62	1910	61	60	48	50
MIN	58	79	70	65	63	57	50	49	51	40	33	29
CFSM	.83	.31	.26	.24	.23	.22	.18	.49	.20	.16	.14	.13
IN.	.95	.34	.30	.28	.24	.25	.21	.56	.22	.19	.16	.14
AC-FT	14630	5250	4610	4270	3750	3830	3150	8630	3350	2910	2410	2150

CAL YR 1981	TOTAL	47319	MEAN	130	MAX	4550	MIN 45	CFSM .45	IN 6.11	AC-FT	93860	
WTR YR 1982	TOTAL	29717	MEAN	81.4	MAX	2720	MIN 29	CFSM .28	IN 3.84	AC-FT	58940	

08166000 JOHNSON CREEK NEAR INGRAM, TX

LOCATION.--Lat 30°06'00", long 99°16'58", Kerr County, Hydrologic Unit 12100201, on right bank 1.6 mi (2.6 km) upstream from Henderson Branch, 3.4 mi (5.5 km) northwest of Ingram, 3.8 mi (6.1 km) upstream from mouth, and 9.2 mi (14.8 km) northwest of Kerrville.

DRAINAGE AREA.--114 mi^2 (295 km^2).

PERIOD OF RECORD.--September 1941 to November 1959, October 1961 to current year.

REVISED RECORDS.--WSP 1058: 1942-45. WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,721.30 ft (524.652 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--39 years (water years 1942-59, 1962-82), 19.8 ft^3/s (0.561 m^3/s), 2.36 in/yr (60 mm/yr), 14,350 acre-ft/yr (17.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,900 ft^3/s (2,720 m^3/s) Oct. 4, 1959, gage height, 24.25 ft (7.391 m), from rating curve extended above 4,400 ft^3/s (125 m^3/s) on basis of slope-area measurements of 9,100 and 16,000 ft^3/s (258 and 453 m^3/s) and conveyance study; minimum daily, 0.4 ft^3/s (0.011 m^3/s) July 26, 27, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 35 ft (10.7 m) July 2, 1932, from information by local resident; discharge, 138,000 ft^3/s (3,910 m^3/s), by slope-area measurement at point 0.5 mi (0.8 km) downstream from State fish hatchery and 6 or 7 mi (10 or 11 km) upstream from gage. Flood of June 14, 1935, reached a stage of 31 or 32 ft (9.4 or 9.8 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,040 ft^3/s (86.1 m^3/s) Oct. 13, gage height, 6.34 ft (1.932 m) from outside floodmark, no other peak above base of 500 ft^3/s (14.2 m^3/s); minimum daily discharge, 3.5 ft^3/s (0.099 m^3/s) Sept. 9.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	21	24	23	24	22	19	18	23	15	12	4.2
2	21	21	24	24	23	22	16	16	22	17	14	4.5
3	17	23	24	22	22	20	15	16	21	18	11	5.6
4	17	25	24	23	23	18	15	17	19	18	8.9	6.1
5	19	21	25	23	22	17	15	17	20	19	8.5	5.8
6	35	19	26	23	21	14	14	26	19	19	8.4	5.7
7	47	22	26	22	22	14	15	21	19	25	8.4	5.7
8	31	25	24	21	25	16	15	25	21	21	19	4.2
9	28	22	24	20	28	18	14	17	17	16	28	3.5
10	28	21	24	19	27	17	12	18	17	12	27	3.9
11	31	21	23	19	25	16	13	20	17	12	17	3.6
12	28	21	26	21	23	17	13	21	21	11	15	4.5
13	557	22	25	22	24	16	15	49	19	11	12	4.0
14	88	23	24	22	23	16	14	30	17	13	11	5.5
15	45	23	23	21	23	15	14	23	18	13	9.7	5.6
16	33	23	24	21	22	16	14	22	19	10	9.7	17
17	31	23	25	21	22	16	12	24	19	10	8.4	7.7
18	26	23	28	21	23	15	12	23	17	12	7.6	7.0
19	24	22	24	23	23	14	13	19	16	12	8.8	6.4
20	23	22	26	21	27	14	16	17	18	11	6.0	27
21	24	24	25	21	25	14	13	18	16	11	6.7	14
22	29	24	24	22	21	14	16	18	17	10	7.8	9.2
23	25	24	23	21	22	20	20	15	17	14	8.6	16
24	24	24	23	21	24	14	18	25	15	24	13	13
25	22	25	23	21	24	12	17	20	16	21	8.1	8.3
26	23	25	23	21	40	11	16	18	17	17	6.4	9.4
27	22	24	23	21	24	12	16	17	18	16	8.1	11
28	22	25	22	21	23	12	16	25	15	16	5.8	10
29	23	26	23	24	---	14	18	41	15	16	5.4	9.2
30	23	26	23	25	---	25	17	33	15	13	6.4	9.8
31	22	---	23	24	---	22	---	28	---	13	7.2	---
TOTAL	1409	690	748	674	675	503	453	697	540	466	333.9	247.4
MEAN	45.5	23.0	24.1	21.7	24.1	16.2	15.1	22.5	18.0	15.0	10.8	8.25
MAX	557	26	28	25	40	25	20	49	23	25	28	27
MIN	17	19	22	19	21	11	12	15	15	10	5.4	3.5
AC-FT	2790	1370	1480	1340	1340	998	899	1380	1070	924	662	491

CAL YR 1981	TOTAL	14440.9	MEAN 39.6	MAX 1040	MIN 3.3	AC-FT	28640	
WTR YR 1982	TOTAL	7436.3	MEAN 20.4	MAX 557	MIN 3.5	AC-FT	14750	

08166140 GUADALUPE RIVER ABOVE BEAR CREEK AT KERRVILLE, TX

LOCATION.--Lat 30°04'10", long 99°11'42", Kerr County, Hydrologic Unit 12100201, on left bank 600 ft (180 m) downstream from Goat Creek, 900 ft (274 m) upstream from Bear Creek and Bear Creek Crossing, and 2.4 mi (3.9 km) east of intersection of State Highways 27 and 39 in Ingram.

DRAINAGE AREA.--494 mi^2 (1,280 km^2).

PERIOD OF RECORD.--April 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,623.20 ft (494.751 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Discharge not computed above 400 ft^3/s (11.3 m^3/s). Numerous diversions for irrigation above station, amounts unknown. Several observations of water temperature were made during the period.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 32.79 ft (9.994 m) Aug. 3, 1978 (discharge not known); minimum daily discharge, 23 ft^3/s (0.65 m^3/s) July 22, 1978.

EXTREMES OUTSIDE PERIOD OR RECORD.--Maximum stage since 1900, 34.1 ft (10.39 m) July 2, 1932, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maxumum stage observed, 12.8 ft (3.90 m) Oct. 13 at 1415 hours (maximum discharge not determined); minimum daily discharge, 48 ft^3/s (1.36 m^3/s) Aug. 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	170	136	137	121	130	113	99	129	80	52	50
2	108	161	133	138	125	127	108	99	124	78	50	49
3	102	154	131	136	122	125	100	113	121	76	52	53
4	103	152	132	127	120	121	97	100	117	74	52	57
5	101	152	132	127	122	118	98	105	118	78	50	56
6	210	152	137	127	119	114	96	125	113	82	48	54
7	---	150	142	128	116	111	95	107	112	75	53	52
8	280	149	142	125	119	111	100	105	112	77	79	53
9	239	152	148	123	128	111	98	94	108	70	79	52
10	219	154	142	123	124	112	97	92	106	65	85	52
11	211	156	141	117	122	112	98	100	105	62	75	50
12	198	157	143	132	121	112	98	117	121	61	64	50
13	---	157	145	138	117	111	97	---	113	59	60	55
14	---	156	143	132	116	111	97	319	102	61	58	73
15	358	156	141	129	117	110	96	251	89	65	57	71
16	328	152	139	127	115	112	98	221	90	62	58	73
17	307	153	138	121	112	112	98	212	90	58	57	72
18	286	153	145	122	110	111	94	210	87	53	67	64
19	271	151	135	126	118	106	98	200	83	56	67	61
20	259	143	138	130	132	107	102	191	85	55	64	84
21	249	142	144	129	133	108	98	186	86	56	59	82
22	247	142	141	130	122	110	107	163	83	57	57	69
23	240	148	135	122	116	123	121	177	87	61	57	63
24	228	147	135	117	116	115	115	194	81	87	58	64
25	218	144	134	124	125	109	108	193	80	74	55	62
26	204	143	134	127	186	107	100	177	85	66	53	60
27	195	139	135	122	164	108	96	170	93	62	53	57
28	182	139	137	126	139	109	95	160	87	58	51	60
29	184	147	137	127	---	109	93	189	84	57	52	58
30	182	146	136	134	---	116	93	180	82	56	52	57
31	180	---	142	127	---	118	---	160	---	54	51	---
TOTAL	---	4517	4293	3950	3497	3516	3004	---	2973	2035	1825	1813
MEAN	---	151	138	127	125	113	100	---	99.1	65.6	58.9	60.4
MAX	---	170	148	138	186	130	121	---	129	87	85	84
MIN	---	139	131	117	110	106	93	---	80	53	48	49
AC-FT	---	8960	8520	7830	6940	6970	5960	---	5900	4040	3620	3600

WTR YR 1982 TOTAL - MEAN - MAX - MIN - AC-FT -

08167000 GUADALUPE RIVER AT COMFORT, TX

LOCATION.--Lat 29°58'10", long 98°53'33", Kendall County, Hydrologic Unit 12100201, on right bank at downstream side of southbound bridge on Interstate Highway 10, at Comfort, 0.5 mi (0.8 km) downstream from Cypress Creek, and at mile 396.2 (637.5 km).

DRAINAGE AREA.--839 mi² (2,173 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 1,371.83 ft (418.134 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 27, 1939, nonrecording gage. Nov. 27, 1939, to June 2, 1980 recording at gage site 0.4 mi (0.6 km) upstream at datum 0.22 ft (0.067 m) lower.

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

AVERAGE DISCHARGE.--43 years (water years 1940-82), 188 ft³/s (5.324 m³/s), 136,200 acre-ft/yr (168 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. All stages are at site and datum then in use.
Maximum stage since at least 1848, that of Aug. 2, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1869 reached a stage of 40.3 ft (12.28 m), from report by Corps of Engineers. Flood of July 1, 1932, reached a stage of 38.4 ft (11.70 m), from floodmark, and from information by State Department of Highways and Public Transportation. Flood of July 16, 1900, reached about the same stage as that of July 1, 1932, from information by local residents. All stages are at site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,600 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)
Oct. 7	0430	11,700	331	12.11	3.691	May 13	1430	6,920	196	9.36	2.853
Oct. 13	1530	*36,400	1,030	20.38	6.212	June 12	0900	19,700	558	15.41	4.697

Minimum daily discharge, 54 ft³/s (1.53 m³/s) Sept. 12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	426	283	217	184	192	165	135	174	184	77	70
2	170	393	271	216	185	184	161	150	169	149	73	70
3	166	378	272	216	184	179	153	149	161	110	70	70
4	162	371	267	207	184	178	143	134	158	104	70	76
5	158	371	259	202	182	174	143	143	152	128	65	71
6	1060	361	264	202	182	169	133	228	146	130	61	66
7	4020	354	270	207	182	168	134	197	143	134	60	62
8	677	378	268	209	178	167	140	162	138	130	98	59
9	637	368	260	209	178	165	139	152	136	126	122	58
10	534	354	258	209	184	168	135	153	133	120	116	56
11	480	347	257	207	184	175	136	139	128	118	115	55
12	442	347	254	207	175	174	127	161	3560	104	104	54
13	11500	344	255	207	171	174	136	4080	653	100	90	56
14	3950	340	254	207	171	175	140	1330	450	132	84	63
15	1340	330	246	200	171	175	142	569	360	104	78	78
16	978	327	245	196	167	174	123	412	330	99	75	89
17	816	324	239	196	163	176	127	339	290	93	73	84
18	701	320	240	193	165	175	122	313	280	97	71	82
19	624	314	237	193	165	170	126	289	260	90	77	74
20	588	298	236	199	184	170	135	257	280	88	85	106
21	565	298	239	197	197	173	132	236	304	88	84	112
22	612	298	240	197	184	176	151	233	190	88	77	92
23	626	298	223	193	172	192	174	223	179	97	83	81
24	516	291	222	187	170	185	164	255	174	108	81	74
25	500	298	220	186	176	176	179	240	146	122	80	75
26	456	295	222	183	236	164	173	225	181	108	76	73
27	437	286	226	180	237	168	122	215	167	93	73	70
28	434	287	224	182	204	173	107	219	161	90	73	67
29	434	290	223	185	---	172	112	186	147	87	73	66
30	422	297	220	197	---	179	123	210	145	84	71	66
31	449	---	226	199	---	176	---	187	---	77	70	---
TOTAL	34621	9983	7620	6185	5115	5416	4197	11921	9895	3382	2505	2175
MEAN	1117	333	246	200	183	175	140	385	330	109	80.8	72.5
MAX	11500	426	283	217	237	192	179	4080	3560	184	122	112
MIN	158	286	220	180	163	164	107	134	128	77	60	54
AC-FT	68670	19800	15110	12270	10150	10740	8320	23650	19630	6710	4970	4310

CAL YR 1981	TOTAL	183525	MEAN 503	MAX 12900	MIN 132	AC-FT	364000	
WTR YR 1982	TOTAL	103015	MEAN 282	MAX 11500	MIN 54	AC-FT	204300	

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX

LOCATION.--Lat 29°23'00", long 98°23'00", Comal County, Hydrologic Unit 12100201, on downstream side of bridge on Ranch Road 311, 1.9 mi (3.1 km) southeast of Spring Branch Post Office, 7.5 mi (12.1 km) downstream from Curry Creek, and at mile 334.4 (538.0 km).

DRAINAGE AREA.--1,315 mi² (3,406 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1922 to current year.

REVISED RECORDS.--WSP 1562: 1923-24, 1926, 1927-28(M), 1929, 1930(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 948.10 ft (288.981 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 14, 1981, at site 220 ft (67 m) downstream at same datum.

REMARKS.--Water-discharge records good. Several small diversions above station for irrigation. Several observations of water temperature were made during the year. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--60 years, 313 ft³/s (8.864 m³/s), 226,800 acre-ft (280 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 slopearea 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. 7	2100	12,100	343	15.34	4.676	May 13	1200	9,180	260	13.01	3.965
Oct. 14	1000	*25,500	722	23.53	7.172	June 13	unknown	6,770	192	10.85	3.307

Minimum daily discharge, 64 ft³/s (1.81 m³/s) Sept. 4, 5.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	721	390	295	238	268	208	168	295	205	90	67
2	132	610	374	295	225	242	207	175	274	230	87	67
3	131	553	365	299	222	235	202	194	263	199	83	66
4	130	516	350	290	222	232	193	196	247	172	82	64
5	122	498	345	280	220	223	188	184	234	141	78	64
6	1280	499	345	276	218	215	177	230	221	159	77	72
7	7190	475	345	272	220	208	172	415	211	163	76	74
8	3440	480	352	268	222	206	171	309	206	163	75	70
9	1270	520	364	266	221	200	174	253	195	160	80	69
10	847	489	355	265	218	205	179	230	187	156	171	65
11	642	461	350	256	218	205	175	226	181	147	149	65
12	539	460	346	268	211	208	172	239	351	143	131	65
13	482	455	337	272	208	211	169	5230	3000	135	125	69
14	15400	456	340	277	205	205	165	5700	794	133	111	70
15	3170	455	337	279	205	201	174	1850	538	143	101	67
16	1950	452	327	274	205	201	184	1120	443	135	95	790
17	1500	445	326	259	202	198	157	860	396	122	89	133
18	1200	429	317	259	196	198	157	688	370	116	95	112
19	954	421	309	259	195	196	159	600	337	112	85	101
20	853	406	311	259	198	191	163	550	312	111	86	99
21	800	369	316	259	222	188	175	497	292	104	89	92
22	763	374	322	261	248	191	192	448	329	103	92	128
23	836	390	313	255	227	200	238	420	316	104	89	116
24	789	390	299	246	213	213	270	439	301	108	79	106
25	712	390	291	242	205	214	251	462	257	111	79	98
26	652	379	291	228	225	198	246	414	213	117	76	91
27	597	379	294	225	279	196	242	386	234	122	75	91
28	578	374	295	225	295	195	201	370	222	112	73	90
29	560	379	294	225	---	201	168	366	215	103	72	84
30	556	390	291	232	---	208	149	315	196	99	70	85
31	894	---	293	232	---	208	---	316	---	93	70	---
TOTAL	49108	13615	10184	8098	6183	6460	5678	23850	11630	4221	2830	3230
MEAN	1584	454	329	261	221	208	189	769	388	136	91.3	108
MAX	15400	721	390	299	295	268	270	5700	3000	230	171	790
MIN	122	369	291	225	195	188	149	168	181	93	70	64
AC-FT	97410	27010	20200	16060	12260	12810	11260	47310	23070	8370	5610	6410

CAL YR 1981 TOTAL 289004 MEAN 792 MAX 17400 MIN 122 AC-FT 573200
WTR YR 1982 TOTAL 145087 MEAN 397 MAX 15400 MIN 64 AC-FT 287800

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
OCT 14...	1408	21300	235	7.8	23.0	50	880	7.4	88	3.8	120
JAN 12...	1543	270	503	8.2	7.0	0	1.2	11.7	101	1.1	250
FEB 22...	1532	240	494	8.4	17.0	0	3.3	9.8	105	.5	240
APR 06...	1025	182	484	8.3	19.0	5	5.7	8.6	97	1.1	230
MAY 13...	1746	6400	236	8.0	20.0	60	430	7.6	85	4.7	110
JUN 28...	1135	220	458	--	27.5	--	--	--	--	1.6	--
AUG 10...	1426	157	465	8.1	27.5	5	7.3	7.3	96	1.0	220

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 14...	16	34	7.6	3.3	.1	3.2	100	6.0	5.4	.2	11
JAN 12...	18	63	22	12	.4	1.4	230	26	16	.3	9.1
FEB 22...	18	59	22	12	.4	1.4	220	22	19	.3	9.3
APR 06...	16	56	21	12	.4	1.7	210	20	25	.2	9.3
MAY 13...	10	34	6.2	3.5	.2	2.9	100	7.0	6.0	.2	9.6
JUN 28...	--	--	--	--	--	--	--	--	--	--	--
AUG 10...	21	54	21	13	.4	1.9	200	25	18	.3	15

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 14...	131	--	--	.32	.050	.37	.130	.79	.92	.130	35
JAN 12...	288	6	5	--	<.020	1.1	.080	.65	.73	<.010	1.2
FEB 22...	277	10	8	--	<.020	.90	.200	.43	.63	<.010	1.5
APR 06...	272	14	9	--	<.020	.52	.070	.36	.43	<.010	2.3
MAY 13...	130	827	103	.32	.030	.35	.090	2.2	2.30	.310	33
JUN 28...	--	--	--	--	--	--	--	--	--	--	--
AUG 10...	269	<2	4	--	<.020	.32	.100	.60	.70	.010	3.2

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 14...	1408	1	22	<1	0	2	40
JAN 12...	1543	1	39	<1	<10	<1	<10
APR 06...	1025	1	40	<3	<10	1	<9
MAY 13...	1746	1	20	<3	10	3	93
AUG 10...	1426	1	40	<1	<10	1	80

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 14...	1	1	.0	0	0	<3
JAN 12...	1	<1	<.1	1	<1	4
APR 06...	2	<3	<.1	<1	<1	<12
MAY 13...	<1	<3	<.1	<1	<1	<12
AUG 10...	<1	3	<.1	<1	<1	6

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.

REMARKS.--The lake is formed by a rolled earthfill dam 6,830 ft (2,082 m) long, consisting of the main dam 4,410 ft (1,344 m) long, an earthen dike 210 ft (64 m) long, a 1,260-foot-long (384 m) uncontrolled broad-crested-type spillway, and a 950-foot (290 m) concrete and earthen nonoverflow section. Deliberate impoundment began June 16, 1964, and main part of dam was completed in August 1964. The flood-control outlet works consist of a 10.0-foot-diameter (3.0 m) conduit controlled by two 5.7 by 10.0-foot (1.7 by 3.0 m) hydraulically operated slide gates. The lake was built for water conservation and flood control. Capacity table beginning Oct. 1, 1974, is based on a sedimentation survey of August 1972. Small diversions above the lake for irrigation. 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	974.0	-
Crest of spillway	943.0	736,700
Top of conservation pool	909.0	382,000
Lowest gated outlet (invert)	775.0	240

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 588,400 acre-ft (725 hm³) Aug. 4, 1978, elevation, 930.61 ft (283.650 m); minimum observed since conservation pool first reached in April 1968, 338,600 acre-ft (417 hm³) Sept. 5, 1980, elevation, 903.54 ft (275.399 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 409,900 acre-ft (505 hm³) Oct. 17, elevation, 912.31 ft (278.072 m); minimum daily, 349,200 acre-ft (431 hm³) Oct. 5, elevation, 904.91 ft (275.817 m).

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

904.0	342,200	907.0	365,800	912.0	407,300
905.0	349,900	908.0	373,800	914.0	424,600
906.0	357,800	910.0	390,300		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	349900	405000	384700	362800	361500	360400	359000	357500	375900	372400	364200	361500
2	349700	405600	383800	362200	361600	360300	359000	357400	375000	372000	363900	361200
3	349500	405500	382900	361600	361100	360400	358700	357400	374200	371500	363800	361300
4	349500	404500	382000	361200	361100	360400	358900	357300	373500	371000	363700	361000
5	349200	403700	380600	361200	361000	360400	358400	357000	373300	370300	363400	360700
6	352700	403000	380200	361200	360700	360100	358100	357800	373200	369800	363400	360500
7	361600	402300	379500	361300	360600	359900	358000	357800	372700	368900	363100	360300
8	371500	402100	379000	361100	360800	359800	357700	357800	372400	368600	364300	360200
9	373800	401200	378300	361000	360600	359700	357800	357800	372100	368500	364600	360200
10	375000	400500	377700	361000	360500	359700	357600	357900	371900	368000	364600	359900
11	375900	399800	377200	360700	360500	359700	357400	357900	371700	367800	364600	359800
12	376700	399300	376600	361200	360300	359900	357300	358600	372000	367700	364600	359500
13	377500	398600	375900	361300	360300	359900	357300	370600	375600	367400	364600	359600
14	403400	398000	375400	361200	360300	359900	357100	381300	376300	367000	364500	359500
15	408300	397500	374600	361300	360300	359900	357200	382400	376800	366900	364300	359400
16	409400	396600	374100	361200	360200	359900	357000	382800	377200	366500	364200	360300
17	409900	396200	373300	361200	360100	359900	357000	383800	377200	366200	364100	360300
18	409900	395400	372300	361200	360100	359800	356800	383700	377100	365800	363900	360300
19	409500	394600	371600	361200	360200	359800	356800	383400	376900	365700	363900	360300
20	409000	393600	371000	361400	360100	359700	356900	383100	376800	365500	363800	360500
21	408600	392700	370500	361500	360100	359700	356600	382700	376300	365400	363500	360200
22	408300	391900	370100	361600	360200	359500	357100	382100	376000	365400	363400	359900
23	407400	391200	369100	361600	360300	359500	357300	381500	375700	365400	363200	359900
24	406800	390400	368200	361500	360300	359400	357600	381500	375400	365400	362900	359800
25	406400	389700	367700	361500	360400	359300	357500	381000	375000	365200	362600	359800
26	405400	388900	367000	361400	360300	359100	357600	380400	374600	365000	362600	359500
27	404600	388100	366200	361500	360300	359000	357600	379800	374100	365000	362200	359400
28	403800	387100	365400	361500	360300	358800	357700	379200	373700	364800	362100	359100
29	402900	386500	364600	361500	---	358900	357600	378600	373400	364600	362000	359100
30	402100	385700	364200	361800	---	358900	357600	377700	373000	364600	361900	358900
31	404300	---	363400	361400	---	358900	---	377100	---	364300	361600	---
MAX	409900	405600	384700	362800	361600	360400	359000	383800	377200	372400	364600	361500
MIN	349200	385700	363400	360700	360100	358800	356600	357000	371700	364300	361600	358900
(†)	911.65	909.45	906.71	906.45	906.31	906.14	905.98	908.40	907.90	906.82	906.48	906.14
(‡)	+54400	-18600	-22300	-2000	-1100	-1400	-1300	+19500	-4100	-8700	-2700	-2700

CAL YR 1981 MAX 471900 MIN 349200 ‡ -4200
WTR YR 1982 MAX 409900 MIN 349200 ‡ +9000

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

08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

WATER-QUALITY RECORDS

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

295148098115201 CANYON LAKE SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
25...	1415	1.00	393	7.9	12.5	8.6	82
25...	1417	10.0	393	7.9	12.0	8.6	81
25...	1420	20.0	393	7.9	11.5	8.4	78
25...	1422	30.0	393	7.9	11.5	8.4	78
25...	1425	44.0	394	7.9	11.5	8.4	78

295206098115501 CANYON LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN										
25...	1330	1.00	392	7.9	12.0	2.20	8.6	81	K6	K1
25...	1332	3.50	--	--	--	--	--	--	--	--
25...	1334	10.0	392	7.9	12.0	--	8.6	81	--	--
25...	1336	20.0	392	7.9	11.5	--	8.4	78	--	---
25...	1338	30.0	392	7.9	11.0	--	8.4	77	--	--
25...	1340	40.0	392	7.9	11.0	--	8.4	77	--	--
25...	1342	50.0	392	7.9	11.0	--	8.4	77	--	--
25...	1345	60.0	392	7.9	11.0	--	8.4	77	--	--
25...	1348	70.0	392	7.9	11.0	--	8.4	77	--	--
25...	1350	80.0	392	7.9	10.5	--	8.4	76	--	--
25...	1352	90.0	392	7.9	10.5	--	8.4	76	--	--
25...	1355	100	392	7.9	10.5	--	8.3	75	--	--
25...	1358	110	393	7.9	10.5	--	8.3	75	--	--
25...	1400	120	394	7.9	10.5	--	8.3	75	--	--
25...	1402	130	394	7.9	10.5	--	8.3	75	--	--
25...	1404	136	395	7.9	10.5	--	8.3	75	--	--
MAY										
19...	1155	1.00	382	7.9	22.5	3.1	7.9	93	<1	K11
19...	1156	5.10	--	--	--	--	--	--	--	--
19...	1157	10.0	382	7.9	22.5	--	7.9	93	--	--
19...	1159	20.0	382	7.9	21.5	--	7.8	91	--	--
19...	1201	30.0	382	7.8	21.0	--	7.7	89	--	--
19...	1203	40.0	389	7.7	19.0	--	7.3	80	--	--
19...	1205	50.0	403	7.6	17.0	--	6.9	73	--	--
19...	1207	60.0	403	7.5	16.0	--	6.8	71	--	--
19...	1209	70.0	403	7.5	14.5	--	6.8	68	--	--
19...	1210	80.0	403	7.5	14.0	--	6.8	67	--	--
19...	1212	90.0	403	7.5	13.5	--	6.8	67	--	--
19...	1214	100	403	7.4	13.0	--	6.2	60	--	--
19...	1216	110	403	7.4	13.0	--	6.0	58	--	--
19...	1218	120	403	7.4	12.5	--	5.8	56	--	--
19...	1220	130	403	7.4	12.5	--	5.6	54	--	--
19...	1222	140	403	7.4	12.5	--	5.6	54	--	--
19...	1224	150	403	7.5	12.5	--	5.6	54	--	--
AUG										
10...	1245	1.00	343	7.9	27.5	3.1	7.1	91	<1	3
10...	1249	10.0	343	7.9	27.5	--	7.1	92	--	--
10...	1252	20.0	343	7.8	27.0	--	6.9	86	--	--
10...	1256	30.0	343	7.7	26.5	--	6.8	86	--	--
10...	1300	40.0	365	7.1	25.0	--	1.6	20	--	--

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295206098115501 CANYON LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)
AUG								
10...	1304	50.0	383	7.1	21.0	1.2	14	--
10...	1307	60.0	388	7.1	19.5	1.9	21	--
10...	1311	70.0	390	7.2	18.5	2.9	32	--
10...	1315	80.0	391	7.1	17.5	3.1	33	--
10...	1319	90.0	391	7.1	17.0	3.0	32	--
10...	1322	100	396	7.0	16.5	2.1	22	--
10...	1326	110	400	7.0	16.0	1.6	16	--
10...	1330	120	410	7.0	15.5	.6	6	--
10...	1334	130	410	7.0	15.0	.1	1	--
10...	1337	140	410	7.0	15.0	.0	0	--
10...	1341	150	410	7.0	14.5	.0	0	200

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
JAN										
25...	200	26	49	18	9.3	.3	2.0	170	17	17
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	200	26	49	18	9.2	.3	2.1	180	15	13
MAY										
19...	190	17	45	18	9.7	.3	2.2	170	15	14
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	190	22	49	17	9.4	.3	2.3	170	21	14
AUG										
10...	160	22	35	18	9.7	.4	2.0	140	19	15
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--

DATE	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
AUG									
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	18	48	19	10	.3	1.9	180	19	13

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295206098115501 CANYON LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN									
25...	.2	7.9	234	.30	.56	.86	.010	<10	2
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	.30	.68	.98	.010	70	<10
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	11	220	.31	.59	.90	.010	<10	3
MAY									
19...	.3	9.3	216	.27	.76	1.0	.020	<9	<3
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	.33	.79	1.1	<.010	10	<10
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	11	226	.37	.96	1.3	.070	<9	22
AUG									
10...	.2	9.1	192	<.10	1.00	--	.020	8	1
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	.11	.70	.81	.030	30	20
10...	--	--	--	.26	.90	1.2	.010	20	10

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
AUG									
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	.33	.90	1.2	.030	30	50
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	13	232	.27	1.20	1.5	.020	160	130

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295210098142001 CANYON LAKE SITE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
25...	1040	1.00	392	7.9	12.5	9.1	87
25...	1042	10.0	392	7.9	12.0	9.1	86
25...	1043	20.0	392	7.9	12.0	9.1	86
25...	1044	30.0	392	7.9	11.5	8.9	83
25...	1046	40.0	392	7.9	11.5	8.9	83
25...	1048	50.0	392	7.9	11.0	8.8	81
25...	1050	60.0	392	7.9	11.0	8.8	81
25...	1052	66.0	394	7.9	11.0	8.8	81

295241098132101 CANYON LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
25...	1016	1.00	392	7.9	12.5	9.1	87
25...	1017	10.0	392	7.9	12.5	9.1	87
25...	1018	20.0	392	7.9	12.0	9.1	86
25...	1019	30.0	392	7.9	11.5	9.1	84
25...	1020	40.0	392	7.9	11.5	9.1	84
25...	1021	50.0	392	7.9	11.0	9.1	83
25...	1022	60.0	393	7.9	10.5	9.1	83
25...	1024	70.0	398	7.9	10.5	9.1	83
25...	1026	80.0	400	7.8	10.5	9.1	83
25...	1028	90.0	408	7.8	10.0	9.1	82
25...	1030	100	435	7.8	10.0	8.8	79
25...	1032	110	435	7.8	10.0	8.8	79
25...	1034	120	440	7.8	9.5	8.8	79
25...	1036	130	442	7.8	9.5	8.8	79
25...	1038	135	442	7.9	9.5	8.8	79
MAY							
19...	1020	1.00	380	7.9	22.5	7.8	92
19...	1025	10.0	380	7.9	22.5	--	--
19...	1030	20.0	380	7.9	22.0	7.8	92
19...	1035	30.0	383	7.7	20.5	7.6	86
19...	1040	40.0	390	7.5	19.0	--	--
19...	1045	50.0	400	7.4	17.0	6.6	70
19...	1050	60.0	404	7.4	15.5	--	--
19...	1055	70.0	405	7.3	14.5	6.3	63
19...	1100	80.0	406	7.3	14.0	--	--
19...	1105	90.0	406	7.3	13.5	--	--
19...	1110	100	406	7.3	13.5	5.7	56
19...	1115	110	406	7.3	13.0	--	--
19...	1120	120	406	7.2	13.0	--	--
19...	1125	135	406	7.2	12.5	5.2	50
AUG							
10...	1356	1.00	343	7.9	27.5	6.9	88
10...	1358	20.0	343	7.9	27.5	6.9	88
10...	1400	30.0	343	7.6	27.0	6.6	85
10...	1402	40.0	370	7.0	24.5	.8	9
10...	1404	50.0	386	7.0	21.0	.4	4
10...	1406	70.0	395	7.0	18.0	.7	7
10...	1408	90.0	400	7.0	17.0	.1	1
10...	1410	110	408	7.0	16.0	.1	1
10...	1412	134	410	7.2	15.0	.1	1

295235098133501 CANYON LAKE SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
25...	0959	1.00	393	7.9	12.0	9.5	90
25...	1001	10.0	393	7.9	12.0	9.5	90
25...	1003	20.0	393	7.9	12.0	9.5	90
25...	1005	30.0	393	7.9	11.5	9.6	90
25...	1007	40.0	393	7.9	11.5	9.6	90
25...	1010	51.0	395	8.0	11.5	9.3	87

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295240098152001 CANYON LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
25...	1100	1.00	392	7.9	12.5	9.0	86
25...	1102	10.0	392	7.9	12.0	9.0	85
25...	1104	20.0	392	7.9	11.5	8.9	83
25...	1106	30.0	392	7.9	11.5	8.8	82
25...	1108	40.0	392	7.9	11.0	8.8	81
25...	1110	50.0	392	7.9	11.0	8.8	81
25...	1112	60.0	395	7.9	11.0	8.8	81
25...	1114	69.0	395	7.9	11.0	8.8	81
MAY							
17...	1349	1.00	379	8.0	22.5	7.4	87
17...	1351	10.0	381	8.0	22.0	7.3	86
17...	1353	20.0	381	8.0	22.0	7.5	88
17...	1355	30.0	381	7.9	22.0	7.6	89
17...	1357	40.0	375	7.7	20.5	7.2	82
17...	1359	50.0	404	7.4	17.0	5.8	62
17...	1402	60.0	404	7.4	16.0	5.0	52
17...	1404	70.0	404	7.3	14.5	3.7	37
17...	1407	80.0	404	7.4	14.0	--	--
AUG							
09...	1325	1.00	345	7.9	29.5	7.5	100
09...	1327	10.0	345	7.9	28.5	7.5	97
09...	1329	20.0	345	7.7	28.0	7.5	97
09...	1331	30.0	355	7.1	26.0	5.0	62
09...	1333	40.0	374	6.5	24.5	1.2	15
09...	1335	50.0	393	6.4	21.0	1.2	14
09...	1337	60.0	400	6.5	20.0	1.2	13
09...	1339	70.0	400	6.5	18.5	1.2	13
09...	1341	76.0	400	6.6	18.0	1.2	13

295349098143101 CANYON LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
25...	1122	1.00	392	7.9	12.5	8.9	85
25...	1124	10.0	392	7.9	12.5	8.9	85
25...	1126	20.0	392	7.9	12.0	8.8	83
25...	1128	30.0	392	7.9	11.5	8.8	82
25...	1130	40.0	392	7.9	11.5	8.7	81
25...	1132	50.0	394	7.9	11.0	8.7	80
25...	1134	60.0	394	7.8	11.0	8.7	80
25...	1137	70.0	394	7.8	10.5	8.7	79
25...	1140	80.0	445	7.8	10.0	8.6	77
25...	1143	90.0	452	7.8	10.0	8.5	77
25...	1146	98.0	476	7.7	10.0	8.1	73
MAY							
17...	1259	1.00	381	8.0	22.5	7.5	88
17...	1302	10.0	381	8.0	22.5	7.2	85
17...	1306	20.0	372	7.8	22.0	7.2	85
17...	1310	30.0	353	7.6	20.5	6.4	73
17...	1314	40.0	404	7.5	16.5	5.7	60
17...	1318	50.0	404	7.4	15.5	6.8	69
17...	1322	60.0	404	7.3	15.0	6.3	64
17...	1326	70.0	404	7.2	14.0	4.5	45
17...	1330	80.0	404	7.1	14.0	3.5	35
17...	1334	91.0	404	7.1	14.0	3.4	34
AUG							
10...	1420	1.00	341	7.9	28.0	6.8	86
10...	1422	20.0	342	7.8	28.0	6.3	82
10...	1424	30.0	343	7.6	27.0	5.9	76
10...	1426	40.0	370	7.0	25.0	.9	11
10...	1428	50.0	391	7.0	21.0	.1	1
10...	1430	70.0	407	7.1	18.0	.1	1
10...	1432	88.0	417	7.2	17.5	.1	1

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295329098151001 CANYON LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN										
25...	1155	1.00	393	7.9	13.0	2.30	8.8	85	<1	K2
25...	1157	10.0	393	7.9	12.5	--	8.8	84	--	--
25...	1200	20.0	393	7.9	12.5	--	8.8	84	--	--
25...	1202	30.0	393	7.9	11.5	--	8.8	82	--	--
25...	1205	40.0	395	7.9	11.0	--	8.8	81	--	--
25...	1207	50.0	395	7.9	10.5	--	8.8	80	--	--
25...	1210	60.0	399	7.8	10.5	--	8.7	79	--	--
25...	1213	70.0	432	7.7	9.5	--	8.6	77	--	--
25...	1215	80.0	480	7.7	9.5	--	8.6	77	--	--
25...	1217	90.0	484	7.7	9.0	--	8.6	75	--	--
25...	1220	101	485	7.7	9.0	--	8.6	75	--	--
MAY										
17...	1211	1.00	379	8.0	22.5	1.60	7.1	84	K10	K20
17...	1215	10.0	379	8.0	22.5	--	6.9	81	--	--
17...	1218	20.0	379	7.9	22.0	--	6.9	80	--	--
17...	1221	30.0	379	7.9	22.0	--	6.9	80	--	--
17...	1225	40.0	357	7.5	19.5	--	6.2	69	--	--
17...	1228	50.0	404	7.4	16.5	--	5.3	55	--	--
17...	1232	60.0	404	7.3	15.5	--	4.7	48	--	--
17...	1235	70.0	411	7.2	14.5	--	4.4	44	--	--
17...	1239	80.0	411	7.2	13.5	--	4.2	41	--	--
17...	1242	90.0	411	7.2	13.5	--	3.6	35	--	--
17...	1246	102	411	7.4	13.5	--	3.2	31	--	--
AUG										
10...	1055	1.00	346	7.8	28.5	--	6.1	80	K2	K13
10...	1058	10.0	346	7.7	28.5	--	6.0	79	--	--
10...	1100	20.0	346	7.7	28.0	--	5.9	77	--	--
10...	1102	30.0	346	7.5	27.5	--	5.6	72	--	--
10...	1104	40.0	368	6.9	25.5	--	.8	10	--	--
10...	1106	45.0	389	6.9	25.5	--	.4	5	--	--
10...	1108	50.0	397	6.8	21.5	--	.2	2	--	--
10...	1110	60.0	410	6.8	19.5	--	.2	2	--	--
10...	1112	70.0	410	6.8	18.5	--	.1	1	--	--
10...	1114	80.0	410	6.9	17.5	--	.1	1	--	--
10...	1116	90.0	410	6.9	17.5	--	.1	1	--	--
10...	1118	98.0	410	7.0	17.0	--	.1	1	--	--

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)
JAN									
25...	190	10	48	17	8.9	.3	1.9	180	14
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	230	9	57	21	11	.3	1.5	220	21
MAY									
17...	180	10	44	17	9.2	.3	2.1	170	10
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	190	25	50	17	9.3	.3	2.2	170	20
AUG									
10...	160	22	35	18	9.9	.4	2.0	140	20
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	200	13	50	19	9.7	.3	1.9	190	17

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295329098151001 CANYON LAKE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN									
25...	14	11	223	.30	.44	.74	.010	<10	<1
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	.33	.46	.79	.010	10	<10
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	15	9.4	268	.86	.65	1.5	.010	12	6
MAY									
17...	13	9.1	207	.27	.79	1.1	<.010	<9	<3
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	.32	.93	1.3	<.010	50	10
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	.39	--	--	.100	50	10
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	14	11	226	.39	.81	1.2	<.010	14	15
AUG									
10...	13	9.8	192	<.10	.90	--	.030	28	4
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	<.10	.90	--	.010	50	20
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	<.10	.80	--	.010	60	90
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	13	13	238	<.10	.80	--	.010	150	190

295349098173701 CANYON LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN										
25...	1240	1.00	397	7.9	13.0	1.50	8.7	84	K1	K16
25...	1241	2.50	--	--	--	--	--	--	--	--
25...	1243	10.0	397	7.9	12.5	--	8.7	83	--	--
25...	1246	20.0	397	7.8	11.5	--	8.7	81	--	--
25...	1249	30.0	416	7.8	11.0	--	8.6	79	--	--
25...	1252	40.0	425	7.7	11.0	--	8.4	77	--	--
25...	1255	50.0	493	7.6	9.5	--	9.3	83	--	--
25...	1300	60.0	503	7.6	9.5	--	9.0	80	--	--
25...	1306	66.0	504	7.8	9.5	--	8.8	79	--	--
MAY										
17...	1120	1.00	394	7.8	23.0	1.00	6.3	75	K15	K28
17...	1122	1.70	--	--	--	--	--	--	--	--
17...	1124	10.0	405	7.7	22.5	--	5.9	69	--	--
17...	1128	20.0	358	7.6	22.0	--	5.5	64	--	--
17...	1132	30.0	354	7.4	20.5	--	5.2	58	--	--
17...	1136	40.0	315	7.3	20.0	--	5.1	57	--	--
17...	1142	50.0	364	7.2	18.0	--	5.0	54	--	--
17...	1147	60.0	442	7.2	16.0	--	4.0	41	--	--
17...	1154	70.0	500	7.2	15.0	--	.7	7	--	--
AUG										
10...	1136	1.00	360	7.8	28.5	1.20	6.1	80	K1	<1
10...	1138	10.0	360	7.8	28.5	--	6.0	79	--	--
10...	1140	20.0	362	7.6	28.0	--	5.4	70	--	--
10...	1142	30.0	375	7.2	27.5	--	3.0	38	--	--
10...	1144	40.0	393	6.8	24.5	--	.2	2	--	--
10...	1146	50.0	450	6.7	21.0	--	.2	2	--	--
10...	1148	60.0	450	6.7	19.5	--	.2	2	--	--
10...	1150	68.0	450	6.9	19.0	--	.2	2	--	--

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295349098173701 CANYON LAKE SITE FC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)
JAN									
25...	200	26	49	18	9.1	.3	2.0	170	14
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	240	13	61	22	11	.3	1.4	230	22
MAY									
17...	180	15	46	17	9.5	.3	2.1	170	9.0
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	210	14	56	18	10	.3	2.0	200	12
AUG									
10...	170	18	36	19	11	.4	2.0	150	21
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	220	0	60	17	8.9	.3	1.8	220	13

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN									
25...	12	11	217	.31	.55	.86	.010	<10	<1
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	.97	.72	1.7	.010	30	<10
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	15	9.5	280	1.0	.76	1.8	.010	<10	3
MAY									
17...	14	9.2	209	.27	1.10	1.4	<.010	<9	<3
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	.33	1.10	1.4	.020	40	<10
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	.44	.85	1.3	<.010	30	30
17...	10	11	240	.36	.89	1.3	.040	250	120
AUG									
10...	14	11	204	<.10	1.00	--	.020	10	3
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	<.10	.90	--	.010	70	30
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	<.10	1.00	--	.020	80	200
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	12	13	258	<.10	1.50	--	.020	210	260

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295206098115501 CANYON LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 25,82 1332		MAY 19,82 1156		AUG 10,82 1247	
TOTAL CELLS/ML	250		590		490	
DIVERSITY: DIVISION	1.0		1.3		1.0	
.CLASS	1.0		1.3		1.0	
..ORDER	1.8		1.9		1.6	
...FAMILY	1.8		2.6		1.6	
....GENUS	1.8		2.6		1.6	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..BACILLARIALES						
...NITZSCHIACEAE						
....NITZSCHIA	27	11	--	-	--	-
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	68#	28	29	5	--	-
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	130#	26
..NAVICULALES						
...NAVICULACEAE *						
....NAVICULA	41#	17	--	-	170#	35
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	29	5	--	-
...HYDRODICTYACEAE						
....PEDIASTRUM	--	-	200#	34	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	86	15	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	100#	17	--	-
CHRYSOPHYTA						
.CHRYSOPHYCEAE						
..OCHROMONADALES						
...DINOBRYACEAE						
....DINOBRYON	--	-	86	15	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	110#	44	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..DINOKONTAE						
...CERATIACEAE						
....CERATIUM	--	-	14	2	--	-
...PERIDINIACEAE						
....PERIDINIUM	--	-	43	7	190#	38

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

CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295349098173701 CANYON LAKE SITE FC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE	JAN 25,82		MAY 17,82		AUG 10,82	
TIME	1241		1122		1137	
TOTAL CELLS/ML	180		1100		1800	
DIVERSITY: DIVISION	0.9		2.4		1.7	
.CLASS	0.9		2.4		1.7	
..ORDER	0.9		2.8		2.6	
...FAMILY	0.9		3.2		2.6	
....GENUS	0.9		3.3		2.9	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..BACILLARIALES						
...NITZSCHIACEAE						
....NITZSCHIA	--	-	28	3	--	-
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	200#	18	290#	16
....MELOSIRA	--	-	--	-	230	13
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	43	2
..NAVICULALES						
...NAVICULACEAE						
....NAVICULA	55#	31	--	-	200	11
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	120#	69	--	-	--	-
....TETRAEDRON	--	-	42	4	360#	20
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	42	4	--	-
....OOCYSTIS	--	-	28	3	--	-
....TREUBARIA	--	-	14	1	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	140	13	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	84	8	58	3
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	170	10
CHRYSOPHYTA						
.CHRYSOPHYCEAE						
..OCHROMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	170#	15	--	-
...SYNURACEAE						
....MALLOMONAS	--	-	14	1	--	-
.XANTHOPHYCEAE						
..MISCHOCOCCALES						
...SCIADACEAE						
....OPHIOCYTIUM	--	-	14	1	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	70	6	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	210#	19	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	56	5	--	-
....TRACHELOMONAS	--	-	--	-	43	2
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..DINOKONTAE						
...PERIDINIACEAE						
....PERIDINIUM	--	-	--	-	360#	20

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

08167800 GUADALUPE RIVER AT SATTLER, TX

LOCATION.--Lat 29°51'32", long 98°10'47", Comal County, Hydrologic Unit 12100202, on right bank 200 ft (61 m) upstream from Horseshoe Falls, 0.8 mi (1.3 km) north of Sattler, 1.8 mi (2.9 km) downstream from Canyon Dam, 2.3 mi (3.7 km) upstream from Heiser Hollow, 11.2 mi (18.0 km) north of New Braunfels, and at mile 301.2 (484.6 km).

DRAINAGE AREA.--1,436 mi² (3,719 km²), of which 1,432 mi² (3,709 km²) is above Canyon Dam.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 742.24 ft (226.235 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Water-discharge records good. Flow completely regulated since July 21, 1962, by Canyon Lake (station 08167700) 1.8 mi (2.9 km) upstream. Small diversions above station for irrigation. Gage-height telemeter located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years (water years 1962-82) since regulation began at Canyon Lake, 405 ft³/s (11.47 m³/s), 293,400 acre-ft/yr (362 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft³/s (589 m³/s) Oct. 29, 1960, gage height, 12.20 ft (3.719 m). Maximum discharge since closure of Canyon Dam on July 21, 1962, 5,850 ft³/s (166 m³/s) Aug. 5, 1978, gage height, 8.31 ft (2.533 m); no flow July 31 to Aug. 6, 1962 (result of closure of Canyon Dam), and part of Jan. 29, 30, Feb. 1, 1965 (result of closure while constructing present control).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1869 (stage unknown) has not been exceeded since that date; flood in July 1900 (stage unknown) exceeded 39 ft (11.9 m); maximum stage since at least 1904, 39 ft (11.9 m) in July 1932 and June 1935, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 996 ft³/s (26.8 m³/s) Oct. 15-31, gage height, 6.12 ft (1.865 m); minimum daily, 79 ft³/s (2.24 m³/s) Sept. 8-12, 15-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	241	206	772	635	217	241	241	212	755	403	101	92
2	241	206	772	635	269	241	241	212	755	408	101	92
3	241	588	772	635	287	241	241	212	755	410	101	92
4	241	936	772	416	237	241	241	212	580	410	102	91
5	241	936	772	244	237	241	241	212	405	410	99	90
6	245	868	772	244	237	241	241	214	405	410	99	90
7	241	772	745	244	237	241	241	212	405	410	99	86
8	241	772	657	244	237	241	241	212	400	338	106	79
9	243	772	642	244	237	242	241	212	367	215	111	79
10	242	772	642	244	237	244	241	212	313	212	100	79
11	244	772	642	242	237	244	241	212	313	212	99	79
12	244	764	642	243	237	244	241	212	313	212	99	79
13	244	763	642	244	234	244	241	250	313	212	99	80
14	244	763	642	244	234	244	228	365	313	212	99	80
15	524	763	637	244	234	244	212	746	313	212	98	79
16	946	763	635	244	236	244	212	752	318	212	130	79
17	946	763	635	244	237	244	212	755	318	212	93	79
18	946	763	635	244	237	244	212	755	349	212	93	79
19	946	763	635	244	237	244	212	755	400	153	93	79
20	946	763	635	244	237	244	212	755	400	105	93	79
21	946	763	635	244	237	244	212	755	400	93	93	79
22	946	763	635	241	239	244	212	755	400	100	92	79
23	946	763	635	241	241	243	212	755	400	102	92	79
24	946	763	635	241	241	241	212	755	400	104	92	79
25	946	763	635	241	241	241	212	755	402	104	92	79
26	946	767	635	222	241	241	212	755	405	104	92	79
27	946	772	635	266	241	241	212	755	405	104	92	79
28	946	772	635	268	241	241	212	755	405	102	92	79
29	946	772	635	265	---	241	212	755	405	102	92	79
30	946	772	635	303	---	241	212	755	291	101	92	79
31	562	---	635	244	---	241	---	755	---	101	92	---
TOTAL	18669	22138	20683	8998	6714	7513	6753	15984	12403	6697	3028	2452
MEAN	602	738	667	290	240	242	225	516	413	216	97.7	81.7
MAX	946	936	772	635	287	244	241	755	755	410	130	92
MIN	241	206	635	222	217	241	212	212	291	93	92	79
AC-FT	37030	43910	41020	17850	13320	14900	13390	31700	24600	13280	6010	4860

CAL YR 1981 TOTAL 287295 MEAN 787 MAX 5420 MIN 139 AC-FT 569800
WTR YR 1982 TOTAL 132032 MEAN 362 MAX 946 MIN 79 AC-FT 261900

08167800 GUADALUPE RIVER AT SATTLER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
OCT 21...	1404	946	333	--	23.5	--	--	--	--	--	--
JAN 25...	1522	241	394	8.2	10.5	5	4.9	10.3	94	.7	190
MAY 17...	1358	769	408	--	12.5	--	--	--	--	--	--
19...	1448	746	403	7.9	12.5	5	.70	10.4	100	1.4	190
JUN 29...	0838	405	406	--	13.5	--	--	--	--	3.0	--
AUG 09...	1000	99	390	7.9	14.5	5	1.7	10.0	100	1.0	200

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 21...	--	--	--	--	--	--	150	--	--	--	--
JAN 25...	24	48	18	9.4	.3	2.0	170	16	13	.2	11
MAY 17...	--	--	--	--	--	--	--	--	--	--	--
19...	10	48	17	9.2	.3	2.2	180	11	10	.3	11
JUN 29...	--	--	--	--	--	--	--	--	--	--	--
AUG 09...	29	50	18	9.7	.3	2.0	170	20	14	.2	11

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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 21...	--	--	--	--	--	--	--	--	--	--
JAN 25...	220	35	5	<.020	.30	.120	.40	.52	.010	--
MAY 17...	--	--	--	--	--	--	--	--	--	--
19...	217	18	2	--	--	--	--	--	--	2.4
JUN 29...	--	--	--	--	--	--	--	--	--	--
AUG 09...	227	7	3	<.020	.33	.100	.60	.70	.010	2.8

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 25...	1522	1	31	<1	<10	1	<10
MAY 19...	1448	1	32	<3	<10	1	<9
AUG 09...	1000	1	34	<1	<10	1	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 25...	2	2	<.1	<1	<1	<3
MAY 19...	1	<3	<.1	<1	<1	<12
AUG 09...	<1	34	<.1	<1	<1	<3

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); 20 years (water year 1963-82) regulated, 497 ft³/s (14.08 m³/s), 360,100 acre-ft/yr (444 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, 6,200 ft³/s (176 m³/s) Oct. 31 at 1400 hours, gage height, 6.91 ft (2.106 m); minimum daily, 92 ft³/s (2.61 m³/s) Sept. 9, 10, 22, 23, 26-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	302	410	859	678	258	269	263	226	882	368	119	105
2	299	357	859	678	300	271	266	227	882	410	118	107
3	299	535	859	678	315	275	263	227	882	410	118	106
4	299	1120	859	587	275	275	263	225	802	409	123	109
5	299	1120	859	287	276	272	261	228	468	406	120	108
6	325	1080	859	287	275	270	257	324	463	403	118	105
7	315	917	857	283	275	269	262	259	458	402	119	104
8	317	938	734	281	275	269	261	249	457	399	119	97
9	328	917	698	281	274	270	263	244	451	235	136	92
10	318	911	698	281	275	271	263	242	372	223	144	92
11	318	908	698	281	275	270	262	242	365	223	124	94
12	312	906	697	295	275	269	260	289	380	223	119	94
13	312	906	692	283	275	269	260	732	365	222	118	99
14	315	906	694	281	275	269	260	435	358	222	117	112
15	374	906	688	281	275	269	234	935	357	222	117	97
16	1030	906	688	281	269	267	234	941	363	221	136	98
17	1060	894	688	281	269	270	221	927	351	221	119	99
18	1060	889	688	282	269	269	220	919	351	226	108	96
19	1060	880	688	285	269	269	223	917	428	218	109	94
20	1060	876	688	287	276	269	225	914	426	132	107	103
21	1060	871	688	287	270	269	223	913	423	122	106	94
22	1060	870	686	287	269	267	234	906	420	117	106	92
23	1050	870	680	287	269	270	227	906	418	125	106	92
24	1050	870	678	287	269	269	229	924	418	125	102	94
25	1050	868	680	287	269	265	223	906	416	123	103	93
26	1050	864	679	274	276	264	223	904	414	121	104	92
27	1050	859	679	307	269	269	223	905	413	121	102	92
28	1050	859	679	303	269	264	223	900	410	121	102	92
29	1050	859	678	305	---	265	223	894	410	121	101	92
30	1060	858	684	330	---	268	225	892	363	120	99	92
31	1610	---	680	281	---	265	---	888	---	119	103	---
TOTAL	22142	25930	22541	10393	7685	8336	7274	19640	13966	7130	3542	2936
MEAN	714	864	727	335	274	269	242	634	466	230	114	97.9
MAX	1610	1120	859	678	315	275	266	941	882	410	144	112
MIN	299	357	678	274	258	264	220	225	351	117	99	92
AC-FT	43920	51430	44710	20610	15240	16530	14430	38960	27700	14140	7030	5820

CAL YR 1981 TOTAL 331166 MEAN 907 MAX 5920 MIN 223 AC-FT 656900
WTR YR 1982 TOTAL 151515 MEAN 415 MAX 1610 MIN 92 AC-FT 300500

08169000 COMAL RIVER AT NEW BRAUNFELS, TX

LOCATION.--Lat 29°42'21", long 98°07'20", Comal County, Hydrologic Unit 12100202, on right bank 200 ft (61 m) upstream from San Antonio Street viaduct in New Braunfels and 1.1 mi (1.8 km) upstream from mouth.

DRAINAGE AREA.--130 mi² (337 km²). Normal flow of river comes from springs; drainage area not applicable.

PERIOD OF RECORD.--1882 to current year (1882 to November 1927, discharge measurements only).

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Concrete control since Oct. 1, 1955. Datum of gage is 582.80 ft (177.637 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. The flow from Comal Springs emerges from the Edwards and associated limestones in the Balcones Fault Zone. Except during periods of rainfall, flow of river is primarily from Comal Springs about 1.0 mi (1.6 km) upstream. Diurnal fluctuations from steam powerplant 0.5 mi (0.8 km) upstream. Flow is affected at times by discharge from flood-detention pools of five floodwater-retarding structures with combined detention capacity of 17,580 acre-ft (21.7 hm³). These structures control runoff from 74.6 mi² (193 km²). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--50 years (water years 1933-82), 299 ft³/s (8.468 m³/s), 216,600 acre-ft/yr (267 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,800 ft³/s (1,720 m³/s) May 11, 1972, gage height, 36.55 ft (11.140 m), from floodmark, from rating curve extended above 13,000 ft³/s (368 m³/s) on basis of contractedopening 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)
Oct. 31	1500	1,110	31.4	5.69	1.734
May 6	0800	*5,040	143	11.50	3.505
May 13	1530	1,140	32.3	5.75	1.753

Minimum daily discharge, 201 ft³/s (5.69 m³/s) Sept. 13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	304	485	337	330	326	304	290	290	322	279	234	211
2	299	418	335	330	326	308	294	294	322	274	234	208
3	299	355	340	330	326	308	286	296	322	274	230	208
4	299	335	335	344	322	308	290	294	317	270	226	208
5	299	330	335	330	322	304	290	294	317	278	226	208
6	308	335	340	330	322	304	286	1520	312	278	219	208
7	308	335	340	330	322	304	290	335	312	274	219	208
8	308	365	340	326	322	304	290	312	304	274	222	211
9	308	355	340	330	322	304	290	312	304	266	234	211
10	308	345	335	330	322	304	294	312	299	266	230	204
11	308	335	335	335	322	299	290	312	294	266	238	204
12	308	335	335	335	322	304	290	362	312	262	238	204
13	308	335	335	326	312	304	290	615	304	262	230	201
14	308	330	340	330	312	304	286	360	308	262	234	215
15	308	335	340	330	308	299	286	335	308	262	234	208
16	308	335	335	326	308	294	290	330	304	258	234	215
17	312	335	340	326	299	294	282	330	308	258	226	215
18	312	335	335	326	308	294	290	322	299	254	230	211
19	312	335	335	326	304	290	294	322	299	254	230	215
20	312	335	335	330	312	286	290	326	299	250	226	261
21	312	335	335	326	308	290	290	322	299	250	226	219
22	322	340	335	326	308	290	294	322	290	250	226	222
23	317	335	335	326	304	290	294	322	290	246	226	222
24	317	335	340	326	307	290	294	335	290	250	215	219
25	317	335	335	326	304	290	294	326	282	246	219	222
26	317	335	335	322	308	290	299	330	282	246	226	222
27	330	335	335	322	304	294	299	326	278	242	215	222
28	317	335	330	322	304	290	294	322	282	238	215	219
29	317	335	330	322	---	294	294	322	274	238	211	219
30	317	345	335	326	---	290	294	322	278	238	211	215
31	547	---	330	322	---	290	---	322	---	234	211	---
TOTAL	9866	10368	10417	10166	8786	9218	8734	11444	9011	7999	6995	6435
MEAN	318	346	336	328	314	297	291	369	300	258	226	215
MAX	547	485	340	344	326	308	299	1520	322	279	238	261
MIN	299	330	330	322	299	286	282	290	274	234	211	201
AC-FT	19570	20560	20660	20160	17430	18280	17320	22700	17870	15870	13870	12760

CAL YR 1981 TOTAL 118208 MEAN 324 MAX 1510 MIN 270 AC-FT 234500
WTR YR 1982 TOTAL 109439 MEAN 300 MAX 1520 MIN 201 AC-FT 217100

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 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	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)
OCT 20...	1606	429	7.7	23.0	8.0	95	1.0	200	5
JAN 14...	1304	514	7.9	13.0	9.4	90	.8	250	29
FEB 23...	1507	498	8.0	20.5	8.9	101	1.1	240	20
APR 05...	1415	509	7.8	22.0	7.9	93	2.0	230	15
JUN 29...	1326	423	8.4	27.5	11.5	149	8.2	200	25
AUG 11...	0900	474	8.0	27.5	8.0	102	7.4	220	17

DATE	CALCIUM DISSOLVED (MC/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MC/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT 20...	55	14	9.4	.3	2.5	190	5.0	19	.2
JAN 14...	70	18	15	.4	1.8	220	24	27	.3
FEB 23...	68	17	14	.4	1.7	220	24	18	.2
APR 05...	66	17	15	.5	1.9	220	22	19	.1
JUN 29...	54	17	13	.4	1.9	180	22	17	.2
AUG 11...	59	17	16	.5	1.7	200	25	24	.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 20...	12	202	.73	.040	.77	.180	.49	.67	.050
JAN 14...	12	300	--	<.020	1.2	.170	.68	.85	.040
FEB 23...	12	287	--	<.020	1.0	.290	.38	.67	.040
APR 05...	12	285	--	<.020	1.1	.160	.44	.60	.040
JUN 29...	11	256	.28	.020	.30	.090	2.0	2.10	.130
AUG 11...	12	275	.60	.030	.63	.120	1.4	1.50	.090

08170000 SAN MARCOS RIVER SPRING FLOW AT SAN MARCOS, TX

LOCATION.--Lat 29°52'06", long 97°55'38", Hays County, Hydrologic Unit 12100203, on left bank 0.7 mi (1.1 km) downstream from bridge on Interstate Highway 35 and U.S. Highway 81, 1.2 mi (1.9 km) southeast of courthouse in San Marcos, and 2.1 mi (3.4 km) upstream from Blanco River.

DRAINAGE AREA.--93.0 mi² (240.9 km²). Normal flow of river comes from springs, drainage area of stream not applicable.

PERIOD OF RECORD.--May 1956 to current year. June 1915 to January 1916, March 1916 to September 1921, and May to September 1956, published as San Marcos River at San Marcos; records include some surface runoff. Periodic measurements of spring flow were made at this location outside periods of records since Nov. 14, 1894, and are published as miscellaneous measurements.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 536.82 ft (163.623 m) National Geodetic Vertical Datum of 1929. June 10, 1915, to Jan. 19, 1916, nonrecording gage at site 1.2 mi (1.9 km) upstream, and Mar. 13, 1916, to Sept. 7, 1921, water-stage recorder near present site, datum relations unknown.

REMARKS.--Records good. Flow slightly regulated by utilities dam about 1.5 mi (2.4 km) upstream. Entire flow of river is from San Marcos Springs, about 1.8 mi (2.9 km) upstream, except during period of local runoff. Springs emerge from the Edwards and associated limestones in the Balcones Fault Zone. Small diversion for operation of State fish hatchery, some of which is returned above gage. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--26 years (water years 1957-82), 167 ft³/s (4.729 m³/s), 121,000 acre-ft/yr (149 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily spring discharge (estimated), 350 ft³/s (9.91 m³/s) June 20, 1981; maximum discharge, 76,600 ft³/s (2,170 m³/s) May 15, 1970, gage height, 35.12 ft (10.705 m); minimum daily spring discharge, 46 ft³/s (1.30 m³/s) Aug. 15, 16, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1913, 38.6 ft (11.77 m) Sept. 10, 1921 (from floodmark, backwater from Blanco River), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum daily spring discharge, 201 ft³/s (5.692 m³/s) Oct. 3; maximum gage height, 14.27 ft (4.349 m) May 13 at 1500 hours (flood runoff), minimum daily spring discharge, 116 ft³/s (3.29 m³/s) Aug. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198	183	164	164	146	139	130	124	137	132	128	119
2	199	184	166	164	147	136	130	124	136	129	126	116
3	201	183	166	163	147	137	127	122	135	130	126	116
4	198	181	166	161	146	136	127	121	136	128	124	119
5	197	179	166	159	146	135	126	120	135	129	123	122
6	196	176	166	159	147	132	122	122	135	127	123	123
7	196	178	166	158	146	132	124	121	133	126	125	125
8	196	179	166	157	147	130	124	127	133	126	125	124
9	197	179	165	159	145	130	125	125	132	128	126	123
10	196	178	164	158	145	131	125	123	130	128	127	121
11	196	176	165	155	145	132	125	121	131	129	126	121
12	196	176	164	154	141	132	125	125	129	129	126	119
13	195	176	163	155	141	135	125	135	125	130	124	121
14	195	177	164	154	142	134	125	172	128	130	123	122
15	194	176	163	154	141	135	125	170	129	126	123	123
16	192	175	163	154	141	134	125	160	130	126	122	122
17	193	175	162	152	140	135	123	154	129	127	122	121
18	191	176	163	152	139	132	125	153	130	128	119	122
19	190	174	163	152	138	131	124	148	130	131	119	124
20	188	171	164	153	140	129	124	146	130	130	119	124
21	187	172	164	153	140	129	124	147	129	128	120	123
22	189	173	166	153	138	130	124	146	130	127	120	124
23	188	171	166	150	138	131	124	144	132	126	119	124
24	187	171	166	150	136	131	124	143	131	128	118	119
25	186	171	168	147	138	131	124	142	132	129	120	123
26	183	168	167	146	139	130	122	141	132	128	119	123
27	182	168	165	148	139	135	122	140	131	127	119	122
28	182	169	165	148	139	131	122	141	130	127	120	119
29	181	167	164	149	---	132	123	140	129	128	120	117
30	181	166	163	150	---	132	124	139	129	126	116	117
31	183	---	163	146	---	131	---	138	---	128	118	---
TOTAL	5933	5248	5106	4777	3977	4110	3739	4274	3938	3971	3785	3638
MEAN	191	175	165	154	142	133	125	138	131	128	122	121
MAX	201	184	168	164	147	139	130	172	137	132	128	125
MIN	181	166	162	146	136	129	122	120	125	126	116	116
AC-FT	11770	10410	10130	9480	7890	8150	7420	8480	7810	7880	7510	7220

CAL YR 1981 TOTAL 66042 MEAN 181 MAX 350 MIN 117 AC-FT 131000
WTR YR 1982 TOTAL 52496 MEAN 144 MAX 201 MIN 116 AC-FT 104100

08171000 BLANCO RIVER AT WIMBERLEY, TX

LOCATION.--Lat 29°59'39", long 98°05'19", Hays County, Hydrologic Unit 12100203, on left bank at downstream side of highway, near left end of bridge on Ranch Road 12, 0.3 mi (0.5 km) southeast of Wimberley, 2,200 ft (671 m) downstream from Cypress Creek, and at mile 29.0 (46.7 km).

DRAINAGE AREA.--355 mi^2 (919 km^2).

PERIOD OF RECORD.--August 1924 to September 1926, June 1928 to current year.

REVISED RECORDS.--WSP 1562: 1929, 1930-31(M), 1935-36(M), 1938(M), 1941-42(M), 1947(M), 1949(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 797.23 ft (242.996 m) National Geodetic Vertical Datum of 1929. Aug. 6, 1924, to Sept. 30, 1926, nonrecording gage at site 1,030 ft (314 m) upstream at datum 5.00 ft (1.524 m) higher. Recording gage June 6, 1928, to June 12, 1975, at site 1,000 ft (305 m) upstream at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records good. Numerous small diversions above station. Flow is affected at times by discharge from flood-detention pool of a floodwater-retarding structure with a detention capacity of 185 acre-ft (228,000 m^3). This structure controls runoff from 0.61 mi^2 (1.58 km^2) in the Town Creek drainage basin. Several observations of water temperature were made during the year. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--56 years (water years 1925-26, 1929-82), 124 ft^3/s (3.512 m^3/s), 4.74 in/yr (120 mm/yr), 89,840 acre-ft/yr (111 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 113,000 ft^3/s (3,200 m^3/s) May 28, 1929, gage height, 33.9 ft (10.33 m), present site and datum, from floodmarks, from rating curve extended above 30,000 ft^3/s (850 m^3/s) on basis of slope-area measurements of 95,000 and 113,000 ft^3/s (2,690 and 3,200 m^3/s); minimum, 0.6 ft^3/s (0.017 m^3/s) Aug. 16, 1956.

Maximum stage since at least 1869, that of May 28, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1869 reached a stage of 26 ft (7.9 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft^3/s (51.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 6	1615	10,500	297	12.29	3.746	May 13	1630	13,200	374	13.58	4.139
Oct. 7	1300	*14,600	413	14.29	4.356	Aug. 8	2300	4,860	138	8.99	2.740
Oct. 31	1800	3,100	87.8	7.68	2.341						

Minimum daily discharge, 25 ft^3/s (0.71 m^3/s) Sept. 18, 19.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	440	103	72	59	56	45	59	144	65	39	26
2	46	225	101	73	62	56	45	58	138	63	37	27
3	44	189	100	70	59	56	44	56	133	61	35	28
4	44	168	97	69	56	56	43	57	129	61	35	34
5	45	159	93	68	56	54	44	56	123	60	34	28
6	2640	153	94	68	54	53	41	70	119	58	33	27
7	3090	145	94	64	55	53	41	57	116	56	33	27
8	629	150	94	62	56	53	43	60	110	54	247	27
9	343	176	92	62	56	54	46	68	109	53	192	26
10	242	145	90	61	54	54	42	69	103	55	66	26
11	201	143	91	58	55	54	39	65	100	56	51	26
12	171	141	87	68	56	54	40	71	108	56	47	26
13	200	137	83	61	55	53	41	4380	98	55	45	32
14	243	135	84	60	56	52	40	901	99	55	41	28
15	196	129	80	63	56	50	39	504	97	54	39	26
16	157	126	81	61	56	49	38	413	103	52	39	27
17	145	123	80	58	57	46	36	368	94	51	38	29
18	131	123	77	61	58	45	36	345	92	49	37	25
19	121	120	75	62	57	45	37	301	84	48	35	25
20	116	112	77	63	59	45	45	270	84	48	35	34
21	117	111	79	61	58	44	38	248	84	47	35	30
22	118	111	80	61	57	44	53	234	83	45	34	28
23	121	112	77	70	57	46	56	217	77	46	33	28
24	126	110	77	62	58	45	60	227	81	44	31	32
25	117	108	75	63	57	45	66	234	80	43	30	33
26	112	106	76	62	58	44	68	200	78	43	30	32
27	107	102	76	63	55	46	65	184	74	42	29	31
28	106	101	74	63	55	45	63	175	71	40	29	30
29	110	99	72	63	---	46	61	173	72	40	29	29
30	110	102	71	66	---	47	61	163	66	41	27	29
31	675	---	72	59	---	47	---	151	---	39	26	---
TOTAL	10669	4301	2602	1977	1587	1537	1416	10434	2949	1580	1491	856
MEAN	344	143	83.9	63.8	56.7	49.6	47.2	337	98.3	51.0	48.1	28.5
MAX	3090	440	103	73	62	56	68	4380	144	65	247	34
MIN	44	99	71	58	54	44	36	56	66	39	26	25
CFSM	.97	.40	.24	.18	.16	.14	.13	.95	.28	.14	.14	.08
IN.	1.12	.45	.27	.21	.17	.16	.15	1.09	.31	.17	.16	.09
AC-FT	21160	8530	5160	3920	3150	3050	2810	20700	5850	3130	2960	1700

CAL YR 1981	TOTAL 69991	MEAN 192	MAX 5490	MIN 35	CFSM .54	IN 7.33	AC-FT 138800			
WTR YR 1982	TOTAL 41399	MEAN 113	MAX 4380	MIN 25	CFSM .32	IN 4.34	AC-FT 82110			

08171300 BLANCO RIVER NEAR KYLE, TX

LOCATION.--Lat 29°58'45", long 97°54'35", Hays County, Hydrologic Unit 12100203, on left bank 800 ft (240 m) downstream from Tarbutton Ranch House (Hatchett Ranch), 2.2 mi (3.5 km) southwest of Kyle, 4.2 mi (6.8 km) downstream from Halifax Creek, and 6.3 mi (10.1 km) upstream from bridge on U.S. Highway 81.

DRAINAGE AREA.--412 mi^2 (1,067 km^2).

PERIOD OF RECORD.--May 1956 to current year.

REVISED RECORDS.--WSP 1923: 1957-58, 1960(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 620.12 ft (189.013 m) Corps of Engineers datum.

REMARKS.--Records good. Small diversions above station for irrigation. Most of the low flow of the Blanco River enters the Edwards and associated limestones in the Balcones Fault Zone which crosses the basin upstream from this station and below the station at Wimberley. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08171000. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--26 years (water years 1957-82), 151 ft^3/s (4.276 m^3/s), 4.98 in/yr (126 mm/yr), 109,400 acreft/yr (135 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,000 ft^3/s (2,780 m^3/s) May 2, 1958, gage height, 36.3 ft (11.06 m); from floodmark, from rating curve extended above 37,000 ft^3/s (1,050 m^3/s) on basis of slope-area measurement of 139,000 ft^3/s (3,940 m^3/s) and slope-conveyance study; no flow at times in 1956-57, 1963-65, 1967, 1971, and 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 40 ft (12.2 m) in May 1929, from information by local residents, discharge, 139,000 ft^3/s (3,940 m^3/s). Flood of Sept. 11, 1952, reached a stage of 38.0 ft (11.58 m), discharge, 115,000 ft^3/s (3,260 m^3/s).

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 6	1915	12,500	354	17.91	5.459	Oct. 31	2215	2,600	73.6	10.83	3.301
Oct. 7	1615	15,800	447	19.38	5.907	May 13	1630	*16,300	462	19.58	5.968

Minimum discharge, 2.6 ft^3/s (0.074 m^3/s) Sept. 11-13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	650	91	68	52	43	35	43	109	46	12	3.8
2	28	222	91	69	55	43	35	42	103	41	11	3.5
3	27	184	89	69	57	44	33	39	99	38	11	3.3
4	27	162	88	65	52	44	31	39	95	36	10	5.4
5	26	147	84	62	53	43	32	38	90	35	10	6.6
6	2450	141	85	61	53	43	30	53	84	35	9.6	4.5
7	3390	134	85	60	51	42	30	48	82	33	9.1	3.8
8	803	139	85	58	51	41	32	39	79	32	8.9	3.5
9	384	156	84	57	52	41	34	41	76	30	287	3.2
10	256	140	82	58	51	41	45	48	74	29	62	3.0
11	205	131	82	57	51	41	33	49	70	27	31	2.7
12	181	129	82	67	50	41	30	54	80	26	21	2.7
13	178	125	80	64	49	39	30	5420	74	26	17	2.7
14	198	123	81	60	49	38	29	1870	70	26	15	3.8
15	212	120	79	59	50	38	29	562	65	25	13	6.2
16	158	116	78	60	50	37	29	403	70	24	12	3.5
17	140	113	76	59	48	37	28	329	65	22	11	3.0
18	132	110	75	58	48	34	26	297	62	21	10	3.4
19	122	108	74	58	47	34	28	255	58	20	10	3.2
20	115	104	75	59	48	33	32	223	55	20	9.7	3.2
21	114	100	76	59	48	33	36	202	55	20	9.1	4.9
22	118	100	77	58	45	33	38	186	58	20	8.3	4.5
23	117	101	74	60	43	36	56	172	59	21	7.6	3.6
24	127	99	73	59	43	36	49	178	53	21	6.9	3.7
25	118	98	71	57	45	35	52	178	51	17	6.4	3.8
26	113	96	71	55	50	34	51	169	50	16	5.8	3.7
27	108	94	71	55	45	38	50	148	49	15	5.7	3.6
28	104	92	71	56	43	38	47	137	47	14	5.4	3.4
29	103	91	70	56	---	37	44	130	51	14	5.0	3.0
30	109	92	70	59	---	39	43	125	45	13	4.8	3.0
31	352	---	70	57	---	37	---	118	---	13	4.6	---
TOTAL	10543	4217	2440	1859	1379	1193	1097	11635	2078	776	649.9	112.2
MEAN	340	141	78.7	60.0	49.3	38.5	36.6	375	69.3	25.0	21.0	3.74
MAX	3390	650	91	69	57	44	56	5420	109	46	287	6.6
MIN	26	91	70	55	43	33	26	38	45	13	4.6	2.7
CFSM	.83	.34	.19	.15	.12	.09	.09	.91	.17	.06	.05	.009
IN.	.95	.38	.22	.17	.12	.11	.10	1.05	.19	.07	.06	.01
AC-FT	20910	8360	4840	3690	2740	2370	2180	23080	4120	1540	1290	223

CAL YR 1981	TOTAL	80169.0	MEAN 220	MAX 7150	MIN 26	CFSM .53	IN 7.24	AC-FT 159000		
WTR YR 1982	TOTAL	37979.1	MEAN 104	MAX 5420	MIN 2.7	CFSM .25	IN 3.43	AC-FT 75330		

08172000 SAN MARCOS RIVER AT LULING, TX

LOCATION.--Lat 29°39'54", long 97°38'59", Caldwell-Guadalupe County line, Hydrologic Unit 12100203, on left bank 390 ft (119 m) downstream from bridge on State Highway 80, 1.0 mi (1.6 km) south of U.S. Post Office at Luling, and 9.4 mi (15.1 km) upstream from Plum Creek.

DRAINAGE AREA.--838 mi² (2,170 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 958: 1940. WSP 1312: 1940(M), 1945(M), 1947(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 322.05 ft (98.161 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is affected at times by discharge from flood-detention pools of 17 flood-water-retarding structures with a combined detention capacity of 18,250 acre-ft (22.5 hm³). These structures control runoff from 71.3 mi² (184.7 km²) in the Town and York Creeks drainage basins. Rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--43 years, 372 ft³/s (10.54 m³/s), 269,500 acre-ft/yr (332 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft³/s (1,610 m³/s) Sept. 12, 1952, gage height, 34.95 ft (10.653 m); minimum daily, 43 ft³/s (1.22 m³/s) Aug. 12, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, 40.4 ft (12.31 m) in 1869 or 1870, from information by State Department of Highways and Public Transportation. Flood of May 29, 1929, reached a stage of 37.1 ft (11.31 m) and is the second highest known.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 7	1900	4,060	115	20.44	6.230	Oct. 31	2300	*9,120	258	28.34	8.638
Oct. 8	1600	4,500	127	21.73	6.623	May 14	1200	8,680	246	28.02	8.540

Minimum discharge, 75 ft³/s (2.12 m³/s) Sept. 18.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	4910	263	240	207	205	179	183	381	205	139	116
2	234	1480	264	238	206	202	177	183	359	203	138	116
3	235	1090	261	240	206	203	172	180	343	192	135	116
4	238	914	259	237	205	205	167	176	329	187	132	116
5	237	756	256	233	203	206	166	172	319	183	130	116
6	487	631	261	230	201	205	162	549	304	200	128	116
7	2610	562	264	229	200	203	161	722	284	181	127	116
8	3100	697	260	223	201	202	163	359	267	176	128	116
9	1210	1820	255	221	201	204	162	251	274	172	130	116
10	781	699	252	220	200	205	168	216	264	171	239	115
11	609	536	252	217	201	207	171	205	259	169	209	115
12	536	456	251	225	203	207	171	1380	257	167	171	116
13	492	422	247	243	200	207	167	2610	253	165	153	123
14	469	401	247	230	202	206	165	7310	248	163	143	158
15	897	376	248	224	206	205	163	2460	239	163	135	149
16	761	354	246	220	210	203	163	1310	247	158	132	140
17	549	339	241	216	216	198	161	1080	241	158	129	118
18	487	330	238	217	238	195	161	877	235	158	130	82
19	443	318	238	217	181	189	164	743	229	156	125	99
20	408	301	240	216	211	186	165	651	225	158	123	145
21	385	290	244	219	214	178	169	582	218	156	121	128
22	377	285	245	220	206	170	170	534	227	154	121	115
23	374	285	238	218	199	172	190	502	246	152	120	115
24	360	282	241	212	200	173	193	496	230	151	120	116
25	363	279	240	212	201	173	197	509	227	152	118	114
26	352	277	241	209	209	169	189	481	216	151	117	114
27	327	269	240	206	214	174	186	463	210	148	116	115
28	314	268	236	207	210	177	188	438	207	146	116	113
29	306	268	236	209	---	177	187	425	200	145	117	114
30	306	268	237	213	---	179	183	414	198	143	117	111
31	4600	---	243	211	---	180	---	402	---	140	118	---
TOTAL	23081	20163	7684	6872	5751	5965	5180	26863	7736	5123	4177	3559
MEAN	745	672	248	222	205	192	173	867	258	165	135	119
MAX	4600	4910	264	243	238	207	197	7310	381	205	239	158
MIN	234	268	236	206	181	169	161	172	198	140	116	82
AC-FT	45780	39990	15240	13630	11410	11830	10270	53280	15340	10160	8290	7060

CAL YR 1981 TOTAL 231638 MEAN 635 MAX 32600 MIN 160 AC-FT 459500
WTR YR 1982 TOTAL 122154 MEAN 335 MAX 7310 MIN 82 AC-FT 242300

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 05...	1213	233	622	--	25.5	290	46	83	19
NOV 16...	1235	352	653	--	18.5	280	44	84	18
JAN 04...	1345	234	662	--	15.5	300	50	87	20
MAR 22...	1230	168	664	8.3	22.0	290	42	84	20
MAY 03...	1400	179	617	--	23.0	280	51	81	19
JUN 14...	1350	250	578	--	26.5	260	29	74	18
JUL 27...	1330	149	574	--	29.5	250	43	70	19

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 05...	23	.6	2.0	240	32	46	.2	11	361
NOV 16...	27	.7	2.3	240	40	47	.3	12	375
JAN 04...	27	.7	1.8	250	39	47	.3	11	383
MAR 22...	27	.7	2.1	250	37	50	.2	12	383
MAY 03...	24	.7	1.7	230	35	41	.3	9.2	349
JUN 14...	21	.6	1.8	230	32	35	.3	11	331
JUL 27...	23	.7	1.5	210	32	44	.2	12	328

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 and crest-stage gage. Datum of gage is 431.19 ft (131.427 m) National Geodetic Vertical Datum of 1929. Apr. 30, 1959, to July 25, 1968, at site 548 ft (167 m) downstream at present datum.

REMARKS.--Records good. No known diversion above station. Flow at times is affected by discharge from the flood-detention pools of 17 floodwater-retarding structures with combined detention capacity of 24,850 acre-ft (30.6 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.--23 years, 48.3 ft³/s (1.368 m³/s), 34,990 acre-ft/yr (43.1 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.--Peak discharges above base of 2,000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 15	0500	2,450	69.4	14.91	4.545
May 13	1400	*9,530	270	17.29	5.270

Minimum dishcarge, no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	67	3.0	2.2	1.5	1.4	1.1	9.9	6.6	21	.00	4.0
2	.00	33	3.0	2.4	1.5	1.3	1.1	7.9	5.1	16	.00	3.8
3	.00	19	2.9	2.2	3.6	1.2	1.0	6.4	4.1	12	.00	3.5
4	.00	13	2.4	1.8	5.5	1.1	.84	5.2	3.3	8.3	.00	4.1
5	.00	10	2.3	1.6	5.1	1.1	.80	4.2	2.5	5.9	.00	2.3
6	17	7.9	2.3	1.6	4.5	1.1	.62	46	2.0	4.4	.00	.46
7	42	6.3	2.3	1.4	4.3	.96	.58	22	1.5	3.5	.00	.07
8	37	82	2.8	1.4	4.2	.93	.56	12	1.1	3.1	.00	.00
9	19	86	2.8	1.4	4.4	.88	.77	8.3	.79	2.9	.00	.00
10	14	32	2.8	1.2	4.3	.91	1.6	6.2	.60	2.6	.00	.00
11	12	19	2.7	1.2	4.2	.92	4.2	5.2	.41	2.0	.00	.00
12	9.9	14	2.6	1.8	4.0	.96	2.9	16	.39	1.3	.00	.00
13	8.8	10	2.5	4.9	3.6	.97	1.6	3480	.35	1.0	.00	.00
14	24	8.5	2.4	4.3	3.6	1.0	1.3	1160	1.4	.52	.00	.00
15	766	7.2	2.3	3.1	3.4	1.0	1.1	718	1.6	.16	.00	.00
16	117	6.3	2.4	2.5	3.3	1.0	.96	596	1.1	.08	.00	.00
17	88	5.8	2.5	2.0	3.2	1.0	.81	521	.73	.05	.00	.00
18	59	5.3	2.2	1.8	3.0	.96	.76	412	.50	.01	.00	.00
19	36	5.0	2.0	1.6	2.6	.94	.70	350	.32	.00	.00	.00
20	21	4.4	2.0	1.7	2.8	.93	.79	266	.22	.00	.00	.00
21	14	4.0	2.2	1.8	2.9	.85	.81	197	.11	.00	.00	.00
22	12	3.6	2.9	2.2	2.9	.75	20	152	.49	.00	.00	.00
23	11	3.5	2.8	2.2	2.5	.76	101	107	3.5	.00	.00	.00
24	8.7	3.3	2.4	1.7	1.6	.76	96	86	3.7	.00	.00	.00
25	7.1	3.3	2.0	1.5	1.2	1.2	87	78	4.6	.00	.00	.00
26	5.8	3.2	1.9	1.4	1.5	1.1	50	54	5.2	.00	.00	.00
27	5.0	3.1	1.8	1.3	1.5	1.0	31	35	5.7	.00	.00	.00
28	4.2	2.9	1.8	1.3	1.7	1.1	22	23	26	.00	.00	.00
29	3.6	2.8	1.7	1.4	---	.98	16	16	26	.00	.00	.00
30	3.5	3.0	1.7	1.5	---	1.2	12	12	25	.00	3.1	.00
31	43	---	1.9	1.6	---	1.2	---	8.9	---	.00	4.5	---
TOTAL	1388.60	474.4	73.3	60.0	88.4	31.46	459.90	8421.2	134.91	84.82	7.60	18.23
MEAN	44.8	15.8	2.36	1.94	3.16	1.01	15.3	272	4.50	2.74	.25	.61
MAX	766	86	3.0	4.9	5.5	1.4	101	3480	26	21	4.5	4.1
MIN	.00	2.8	1.7	1.2	1.2	.75	.56	4.2	.11	.00	.00	.00
AC-FT	2750	941	145	119	175	62	912	16700	268	168	15	36

CAL YR 1981 TOTAL 31271.57 MEAN 85.7 MAX 7340 MIN .00 AC-FT 62030
WTR YR 1982 TOTAL 11242.82 MEAN 30.8 MAX 3480 MIN .00 AC-FT 22300

08173000 PLUM CREEK NEAR LULING, TX

LOCATION.--Lat 29°41'58", long 97°36'12", Caldwell County, Hydrologic Unit 12100203, near left bank on downstream side of pier of bridge on county road, 1.2 mi (1.9 km) upstream from West Fork, 1.9 mi (3.1 km) upstream from Southern Pacific Railroad Co. bridge, 2.2 mi (3.5 km) upstream from McNeil Creek, 2.9 mi (4.7 km) northeast of Luling, and at mile 7.5 (12.1 km).

DRAINAGE AREA.--309 mi^2 (800 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1923: 1933. WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 321.57 ft (98.015 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 18, 1976, at datum 5 ft (1.5 m) higher.

REMARKS.--Water-discharge records good except those for July 30 to Sept. 8, which are fair. Low flow is slightly regulated by oilfield operation above station. At end of year, flow from 119 mi^2 (308 km^2) above this station was partly controlled by 27 floodwater-retarding structures with a combined detention capacity of 41,840 acre-ft (51.6 hm^3). No known diversion above station.

AVERAGE DISCHARGE.--52 years (water years 1931-82), 104 ft^3/s (2.945 m^3/s), 75,350 acre-ft/yr (92.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,500 ft^3/s (2,220 m^3/s) July 1, 1936, gage height, 30.7 ft (9.36 m), from floodmarks, present datum, from rating curve extended above 37,500 ft^3/s (1,060 m^3/s); no flow at times. Maximum stage since at least 1868, that of July 1, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1913 reached about same stage, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,300 ft^3/s (65.1 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 31	2400	2,710	76.7	19.12	5.828
May 14	0100	*13,300	377	23.51	7.166

Minimum daily discharge, 1.5 ft^3/s (0.042 m^3/s) Aug. 30, 31, Sept. 13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	1200	11	12	12	18	12	23	32	35	3.0	9.2
2	3.6	198	11	11	13	16	11	19	29	27	2.9	7.4
3	3.4	123	10	12	13	16	11	16	26	21	2.9	6.0
4	5.9	66	9.5	12	13	16	9.7	13	22	17	2.8	8.0
5	4.5	44	9.0	10	14	13	9.1	10	19	13	2.7	6.2
6	223	30	9.2	10	15	13	8.2	178	17	11	2.6	5.0
7	384	27	8.8	11	14	13	7.8	196	16	9.1	2.5	4.2
8	123	156	10	11	14	14	7.8	50	14	7.8	2.4	3.3
9	66	957	9.7	9.7	15	12	6.9	25	13	7.4	2.4	2.7
10	35	212	9.3	10	14	13	6.9	19	12	7.4	2.3	2.0
11	27	108	10	9.8	12	13	8.0	14	10	7.3	2.3	1.8
12	19	70	10	9.7	12	13	9.7	230	11	6.8	2.2	1.6
13	15	50	10	19	11	12	12	2610	14	6.0	2.2	1.5
14	12	40	10	19	11	12	11	8270	13	5.3	2.2	1.6
15	363	33	10	16	12	13	9.0	2170	14	5.1	2.1	10
16	431	28	10	14	14	12	9.3	1100	15	4.9	2.1	7.9
17	152	23	10	12	14	13	8.5	954	13	4.6	2.0	6.5
18	114	20	9.3	11	12	12	7.9	831	12	4.4	2.0	4.7
19	75	18	7.8	11	12	12	7.8	535	11	4.0	2.0	3.4
20	48	15	7.3	11	14	11	7.8	411	11	3.8	1.9	12
21	29	13	9.1	13	29	11	6.6	290	10	3.7	1.9	12
22	21	13	10	15	25	11	7.6	224	9.9	3.4	1.8	7.1
23	19	12	10	15	21	10	38	185	16	3.6	1.8	4.8
24	16	12	10	15	21	10	149	243	15	3.6	1.8	3.8
25	15	11	9.7	13	20	11	142	312	12	3.6	1.7	3.8
26	12	10	9.5	13	20	9.8	118	154	11	3.6	1.7	3.4
27	11	10	9.2	12	22	11	81	115	11	3.3	1.6	3.2
28	9.7	10	8.9	13	19	12	57	86	11	3.3	1.6	3.0
29	9.1	9.7	8.7	13	---	13	39	64	27	3.3	1.6	2.8
30	8.3	10	9.5	14	---	13	28	51	33	3.2	1.5	2.5
31	990	---	10	12	---	12	---	39	---	3.1	1.5	---
TOTAL	3248.1	3528.7	296.5	389.2	438	390.8	847.6	19437	479.9	245.6	66.0	151.4
MEAN	105	118	9.56	12.6	15.6	12.6	28.3	627	16.0	7.92	2.13	5.05
MAX	990	1200	11	19	29	18	149	8270	33	35	3.0	12
MIN	3.4	9.7	7.3	9.7	11	9.8	6.6	10	9.9	3.1	1.5	1.5
AC-FT	6440	7000	588	772	869	775	1680	38550	952	487	131	300

CAL YR 1981	TOTAL	45219.7	MEAN	124	MAX 6480	MIN 2.1	AC-FT	89690
WTR YR 1982	TOTAL	29518.8	MEAN	80.9	MAX 8270	MIN 1.5	AC-FT	58550

NOTE.--No gage-height record July 30 to Sept. 8.

08173000 PLUM CREEK NEAR LULING, TX--Continued

WATER-QUALITY RECORDS

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

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,210 micromhos Feb. 27, 1977; minimum daily, 148 micromhos Dec. 1, 1968.
WATER TEMPERATURES: Maximum daily, 35.0°C July 24, 1969; minimum daily, 2.5°C Jan. 14, 1982.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,020 micromhos Aug. 30, 31; minimum daily, 190 micromhos May 14.
WATER TEMPERATURES: Maximum daily, 28.0°C July 27; minimum daily, 2.5°C Jan. 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
NOV 16...	0950	29	1010	16.5	290	110	98	11	91
JAN 04...	1055	13	1800	12.5	490	190	163	19	190

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV 16...	2.4	6.9	180	88	170	.3	17	590
JAN 04...	3.9	4.4	300	150	340	.5	15	1060

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	3248.1	465	267	2340	58	510	44	382	140
NOV.	1981	3528.7	501	288	2750	63	604	47	447	160
DEC.	1981	296.5	1660	955	765	290	234	130	102	440
JAN.	1982	389.2	1630	939	986	280	299	130	132	430
FEB.	1982	438	1520	876	1040	260	305	120	142	410
MAR.	1982	390.8	1620	934	986	280	298	130	132	430
APR.	1982	847.6	1170	675	1550	180	423	97	223	330
MAY	1982	19437	310	178	9340	35	1850	30	1590	100
JUNE	1982	479.9	1300	750	972	210	271	110	138	360
JULY	1982	245.6	1240	713	473	200	134	100	67	340
AUG.	1982	66.0	1860	1080	192	350	62	140	24	480
SEPT	1982	151.4	1430	823	336	240	97	110	47	390
TOTAL		29518.8	**	**	21700	**	5090	**	3420	**
WTD. AVG.		81	474	273	**	64	**	43	**	140

08173000 PLUM CREEK NEAR LULING, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	1880	1840	1870	---	---	360	1680	1600	1630	1660	1600	1620
2	1850	1820	1830	---	---	480	1730	1630	1700	1650	1610	1630
3	1860	1820	1840	---	---	540	1760	1660	1710	1670	1640	1650
4	1820	1670	1780	---	---	690	1750	1650	1690	1760	1640	1700
5	1790	1650	1750	---	---	760	1660	1630	1640	1730	1710	1720
6	1790	300	433	---	---	790	1630	1600	1620	1750	1730	1740
7	470	260	295	---	---	810	1670	1620	1650	1740	1720	1740
8	---	---	550	---	---	510	1670	1650	1660	1730	1680	1710
9	---	---	690	---	---	390	1660	1640	1650	1700	1670	1690
10	---	---	1020	---	---	500	1660	1620	1650	1720	1700	1720
11	---	---	1080	---	---	620	1670	1660	1660	1720	1660	1700
12	---	---	1170	---	---	680	1680	1650	1660	1700	1630	1660
13	---	---	1230	---	---	710	1660	1640	1660	1780	1600	1700
14	---	---	1290	800	650	727	1660	1610	1640	1590	1530	1560
15	---	---	310	960	810	878	1670	1640	1660	1610	1560	1580
16	---	---	380	1010	950	984	1670	1640	1650	1570	1530	1560
17	---	---	520	1100	1010	1050	1660	1640	1650	1510	1440	1470
18	---	---	590	1180	1100	1150	1680	1640	1660	1560	1480	1520
19	---	---	680	1250	1180	1220	1700	1640	1680	1580	1540	1560
20	---	---	790	1290	1230	1270	1720	1660	1700	1550	1530	1540
21	---	---	900	1590	1290	1440	1720	1650	1680	1610	1560	1590
22	---	---	1050	1470	1410	1420	1700	1650	1670	1640	1600	1620
23	---	---	1070	1510	1400	1450	1670	1640	1650	1620	1590	1610
24	---	---	1060	1510	1480	1500	1650	1610	1630	1610	1570	1590
25	---	---	1100	1550	1480	1520	1640	1620	1630	1620	1590	1610
26	---	---	1300	1580	1540	1560	1640	1630	1640	1640	1580	1610
27	---	---	1310	1600	1560	1580	1650	1630	1640	1600	1570	1580
28	---	---	1350	1610	1590	1600	1660	1640	1660	1650	1590	1620
29	---	---	1370	1640	1590	1620	1670	1650	1660	1660	1640	1650
30	---	---	1400	1650	1620	1640	1660	1620	1640	1660	1630	1650
31	---	---	350	---	---	---	1660	1640	1650	1710	1650	1680
MONTH	1880	260	1040	1650	650	1010	1760	1600	1660	1780	1440	1630

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1690	1640	1670	1540	1510	1530	1600	1570	1590	1020	960	988
2	1680	1650	1670	1550	1520	1530	1600	1570	1590	1070	1020	1040
3	1710	1680	1700	1560	1550	1560	1590	1560	1580	1100	970	1080
4	1710	1600	1660	1590	1550	1560	1580	1570	1580	1050	1010	1030
5	1630	1580	1610	1630	1600	1620	1610	1580	1590	1110	1060	1090
6	1620	1530	1580	1630	1610	1620	1770	1610	1690	1270	370	945
7	1530	1500	1520	1630	1620	1630	1740	1620	1660	710	460	528
8	1540	1490	1510	1640	1620	1630	1670	1620	1650	620	490	557
9	1520	1470	1500	1640	1620	1630	1680	1650	1670	750	620	680
10	1490	1440	1480	1660	1630	1650	1650	1610	1630	860	750	811
11	1470	1440	1460	1680	1660	1670	1650	1620	1640	960	860	907
12	1480	1460	1470	1700	1680	1690	1640	1600	1620	647	420	647
13	1470	1460	1460	1730	1690	1710	1600	1560	1580	550	210	362
14	1460	1440	1450	1720	1680	1700	1570	1550	1560	280	190	232
15	1460	1440	1450	1750	1720	1730	1570	1550	1560	260	240	251
16	1460	1440	1450	1710	1630	1680	1600	1560	1580	270	240	252
17	1460	1430	1450	1660	1610	1640	1620	1570	1590	270	250	261
18	1470	1450	1460	1640	1590	1620	1650	1590	1630	300	260	286
19	1500	1470	1480	1610	1590	1600	1590	1570	1580	360	300	346
20	1510	1490	1500	1690	1590	1640	1710	1570	1600	410	350	380
21	1560	1500	1520	1670	1590	1610	1710	1620	1650	430	380	412
22	1500	1470	1480	1720	1590	1680	1630	1600	1610	470	440	454
23	1530	1500	1520	1710	1620	1650	1620	1560	1610	520	460	486
24	1530	1520	1530	1690	1620	1660	1680	1140	1420	580	450	520
25	1540	1510	1520	1660	1620	1640	1130	820	960	560	370	495
26	1510	1490	1490	1620	1570	1590	820	810	812	560	540	552
27	1500	1490	1490	1590	1570	1580	820	810	816	630	560	581
28	1520	1480	1500	1600	1570	1590	860	820	836	840	630	666
29	---	---	---	1580	1530	1550	910	860	883	850	720	742
30	---	---	---	1580	1540	1560	970	920	940	840	750	786
31	---	---	---	1600	1560	1580	---	---	---	1000	850	953
MONTH	1710	1430	1520	1750	1510	1620	1770	810	1460	1270	190	623

08173000 PLUM CREEK NEAR LULING, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1070	1000	1020	890	780	845	1740	1740		---	---	1370
2	1070	1000	1050	850	810	825	1750	1750		---	---	1430
3	1140	1070	1100	940	850	886	1750	1750		---	---	1500
4	1200	1110	1160	960	930	935	1760	1760		---	---	1410
5	1260	1200	1220	1040	970	1000	1780	1780		---	---	1490
6	1310	1260	1270	1130	1040	1100	1790	1790		---	---	1560
7	1310	1260	1280	1240	1130	1170	1810	1810		---	---	1620
8	1340	1290	1310	1310	1230	1260	1820	1820		---	---	1700
9	1410	1340	1380	1400	1310	1350	1820	1820		---	---	1780
10	1480	1410	1450	1440	1390	1410	1840	1840		---	---	1900
11	1530	1490	1520	1490	1430	1460	1840	1840		1960	1660	1830
12	1660	1500	1580	1530	1490	1510	1860	1860		1970	1950	1960
13	1730	1530	1630	1580	1530	1550	1860	1860		1980	1940	1960
14	1600	1540	1580	1630	1580	1600	1860	1860		1970	1920	1950
15	1610	1510	1560	1760	1640	1690	1880	1880		1730	1370	1550
16	1530	1410	1450	1890	1770	1830	1880	1880		1370	1320	1340
17	1500	1370	1410	1920	1880	1900	1900	1900		1340	1210	1250
18	1530	1350	1450	1920	1890	1900	1900	1900		1250	1200	1220
19	1350	1330	1340	1910	1890	1900	1900	1900		1270	1240	1260
20	1390	1340	1360	1920	1900	1910	1920	1920		1270	990	1200
21	1430	1390	1410	1920	1890	1920	1920	1920		1700	900	1090
22	1450	1410	1430	1910	1860	1880	1940	1940		1950	1570	1730
23	1550	1380	1450	1900	1840	1860	1940	1940		1720	1560	1640
24	1690	1420	1540	1960	1910	1940	1940	1940		1560	1420	1510
25	1610	1410	1540	1930	1860	1880	1900	1950		1410	1320	1350
26	1440	1380	1400	1860	1850	1850	1960	1960		1320	1210	1290
27	1390	1300	1360	1850	1640	1750	1990	1990		1310	1240	1270
28	1350	1300	1320	---	---	1700	1990	1990		1290	1250	1270
29	1370	1060	1220	---	---	1710	1990	1990		1340	1290	1320
30	1100	910	998	---	---	1720	2020	2020		1360	1340	1350
31	---	---	---	---	---	---	2020	2020		---	---	---
MONTH	1730	910	1360	1960	780	1540	2020	1880		1980	900	1500

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	25.0	23.0	24.0	20.5	18.0	18.5	18.0	15.0	16.5	12.0	11.0	12.0
2	25.0	23.5	24.0	18.5	16.5	17.0	15.0	13.5	14.0	13.5	12.0	13.0
3	25.0	24.0	24.5	17.5	17.0	17.0	14.5	12.5	13.5	12.5	13.5	14.5
4	25.5	24.5	24.5	17.5	16.0	17.0	14.0	13.0	13.5	14.5	11.5	13.0
5	25.5	24.5	25.0	17.5	16.0	17.0	12.5	11.5	12.0	12.0	10.5	11.0
6	25.0	24.5	24.5	17.5	17.0	17.0	13.5	12.0	12.5	14.0	11.5	13.0
7	25.0	24.0	24.5	17.5	16.5	17.0	15.0	13.5	14.5	14.5	10.5	13.0
8	23.5	21.5	22.5	18.0	17.0	17.5	16.0	15.0	15.5	10.5	8.0	9.0
9	21.5	20.5	21.0	17.5	15.5	17.0	16.5	15.5	16.0	8.5	7.0	8.0
10	22.5	21.0	21.5	15.5	14.0	14.5	16.0	15.5	16.0	8.5	6.5	8.0
11	23.5	22.5	23.0	14.5	13.5	14.0	17.0	16.0	16.5	6.0	4.0	4.5
12	24.5	23.5	24.0	15.0	13.5	14.0	17.0	16.0	16.5	4.5	3.5	4.0
13	25.0	24.5	25.0	15.0	13.5	14.0	16.0	14.0	15.0	4.5	3.5	4.0
14	25.5	25.0	25.0	16.0	14.5	15.5	14.0	12.5	13.0	4.0	2.5	3.5
15	25.5	25.0	25.0	17.0	16.0	16.5	12.5	11.5	12.0	6.0	3.5	4.5
16	26.0	25.0	25.0	17.0	16.5	16.5	12.5	11.0	12.0	6.0	5.0	5.5
17	26.0	25.0	25.5	18.0	17.5	17.5	13.0	11.0	12.0	5.0	4.0	4.5
18	25.5	23.0	24.0	19.0	17.5	18.5	10.5	8.5	9.5	7.0	4.5	5.5
19	23.0	20.5	21.5	19.5	18.0	19.0	8.5	7.5	8.0	8.5	7.0	7.5
20	20.5	19.0	19.5	17.5	15.0	16.0	10.5	8.5	9.5	15.0	9.0	10.0
21	19.5	19.5	19.5	15.0	13.5	14.0	14.5	10.5	12.5	.0	11.5	12.5
22	19.5	18.0	19.5	15.0	13.5	14.5	16.0	14.5	15.5	16.0	14.0	15.0
23	18.0	16.0	17.0	17.0	15.0	16.5	14.5	12.0	13.0	15.5	13.5	14.5
24	16.0	15.0	15.5	17.0	16.0	17.0	12.0	10.0	11.0	13.5	11.5	12.0
25	17.0	15.5	16.0	19.0	17.0	18.0	10.0	8.5	9.5	14.0	12.0	13.0
26	16.5	15.5	16.0	20.0	19.0	19.5	10.0	8.5	9.5	13.5	12.0	12.5
27	15.5	14.0	15.0	19.0	17.0	18.0	10.5	9.5	10.0	12.5	11.5	12.0
28	15.5	14.0	15.0	17.5	16.5	17.0	12.0	11.0	11.5	14.5	12.5	13.5
29	16.0	15.0	15.5	19.0	17.5	18.0	11.0	10.0	10.5	16.5	14.5	15.5
30	17.5	16.0	17.0	20.0	18.5	19.5	10.5	10.5	10.5	17.5	16.0	17.0
31	20.5	17.5	19.5	---	---	---	12.0	10.5	11.5	16.0	13.0	14.5
MONTH	26.0	14.0	21.5	20.5	13.5	17.0	18.0	7.5	12.5	17.5	2.5	10.5

08173000 PLUM CREEK NEAR LULING, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	12.5	11.5	12.0	13.5	11.5	13.0	20.5	20.0	20.0	20.5	19.5	20.0
2	13.0	12.0	12.0	14.5	12.5	13.5	21.5	20.0	20.5	20.0	19.5	20.0
3	12.5	10.5	11.0	16.0	14.0	15.0	21.0	20.0	20.5	20.5	19.5	20.0
4	10.0	9.0	9.5	17.0	16.0	16.5	20.0	19.0	19.5	21.0	20.0	20.5
5	9.0	6.5	8.0	16.0	13.0	15.0	21.0	19.5	20.0	21.0	20.5	21.0
6	6.5	4.5	5.5	13.0	11.0	12.0	19.5	17.5	18.5	21.0	20.0	20.5
7	6.0	4.5	5.0	12.0	10.0	11.0	17.5	17.0	17.0	20.0	19.5	20.0
8	7.5	6.0	7.0	12.5	10.5	12.0	19.0	17.0	18.0	19.5	18.5	19.0
9	8.5	7.5	8.0	14.5	12.5	13.5	19.0	16.5	18.0	20.0	19.0	19.5
10	8.0	7.0	7.5	16.5	14.5	15.5	16.5	15.0	16.0	20.5	19.5	20.0
11	9.0	7.0	8.0	18.5	16.5	17.5	15.5	14.5	15.0	21.0	20.5	21.0
12	11.5	9.0	10.5	20.0	18.5	19.0	17.5	15.0	16.0	22.0	21.0	21.5
13	11.0	9.5	10.0	21.5	20.0	20.5	19.5	17.0	18.0	22.5	19.5	21.5
14	10.0	9.0	9.5	21.5	21.0	21.0	20.5	19.5	20.0	25.0	21.0	22.5
15	12.0	10.0	10.5	21.5	20.5	21.0	21.0	20.0	20.5	24.0	22.5	23.0
16	13.5	11.5	12.5	21.5	21.5	21.5	21.5	21.0	21.0	23.0	22.5	23.0
17	14.5	12.0	13.5	22.5	21.5	22.0	21.5	20.5	21.0	23.5	22.0	23.0
18	14.5	13.5	14.0	23.5	22.0	23.0	20.5	19.5	20.0	24.0	23.0	23.5
19	14.5	14.0	14.0	23.5	22.5	23.0	20.5	19.5	20.0	24.5	24.0	24.0
20	15.0	14.0	14.5	23.5	22.5	23.0	21.0	19.0	20.5	24.5	24.0	24.5
21	16.5	14.5	15.5	22.5	21.0	22.5	19.0	16.5	17.5	25.0	24.5	24.5
22	16.5	14.5	16.0	21.0	19.0	20.0	16.5	14.5	15.5	25.0	24.5	24.5
23	17.0	15.5	16.5	19.0	17.5	18.0	15.0	14.0	14.5	24.5	24.5	24.5
24	18.0	17.0	17.5	18.0	17.5	17.5	14.5	14.0	14.0	25.0	24.0	24.0
25	17.0	13.5	15.5	19.0	17.5	18.0	15.5	14.5	15.0	25.5	24.0	24.5
26	13.0	10.0	11.5	18.0	15.5	16.5	17.5	15.5	16.5	26.0	25.5	25.5
27	11.0	9.5	10.0	15.5	13.0	14.5	18.5	17.0	17.5	25.5	25.5	25.5
28	12.5	10.5	12.0	13.0	12.5	13.0	19.5	18.0	19.0	25.5	25.0	25.5
29	---	---	---	14.5	13.0	13.5	20.5	19.0	19.5	26.0	25.0	25.5
30	---	---	---	17.5	14.5	16.0	20.5	19.5	20.0	26.5	25.5	26.0
31	---	---	---	20.0	17.5	19.0	---	---	---	26.0	25.0	25.5
MONTH	18.0	4.5	11.5	23.5	10.0	17.5	21.5	14.0	18.5	26.5	18.5	22.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.5	24.0	24.5	26.5	25.5	26.0				---	---	---
2	24.5	23.5	24.0	27.0	26.0	26.5				---	---	---
3	25.0	24.0	24.5	27.0	26.0	26.5				---	---	---
4	25.0	24.5	25.0	26.5	26.0	26.5				---	---	---
5	25.5	24.5	25.0	27.0	26.0	26.5				---	---	---
6	25.0	24.5	25.0	26.5	26.0	26.5				---	---	---
7	25.5	24.5	25.0	26.5	26.0	26.0				---	---	---
8	25.5	24.5	25.0	26.5	26.0	26.0				---	---	---
9	25.0	24.5	24.5	27.0	25.5	26.0				26.5	25.0	26.0
10	25.5	24.5	25.0	27.0	26.0	26.5				26.5	24.0	25.0
11	26.0	25.5	25.5	27.0	26.0	26.5				26.5	24.5	25.5
12	25.5	23.5	24.5	27.0	26.0	26.5				27.0	25.5	26.0
13	24.0	23.0	23.5	27.0	26.0	26.5				27.5	25.5	26.5
14	24.0	24.0	24.0	27.0	25.5	26.5				27.0	25.0	26.0
15	25.0	24.5	25.0	27.0	26.0	26.5				26.0	25.0	25.5
16	25.0	24.5	25.0	27.5	26.0	26.5				26.0	25.0	25.5
17	25.5	25.0	25.0	27.5	26.0	26.5				26.0	25.0	25.5
18	26.0	25.0	25.5	27.0	26.0	26.5				26.5	25.0	25.5
19	26.0	25.0	25.5	27.5	26.0	26.5				26.5	25.5	26.0
20	26.0	25.5	26.0	27.0	26.0	26.5				26.0	25.0	25.5
21	26.0	25.0	25.5	27.5	26.0	26.5				24.5	22.5	23.5
22	26.0	25.5	25.5	27.5	26.0	26.5				22.5	21.5	22.0
23	25.5	24.5	25.0	27.5	26.0	26.5				21.5	20.0	21.0
24	26.0	25.0	25.5	27.5	26.0	26.5				22.0	20.0	21.0
25	26.0	25.5	25.5	27.5	26.5	26.5				22.5	21.0	21.5
26	26.0	25.0	25.5	27.5	26.0	27.0				22.0	20.5	21.5
27	26.0	25.5	26.0	28.0	26.0	27.0				23.0	21.0	22.0
28	26.5	25.5	26.0	---	---	---				23.5	22.0	23.0
29	26.5	26.0	26.0	---	---	---				24.0	23.0	23.5
30	26.5	26.0	26.0	---	---	---				24.5	23.5	24.0
31	---	---	---	---	---	---				---	---	---
MONTH	26.5	23.0	25.0	28.0	25.5	26.5				27.5	20.0	24.0

08175000 SANDIES CREEK NEAR WESTHOFF, TX

LOCATION.--Lat 29°12'54", long 97°26'57", De Witt County, Hydrologic Unit 12100202, on left bank 100 ft (30 m) downstream from bridge on county highway, 1.9 mi (3.1 km) upstream from Birds Creek, 2.0 mi (3.2 km) northeast of Westhoff, and 20.4 mi (32.8 km) upstream from mouth.

DRAINAGE AREA.--549 mi^2 (1,422 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1930 to November 1934, August 1959 to current year.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 178.27 ft (54.337 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 9, 1934, water-stage recorder at site 150 ft (46 m) upstream at datum 0.86 ft (0.262 m) higher. Aug. 10, 1959, to Feb. 2, 1960, nonrecording gage at present site and datum.

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

AVERAGE DISCHARGE.--27 years (water years 1931-34, 1960-82), 135 ft^3/s (3.823 m^3/s), 3.34 in/yr (85 mm/yr), 97,810 acre-ft/yr (121 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,700 ft^3/s (2,260 m^3/s) Sept. 22, 1967, gage height, 32.34 ft (9.857 m), from rating curve extended above 21,000 ft^3/s (595 m^3/s) on basis of slope-area measurement of 92,700 ft^3/s (2,630 m^3/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1864, 92,700 ft^3/s (2,630 m^3/s) July 2, 1936, gage height, 33.1 ft (10.09 m), from floodmarks, on basis of computation of peak flow, at present site and datum. Flood in October 1913 reached a stage of 26.0 ft (7.92 m), present site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,460 ft^3/s (69.7 m^3/s) May 24 at 2100 hours, gage height, 19.46 ft (5.931 m), no other peak above base of 2,000 ft^3/s (56.6 m^3/s); minimum daily, 1.1 ft^3/s (0.031 m^3/s) Aug. 30, Sept. 11, 12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	349	9.8	11	10	52	14	7.2	15	3.7	1.6	1.3
2	9.4	339	9.6	12	10	35	13	6.5	13	3.4	1.4	1.3
3	9.2	182	8.8	13	14	26	12	6.1	11	3.2	1.4	1.2
4	8.9	81	8.0	12	13	22	11	5.8	10	3.0	1.5	1.2
5	8.4	43	7.8	12	14	21	11	5.5	9.8	3.0	1.5	1.2
6	11	28	7.9	11	13	20	9.5	21	9.5	2.9	1.6	1.3
7	11	21	11	11	12	19	9.0	45	8.9	2.8	1.5	1.4
8	23	24	10	10	12	16	8.6	30	8.1	2.6	1.4	1.3
9	118	36	10	10	12	14	7.8	30	7.7	2.4	1.4	1.3
10	83	20	10	10	12	13	7.3	14	6.6	2.1	1.7	1.2
11	38	14	11	9.5	12	13	7.2	9.1	6.5	2.0	2.2	1.1
12	25	12	10	10	12	13	6.8	7.2	8.3	1.9	2.7	1.1
13	18	11	9.6	11	12	13	6.7	467	10	1.8	3.6	1.2
14	16	10	9.7	10	12	13	6.7	785	9.6	1.8	3.1	2.4
15	14	9.6	9.8	12	11	13	7.7	496	10	2.0	2.8	2.6
16	13	9.0	9.4	12	12	13	7.5	152	10	2.0	2.3	8.2
17	12	8.6	9.1	12	12	14	6.8	73	11	1.8	2.2	11
18	17	8.6	9.0	11	11	13	6.4	127	8.1	1.7	2.4	3.3
19	21	8.3	9.2	11	11	13	6.6	192	7.1	1.7	2.0	3.2
20	45	8.1	9.8	11	604	13	6.3	60	6.8	1.7	1.9	3.1
21	38	8.0	9.8	14	863	13	12	30	6.1	1.8	1.5	3.0
22	23	8.0	9.9	15	530	13	9.5	21	5.6	1.7	1.4	2.4
23	17	8.2	9.4	15	433	13	11	16	5.4	1.7	1.7	2.0
24	15	7.8	9.3	15	90	13	11	1140	4.9	1.7	1.8	2.0
25	14	8.0	9.4	14	210	13	12	1980	4.7	1.6	1.8	1.9
26	13	8.0	9.6	12	525	12	11	1000	4.3	1.5	1.6	1.7
27	12	7.7	9.5	12	261	12	9.7	257	4.3	1.4	1.4	1.7
28	10	8.2	9.8	11	88	13	8.7	71	4.6	1.7	1.2	1.7
29	9.2	9.0	9.6	9.7	---	13	8.4	39	4.4	1.8	1.2	1.8
30	8.9	9.2	9.7	10	---	13	7.4	25	4.1	1.8	1.1	1.8
31	227	---	10	11	---	13	---	19	---	1.7	1.2	---
TOTAL	898.0	1304.3	295.5	360.2	3831	510	272.6	7137.4	235.4	65.9	56.1	69.9
MEAN	29.0	43.5	9.53	11.6	137	16.5	9.09	230	7.85	2.13	1.81	2.33
MAX	227	349	11	15	863	52	14	1980	15	3.7	3.6	11
MIN	8.4	7.7	7.8	9.5	10	12	6.3	5.5	4.1	1.4	1.1	1.1
AC-FT	1780	2590	586	714	7600	1010	541	14160	467	131	111	139

CAL YR 1981 TOTAL 105953.9 MEAN 290 MAX 61900 MIN 2.4 AC-FT 210200
WTR YR 1982 TOTAL 15036.3 MEAN 41.2 MAX 1980 MIN 1.1 AC-FT 29820

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT									
06...	1250	12	1320	--	26.0	230	9	67	15
NOV									
18...	1125	8.5	1010	7.6	19.0	190	32	57	12
JAN									
07...	1245	10	1450	--	13.5	230	0	67	15
FEB									
12...	1010	12	1530	8.2	11.5	230	0	67	16
APR									
01...	1225	14	1550	7.9	21.0	240	0	69	16
MAY									
06...	1355	24	1490	--	23.0	200	0	59	12
JUN									
18...	0855	8.1	1290	--	27.5	190	0	55	12
JUL									
29...	1500	1.8	1840	--	28.5	200	0	59	12
SEP									
01...	1110	1.3	2120	--	27.0	180	0	54	11

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
06...	200	6.1	9.4	220	110	250	.4	24	808
NOV									
18...	140	4.6	9.4	160	110	170	.2	23	618
JAN									
07...	220	6.7	9.6	250	100	260	.4	17	839
FEB									
12...	230	7.0	8.7	260	130	260	.3	15	883
APR									
01...	240	7.2	11	240	120	280	.3	19	900
MAY									
06...	230	7.5	10	240	120	260	.7	17	853
JUN									
18...	200	6.7	11	230	81	240	.4	22	760
JUL									
29...	330	11	12	370	70	370	.6	19	1100
SEP									
01...	440	14	13	530	54	370	1.2	18	1280

08175800 GUADALUPE RIVER AT CUERO, TX

LOCATION.--Lat 29°03'57", long 97°19'16", De Witt County, Hydrologic Unit 12100204, on left bank at downstream side of bridge on U.S. Highways 77-A, 87, and 183, 2.1 mi (3.4 km) upstream from Gohlke Creek, 2.4 mi (3.9 km) southwest of Cuero, 4.2 mi (6.8 km) downstream from Sandies Creek, and at mile 100.6 (161.9 km).

DRAINAGE AREA.--4,934 mi² (12,779 km²), of which 1,432 mi² (3,709 km²) is above Canyon Dam.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1902 to December 1906, August 1916 to December 1935, January 1964 to current year. Published as "near Cuero" 1902-6, and as "below Cuero" 1916-35. Gage-height records collected at site 7.1 mi (11.4 km) upstream from Sandies Creek from 1941 to 1966 (published in reports of the National Weather Service) and at present site since June 12, 1968.

REVISED RECORDS.--WRD TX-68-1, TX-69-1: Drainage areas at all sites.

GAGE.--Water-stage recorder. Datum of gage is 128.64 ft (39.209 m) National Geodetic Vertical Datum of 1929. Dec. 26, 1902, to June 1903, nonrecording gage at site 7.1 mi (11.4 km) upstream at different datum, gage heights moved to site 3.3 mi (5.3 km) upstream from present site before computation; July 1903 to December 1906 nonrecording gage 3.3 mi (5.3 km) upstream at different datum; Aug. 19, 1916, to Dec. 16, 1935, water-stage recorder at site 5.0 mi (8.0 km) downstream at datum 3.19 ft (0.972 m) lower.

REMARKS.--Water-discharge records good. Since July 21, 1962, flow is regulated by Canyon Lake (station 08167700) 202.4 mi (325.7 km) upstream. Flow below New Braunfels is partly regulated by a series of small power dams, combined capacity of six largest dams 33,550 acre-ft (41.4 hm³). Flow is affected at times by discharge from the flood-detention pools of 52 floodwater-retarding structures with combined detention capacity of 78,620 acre-ft (96.9 hm³). These structures control runoff from 269 mi² (697 km²) in the Comal, San Marcos, and Plum Creek drainage basins. Many small diversions above station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--20 years (water years 1904-6, 1917-18, 1921-35) prior to regulation by Canyon Lake, 1,303 ft³/s (36.90 m³/s), 944,000 acre-ft/yr (1.16 km³/yr); 18 years (water years 1965-82) regulated, 2,128 ft³/s (60.26 m³/s), 1,542,000 acre-ft/yr (1.90 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 132,000 ft³/s (3,740 m³/s) Sept. 1, 1981, gage height, 41.83 ft (12.750 m); minimum daily, 79 ft³/s (2.24 m³/s) Aug. 13, 14, 1967.
Floods at this station since at least 1900 occurred Mar. 1, 1903, 43.0 ft (13.11 m), at different site and datum; Oct. 20, 1919, 32.2 ft (9.81 m), site and datum then in use; May 30, 1929, 35.2 ft (10.73 m), site and datum then in use; all from information by local residents.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, probably occurred July 2, 1936, 44.33 ft (13.512 m), present site and datum, from information by State Department of Highways and Public Transportation. Other flood floods at this station occurred Oct. 4, 1913, 37.57 ft (11.451 m), at different site and datum; Dec. 6, 1913, 34.57 ft (10.537 m), at different site and datum; June 21, 1961, 37.0 ft (11.28 m), present site and datum; all from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,000 ft³/s (595 m³/s) Nov. 4 at 0700 hours, gage height, 26.43 ft (8.056 m); minimum daily, 420 ft³/s (11.9 m³/s) Sept. 14.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1150	6960	1940	1590	1140	1200	983	878	1840	1010	555	448
2	1130	10700	1950	1580	1110	1140	963	873	1820	983	526	440
3	1110	15800	1900	1590	1130	1080	932	858	1770	781	457	435
4	1120	20300	1860	1560	1040	1070	932	850	1760	845	480	437
5	1100	12100	1780	1530	1020	1050	924	849	1690	1100	486	433
6	1190	3180	1850	1540	1050	1030	903	938	1660	930	497	430
7	1220	2650	2070	1360	1100	1030	869	1030	1500	897	498	432
8	2620	2540	2020	1220	1040	981	892	2880	1370	973	496	435
9	4020	2580	1920	1170	1020	1000	884	2450	1290	990	490	434
10	3690	3380	1850	1120	1040	966	874	1420	1260	908	486	432
11	2410	4220	1720	1130	1050	998	877	1210	1240	857	496	435
12	1740	3020	1680	1150	1050	999	870	1120	1180	773	573	431
13	1550	2320	1690	1160	1010	995	899	2840	1200	754	641	422
14	1460	2190	1660	1230	998	994	899	11300	1210	790	555	420
15	1430	2120	1620	1200	1030	996	894	12200	1180	768	526	432
16	1290	2110	1650	1160	1020	998	877	15200	1110	731	505	455
17	1920	2120	1510	1160	1020	1010	868	18700	1110	716	505	511
18	2360	2090	1480	1150	1050	968	842	18800	1120	713	496	528
19	2070	2040	1560	1290	1050	1000	882	10700	1120	711	490	488
20	1950	1990	1600	1080	2100	967	824	4200	1080	706	481	467
21	1910	1940	1590	1070	3450	960	869	3020	1080	718	502	457
22	1950	1960	1610	1140	2040	959	887	2650	1090	701	482	456
23	1950	1990	1610	1140	1700	937	860	2390	1090	640	471	479
24	1890	1940	1570	1120	1400	1060	892	7480	1080	604	471	476
25	1920	1930	1560	1110	1470	896	953	11700	1100	590	465	461
26	1890	1910	1580	1100	3810	831	1030	5120	1140	575	455	445
27	1850	1910	1570	1090	2110	957	1040	4130	1100	611	460	446
28	1820	1890	1580	1050	1410	934	994	3020	1070	613	450	450
29	1770	1880	1560	1060	---	919	940	2260	1040	591	456	438
30	1760	1920	1550	1100	---	1040	921	1990	1020	517	429	438
31	3090	---	1550	1110	---	1100	---	1930	---	478	445	---
TOTAL	58330	123680	52640	38060	39458	31065	27274	154986	38320	23574	15325	13491
MEAN	1882	4123	1698	1228	1409	1002	909	5000	1277	760	494	450
MAX	4020	20300	2070	1590	3810	1200	1040	18800	1840	1100	641	528
MIN	1100	1880	1480	1050	998	831	824	849	1020	478	429	420
AC-FT	115700	245300	104400	75490	78260	61620	54100	307400	76010	46760	30400	26760

CAL YR 1981 TOTAL 1229649 MEAN 3369 MAX 112000 MIN 720 AC-FT 2439000
WTR YR 1982 TOTAL 616203 MEAN 1688 MAX 20300 MIN 420 AC-FT 1222000

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT									
07...	1345	1210	635	--	28.0	280	26	79	19
NOV									
18...	1655	2080	593	7.9	19.5	260	37	75	17
JAN									
07...	1040	1360	601	--	14.5	270	36	75	19
FEB									
11...	1500	1050	676	8.3	11.5	270	36	77	18
APR									
01...	1725	984	645	--	22.0	280	36	79	19
MAY									
06...	1010	897	619	--	23.5	250	27	71	17
11...	1220	1240	--	--	--	--	--	--	--
JUN									
18...	0815	1100	570	--	28.5	250	34	72	18
JUL									
29...	1100	589	570	--	30.0	230	21	63	18
SEP									
02...	0920	444	566	--	29.5	230	16	61	18

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
07...	33	.9	3.0	250	34	42	.3	13	374
NOV									
18...	27	.8	2.9	220	43	34	.2	15	346
JAN									
07...	31	.9	2.3	230	37	39	.3	12	354
FEB									
11...	34	1.0	1.9	230	46	56	.2	11	382
APR									
01...	35	1.0	3.1	240	38	56	.2	14	389
MAY									
06...	30	.9	2.7	220	40	44	.3	12	349
11...	--	--	--	--	--	--	--	--	--
JUN									
18...	27	.8	2.5	220	32	38	.3	13	335
JUL									
29...	32	1.0	2.2	210	32	46	.3	13	333
SEP									
02...	30	.9	2.7	210	33	45	.3	14	330

08176500 GUADALUPE RIVER AT VICTORIA, TX
(National stream-quality accounting network)

LOCATION.--Lat 28°47'34", long 97°00'46", Victoria County, Hydrologic Unit 12100204, on left bank just upstream from pier of upstream bridge of two bridges on U.S. Highway 59 in Victoria, 1,300 ft (396 m) upstream from Southern Pacific Railroad Co. bridge, 15 mi (24 km) upstream from Coleto Creek, and at mile 50.7 (81.6 km).

DRAINAGE AREA.--5,198 mi² (13,463 km²), of which 1,432 mi² (3,709 km²) is above Canyon Dam.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1934 to current year. Gage-height records collected in this vicinity since 1904 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 29.15 ft (8.885 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Since July 21, 1962, flow is regulated by Canyon Lake (station 08167700) 252.3 mi (406.1 km) upstream. Many diversions above station. Records furnished by the city of Victoria show a discharge of about 8,000 acre-ft (9.86 hm³) of sewage effluent below station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08175800.

AVERAGE DISCHARGE.--27 years (water years 1936-62) prior to regulation by Canyon Lake, 1,626 ft³/s (46.05 m³/s), 1,178,000 acre-ft/yr (1.45 km³/yr); 20 years (water years 1963-82) regulated, 2,074 ft³/s (58.74 m³/s), 1,503,000 acre-ft/yr (1.85 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 179,000 ft³/s (5,070 m³/s) July 3, 1936, gage height, 31.22 ft (9.516 m); minimum daily, 14 ft³/s (0.40 m³/s) Aug. 20, 1956.
Maximum stage since at least 1833, that of July 3, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1929, reached a stage of 30.2 ft (9.21 m), present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,500 ft³/s (524 m³/s) May 19 at 0200 hours, gage height, 28.20 ft (8.595 m); minimum daily, 435 ft³/s (12.3 m³/s) Aug. 31.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1310	10900	1920	1560	1130	1520	1100	951	2050	1030	489	451
2	1330	8930	1940	1580	1160	1310	1040	915	1960	1030	560	455
3	1310	10400	1920	1570	1140	1230	1010	906	1920	959	518	449
4	1300	13600	1880	1560	1130	1170	987	888	1830	783	461	458
5	1320	17400	1830	1530	1070	1160	985	883	1810	941	477	449
6	1310	10700	1780	1520	1050	1130	966	1200	1720	1030	485	446
7	1410	3950	1920	1510	1100	1120	944	1560	1700	950	492	457
8	1490	3170	2070	1330	1110	1100	936	1470	1510	940	495	445
9	3500	3000	1970	1250	1070	1060	941	3240	1430	984	518	449
10	4200	2980	1890	1200	1050	1060	934	1990	1370	962	500	448
11	3650	4110	1820	1150	1070	1030	921	1280	1340	901	487	450
12	2320	4200	1700	1190	1070	1070	920	1140	1310	843	495	455
13	1840	3070	1680	1180	1070	1050	921	2400	1250	760	572	453
14	1660	2510	1700	1200	1030	1060	938	8920	1240	750	624	475
15	1620	2370	1650	1260	1040	1040	935	10400	1270	771	556	457
16	1560	2290	1630	1200	1060	1050	931	11100	1190	734	523	469
17	1510	2260	1640	1190	1040	1060	917	13100	1160	709	506	507
18	2500	2240	1480	1190	1050	1050	901	17200	1140	699	509	545
19	2410	2150	1550	1190	1060	1030	893	17700	1150	696	508	558
20	2150	2080	1570	1290	1420	1050	921	10200	1120	692	496	523
21	2030	2040	1600	1080	3330	1010	941	4660	1100	691	495	503
22	2050	1970	1580	1130	3140	1020	967	3560	1080	701	508	492
23	2160	2010	1580	1180	1940	997	947	3370	1100	674	487	495
24	2070	2000	1590	1150	1680	1000	946	4170	1090	617	479	521
25	2010	1950	1550	1140	1790	1120	977	15300	1090	593	478	514
26	2020	1950	1560	1130	5620	885	1020	11500	1110	575	467	501
27	1970	1910	1560	1120	4410	962	1050	5950	1120	565	458	486
28	1930	1920	1560	1110	2130	1010	1080	4470	1090	601	463	490
29	1890	1920	1560	1080	---	989	1020	3160	1050	602	453	496
30	1870	1940	1560	1100	---	980	978	2460	1040	589	459	486
31	7830	---	1550	1110	---	1170	---	2180	---	523	435	---
TOTAL	67530	131920	52790	38980	45960	33493	28967	168223	40340	23895	15453	14383
MEAN	2178	4397	1703	1257	1641	1080	966	5427	1345	771	498	479
MAX	7830	17400	2070	1580	5620	1520	1100	17700	2050	1030	624	558
MIN	1300	1910	1480	1080	1030	885	893	883	1040	523	435	445
CFSM	.42	.85	.33	.24	.32	.21	.19	1.04	.26	.15	.10	.09
IN.	.48	.94	.38	.28	.33	.24	.21	1.20	.29	.17	.11	.10
AC-FT	133900	261700	104700	77320	91160	66430	57460	333700	80010	47400	30650	28530

CAL YR 1981	TOTAL	1277506	MEAN	3500	MAX	86900	MIN	717	CFSM	.67	IN	9.14	AC-FT	2534000
WTR YR 1982	TOTAL	661934	MEAN	1814	MAX	17700	MIN	435	CFSM	.35	IN	4.74	AC-FT	1313000

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. Chemical and biochemical analyses: October 1972 to current year. Pesticide analyses: October 1973 to September 1981. Sediment records: October 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1945 to September 1981.
WATER TEMPERATURES: November 1950 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,950 micromhos on several days during January 1946; minimum daily, 135 micromhos Sept. 3, 1981.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 4, 27, 1952; minimum daily, 2.0°C Jan. 11, 12, 1962, Jan. 24, 1963.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV												
19...	0850	2160	602	8.1	20.0	35	8.3	91	1.3	560	160	260
FEB												
10...	1230	1070	667	8.2	10.5	--	10.2	93	.8	42	K36	290
MAR												
30...	1840	936	670	8.2	20.0	16	9.2	101	1.1	390	120	270
MAY												
03...	1700	903	703	7.9	25.0	23	9.1	110	1.2	80	K56	260
JUL												
26...	1800	575	580	8.4	32.0	28	8.1	111	1.5	K35	92	240
SEP												
01...	1445	457	592	8.2	30.5	15	8.2	109	1.6	52	--	220

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV											
19...	38	77	16	26	.7	2.8	220	28	48	.2	15
FEB											
10...	46	83	19	37	1.0	1.9	240	44	59	.2	12
MAR											
30...	24	80	18	35	1.0	2.6	250	37	49	.2	14
MAY											
03...	31	78	16	39	1.1	2.9	230	47	57	.5	13
JUL											
26...	28	66	18	32	1.0	2.3	211	30	48	.3	16
SEP											
01...	17	59	17	33	1.0	2.1	200	33	44	.3	16

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
19...	357	345	.87	<.060	1.10	.090	.050	<.020	112	653	87
FEB											
10...	374	401	1.2	.070	.91	.050	.020	.030	57	165	70
MAR											
30...	391	386	1.1	.070	.47	.050	.040	.060	96	243	66
MAY											
03...	404	392	1.1	.060	.60	.120	.060	.100	55	134	92
JUL											
26...	343	339	.50	.110	.60	.080	.050	.040	103	160	70
SEP											
01...	390	324	.26	<.060	1.10	.080	.090	.010	74	91	77

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
NOV 19...	0850	2	0	2	100	10	88	1	<1	<10
FEB 10...	1230	1	0	1	100	20	83	<1	<1	10
MAY 03...	1700	2	0	2	<100	--	83	1	<3	10
SEP 01...	1445	3	0	3	100	3	97	<1	<1	<10

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 19...	--	<10	<1	--	<3	5	2	3	1200	<10
FEB 10...	--	<10	5	--	<3	6	--	<1	740	<10
MAY 03...	0	10	1	0	1	3	--	<1	610	<9
SEP 01...	--	<10	1	--	<1	<1	--	1	490	<3

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)
NOV 19...	8	0	9	40	40	3	.1	.0	.1	1
FEB 10...	14	--	<1	20	10	8	.1	.0	.1	5
MAY 03...	12	7	5	40	40	3	.1	--	<.1	3
SEP 01...	33	--	<1	40	40	2	.1	--	<.1	6

DATE	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 19...	0	3	<1	--	<1	1	<1	20	10	6
FEB 10...	--	<1	1	0	1	<1	<1	40	30	6
MAY 03...	1	2	1	0	1	<1	<1	20	--	<12
SEP 01...	1	5	1	0	1	<1	<1	20	10	8

08176900 COLETO CREEK AT ARNOLD ROAD CROSSING NEAR SCHROEDER, TX

LOCATION.--Lat 28°51'41", long 97°13'34", Goliad County, Hydrologic Unit 12100204, on right bank at downstream side of Arnold Road Crossing, 0.7 mi (1.1 km) downstream from confluence of Twelvemile and Fifteenmile Creeks, 3.2 mi (5.1 km) north of Schroeder, 12.8 mi (20.6 km) upstream from Coleto Creek Reservoir, and 26.0 mi (41.8 km) upstream from mouth.

DRAINAGE AREA.--357 mi^2 (925 km^2).

PERIOD OF RECORD.--October 1978 to current year. Records equivalent for January 1930 to December 1933 and October 1952 to September 1979, published as "near Schroeder".

GAGE.--Water-stage recorder. Datum of gage is 100.43 ft (30.611 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversion above station. Gage-height telemeter at station. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft^3/s (920 m^3/s) Aug. 31, 1981, gage height, 17.78 ft (5.419 m); minimum daily, 3.5 ft^3/s (0.099 m^3/s) Aug. 5, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharges since at least 1872 at site 3.5 mi (5.6 km) downstream, 122,000 ft^3/s (3,460 m^3/s) Sept. 21, 1967 (slope-area measurement of peak flow), 63,700 ft^3/s (1,800 m^3/s) Oct. 16, 1946, and 46,700 ft^3/s (1,320 m^3/s) in October 1925, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft^3/s (113 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 31	1400	*18,600	527	15.33	4.673	May 17	2300	12,800	362	13.94	4.249
Nov. 1	0100	11,500	326	13.55	4.130	May 24	1700	7,930	225	12.38	3.773
Feb. 25	2000	11,600	329	13.59	4.142						

Minimum daily discharge, 5.3 ft^3/s (0.15 m^3/s) Sept. 12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	3670	43	35	26	97	44	39	61	18	8.6	5.7
2	33	261	41	33	26	76	43	38	57	16	8.2	6.3
3	33	103	40	33	27	64	43	37	55	16	8.1	6.0
4	33	88	39	32	27	60	42	36	52	15	8.1	8.0
5	38	76	38	31	26	58	43	36	49	14	8.0	8.2
6	44	69	39	31	26	54	40	60	46	14	8.1	5.8
7	127	62	53	31	26	52	41	169	43	13	8.1	7.1
8	89	59	55	31	26	51	41	87	40	13	9.3	8.9
9	58	56	47	30	26	50	40	57	39	13	12	7.0
10	48	54	42	30	25	50	40	188	38	12	18	6.4
11	44	52	40	30	25	50	42	67	37	12	14	5.6
12	42	51	38	32	25	49	42	52	36	12	12	5.3
13	41	51	37	32	25	49	42	680	36	13	10	5.6
14	39	48	37	31	25	50	42	754	34	13	9.3	16
15	37	48	37	31	26	48	42	180	33	13	8.1	18
16	36	47	36	31	26	48	42	73	31	12	7.7	14
17	34	47	35	29	26	48	42	2060	30	12	7.5	10
18	67	46	33	29	26	47	41	3520	28	12	8.1	14
19	91	46	32	29	26	46	41	317	27	12	10	11
20	60	44	32	29	233	46	41	98	26	12	8.3	8.7
21	50	43	34	29	748	45	47	59	26	11	7.7	7.6
22	60	44	34	29	127	45	45	53	24	11	7.6	6.6
23	129	44	34	28	53	45	46	107	23	11	7.3	6.6
24	85	43	34	28	39	45	45	1910	22	11	6.9	6.8
25	62	42	33	27	2650	45	46	838	21	11	6.5	6.7
26	52	41	34	26	2740	44	43	191	22	10	6.6	6.6
27	47	40	34	27	405	45	41	112	20	9.9	6.1	6.7
28	44	41	34	27	149	46	41	87	18	9.6	5.9	6.6
29	42	50	32	26	---	45	40	75	18	9.6	6.1	6.6
30	40	48	33	27	---	47	38	68	18	9.5	6.0	6.7
31	6710	---	36	26	---	46	---	65	---	9.3	5.4	---
TOTAL	8349	5414	1166	920	7635	1591	1266	12113	1010	379.9	263.6	245.1
MEAN	269	180	37.6	29.7	273	51.3	42.2	391	33.7	12.3	8.50	8.17
MAX	6710	3670	55	35	2740	97	47	3520	61	18	18	18
MIN	33	40	32	26	25	44	38	36	18	9.3	5.4	5.3
AC-FT	16560	10740	2310	1820	15140	3160	2510	24030	2000	754	523	486

CAL YR 1981 TOTAL 62104.3 MEAN 170 MAX 9320 MIN 4.4 AC-FT 123200
WTR YR 1982 TOTAL 40352.6 MEAN 111 MAX 6710 MIN 5.3 AC-FT 80040

08176990 COLETO CREEK RESERVOIR INFLOW (GUADALUPE DIVERSION) NEAR SCHROEDER, TX

LOCATION.--Lat 28°50'21", long 97°11'20", Victoria County, Hydrologic Unit 12100204, on right bank of small tributary 1,200 ft (365 m) upstream from Coleto Creek and 2.6 mi (4.2 km) northeast of Schroeder.

PERIOD OF RECORD.--March 1980 to current year

GAGE.--Water-stage recorder and concrete control. Datum of gage is 100.52 ft (30.638 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Discharge represents flow diverted by pumping from the Guadalupe River to be used as makeup water for the Central Power and Light Co. generating plant on Coleto Creek Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 36 ft^3/s (1.02 m^3/s) Apr. 2, 11, Sept. 11, 1980; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 34 ft^3/s (0.96 m^3/s) July 13; no flow most of time.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	4.2	.00	.00	.00	.00	.00	30	29
2	.00	.00	.00	.00	.18	.00	.00	.00	.00	.00	29	30
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	29	25
4	.00	.00	.00	.00	.00	5.8	.00	.00	.00	.00	29	20
5	.00	.00	.00	.00	.00	.22	5.8	.00	.00	.00	30	29
6	.00	.00	.00	.00	.00	.00	5.8	.00	.00	9.4	29	28
7	.00	.00	.00	.00	.00	.00	.20	.00	.00	.20	29	28
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	28	29
9	.00	.00	.00	.00	.00	.00	.00	.00	.23	.00	26	29
10	.00	.00	.00	.00	.00	.00	.00	.00	9.0	.00	29	30
11	.00	.00	.00	.00	.00	.00	.00	.00	.23	.00	29	30
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	14	29	30
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	34	29	29
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	33	30	28
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	33	29	28
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	33	29	25
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	32	28	29
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	32	28	30
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	32	28	29
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	32	29	29
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	31	29	29
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	31	27	29
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	32	27	32
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	33	28	32
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	32	29	31
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	32	29	31
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	31	30	30
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	31	30	29
29	.00	.00	.00	.00	---	.00	.00	.00	.00	26	30	29
30	.00	.00	.00	.00	---	.00	.00	.00	.00	32	29	29
31	.00	---	.00	.00	---	.00	---	.00	---	31	29	---
TOTAL	.00	.00	.00	.00	4.38	6.02	11.80	.00	9.46	626.60	893	865
MEAN	.000	.000	.000	.000	.16	.19	.39	.000	.32	20.2	28.8	28.8
MAX	.00	.00	.00	.00	4.2	5.8	5.8	.00	9.0	34	30	32
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	26	20
AC-FT	.00	.00	.00	.00	8.7	12	23	.00	19	1240	1770	1720

CAL YR 1981 TOTAL 3602.93 MEAN 9.87 MAX 35 MIN .00 AC-FT 7150
WTR YR 1982 TOTAL 2416.26 MEAN 6.62 MAX 34 MIN .00 AC-FT 4790

08177300 PERDIDO CREEK AT FARM ROAD 622 NEAR FANNIN, TX

LOCATION.--Lat 28°45'05", long 97°19'01", Goliad County, Hydrologic Unit 12100204, at right downstream end of bridge on Farm Road 622, 1.2 mi (1.9 km) downstream from Farmer Creek, 3.1 mi (5.0 km) upstream from Kilgore Creek, and 6.1 mi (9.8 km) northwest of Fannin.

DRAINAGE AREA.--28.0 mi² (72.5 km²).

PERIOD OF RECORD.--June 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 134.66 ft (41.044 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. No known diversion above gage. Several observations of water temperature were made during the year. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,600 ft³/s (442 m³/s) May 29, 1981, gage height, 13.80 ft (4.206 m), from floodmark; maximum gage height, 14.60 ft (4.450 m) Oct. 31, 1981; minimum daily discharge, 0.04 ft³/s (0.001 m³/s) July 7, 8, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 20, 1976, reached a stage of 26.28 ft (8.010 m), and flood of Sept. 15, 16, 1967, reached a stage of 26.08 ft (7.949 m), from information by the State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 400 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)
Oct. 22	1600	539	15.3	6.92	2.109	Feb. 25	1700	4,540	129	10.94	3.335
Oct. 31	1230	*13.600	385	14.60	4.450	May 24	1730	477	13.5	6.77	2.063

Minimum daily discharge, 0.13 ft³/s (0.004 m³/s) July 16, 17, 21-27, Aug. 24, 27, Sept. 2.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	183	1.2	1.1	.75	3.1	1.3	1.0	2.3	.40	.15	.17
2	1.2	11	1.2	1.1	1.0	2.5	1.3	1.0	1.9	.28	.15	.13
3	1.3	6.1	1.2	1.1	.84	2.4	1.2	1.0	1.9	.29	.15	.14
4	1.3	4.4	1.1	.95	.78	2.2	1.3	1.0	1.8	.28	.14	.71
5	8.6	3.7	1.1	.97	.86	2.1	1.2	1.0	1.6	.26	.15	.50
6	2.8	3.1	1.7	.95	.80	2.2	1.1	10	1.4	.24	.16	.19
7	1.4	2.8	3.6	.87	.78	1.9	1.3	3.7	1.2	.19	.17	.18
8	1.0	2.5	1.5	.78	.84	1.8	1.3	.62	1.0	.18	.67	.19
9	.83	2.3	1.4	.90	.82	1.8	1.1	.54	1.0	.18	.63	.17
10	.76	2.2	1.3	.90	.74	1.8	1.4	.61	1.0	.18	.35	.16
11	.82	2.1	1.2	.90	.81	1.7	1.3	.63	.94	.18	.23	.16
12	.77	2.0	1.2	1.2	.85	1.6	1.1	.65	.89	.17	.22	.15
13	.76	1.9	1.1	1.0	.78	1.7	1.1	1.3	.93	.27	.18	.44
14	.81	1.8	1.3	.90	.94	1.7	1.1	.58	.69	.17	.17	.61
15	.72	1.8	1.2	.95	1.0	1.7	1.1	.46	.61	.14	.16	.40
16	.69	1.7	1.2	.91	.97	1.7	1.1	.48	.57	.13	.16	.30
17	.70	1.6	1.1	.82	.88	1.7	1.1	38	.52	.13	.18	.19
18	4.6	1.6	1.0	.92	.86	1.5	1.2	20	.47	.14	.20	.19
19	1.0	1.5	1.0	.95	1.1	1.5	1.3	4.0	.47	.15	.19	.18
20	.67	1.5	1.2	.99	75	1.5	1.1	2.2	.51	.16	.16	.19
21	.65	1.5	1.2	1.0	6.4	1.7	9.1	1.8	.60	.13	.25	.18
22	180	1.6	1.1	.95	1.4	1.6	2.0	13	.59	.13	.19	.19
23	63	1.5	.95	.86	1.0	1.5	1.0	11	.46	.13	.14	.21
24	16	1.4	.95	.75	.89	1.6	1.0	80	.46	.13	.13	.23
25	11	1.4	.99	.86	681	1.4	1.0	49	.85	.13	.14	.23
26	8.8	1.4	1.0	.78	106	1.2	1.0	15	.42	.13	.14	.19
27	7.8	1.3	1.0	.83	9.9	1.8	1.0	6.5	.36	.13	.13	.20
28	7.4	1.3	1.0	.89	4.7	1.6	1.0	4.4	.30	.16	.14	.20
29	7.1	3.6	.95	.95	---	1.5	1.0	3.5	.28	.15	.14	.20
30	7.5	1.6	1.3	.94	---	1.6	1.0	2.9	.43	.15	.17	.21
31	1890	---	1.4	.70	---	1.4	---	2.6	---	.15	.15	---
TOTAL	2231.18	255.2	38.64	28.67	902.69	55.0	43.1	278.47	26.45	5.64	6.29	7.39
MEAN	72.0	8.51	1.25	.92	32.2	1.77	1.44	8.98	.88	.18	.20	.25
MAX	1890	183	3.6	1.2	681	3.1	9.1	80	2.3	.40	.67	.71
MIN	.65	1.3	.95	.70	.74	1.2	1.0	.46	.28	.13	.13	.13
AC-FT	4430	506	77	57	1790	109	85	552	52	11	12	15

CAL YR 1981 TOTAL 7125.28 MEAN 19.5 MAX 1890 MIN .17 AC-FT 14130
WTR YR 1982 TOTAL 3878.72 MEAN 10.6 MAX 1890 MIN .13 AC-FT 7690

08177360 COLETO CREEK RESERVOIR (CONDENSER NO. 1) NEAR FANNIN, TX

LOCATION.--Lat 28°42'54", long 97°12'42", Goliad County, Hydrologic Unit 12100204, at Condensor No. 1 cooling water outlet, at Central Power and Light power plant, 2 mi (3 km) northeast of Fannin, and 14 mi (23 km) southwest of Victoria.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1980 to current year.

INSTRUMENTATION.--Water temperature is recorded continuously at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 40.0°C July 25, Aug. 18, 1981; minimum daily, 11.5°C Jan. 11, 1982.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 39.5°C on several days during summer months; minimum daily, 11.5°C Jan. 11.

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	29.0	28.5	28.5	22.0	20.0	21.0	31.5	26.0	28.5	22.0	20.0	21.5
2	29.0	28.5	28.5	20.0	19.5	19.5	27.0	25.5	26.0	23.0	20.5	22.0
3	29.0	28.5	29.0	20.0	19.5	19.5	27.0	24.5	26.0	24.0	22.0	23.0
4	29.0	29.0	29.0	20.0	19.5	20.0	26.5	25.0	25.5	23.0	22.0	22.5
5	29.0	28.5	28.5	20.0	19.5	20.0	25.0	23.5	24.5	23.0	20.0	22.5
6	28.5	28.0	28.5	20.5	20.0	20.5	25.0	23.0	24.0	23.5	20.0	22.5
7	28.0	27.5	28.0	21.0	20.5	21.0	25.5	22.5	24.5	23.5	22.0	22.5
8	28.0	27.0	27.5	21.5	21.0	21.5	26.0	23.0	25.0	22.0	21.0	21.5
9	27.0	26.5	26.5	21.5	20.5	21.0	26.5	24.5	26.0	21.5	20.5	21.0
10	26.5	26.5	26.5	20.5	19.5	20.0	27.0	24.0	26.0	21.0	19.5	20.5
11	27.0	26.5	27.0	19.5	19.5	19.5	27.0	24.0	26.0	20.0	11.5	16.5
12	27.5	27.0	27.0	19.5	19.0	19.0	27.0	24.5	26.5	19.0	18.0	18.0
13	28.0	27.5	27.5	19.5	19.0	19.0	26.5	24.5	25.5	18.5	17.0	17.5
14	28.0	27.0	27.5	19.5	19.5	19.5	25.5	23.5	24.5	17.5	16.5	17.0
15	28.0	27.0	27.5	19.5	19.5	19.5	24.5	23.0	24.0	17.5	14.5	16.5
16	28.5	28.0	28.5	20.0	19.5	20.0	25.0	23.5	24.5	18.0	14.0	16.5
17	28.5	28.5	28.5	20.0	20.0	20.0	24.5	22.5	23.5	17.5	16.0	17.0
18	28.5	27.0	28.0	20.5	20.0	20.5	22.5	22.0	22.0	18.0	14.5	16.5
19	27.0	23.0	26.0	20.0	20.0	20.0	22.5	21.5	22.0	18.5	14.5	17.0
20	25.5	25.0	25.5	20.0	19.0	19.5	22.5	19.5	21.0	19.5	16.0	18.5
21	25.0	25.0	25.0	19.0	18.0	19.0	24.0	19.5	22.0	21.5	17.0	20.0
22	25.0	23.0	25.0	18.5	17.5	18.0	25.0	21.5	23.5	22.5	18.0	21.5
23	24.5	20.0	22.0	21.5	18.0	19.0	23.5	21.0	22.5	22.5	18.0	20.5
24	19.5	18.5	19.0	22.5	18.5	20.0	22.5	21.5	22.0	22.5	19.0	21.5
25	18.5	18.0	18.0	29.0	19.0	23.0	22.5	19.5	21.5	22.5	18.5	21.5
26	19.5	18.0	19.0	29.0	27.5	28.0	22.0	21.0	21.5	22.5	20.5	22.0
27	19.5	18.0	19.0	28.5	26.0	27.5	22.5	20.0	21.5	22.5	21.5	22.5
28	19.5	19.0	19.5	29.5	25.0	27.5	23.0	20.0	22.0	23.5	21.0	22.5
29	19.5	19.0	19.5	29.5	29.0	29.0	22.5	20.0	22.0	24.0	22.0	23.5
30	20.5	19.5	20.0	33.5	28.0	31.0	22.0	20.5	21.5	24.5	23.0	24.0
31	22.0	19.5	21.0	---	---	---	22.0	20.0	21.5	23.5	22.5	23.0
MONTH	29.0	18.0	25.0	33.5	17.5	21.5	31.5	19.5	24.0	24.5	11.5	20.5

08177360 COLETO CREEK RESERVOIR (CONDENSER NO. 1) NEAR FANNIN, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	23.0	22.0	23.0	24.0	21.5	23.0	---	---	---	31.0	27.5	30.0
2	23.5	22.0	22.5	24.0	22.0	23.5	---	---	---	31.5	29.0	30.5
3	23.0	21.0	22.5	24.0	22.0	23.0	---	---	---	31.5	28.5	30.5
4	22.0	20.5	21.5	24.0	22.5	23.5	---	---	---	32.0	29.0	31.0
5	21.5	19.5	20.5	24.5	22.5	24.0	---	---	---	31.5	30.0	31.5
6	19.5	18.5	19.0	23.5	23.0	23.0	---	---	---	31.0	29.5	30.5
7	19.0	18.0	18.5	23.5	22.0	23.0	28.5	28.0	28.0	31.0	28.0	30.0
8	19.5	17.0	18.5	23.5	23.0	23.0	29.5	27.0	28.5	31.5	28.5	30.5
9	20.5	16.0	19.0	23.5	21.5	23.0	29.0	27.5	28.5	31.0	30.5	31.0
10	20.0	19.0	19.5	24.5	21.5	23.5	28.0	25.0	27.0	31.0	30.5	31.0
11	20.5	19.5	20.0	25.5	23.0	24.5	27.0	23.5	25.5	31.0	30.5	31.0
12	21.5	19.0	20.5	25.5	24.0	25.0	28.5	23.5	26.5	31.5	30.5	31.0
13	21.0	20.0	20.5	26.5	24.5	26.0	29.5	25.5	28.0	31.5	30.0	31.0
14	21.0	19.0	20.5	27.5	26.5	27.0	30.0	28.0	29.0	32.0	31.0	31.5
15	22.0	18.5	21.0	27.5	27.0	27.5	31.0	28.0	30.0	33.0	29.0	32.0
16	22.5	19.0	21.5	28.0	27.0	27.5	31.0	30.5	30.5	33.5	29.0	31.5
17	23.0	19.5	22.0	29.0	28.0	28.5	31.0	30.0	30.5	33.5	29.0	31.5
18	24.0	21.0	23.0	30.5	29.0	29.5	30.5	28.0	30.0	33.0	29.5	31.0
19	24.0	22.5	23.5	31.0	30.0	30.5	31.5	29.0	30.5	34.0	29.0	32.0
20	24.5	22.5	23.5	31.0	30.0	30.5	31.0	23.5	26.0	34.5	29.5	33.5
21	25.5	22.5	24.5	31.5	30.0	31.0	---	---	---	34.0	33.0	33.5
22	26.5	23.0	25.0	30.5	28.0	30.0	28.0	27.5	27.5	34.0	33.0	33.5
23	26.5	23.5	25.5	30.0	26.5	29.0	27.0	24.0	26.0	33.5	29.5	33.0
24	27.0	24.0	26.0	30.0	26.0	28.5	26.5	24.0	25.5	33.5	29.0	32.5
25	26.5	20.5	24.5	30.0	26.0	29.0	27.0	23.5	25.5	34.0	29.0	32.0
26	20.5	18.0	19.0	29.0	20.5	26.5	28.0	23.5	26.5	35.0	33.5	34.0
27	22.0	19.0	20.5	21.5	19.5	20.5	29.5	25.5	28.0	35.0	33.5	34.5
28	23.5	22.0	22.5	19.5	19.0	19.0	30.5	27.0	29.5	35.0	33.0	34.5
29	---	---	---	19.5	19.0	19.0	30.5	27.0	29.5	35.5	34.5	35.0
30	---	---	---	19.5	19.5	19.5	30.5	27.5	30.0	35.5	34.5	35.0
31	---	---	---	---	---	---	---	---	---	35.5	34.5	35.0
MONTH	27.0	16.0	21.5	31.5	19.0	25.5	31.5	23.5	28.0	35.5	27.5	32.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	36.0	33.5	35.5	39.0	37.5	38.0	39.0	37.5	38.5	39.0	37.5	38.5
2	37.0	34.5	36.0	38.5	37.5	38.0	39.5	37.0	38.5	39.5	38.0	38.5
3	36.5	34.0	35.5	39.0	37.5	38.0	39.0	37.5	38.0	39.5	38.0	39.0
4	37.0	34.0	36.0	39.0	37.5	38.0	39.0	37.5	38.0	39.0	37.5	38.5
5	37.0	35.0	36.0	39.0	37.5	38.0	39.0	37.0	38.0	38.5	37.5	38.0
6	37.0	35.0	36.0	38.5	37.0	38.0	39.0	37.5	38.0	38.5	36.0	37.5
7	37.0	35.0	36.0	38.5	37.5	38.0	38.5	37.5	38.0	38.5	37.0	38.0
8	37.0	34.5	36.0	38.5	37.0	37.5	38.0	37.5	37.5	38.5	37.0	38.0
9	37.0	35.0	36.0	38.5	37.0	38.0	37.5	36.0	37.0	38.0	37.0	37.5
10	37.0	36.0	36.5	38.5	37.5	38.0	37.5	36.0	37.0	38.0	36.0	37.5
11	37.5	36.0	36.5	38.5	37.0	38.0	37.5	36.5	37.5	38.0	37.0	37.5
12	36.5	33.5	35.5	39.0	37.5	38.0	38.5	36.5	37.5	38.0	37.0	37.5
13	37.0	34.5	36.0	39.5	37.5	38.5	39.0	37.0	38.0	38.0	37.0	37.5
14	37.5	35.5	36.5	39.0	37.5	38.5	38.5	37.0	38.0	37.5	36.0	37.0
15	37.5	36.0	36.5	39.5	37.0	38.5	38.5	37.5	38.0	37.0	36.0	36.5
16	37.5	36.0	36.5	39.5	37.5	38.5	39.0	37.0	38.0	37.5	36.0	36.5
17	37.5	36.0	37.0	39.0	36.0	38.0	39.5	37.5	38.5	38.0	36.0	37.0
18	38.0	36.5	37.5	39.0	36.5	38.0	39.5	38.5	39.0	38.0	37.5	37.5
19	38.0	36.5	37.5	38.5	37.0	38.0	39.5	38.5	39.0	38.5	37.5	38.0
20	38.0	36.0	37.5	39.0	37.0	38.0	39.5	38.5	39.0	38.0	37.0	37.5
21	38.0	36.5	37.5	38.5	36.5	38.0	39.5	38.5	39.0	37.5	36.0	36.5
22	38.0	36.0	37.5	38.5	37.0	38.0	39.5	36.0	38.5	36.0	32.0	35.0
23	39.0	37.5	38.0	39.0	37.0	38.5	39.0	30.5	35.5	36.0	32.0	34.5
24	39.0	38.0	38.5	39.5	37.5	38.5	38.5	37.5	38.0	35.5	33.0	35.0
25	39.0	37.5	38.5	39.5	37.0	38.5	38.5	37.5	38.0	36.0	33.5	35.0
26	39.0	36.5	38.0	39.0	37.0	38.5	38.5	37.0	38.0	35.5	34.0	35.5
27	39.0	37.5	38.0	39.5	37.5	38.0	39.0	37.5	38.0	35.5	34.5	35.0
28	38.5	37.5	38.0	39.0	37.5	38.0	38.5	37.5	38.0	35.5	34.5	35.0
29	38.5	37.0	38.0	39.0	36.0	38.0	38.5	37.5	38.0	35.5	34.0	35.0
30	38.5	36.5	38.0	39.5	36.0	37.5	39.0	37.5	38.0	35.5	34.5	35.0
31	---	---	---	39.0	36.0	38.0	39.0	38.0	38.5	---	---	---
MONTH	39.0	33.5	37.0	39.5	36.0	38.0	39.5	30.5	38.0	39.5	32.0	37.0

08177400 COLETO CREEK RESERVOIR NEAR VICTORIA, TX

LOCATION.--Lat 28°43'51", long 97°09'53", Victoria County, Hydrologic Unit 12100204, on right bank 175 ft (53 m) upstream from right end of spillway of dam on Coleto Creek, 1.6 mi (2.6 km) upstream from U.S. Highway 59, 11.6 mi (18.7 km) west of Victoria, and 12.8 mi (20.1 km) upstream from mouth. Record includes contents of station 08177240 Coleto Creek Reservoir (Turkey Creek Arm) near Schroeder, and station 08177380 Coleto Creek Reservoir (Sulphur Creek Arm) near Fannin.

DRAINAGE AREA.--494 mi² (1,279 km²).

PERIOD OF RECORD.--February 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage 80.00 ft (23.384 m) National Geodetic Vertical Datum of 1929.
Supplementary gage (Turkey Creek Arm).--Water-stage recorder 2.7 mi (4.3 km) upstream at datum 90.00 ft (17.432 m) National Geodetic Vertical Datum of 1929. Station 08177240 Coleto Creek Reservoir (Turkey Creek Arm) near Schroeder is locally known as Dike No. 2.
Supplementary gage (Sulphur Creek Arm). Water-stage recorder 2.8 mi (4.5 km) upstream at datum 90.00 ft (27.432 m) National Geodetic Vertical Datum of 1929. Station 0817730 Coleto Creek Reservoir (Sulphur Creek Arm) near Fannin is known locally as Dike No. 1.

REMARKS.--The reservoir system consists of the main reservoir (station 08177400), Turkey Creek Arm (station 08177240), and Sulphur Creek Arm (station 08177380). Figures shown below are the total contents for the three stations. Cooling water is diverted from the main reservoir through a Central Power and Light coal-fired generating plant, through a canal to the Sulphur Creek Arm, and then through a canal to Turkey Creek Arm where it is released back into the main reservoir. The system was built by the Guadalupe-Blanco River Authority, and storage began in February 1980.
The main reservoir is formed by a compacted earthfill dam 20,800 ft (6,340 m) long, including a 2,000-foot (610 m) upcontrolled spillway and a 403-foot (123 m) wide concrete outlet structure with seven 40 x 28-foot (12.2 x 8.5 m) spillway gages. Low-flow releases are made through the dam by a controlled 8-inch (203 mm) pipe. Turkey Creek Arm is formed by a compacted earthfill dam 2,250 ft (686 m) long, including a 186-foot (56.7 m) wide concrete outlet structure with two 40 x 11 ft (12.2 x 13.4 m) spillway gates. Sulphur Creek Arm is formed by a compacted earthfill dam 1,030 ft (314 m) long, including a 186-foot (56.7 m) wide concrete outlet structure with two 40 by 11-foot (12.2 by 3.4 m) spillway gates. Data regarding the dams and reservoirs are given in the following table:

	Coleto Creek Reseir		Turkey Creek Arm		Sulphur Creek Arm	
	Gage height (feet)	Contents (acre-feet)	Gage height (feet)	Contents (acre-feet)	Gage height (feet)	Contents (acre-feet)
Top of dam	39.0	140,200	17.0	7,330	17.0	2,550
Spillway	27.3	63,560	--	--	--	--
Top of spillway gates	19.0	34,000	12.9	4,950	12.9	1,640
Crest of spillway	-9.0	954	1.89	1,400	1.91	306

COOPERATION.--Elevations and capacity tables were furnished by Forrest and Cotton Engineers, Consulting Engineers for the Guadalupe-Blanco River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 40,330 acre-ft (49.7 hm³) Feb. 25, 1982; no appreciable storage prior to Feb. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 40,330 acre-ft (49.7 hm³) Feb. 25; minimum daily contents, 34,850 acre-ft (43.0 hm³) Sept. 29, 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36510	37250	37680	37660	37330	36610	37390	37500	37180	36720	35650	35190
2	36520	37160	37540	37500	37410	36930	37430	37500	37190	36620	35640	35140
3	36550	37380	37650	37440	37300	37250	37280	37500	37230	36560	35580	35060
4	36570	37540	37440	37250	37310	37480	37430	37530	37290	36500	35510	35120
5	36630	37890	37550	37410	37200	37460	37310	37530	37290	36400	35510	35090
6	36810	37260	37740	37530	37170	37510	37200	37710	37300	36370	35480	35090
7	36640	37500	37930	37270	37270	37140	37320	37860	37260	36280	35430	35050
8	36810	37700	37920	37070	37410	37340	37400	37640	37260	36220	35450	35040
9	36650	37680	37620	37180	37250	37520	37270	37710	37260	36140	35580	35010
10	36670	37450	37690	36930	37360	37650	37210	37600	37330	36080	35650	35000
11	36730	37370	37830	36900	37410	37620	37220	37740	37310	35990	35660	34960
12	36810	37550	37580	37110	37160	37410	37390	37590	37310	35980	35650	34940
13	36640	37650	37500	36970	37110	37310	37500	37940	37270	36030	35630	34940
14	36640	37300	37500	37040	37290	37430	37500	36780	37250	36050	35630	35020
15	36750	37500	37540	37190	37380	37510	37550	36770	37220	36050	35570	35070
16	36540	37560	37710	37040	37300	37640	37590	36910	37230	36050	35590	35110
17	36560	37670	37510	37100	37380	37740	37570	39330	37230	36020	35540	35140
18	36670	37810	37410	37280	37350	37750	37570	37180	37140	36010	35540	35140
19	36620	37480	37600	37440	37380	37670	37640	37230	37140	35980	35540	35170
20	36730	37170	37800	37530	38270	37630	37470	37070	37120	35980	35520	35140
21	36570	37350	37670	37600	37600	37590	37640	37140	37090	35970	35520	34980
22	37200	37470	37340	37490	36730	37580	37590	37330	37050	35980	35480	34890
23	36930	37550	37320	37160	36980	37580	37540	37650	36990	35950	35410	34900
24	37090	37680	37210	37280	37130	37670	37670	37570	37060	35950	35350	34940
25	36760	37770	37210	37360	40330	37360	37410	37300	37040	35920	35350	34930
26	36660	37820	37300	37200	37100	37220	37430	37420	36990	35890	35320	34890
27	36730	37810	37490	37360	36410	37200	37480	37210	36950	35860	35270	34920
28	36770	37920	37390	37440	36490	37310	37530	37340	36860	35800	35250	34880
29	36870	38100	37420	37470	---	37450	37560	37470	36790	35760	35210	34850
30	38530	37820	37460	37410	---	37330	37500	37520	36750	35740	35210	34850
31	38100	---	37580	37220	---	37440	---	37540	---	35700	35190	---
MAX	38530	38100	37930	37660	40330	37750	37670	39330	37330	36720	35660	35190
MIN	36510	37160	37210	36900	36410	36610	37200	36770	36750	35700	35190	34850

CAL YR 1981 MAX 40050 MIN 23400
WTR YR 1982 MAX 40330 MIN 34850

08177410 COLETO CREEK RESERVOIR (OUTFLOW) NEAR VICTORIA, TX

LOCATION.--Lat 28°43'54", long 97°09'50", Victoria County, Hydrologic Unit 12100204, on top of Coleto Creek Dam at Pier No. 4, 1.6 mi (2.6 km) upstream from U.S. Highway 59, and 11.6 mi (18.7 km) west of Victoria.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1980 to current year.

INSTRUMENTATION.--Water temperature is recorded continuously at this station.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 31, 1981; minimum daily, 10.0°C Jan. 20-23, 1982.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 28.0°C Sept. 22-24; minimum daily, 10.0°C Jan. 20-23.

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	25.5	25.0	25.5	21.5	20.5	21.0	19.5	19.0	19.0	14.5	14.5	14.5
2	25.5	25.5	25.5	21.0	20.5	20.5	19.5	19.0	19.5	14.5	14.5	14.5
3	25.5	25.5	25.5	20.5	20.5	20.5	19.0	19.0	19.0	14.5	14.5	14.5
4	25.5	25.5	25.5	20.5	20.0	20.5	19.0	19.0	19.0	14.5	14.5	14.5
5	25.5	25.5	25.5	20.0	20.0	20.0	19.0	18.5	19.0	14.5	14.5	14.5
6	25.5	25.5	25.5	20.0	20.0	20.0	18.0	18.0	18.0	14.5	14.5	14.5
7	25.5	25.5	25.5	20.0	20.0	20.0	18.0	18.0	18.0	15.0	14.5	14.5
8	25.5	25.5	25.5	20.0	20.0	20.0	18.0	18.0	18.0	15.0	15.0	15.0
9	25.5	25.5	25.5	20.0	20.0	20.0	18.0	18.0	18.0	15.0	14.5	14.5
10	25.5	25.5	25.5	20.0	19.5	19.5	18.0	17.5	18.0	14.5	14.5	14.5
11	25.5	25.5	25.5	19.5	19.5	19.5	18.0	17.5	18.0	14.5	13.5	14.0
12	25.5	25.5	25.5	19.5	19.0	19.0	18.0	17.5	18.0	13.0	13.0	13.0
13	26.0	25.5	25.5	19.0	19.0	19.0	18.0	17.5	17.5	13.0	12.5	12.5
14	26.0	25.5	26.0	19.0	19.0	19.0	17.5	17.5	17.5	12.5	12.0	12.0
15	26.0	26.0	26.0	19.0	19.0	19.0	18.0	17.5	18.0	12.0	11.5	12.0
16	26.0	26.0	26.0	19.0	19.0	19.0	18.0	18.0	18.0	11.5	10.5	11.0
17	26.0	26.0	26.0	19.0	19.0	19.0	18.0	17.5	17.5	11.5	11.5	11.5
18	26.0	26.0	26.0	19.0	19.0	19.0	17.5	16.5	16.5	11.5	11.5	11.5
19	26.0	24.5	25.0	19.0	19.0	19.0	16.5	16.0	16.0	11.5	10.5	11.5
20	25.0	24.5	24.5	19.0	19.0	19.0	16.0	16.0	16.0	10.5	10.0	10.5
21	24.5	24.5	24.5	19.0	19.0	19.0	---	---	---	10.0	10.0	10.0
22	24.5	24.0	24.0	19.0	18.5	18.5	---	---	---	10.0	10.0	10.0
23	24.0	23.0	23.5	18.5	18.5	18.5	---	---	---	10.5	10.0	10.0
24	22.5	22.0	22.0	18.5	18.5	18.5	16.0	16.0	16.0	10.5	10.5	10.5
25	22.0	21.0	21.5	18.5	18.5	18.5	16.0	15.5	16.0	10.5	10.5	10.5
26	21.5	20.5	21.0	18.5	18.5	18.5	15.5	15.0	15.5	11.0	10.5	10.5
27	20.5	20.0	20.0	19.0	18.5	19.0	15.0	14.5	15.0	11.0	11.0	11.0
28	20.0	20.0	20.0	19.0	18.5	19.0	14.5	14.5	14.5	11.0	11.0	11.0
29	20.0	20.0	20.0	19.0	18.5	19.0	14.5	14.5	14.5	11.5	11.0	11.0
30	20.0	19.5	20.0	19.5	19.0	19.0	14.5	14.5	14.5	12.0	11.5	11.5
31	21.5	19.5	20.5	---	---	---	14.5	14.5	14.5	12.5	12.0	12.5
MONTH	26.0	19.5	24.0	21.5	18.5	19.5	19.5	14.5	17.0	15.0	10.0	12.5

08177410 COLETO CREEK RESERVOIR (OUTFLOW) NEAR VICTORIA, TX--Continued

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

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

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

08177500 COLETO CREEK NEAR VICTORIA, TX

LOCATION.--Lat 28°43'51", long 97°08'18", Victoria County, Hydrologic Unit 12100204, on left bank at downstream side of westbound bridge on U.S. Highway 59, 1.6 mi (2.6 km) downstream from Coleto Creek dam, 9.0 mi (14.5 km) southwest of Victoria, and 11.2 mi (18.0 km) upstream from mouth.

DRAINAGE AREA.--514 mi² (1,331 km²).

PERIOD OF RECORD.--June 1939 to September 1954, June 1978 to current year.

REVISED RECORDS.--WSP 1562: 1939-40. WSP 1732: 1941.

GAGE.--Water-stage recorder. Datum of gage is 44.18 ft (13.466 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 17, 1955, at same site and at datum 5.0 ft (1.52 m) higher than present datum.

REMARKS.--Records good. Diversions from Guadalupe River basin to Coleto Creek basin upstream from Coleto Creek Reservoir began Mar. 6, 1980 (see station 08176990). Flow completely regulated since Feb. 21, 1980, by Coleto Reservoir 1.9 mi (3.1 km) upstream. No other large diversion above station. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--16 years (water years 1940-54, 1979) prior to regulation by Coleto Creek Reservoir, 92.7 ft³/s (2.625 m³/s), 67,160 acre-ft/yr (82.8 hm³/yr).

EXTREMES FOR PERIOD OR RECORD.--Maximum discharge, 89,000 ft³/s (2,520 m³/s) Oct. 16, 1946, gage height, 36.64 ft (11.168 m), present datum, from floodmark, on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1875, 236,000 ft³/s (6,680 m³/s) Sept. 22, 1967, gage height, 42.0 ft (12.80 m), present site and datum, from floodmark, on basis of slope-area measurement of peak flow. Flood of Apr. 20, 1976, reached a stage of 37.85 ft (11.537 m), present site and datum. Flood of July 1, 1936, reached a stage of 32.2 ft (9.81 m), present site and datum, from information by railroad company.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 39,100 ft³/s (1,110 m³/s) Oct. 31 at 1800 hours, gage height, 27.02 ft (8.236 m); minimum daily, 3.3 ft³/s (0.093 m³/s) Sept. 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	6000	8.1	12	5.0	131	43	6.7	179	4.6	5.1	4.7
2	5.1	729	87	144	5.2	10	25	4.8	59	4.6	5.3	4.7
3	5.1	178	8.7	18	4.8	7.8	26	4.8	11	4.4	5.4	4.2
4	4.9	159	6.4	13	4.8	6.5	5.7	5.0	8.9	4.6	5.2	4.1
5	83	24	6.3	14	4.7	5.7	34	4.8	7.6	4.4	5.1	4.1
6	72	304	6.4	13	4.7	5.4	6.6	341	6.9	4.3	5.0	4.0
7	203	39	6.1	11	4.8	181	5.1	88	6.4	4.6	5.1	4.0
8	10	13	60	11	4.9	13	4.7	165	5.8	4.7	5.2	4.0
9	150	11	108	11	4.5	6.4	4.6	14	5.7	4.8	7.1	3.9
10	8.5	101	15	11	4.8	5.4	4.7	216	5.5	4.8	5.8	4.5
11	5.3	104	5.6	11	4.9	53	4.8	12	5.5	4.9	5.6	4.5
12	5.3	8.1	68	12	61	89	4.8	71	5.2	5.0	5.3	3.9
13	92	7.2	20	7.5	7.1	67	5.0	644	4.9	5.0	5.2	4.0
14	5.8	179	9.6	6.9	5.1	6.6	5.3	1320	5.0	4.9	5.1	4.4
15	5.7	16	8.9	6.8	4.8	5.6	5.1	197	4.9	5.2	5.0	4.7
16	93	8.7	9.1	6.1	32	5.3	5.1	46	4.9	4.9	5.0	4.4
17	5.9	8.0	8.2	6.5	7.9	6.0	4.6	348	4.9	4.7	5.1	4.2
18	100	7.2	8.2	6.5	4.3	16	5.1	4740	4.9	4.6	5.2	4.0
19	102	68	8.3	6.5	4.5	47	5.0	443	4.8	4.9	5.2	3.9
20	6.8	80	8.6	6.4	685	29	34	218	4.9	4.9	5.2	3.9
21	121	9.8	72	6.2	1270	37	26	81	4.6	5.1	5.3	3.9
22	70	8.7	120	48	643	5.1	43	21	4.5	5.3	5.2	3.9
23	663	7.8	10	41	30	5.7	35	55	4.5	5.3	5.2	4.0
24	49	7.3	9.7	7.1	23	9.7	73	2040	5.0	5.0	5.0	3.9
25	262	7.2	9.6	5.5	3100	86	168	1660	4.7	5.0	5.0	3.8
26	7.4	7.2	9.6	5.6	6210	8.9	12	228	4.4	5.0	4.9	3.5
27	5.8	6.7	9.6	5.8	1060	5.7	5.7	216	4.6	5.2	4.8	3.5
28	5.4	6.5	9.0	5.4	217	5.2	5.4	48	4.6	5.1	4.6	3.4
29	5.1	6.7	8.8	5.6	---	33	4.8	18	4.4	5.4	4.5	3.3
30	5.1	79	12	5.1	---	128	32	5.9	4.6	5.2	4.9	3.5
31	15800	---	12	4.6	---	20	---	52	---	5.1	4.9	---
TOTAL	17962.5	8191.1	748.8	474.1	13417.8	1041.0	643.1	13314.0	391.6	151.5	160.5	120.8
MEAN	579	273	24.2	15.3	479	33.6	21.4	429	13.1	4.89	5.18	4.03
MAX	15800	6000	120	144	6210	181	168	4740	179	5.4	7.1	4.7
MIN	4.9	6.5	5.6	4.6	4.3	5.1	4.6	4.8	4.4	4.3	4.5	3.3
AC-FT	35630	16250	1490	940	26610	2060	1280	26410	777	301	318	240

CAL YR 1981 TOTAL 87749.80 MEAN 240 MAX 15800 MIN .00 AC-FT 174100
WTR YR 1982 TOTAL 56616.80 MEAN 155 MAX 15800 MIN 3.3 AC-FT 112300

08177800 OLMOS RESERVOIR AT SAN ANTONIO, TX

LOCATION.--Lat 29°28'28", long 98°28'23", Bexar County, Hydrologic Unit 12100301, at left upstream side of dam on Olmos Drive, 0.8 mi (1.3 km) upstream from Hildebrand Street, 1.5 mi (2.4 km) upstream from Brackenridge Park Zoo, and 4.0 mi (6.4 km) downstream from gaging station 08177700.

DRAINAGE AREA.--32.4 mi² (83.9 km²).

PERIOD OF RECORD.--June 1968 to September 1971, April 1976 to current year.

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

REMARKS.--The dam is a concrete gravity-type structure with a maximum height of 50 ft (15 m) and a total length of 1,941 ft (592 m), spillway crest length 1,051 ft (320 m). The dam, spillway section, and gate house were rebuilt in 1980. The outlet structure consists of six vertical slide-gate-controlled concrete conduits with entrance dimensions of 5.75 ft (1.75 m) wide by 7.83 ft (2.39 m) high. The gates are maintained and operated by the city of San Antonio Fire Department as required to control downstream floodflow. The reservoir is empty except during flooding when it is used as a detention reservoir. The reservoir has a surface area of about 950 acres (384 hm²) at top of the dam. The dam is owned by the city of San Antonio. Rain gage and gage-height telemeters at station. Figures given herein represent elevations at 2400 hours. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Design flood (probably maximum flood)	736.4	24,150
Floor of gate operating room	736.0	23,560
Top of dam (crest of spillway)	728.0	14,240
Lowest gated outlet (invert)	680.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 706.97 ft (215.484 m) Oct. 7, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 706.97 ft (215.484 m) Oct. 7.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	681.68	681.68	681.68	681.68	681.68	681.68	681.68	682.14	681.68	681.68	681.68	681.68
2	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
3	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
4	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
5	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
6	685.78	681.68	681.68	681.68	681.68	681.68	681.68	697.90	681.68	681.68	681.68	681.68
7	699.23	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
8	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
9	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
10	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
11	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
12	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	682.01	681.68	681.68	681.68
13	681.68	681.68	681.68	681.68	681.68	681.68	681.68	682.40	681.68	681.68	681.68	681.68
14	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
15	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
16	681.68	681.68	681.68	681.68	681.68	681.68	681.68	689.55	681.68	681.68	681.68	681.68
17	681.68	681.68	681.68	681.68	681.68	681.68	681.68	683.75	681.68	681.68	681.68	681.68
18	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
19	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.69	681.82	681.68	681.68	681.68
20	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
21	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
22	681.68	681.68	681.68	681.68	681.68	681.68	681.77	681.68	681.89	681.68	681.68	681.68
23	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.70	681.68	681.68	681.68	681.68
24	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
25	681.68	681.68	681.68	681.68	682.94	681.68	681.68	681.68	681.68	681.68	681.68	681.68
26	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
27	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
28	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68
29	681.68	681.68	681.68	681.68	---	681.68	681.68	681.68	681.68	681.68	681.68	681.68
30	681.68	681.68	681.68	681.68	---	681.68	681.68	681.68	682.74	681.68	681.68	681.68
31	687.66	---	681.68	681.68	---	681.68	---	681.68	---	681.68	681.68	---
MAX	699.23	681.68	681.68	681.68	682.94	681.68	681.77	697.90	682.74	681.68	681.68	681.68
MIN	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68	681.68

CAL YR 1981 MAX 702.43 MIN 681.53
WTR YR 1982 MAX 699.23 MIN 681.68

08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX

LOCATION.--Lat 29°24'34", long 98°29'41", Bexar County, Hydrologic Unit 12100301, on left bank 193 ft (59 m) downstream from South Alamo Street Bridge in San Antonio, 2.1 mi (3.4 km) upstream from San Pedro Creek, and 230.6 mi (371.1 km) upstream from mouth.

DRAINAGE AREA.--41.8 mi² (108.3 km²). Flow of river comes from intermittent spring flow and from artesian wells; drainage area of streams not applicable.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1895 to June 1906 (periodic discharge measurements only), January 1915 to November 1929, February 1939 to current year. Ground-water discharge into river is discussed by Petit and George, Texas Board of Water Engineers Bull. 5608, vol. 1 (1956, p. 45).

REVISED RECORDS.--WSP 1312: 1917. WSP 1923: Drainage area. WRD TX-72-1: 1971(m).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 605.26 ft (184.483 m) National Geodetic Vertical Datum of 1929. Jan. 26, 1915, to Feb. 27, 1916, nonrecording gage at site 1.3 mi (2.1 km) upstream at different datum. Feb. 28, 1916, to Apr. 7, 1920, nonrecording gage at site 1.1 mi (1.8 km) upstream at different datum. Apr. 8, 1920, to Nov. 16, 1929, and Feb. 15, 1939, to Apr. 25, 1967, water-stage recorder in vicinity of South Alamo Street Bridge at 7.00-foot (2.134 m) higher datum. Apr. 25, 1967, to May 13, 1969, water-stage recorder at site 307 ft (94 m) downstream at same datum.

REMARKS.--Water-discharge records good. Floodflow is regulated by Olmos flood-control reservoir, capacity 14,240 acre-ft (17.6 hm³), about 8.5 mi (13.7 km) upstream. Dam completed in 1926 and rebuilt in 1980. Springs emerge intermittently from the Edwards and associated limestones along the Balcones Fault Zone. Rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--57 years, 55.7 ft³/s (1.577 m³/s), 18.10 in/yr (460 mm/yr), 40,350 acre-ft/yr (49.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft³/s (433 m³/s) Sept. 10, 1921, gage height, 20.14 ft (6.139 m), from floodmark, at former site and datum, from rating curve extended above 2,000 ft³/s (56.6 m³/s) on basis of slope-area measurement of peak flow; no flow at times due to regulation.
Maximum stage since 1819, that of Sept. 10, 1921.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,100 ft³/s (59.5 m³/s) Oct. 7 at 0130 hours, gage height, 10.87 ft (3.313 m); minimum daily, 8.0 ft³/s (0.23 m³/s) Aug. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	134	57	59	46	36	31	29	87	21	10	15
2	36	82	62	59	44	36	31	42	78	14	12	15
3	35	80	62	74	44	37	29	25	73	13	10	13
4	35	79	61	56	41	38	27	26	61	12	11	11
5	35	81	61	51	40	36	28	27	49	15	12	8.7
6	143	79	70	51	39	37	24	1140	47	14	12	11
7	1490	79	65	51	40	37	24	745	38	14	15	11
8	811	106	63	49	42	37	25	67	31	13	14	12
9	91	97	62	47	40	37	23	63	27	13	76	14
10	70	83	62	47	39	36	24	72	27	13	13	14
11	60	79	63	47	37	37	24	85	24	13	8.0	13
12	66	81	62	78	38	36	24	222	183	13	15	11
13	68	81	60	49	33	31	19	195	23	13	15	34
14	65	83	64	33	34	34	18	82	36	13	14	25
15	64	86	64	38	36	34	17	81	23	13	13	20
16	63	86	66	44	33	32	17	100	22	14	14	16
17	64	82	64	48	29	32	17	166	23	13	14	15
18	74	85	59	49	27	32	15	99	20	12	14	15
19	65	82	59	48	27	30	18	98	22	13	16	12
20	62	79	63	49	67	26	18	102	21	13	16	17
21	66	78	62	51	38	26	18	102	19	13	15	14
22	112	77	64	51	30	36	39	102	19	18	12	13
23	76	87	62	48	29	35	51	112	17	14	15	11
24	68	56	58	48	34	30	31	145	15	12	15	9.4
25	70	62	57	49	57	29	26	109	15	11	15	12
26	70	63	61	47	96	28	25	105	15	13	15	11
27	69	63	62	49	36	36	25	103	9.4	12	15	12
28	68	64	61	50	34	33	24	103	12	12	15	12
29	68	65	57	50	---	32	22	101	12	13	13	11
30	76	77	75	56	---	37	31	96	24	12	14	11
31	335	---	70	46	---	33	---	92	---	12	14	---
TOTAL	4498	2416	1938	1572	1130	1046	745	4636	1072.4	414	482.0	419.1
MEAN	145	80.5	62.5	50.7	40.4	33.7	24.8	150	35.7	13.4	15.5	14.0
MAX	1490	134	75	78	96	38	51	1140	183	21	76	34
MIN	23	56	57	33	27	26	15	25	9.4	11	8.0	8.7
CFSM	3.47	1.93	1.50	1.21	.97	.81	.59	3.59	.85	.32	.37	.34
IN.	4.00	2.15	1.72	1.40	1.01	.93	.66	4.13	.95	.37	.43	.37
AC-FT	8920	4790	3840	3120	2240	2070	1480	9200	2130	821	956	831

CAL YR 1981	TOTAL	24356.0	MEAN 66.7	MAX 1490	MIN 3.6	CFSM 1.60	IN 21.68	AC-FT 48310		
WTR YR 1982	TOTAL	20368.5	MEAN 55.8	MAX 1490	MIN 8.0	CFSM 1.34	IN 18.13	AC-FT 40400		

08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: May 1970 to September 1973. Water temperatures: November 1968 to current year. Bacteria analyses: May 1976 to current year.

REMARKS.--Peak discharges for storm events during which water-quality samples were obtained are given in the following table:

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 21	1215	292	8.27	7.13	2.173
Apr. 29	0730	1,640	46.4	10.02	3.054
July 5	0930	1,210	34.3	9.31	2.838

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
DEC												
21...	1518	97	504	8.2	22.0	0	4.3	12.8	151	.8	2200	400
MAY												
13...	0940	673	301	7.7	21.5	10	350	8.0	93	7.2	K120000	K180000
JUL												
20...	1045	15	523	8.1	28.0	5	48	--	--	--	--	--

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
DEC												
21...	240	31	70	16	11	.3	1.6	210	18	18	.3	13
MAY												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
20...	230	25	66	17	17	.5	2.5	210	33	21	.3	12

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
DEC											
21...	274	8	4	--	<.020	1.7	<.070	--	2.10	.050	1.0
MAY											
13...	--	438	49	1.2	.040	1.2	.210	1.8	2.00	.580	20
JUL											
20...	295	83	9	1.2	.030	1.2	.080	3.0	3.10	.090	3.0

08178000 SAN ANTONIO RIVER AT SAN ANTONIO TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JUL 20...	1045	2	62	<1	10	2	5

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JUL 20...	9	7	.1	<1	<1	11

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)
JUL 20...	1045	<.10	<.10	<.01	<.10	.01	.01	.02	.21

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)
JUL 20...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	.01	<.01

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)
JUL 20...	<.01	<.01	<.01	<.01	<1	<.01	.52	<.01	<.01

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX

LOCATION.-Lat 29°30'57", long 98°25'51", Bexar County, Hydrologic Unit 12100301, on right bank at downstream side of eastbound bridge on Interstate Highway 410 in San Antonio, 1.0 mi (1.6 km) west of Northeast School, 1.1 mi (1.8 km) upstream from Perrin-Beitel Creek, and 2.7 mi (4.3 km) east of San Antonio International Airport.

DRAINAGE AREA.--137 mi² (355 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder with concrete control. Datum of gage is 684.60 ft (208.666 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records 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 eleven floodwater-retarding structures with combined detention capacity of 26,770 acre-ft (33.0 hm³). These structures control runoff from 74.6 mi² (193.2 km²) above this station.

AVERAGE DISCHARGE.--22 years, 9.68 ft³/s (0.274 m³/s), 7,010 acre-ft/yr (8.64 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 second and third highest since 1899.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.08 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 7	0330	2,440	69.1	7.41	2.259
May 06	unknown	*10,200	289	a11.20	3.414

a From floodmark.

Minimum discharge, no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.51	28	.23	1.2	.63	1.4	.65	.18	1.2	.16	.04	.00
2	.51	9.0	.36	4.4	.70	1.0	.55	.63	5.2	.11	.00	.00
3	.66	7.6	.47	5.1	2.4	1.4	.44	.14	5.3	.09	.00	.00
4	.52	7.5	.48	4.3	5.7	1.3	.51	.07	5.3	.00	.00	.04
5	.67	7.0	.33	.35	5.4	1.3	.63	.04	5.1	.00	.00	.03
6	40	6.0	.43	.15	1.6	1.2	.51	1800	.84	.00	.00	.00
7	462	5.3	2.0	3.5	1.5	1.4	.95	47	.63	.13	.00	.00
8	19	6.9	4.4	4.0	1.6	1.2	1.8	13	.63	.40	.01	.00
9	13	2.2	2.3	4.0	1.5	1.3	1.7	11	.51	1.3	.06	.07
10	9.1	2.1	.23	1.0	1.4	1.7	1.5	11	.50	2.0	.95	.00
11	8.3	2.1	2.3	3.7	1.5	1.8	1.5	8.2	.32	1.8	.43	.00
12	7.5	4.7	.93	6.9	1.5	1.1	1.7	16	7.5	1.1	.13	.00
13	7.8	.38	3.8	4.6	1.5	1.2	1.8	21	1.3	1.1	.08	.09
14	5.5	1.2	3.9	4.5	1.5	1.1	1.8	11	.77	.77	.03	.41
15	1.9	1.2	3.6	3.8	1.5	.96	.13	9.1	1.0	.71	.00	.05
16	1.1	2.0	3.6	.47	1.1	.63	.04	8.1	.80	.25	.00	.15
17	.61	5.7	3.6	.29	.89	.09	.00	14	.63	.06	.00	.05
18	.46	4.8	3.6	.18	.88	.05	.00	34	.24	.00	.03	.00
19	.60	.19	3.6	.21	.76	4.5	.00	22	.13	.00	.00	.00
20	.79	.07	3.6	.20	4.1	.98	.00	10	.05	.00	.00	1.6
21	1.0	.64	3.6	1.1	1.3	.77	.00	9.1	.00	.00	.00	.10
22	3.4	1.3	3.5	8.1	1.2	.91	1.5	7.9	.00	.08	.00	.00
23	1.4	2.0	2.9	8.4	.84	1.3	.16	6.6	.00	.00	.00	.00
24	.88	3.1	.43	6.1	1.6	1.4	.11	8.1	.00	.02	.00	.00
25	.79	5.2	.19	1.5	6.4	1.0	.04	4.9	.00	.04	.00	.00
26	.58	5.2	.14	1.1	12	.95	.00	2.0	.00	.00	.02	.00
27	.40	4.7	.13	1.1	1.9	1.9	.00	1.8	.00	.00	.08	.00
28	.20	4.0	.14	1.1	1.4	1.3	.00	1.8	.00	.00	.05	.00
29	.10	.46	.15	1.0	---	1.3	.00	1.5	.00	.02	.00	.00
30	.20	.27	1.3	1.7	---	1.4	.00	1.3	.00	.07	.00	.00
31	110	---	3.6	.78	---	1.3	---	1.1	---	.05	.00	---
TOTAL	699.48	130.81	59.84	84.83	64.30	39.14	18.02	2082.56	37.95	10.26	1.91	2.59
MEAN	22.6	4.36	1.93	2.74	2.30	1.26	.60	67.2	1.27	.33	.062	.086
MAX	462	28	4.4	8.4	12	4.5	1.8	1800	7.5	2.0	.95	1.6
MIN	.10	.07	.13	.15	.63	.05	.00	.04	.00	.00	.00	.00
AC-FT	1390	259	119	168	128	78	36	4130	75	20	3.8	5.1

CAL YR 1981	TOTAL	2693.78	MEAN 7.38	MAX 462	MIN .00	AC-FT 5340		
WTR YR 1982	TOTAL	3231.69	MEAN 8.85	MAX 1800	MIN .00	AC-FT 6410		

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV 05...	1408	7.6	657	7.7	20.0	5	12	8.9	100	2.6	K1700	280
MAY 13...	0950	13	570	8.0	22.0	--	--	6.7	80	--	--	--

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 05...	48	99	7.4	21	.6	26	230	84	20	.4	15
MAY 13...	--	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 05...	411	17	9	.93	.070	1.0	.410	.31	.72	.010	4.1
MAY 13...	--	--	--	--	--	--	--	--	--	--	--

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 fair. Small diversions above station. Recording rain gages located in watershed. Most of low flow comes from artesian wells and springs in city of San Antonio. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08178700.

AVERAGE DISCHARGE.--22 years, 42.3 ft³/s (1.198 m³/s), 3.04 in/yr (77 mm/yr), 30,650 acre-ft/yr (37.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s (371 m³/s) Sept. 27, 1973, gage height, 28.83 ft (8.787 m); no flow Aug. 13, 1967.
Maximum stage since at least 1941, that of Sept. 27, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of Sept. 27, 1946, and Aug. 15, 1960, were about equal magnitude. Flood of Aug. 15, 1960, reached a stage of 26.8 ft (8.17 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,190 ft³/s (119 m³/s) May 6, gage height, 20.08 ft (6.120 m) from floodmark; minimum daily, 7.2 ft³/s (0.20 m³/s) Sept. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	303	24	25	29	26	19	15	18	26	13	7.2
2	19	128	23	21	25	25	19	14	18	17	12	8.1
3	17	82	22	20	25	23	19	14	19	14	11	9.2
4	19	67	21	21	24	23	19	14	20	14	10	11
5	22	66	21	21	27	22	18	63	20	13	11	9.7
6	52	66	22	21	28	21	18	2820	19	12	11	9.3
7	654	65	24	19	26	20	18	337	18	13	9.9	9.1
8	132	65	22	18	24	19	18	62	17	12	12	9.9
9	59	58	24	21	24	18	18	43	17	12	35	10
10	49	33	24	22	23	18	18	38	16	12	48	10
11	36	27	24	21	24	18	18	36	16	12	13	11
12	32	25	21	50	25	18	18	36	101	11	9.7	14
13	31	27	21	48	23	18	17	35	57	10	9.7	30
14	30	26	23	28	23	19	17	34	20	8.9	9.0	36
15	30	24	26	25	23	21	16	52	17	8.9	8.8	15
16	28	24	24	24	23	21	16	238	16	10	8.3	15
17	28	25	23	22	24	21	15	97	16	9.6	8.5	11
18	27	28	24	21	21	20	15	52	17	10	8.2	9.8
19	27	26	22	21	20	20	16	39	16	11	8.5	9.6
20	26	24	21	20	58	22	15	34	14	11	8.4	38
21	25	22	22	21	48	22	15	25	13	11	9.4	30
22	25	23	23	22	26	21	23	23	13	11	8.9	11
23	24	24	22	24	22	32	44	25	12	13	8.3	11
24	23	25	21	26	21	25	31	49	12	12	9.3	9.9
25	23	26	21	26	22	23	20	34	14	13	11	9.9
26	22	26	19	23	100	21	15	23	14	12	13	9.2
27	22	30	19	22	52	25	13	19	14	11	12	8.9
28	21	29	19	21	28	29	12	18	13	12	8.6	8.5
29	20	28	19	21	---	25	11	19	12	13	8.8	9.5
30	20	27	22	28	---	24	13	18	16	12	8.5	9.2
31	746	---	33	37	---	20	---	18	---	12	8.6	---
TOTAL	2308	1449	696	760	838	680	544	4344	605	379.4	371.4	400.0
MEAN	74.5	48.3	22.5	24.5	29.9	21.9	18.1	140	20.2	12.2	12.0	13.3
MAX	746	303	33	50	100	32	44	2820	101	26	48	38
MIN	17	22	19	18	20	18	11	14	12	8.9	8.2	7.2
CFSM	.39	.26	.12	.13	.16	.12	.10	.74	.11	.07	.06	.07
IN.	.45	.29	.14	.15	.16	.13	.11	.86	.12	.07	.07	.08
AC-FT	4580	2870	1380	1510	1660	1350	1080	8620	1200	753	737	793

CAL YR 1981 TOTAL 16344.8 MEAN 44.8 MAX 1090 MIN 8.2 CFSM .24 IN 3.22 AC-FT 32420
WTR YR 1982 TOTAL 13374.8 MEAN 36.6 MAX 2820 MIN 7.2 CFSM .19 IN 2.63 AC-FT 26530

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
DEC 14...	1359	22	832	8.0	16.0	5	5.3	10.2	106	1.8	320
JUL 20...	0955	11	734	7.9	27.0	5	7.0	--	--	--	270

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
DEC 14...	96	97	18	49	1.3	4.8	220	67	82	.3	12
JUL 20...	31	82	16	48	1.3	3.4	240	54	64	.3	15

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
DEC 14...	462	11	2	<.020	.92	.090	.48	.57	.010	3.2
JUL 20...	427	6	<2	<.020	.68	.120	.88	1.00	.030	2.7

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JUL 20...	0955	2	92	<1	<10	1	8

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JUL 20...	8	9	<.1	<1	<1	5

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)
JUL 20...	0955	<.10	<.10	<.01	<.10	<.01	<.01	<.01	.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JUL 20...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

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)
JUL 20...	<.01	<.01	<.01	<.01	<1	<.01	<.01	<.01	<.01

08179000 MEDINA RIVER NEAR PIPE CREEK, TX

LOCATION.--Lat 29°40'31", long 98°58'33", Bandera County, Hydrologic Unit 12100302, on right bank 500 ft (150 m) upstream from Bandera Falls, 0.6 mi (1.0 km) upstream from Red Bluff Creek, and 4.1 mi (6.6 km) southwest of Pipe Creek.

DRAINAGE AREA.--474 mi² (1,228 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1922 to June 1935, October 1952 to current year. Monthly discharge only for some periods published in WSP 1312 and 1732.

REVISED RECORDS.--WSP 1312: 1925(M). WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,067.37 ft (325.334 m) Corps of Engineers datum. December 1922 to June 1935, water-stage recorder at site 1.9 mi (3.1 km) upstream at different datum.

REMARKS.--Water-discharge records good except those for periods of no gage-height record, which are poor. Small diversion above station.

AVERAGE DISCHARGE.--42 years (water years 1923-34, 1953-82), 146 ft³/s (4.135 m³/s), 4.18 in/yr (106 mm/yr), 105,800 acre-ft/yr (130 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 281,000 ft³/s (7,960 m³/s) Aug. 2, 1978, gage height, 49.6 ft (15.12 m), from floodmark, from rating curve extended above 32,000 ft³/s (906 m³/s) on basis of slope-area measurements of 64,000 and 281,000 ft³/s (1,810 and 7,960 m³/s); minimum, 0.2 ft³/s (0.006 m³/s) July 14-16, 1956.
Maximum stage since at least 1880, that of Aug. 2, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1919 reached a stage of about 43 ft (13.1 m), present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s (45.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 7	unknown	unknown	---	unknown	---	May 13	1900	7,240	205	11.10	3.383
Oct. 13	unknown	*29,800	844	a22.78	6.943	June 12	1300	2,570	72.8	6.84	2.085

a From floodmark.

Minimum daily discharge, 42 ft³/s (1.19 m³/s) Aug. 5, 7.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	295	160	126	93	101	80	88	138	107	47	45
2	97	280	155	126	92	96	78	84	136	101	48	46
3	93	270	157	124	90	93	74	76	131	99	47	44
4	91	260	152	120	88	92	74	72	127	94	44	44
5	88	260	149	119	88	89	73	69	125	95	42	45
6	1010	250	149	121	87	85	70	134	123	93	43	47
7	6600	240	149	115	88	84	70	104	121	92	42	49
8	770	250	151	114	87	85	72	102	119	89	62	48
9	650	240	147	116	85	84	70	90	115	83	124	47
10	565	230	146	115	84	84	69	84	113	80	77	46
11	495	225	145	112	83	84	70	84	110	78	76	46
12	445	225	142	122	82	83	70	86	825	75	70	50
13	14300	220	140	122	80	83	70	2900	310	73	66	47
14	4500	215	144	121	80	82	69	1150	198	72	69	51
15	1410	210	142	118	80	81	67	490	166	68	69	54
16	850	205	139	113	77	81	67	335	151	65	69	75
17	760	205	135	111	77	83	67	274	145	64	68	61
18	630	200	133	112	76	80	65	242	152	60	63	56
19	550	195	133	110	76	79	67	218	145	59	54	52
20	490	190	134	110	83	78	65	201	140	59	55	52
21	450	185	134	111	103	76	67	190	137	58	55	52
22	500	180	135	110	91	77	76	182	130	59	54	51
23	520	180	129	104	86	77	78	171	125	66	63	51
24	430	180	126	102	82	78	80	202	122	60	61	50
25	410	175	127	101	82	76	80	205	122	57	55	49
26	360	175	128	99	98	74	76	179	118	55	52	50
27	330	170	129	97	104	75	72	168	114	53	54	57
28	320	167	126	98	106	74	70	164	114	50	46	50
29	315	166	125	97	---	77	69	162	108	49	47	46
30	300	165	126	99	---	80	69	153	105	49	48	45
31	300	---	126	94	---	81	---	143	---	48	48	---
TOTAL	38726	6408	4313	3459	2428	2552	2144	8802	4785	2210	1818	1506
MEAN	1249	214	139	112	86.7	82.3	71.5	284	160	71.3	58.6	50.2
MAX	14300	295	160	126	106	101	80	2900	825	107	124	75
MIN	88	165	125	94	76	74	65	69	105	48	42	44
CFSM	2.64	.45	.29	.24	.18	.17	.15	.60	.34	.15	.12	.11
IN.	3.04	.50	.34	.27	.19	.20	.17	.69	.38	.17	.14	.12
AC-FT	76810	12710	8550	6860	4820	5060	4250	17460	9490	4380	3610	2990

CAL YR 1981	TOTAL 145321	MEAN 398	MAX 14300	MIN 87	CFSM .84	IN 11.40	AC-FT 288200			
WTR YR 1982	TOTAL 79151	MEAN 217	MAX 14300	MIN 42	CFSM .46	IN 6.21	AC-FT 157000			

NOTE.--No gage-height record Oct. 4 to Nov. 26.

08179000 MEDINA RIVER NEAR PIPE CREEK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
18...	1245	114	538	.0	9.5	0	.40	12.2	110	.9	K8	K18
MAY												
11...	1308	84	504	7.9	21.0	5	1.2	8.6	100	.6	--	180
13...	1445	4980	255	--	--	--	--	--	--	--	--	--
JUL												
12...	1246	74	477	--	29.0	<1	1.2	8.2	109	2.4	20	250

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JAN											
18...	280	81	81	19	7.4	.2	1.1	200	78	13	.2
MAY											
11...	250	81	71	18	7.9	.2	2.2	170	75	13	.3
13...	130	22	39	7.8	3.4	.1	2.5	107	23	5.9	.2
JUL											
12...	240	84	68	18	8.3	.2	1.8	160	70	13	.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN											
18...	8.6	329	4	3	<.020	.70	.070	.52	.59	<.010	1.0
MAY											
11...	11	301	49	6	<.020	.36	.170	.71	.88	.930	1.7
13...	11	157	--	--	--	--	--	--	--	--	--
JUL											
12...	12	288	<1	<2	<.020	.27	<.060	--	.40	.020	1.0

08179000 MEDINA RIVER NEAR PIPE CREEK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 18...	1245	<1	30	2	<10	<1	<10
JUL 12...	1246	1	34	<1	10	<1	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 18...	1	<1	<.1	<1	<1	<3
JUL 12...	2	2	.1	<1	<1	6

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN 18...	1245	.00	.00	.00	.00	.00	.00	.00	.00
JUL 12...	1246	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JAN 18...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL 12...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 18...	.00	.00	.00	.00	0	.00	.00	.00	.00
JUL 12...	<.01	<.01	<.01	<.01	<1	<.01	<.01	<.01	<.01

08179500 MEDINA LAKE NEAR SAN ANTONIO, TX

LOCATION.--Lat 29°32'24", long 98°56'01", Medina County, Hydrologic Unit 12100302, at gate-operating platform, 576 ft (176 m) from left end of Medina Dam on Medina River, 4.2 mi (6.8 km) upstream from Medina diversion dam, 13 mi (21 km) north of Castroville, 28 mi (45 km) west of San Antonio, and 70.4 mi (113.3 km) upstream from mouth. Water-quality sampling site at the center of low-water bridge 0.6 mi (1.0 km) downstream.

DRAINAGE AREA.--634 mi² (1,642 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1913 to current year. Prior to October 1965, monthend contents only.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Nonrecording gage read once daily if stage changing materially, otherwise intermittently. Datum of gage is 7.80 ft (2.377 m) below National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a gravity-type concrete dam, 1,580 ft (482 m) long. The dam was completed and storage began May 7, 1913. The uncontrolled emergency spillway is a cut through natural rock 880 ft (268 m) long, with a 3-foot-wide (1 m) cutoff wall, located near right end of dam. The dam and lake are owned by the Bexar-Medina-Atascosa Counties Water Improvement District No. 1, which has a permit from the Texas Department of Water Resources to irrigate 150,000 acres (60,700 hm²) annually. An undetermined amount of water from the lake enters the Edwards and associated limestones in the Balcones Fault Zone, part of which is above and part below the dam. Water is released downstream to Medina Diversion Reservoir where it is diverted into Medina Canal by the Water District. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam	1,084.0	-
Crest of spillway	1,072.0	254,000
Water-supply outlet pipes (invert)	966.5	4,780
Lowest gated outlet (invert)	920.0	0

COOPERATION.--Capacity table, based on survey made prior to June 1912, and gage-height record were furnished by the Bexar-Medina-Atascosa Counties Water Improvement District No. 1.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents observed, 288,800 acre-ft (365 hm³) Sept. 16, 1919, gage height, 1,078.0 ft (328.57 m); minimum observed since lake first filled, 780 acre-ft (0.962 hm³) about Apr. 11, 1948, gage height, 944.0 ft (287.73 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents, 265,600 acre-ft (327 hm³) Oct. 14, gage height, 1,074.0 ft (327.36 m); minimum, 206,600 acre-ft (255 hm³) Sept. 30, gage height, 1,062.9 ft (323.97 m).

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

1,060.0	192,000	1,070.0	242,400
1,065.0	217,200	1,074.0	265,600

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	251700	255200	254000	252900	249400	246500	242400	236400	248200	241400	228300	218200
2	251100	254600	254000	252900	249400	246500	242400	235900	247600	240900	228300	217700
3	250500	254600	254000	252900	249400	245900	241900	235900	247600	240400	227800	217200
4	250500	254600	254000	252900	249400	245900	241900	235400	247600	239900	227300	217200
5	250500	254600	254000	252300	248800	245300	241900	235900	247600	239400	226800	216700
6	250000	254600	254000	252300	248800	245300	241400	236400	247600	238900	226800	216200
7	249400	254600	254000	252300	248800	245300	241400	236400	247100	238400	226300	216200
8	252300	254600	254000	251700	248800	245300	240900	236400	247100	237900	225800	215700
9	255200	254600	254000	251700	248800	244700	240900	236400	247100	237400	225800	215200
10	255200	254600	254000	251700	248200	244700	240900	236400	246500	236900	225300	215200
11	255200	254600	254000	251100	248200	244700	240400	237400	246500	236400	224800	214700
12	255200	254600	254000	251100	248200	244700	240400	237900	245900	235900	224800	214200
13	265000	254600	253400	251100	248200	244700	239900	238400	245900	235400	224300	214200
14	265600	254600	253400	250500	247600	244700	239900	238400	245900	234900	224300	212200
15	264400	254600	253400	250500	247600	244700	239400	238400	245900	234400	223800	211700
16	262700	254600	253400	250500	247600	244200	239400	238400	245300	233900	223300	211200
17	261000	254600	253400	250500	247100	244200	238900	238900	245300	233400	223300	211200
18	259800	254000	253400	250500	247100	244200	238900	239900	245300	232800	222800	210700
19	256900	254000	253400	250000	247100	244200	238400	240900	244700	232300	222300	210200
20	256300	254000	253400	250000	247100	244200	238400	241900	244700	232300	222300	209700
21	256300	254000	253400	250000	246500	244200	238400	242400	244700	231800	221800	209100
22	255700	254000	253400	250000	246500	244200	237900	243600	244200	231800	221200	209100
23	255700	254000	253400	250000	246500	244200	237900	246500	244200	231300	221200	208600
24	255700	254000	253400	249400	246500	244200	237900	247600	243600	231300	221200	208100
25	255700	254000	253400	249400	246500	244200	237400	247600	243600	230800	220700	207600
26	255200	254000	253400	249400	246500	244200	237400	248200	243000	230300	220200	207100
27	255200	254000	253400	249400	246500	243600	236900	248200	243000	230300	220200	207100
28	255200	254000	253400	249400	246500	243600	236900	248200	242400	229800	219700	207600
29	255200	254000	253400	249400	---	243000	236900	248200	241900	229300	219200	207100
30	255200	254000	253400	249400	---	243000	236400	248200	241900	229300	218700	206600
31	255200	---	253400	249400	---	243000	---	248200	---	228800	218700	---
MAX	265600	255200	254000	252900	249400	246500	242400	248200	248200	241400	228300	218200
MIN	249400	254000	253400	249400	246500	243000	236400	235400	241900	228800	218700	206600
(†)	1072.2	1072.0	1071.9	1071.2	1070.7	1070.1	1068.8	1071.0	1069.9	1067.3	1065.3	1062.9
(‡)	+3500	-1200	-600	-4000	-2900	-3500	-6600	+11800	-6300	-13100	-10100	-12100

CAL YR 1981 MAX 265600 MIN 199600 ‡ +53800
WTR YR 1982 MAX 265600 MIN 206600 ‡ -45100

† Elevation, 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 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	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)
APR 02...	1310	405	17.0	200	39	55	15	7.2

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
APR 02...	.2	1.8	160	45	11	.1	9.4	241

08180000 MEDINA CANAL NEAR RIOMEDINA, TX

LOCATION.--Lat 29°30'19", long 98°54'11", Medina County, Hydrologic Unit 12100302, in center of canal, 54 ft (16 m) upstream from center pier of double-barrel flume, 350 ft (107 m) downstream from county highway bridge, 1,900 ft (579 m) downstream from head of canal and diversion dam, 4.6 mi (7.4 km) downstream from Medina Dam, 4.7 mi (7.6 km) north of Riomedina, and 25 mi (40 km) northwest of San Antonio.

PERIOD OF RECORD.--March 1922 to May 1934, July 1957 to current year.

REVISED RECORDS.--WSP 568: 1922. WSP 1712: 1922(M), 1924, 1926.

GAGE.--Water-stage recorder. Altitude of gage is 910 ft (277 m), from topographic map.

REMARKS.--Records good. Station is above all diversions from canal. Canal diverts from right end of Medina Diversion Dam 1,900 ft (579 m) upstream from gage for irrigation downstream near Lacoste and Natalia.

AVERAGE DISCHARGE.--36 years (water years 1923-33, 1958-82), 41.7 ft³/s (1.181 m³/s), 30,210 acre-ft/yr (37.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 216 ft³/s (6.12 m³/s) May 6, 1971; no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	25	33	57	40	12	47	66	88	143	117	107
2	75	25	33	35	45	34	47	.05	115	138	141	116
3	74	28	42	22	49	34	47	30	130	139	126	126
4	73	40	47	26	49	34	47	73	133	139	116	132
5	80	40	47	41	48	33	48	53	147	117	110	124
6	86	40	46	41	47	33	59	12	147	54	111	117
7	26	40	46	38	47	33	58	.00	144	124	114	114
8	.00	40	46	22	47	33	58	.00	144	159	116	106
9	.00	39	46	22	58	33	61	.00	145	150	119	96
10	.00	25	46	22	63	33	64	.00	157	146	126	96
11	.00	25	49	22	62	33	65	24	174	131	118	96
12	7.8	24	35	23	60	33	65	23	174	131	81	95
13	20	24	29	22	59	33	73	.13	175	138	71	91
14	22	25	30	22	58	33	86	27	169	115	87	89
15	21	25	30	22	49	45	111	57	125	129	63	90
16	20	37	30	22	40	50	116	56	84	130	72	79
17	19	46	30	22	46	34	119	25	81	130	91	74
18	18	47	30	27	52	37	118	22	87	131	55	75
19	23	47	30	42	52	45	118	60	88	131	84	76
20	46	47	30	42	50	54	117	37	119	126	89	77
21	29	49	29	42	24	57	88	32	141	115	90	78
22	14	48	29	41	39	56	80	49	150	112	90	74
23	3.0	46	30	41	57	55	69	49	175	109	91	82
24	2.2	46	30	42	47	54	53	49	185	106	92	97
25	2.2	46	30	42	29	54	41	48	165	104	93	94
26	2.3	47	29	42	.01	53	76	48	163	102	92	92
27	17	47	29	41	.00	52	74	48	161	101	93	89
28	25	46	29	41	.00	51	52	48	160	107	92	88
29	25	48	44	41	---	37	54	49	157	130	91	87
30	25	47	59	41	---	25	69	52	157	134	94	85
31	25	---	58	41	---	31	---	74	---	125	101	---
TOTAL	856.50	1159	1151	1047	1217.01	1234	2180	1111.18	4240	3846	3026	2842
MEAN	27.6	38.6	37.1	33.8	43.5	39.8	72.7	35.8	141	124	97.6	94.7
MAX	86	49	59	57	63	57	119	74	185	159	141	132
MIN	.00	24	29	22	.00	12	41	.00	81	54	55	74
AC-FT	1700	2300	2280	2080	2410	2450	4320	2200	8410	7630	6000	5640

CAL YR 1981 TOTAL 15226.22 MEAN 41.7 MAX 173 MIN .00 AC-FT 30200
WTR YR 1982 TOTAL 23909.69 MEAN 65.5 MAX 185 MIN .00 AC-FT 47420

08180700 MEDINA RIVER NEAR MACDONA, TX.

LOCATION.--Lat 29°20'05", long 98°41'22", Bexar County, Hydrologic Unit 12100302, at downstream side of Loop 1604 bridge, 0.1 mi (0.2 km) downstream from Polecat Creek, 0.7 mi (1.1 km) north of Macdona, 2.2 mi (3.5 km) downstream from Potranca Creek, and 21.2 mi (34.1 km) upstream from mouth.

DRAINAGE AREA.--885 mi² (2,292 km²), of which 634 mi² (1,642 km²) is above dam forming Medina Lake.

PERIOD OF RECORD.--January 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 589.86 ft (179.789 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is regulated by Medina Lake (station 08179500) 41.1 mi (66.1 km) upstream and by Medina Diversion Lake, capacity 4,500 acre-ft (5.55 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.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,810 ft³/s (165 m³/s) June 15, 1981, gage height, 16.08 ft (4.901 m); minimum, 24 ft³/s (0.68 m³/s) Apr. 6, 7, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,280 ft³/s (121 m³/s) May 16 at 2400 hours, gage height, 13.56 ft (4.133 m); minimum daily, 37 ft³/s (1.05 m³/s) Sept. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	273	92	75	65	63	63	72	75	74	52	46
2	70	278	93	74	63	59	65	70	74	73	49	44
3	69	249	97	73	62	63	63	67	73	70	49	40
4	67	235	92	71	61	67	61	72	72	66	49	41
5	67	212	88	68	62	66	62	74	69	64	46	42
6	79	204	89	71	65	65	61	425	67	66	38	42
7	574	201	89	73	67	65	60	363	64	65	38	41
8	126	193	87	70	66	65	62	160	60	63	38	42
9	96	185	86	71	65	65	59	138	60	64	46	39
10	89	187	85	74	60	66	58	130	58	64	84	38
11	160	175	85	72	61	66	56	122	57	64	70	37
12	217	167	83	76	59	67	57	150	67	62	56	38
13	210	162	81	74	58	68	55	120	74	62	53	38
14	906	159	80	70	65	67	54	127	69	61	51	46
15	2970	156	80	69	62	65	53	126	68	62	51	50
16	1820	154	79	69	57	66	52	463	68	62	52	57
17	1230	151	79	70	58	65	50	1240	68	61	52	48
18	939	139	76	71	57	65	54	171	68	61	51	42
19	732	133	76	71	55	64	56	152	68	61	50	42
20	579	131	78	72	62	64	52	125	116	62	54	42
21	480	129	80	72	67	64	50	106	109	62	53	43
22	452	116	80	72	60	62	53	104	86	62	52	42
23	453	109	77	70	55	59	63	100	75	62	52	44
24	416	106	75	70	57	60	64	94	69	62	50	45
25	370	104	74	69	59	60	65	91	64	61	48	45
26	357	105	76	69	70	59	65	86	64	59	48	45
27	329	101	76	68	65	61	60	84	63	60	48	44
28	296	101	75	68	65	67	63	82	63	59	48	41
29	276	100	74	63	---	65	66	80	64	57	48	39
30	266	95	74	65	---	63	69	78	68	55	47	40
31	263	---	77	68	---	63	---	77	---	53	47	---
TOTAL	15033	4810	2533	2188	1728	1984	1771	5349	2120	1939	1570	1283
MEAN	485	160	81.7	70.6	61.7	64.0	59.0	173	70.7	62.5	50.6	42.8
MAX	2970	278	97	76	70	68	69	1240	116	74	84	57
MIN	67	95	74	63	55	59	50	67	57	53	38	37
AC-FT	29820	9540	5020	4340	3430	3940	3510	10610	4210	3850	3110	2540

CAL YR 1981 TOTAL 120620 MEAN 330 MAX 5000 MIN 25 AC-FT 239200
WTR YR 1982 TOTAL 42308 MEAN 116 MAX 2970 MIN 37 AC-FT 83920

08180800 MEDINA RIVER NEAR SOMERSET, TX

LOCATION.--Lat 29°15'45", long 98°34'56", Bexar County, Hydrologic Unit 12100302, on left bank 300 ft (91 m) upstream from bridge on State Highway 16, 2.1 mi (3.4 km) upstream from Elm Creek, 4.9 mi (7.9 km) downstream from Medio Creek, 5.2 mi (8.4 km) northeast of Somerset, and 14.1 mi (22.7 km) upstream from mouth.

DRAINAGE AREA.--967 mi² (2,505 km²), of which 634 mi² (1,642 km²) is above dam forming Medina Lake.

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

GAGE.--Water-stage recorder. Datum of gage is 493.56 ft (150.437 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is regulated by Medina Lake (station 08179500) 56 mi (90 km) upstream and by Medina Diversion Lake, capacity 4,500 acre-ft (5.55 hm³). For diversion of canal records, see Medina Canal near Riomedina (station 08180000). A large part of the streamflow is lost into the Edwards and associated limestones in the Balcones Fault Zone, which crosses the basin between the upstream end of Medina Lake and about 5 mi (8 km) downstream from Medina Dam, or 0.9 mi (1.4 km) downstream from the diversion dam. There are several small diversions below Medina Diversion Dam. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years, 266 ft³/s (7.533 m³/s), 192,700 acre-ft/yr (238 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,500 ft³/s (864 m³/s) July 17, 1973, gage height, 29.39 ft (8.958 m); minimum, 21 ft³/s (0.59 m³/s) July 23, 24, 1971.
Maximum stage since about 1890, that of July 17, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,260 ft³/s (177 m³/s) May 17 at 0800 hours, gage height, 18.68 ft (5.694 m); minimum daily, 39 ft³/s (1.10 m³/s) Sept. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	318	124	105	89	82	78	81	95	94	53	45
2	84	338	120	102	86	77	78	81	92	86	52	45
3	80	304	121	102	85	76	76	78	89	78	51	44
4	80	285	119	98	83	81	73	75	88	76	50	44
5	91	264	114	95	82	80	73	81	85	79	50	44
6	108	250	114	96	82	78	72	318	82	78	46	45
7	1440	271	113	96	84	77	70	684	82	75	44	44
8	365	254	111	94	85	77	73	231	78	72	46	44
9	186	248	109	93	84	78	71	170	75	70	55	44
10	154	249	107	96	80	79	68	155	74	70	64	42
11	157	239	107	96	81	80	67	147	73	69	80	42
12	254	225	105	103	80	80	77	172	87	69	66	42
13	251	216	103	101	78	79	70	184	92	67	61	42
14	296	212	105	98	80	78	65	148	89	65	59	44
15	2670	208	107	95	78	81	63	147	81	66	57	44
16	2680	206	105	94	74	82	64	144	80	65	55	48
17	1570	196	103	93	70	79	64	2650	78	64	55	46
18	1090	185	101	93	67	78	64	356	76	64	56	44
19	862	170	100	97	67	76	67	231	76	64	54	44
20	701	160	101	104	76	75	63	192	94	64	52	44
21	583	164	104	103	86	75	61	153	111	64	53	44
22	529	150	105	102	84	75	62	141	97	64	52	44
23	518	139	103	100	75	76	68	137	84	62	52	43
24	498	131	100	98	73	75	75	131	77	63	47	42
25	441	130	101	96	74	75	75	126	74	61	43	44
26	410	132	102	95	84	76	77	117	72	59	44	44
27	398	127	102	93	92	77	71	112	71	61	44	44
28	360	124	102	93	84	78	70	110	70	60	45	41
29	332	124	101	90	---	78	73	106	67	57	47	41
30	318	125	102	90	---	78	76	102	75	55	47	39
31	313	---	106	90	---	78	---	99	---	55	47	---
TOTAL	17902	6144	3317	3001	2243	2414	2104	7659	2464	2096	1627	1307
MEAN	577	205	107	96.8	80.1	77.9	70.1	247	82.1	67.6	52.5	43.6
MAX	2680	338	124	105	92	82	78	2650	111	94	80	48
MIN	80	124	100	90	67	75	61	75	67	55	43	39
AC-FT	35510	12190	6580	5950	4450	4790	4170	15190	4890	4160	3230	2590

CAL YR 1981 TOTAL 145235 MEAN 398 MAX 8010 MIN 49 AC-FT 288100
WTR YR 1982 TOTAL 52278 MEAN 143 MAX 2680 MIN 39 AC-FT 103700

08181400 HELOTES CREEK AT HELOTES, TX

LOCATION.--Lat 29°34'42", long 98°41'29", Bexar County, Hydrologic Unit 12100302, 42 ft (13 m) left of and 44 ft (13 m) downstream from centerline of bridge on State Highway 16, 0.1 mi (0.2 km) northwest of Helotes, and 8.6 mi (13.8 km) upstream from mouth.

DRAINAGE AREA.--15.0 mi² (38.8 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-73-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 1,014.82 ft (309.317 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. An undetermined amount of flow is diverted for domestic use above the station, and some flow enters the Edwards and associated limestones through the Balcones Fault Zone in the vicinity of the gage. Recording rain gage located at station, with two additional recording rain gages located in watershed.

AVERAGE DISCHARGE.--14 years, 4.38 ft³/s (0.124 m³/s), 3.91 in/yr (99 mm/yr), 3,170 acre-ft/yr (3.91 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 discharge 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)
Oct. 31	1430	414	11.7	3.05	0.930	May 13	1045	450	12.7	3.12	0.951
May 6	0430	748	21.2	3.68	1.122	May 16	2045	*856	24.2	3.86	1.177

Minimum discharge, no flow most of time.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	5.3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.79	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
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	1.0	.00	.00	.00	.00	.00	.00	58	.00	.00	.00	.00
7	.53	.00	.00	.00	.00	.00	.00	7.4	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.14	.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	64	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	26	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	15	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	76	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	47	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	28	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	15	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	8.4	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	5.7	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.04	4.0	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.02	2.9	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	3.0	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	1.1	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.06	.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	1.1	.00	.00	.00	---	.00	.00	.00	2.1	.00	.00	.00
31	34	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	36.63	6.09	.00	.00	.00	.00	.06	361.70	2.10	.00	.00	.03
MEAN	1.18	.20	.000	.000	.000	.000	.002	11.7	.070	.000	.000	.001
MAX	34	5.3	.00	.00	.00	.00	.04	76	2.1	.00	.00	.03
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.08	.01	.000	.000	.000	.000	.000	.78	.005	.000	.000	.000
IN.	.09	.02	.00	.00	.00	.00	.00	.90	.01	.00	.00	.00
AC-FT	73	12	.00	.00	.00	.00	.1	717	4.2	.00	.00	.06

CAL YR 1981	TOTAL	2587.59	MEAN 7.09	MAX 606	MIN .00	CFSM .47	IN 6.42	AC-FT 5130		
WTR YR 1982	TOTAL	406.61	MEAN 1.11	MAX 76	MIN .00	CFSM .07	IN 1.01	AC-FT 807		

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 mi^2 (3,411 km^2), of which 634 mi^2 (1,642 km^2) 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 ft^3/s (1.42 m^3/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 hm^3). For diversion of canal records, see Medina Canal near Riomedina (station 08180000). For statement concerning losses into the Edwards and associated limestones formation, see Medina River near Somerset (station 08180800). Several small diversions below diversion dam reservoir. Records furnished by the city of San Antonio indicate that during the current year sewage effluent in the amounts of 2,000 acre-ft (2.47 hm^3) from Mitchell Lake plant and 27,310 acre-ft (33.7 hm^3) from Leon Creek plant was discharged into the Medina River above this station. A temperature and gage-height telemeter at this station.

AVERAGE DISCHARGE.--43 years (water years, 1940-82, 174 ft^3/s (4.928 m^3/s), 126,100 acre-ft/yr (155 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft^3/s (903 m^3/s) July 17, 1973, gage height, 43.59 ft (13.286 m); minimum daily, 3.3 ft^3/s (0.093 m^3/s) Apr. 18, Nov. 1, 1956, and Jan. 24, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 55 ft (16.8 m) sometime prior to construction of Medina Dam in 1913, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,160 ft^3/s (231 m^3/s) May 17 at 1630 hours, gage height, 23.30 ft (7.102 m); minimum daily, 69 ft^3/s (1.95 m^3/s) Sept. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	379	195	151	146	148	134	112	159	204	102	71
2	108	376	192	148	140	144	128	110	158	146	100	75
3	108	352	187	148	141	140	126	112	163	134	103	70
4	108	333	180	146	139	143	127	103	157	127	103	69
5	108	318	175	140	144	143	127	98	153	133	99	82
6	114	299	174	139	145	144	126	292	146	132	97	82
7	2600	299	181	138	145	147	121	1240	151	129	97	88
8	1400	293	175	138	142	149	121	271	147	116	113	91
9	425	288	172	137	141	150	120	182	136	110	147	91
10	328	282	171	138	140	149	120	157	133	112	128	97
11	280	278	173	140	135	152	117	146	130	110	127	86
12	333	267	169	182	131	150	120	199	195	109	115	86
13	335	260	165	169	130	150	117	218	195	107	109	99
14	322	254	165	157	135	149	110	172	165	107	106	111
15	1440	250	166	148	137	154	108	191	156	109	106	101
16	2680	246	158	143	135	148	109	152	149	109	105	110
17	1640	245	153	142	128	145	108	3640	143	109	105	99
18	1180	242	155	144	122	141	108	1150	129	108	103	93
19	935	232	156	146	120	142	110	359	119	108	105	86
20	752	223	158	146	136	137	105	281	120	112	106	85
21	630	225	159	146	159	135	102	234	147	112	109	82
22	576	218	161	150	146	134	110	220	141	105	107	81
23	581	209	157	151	135	132	112	208	124	111	110	78
24	545	205	151	145	131	131	113	201	118	109	109	75
25	483	205	148	145	131	133	112	203	110	108	108	71
26	439	205	147	142	179	134	112	192	105	109	103	70
27	423	197	147	143	169	137	106	182	99	109	99	80
28	389	195	148	144	155	137	102	177	96	112	89	78
29	367	197	149	143	---	136	105	174	93	105	85	80
30	354	198	150	140	---	139	110	170	97	102	78	72
31	372	---	171	141	---	137	---	166	---	103	70	---
TOTAL	20464	7770	5108	4530	3937	4410	3446	11312	4134	3616	3243	2539
MEAN	660	259	165	146	141	142	115	365	138	117	105	84.6
MAX	2680	379	195	182	179	154	134	3640	195	204	147	111
MIN	108	195	147	137	120	131	102	98	93	102	70	69
AC-FT	40590	15410	10130	8990	7810	8750	6840	22440	8200	7170	6430	5040

CAL YR 1981 TOTAL 178400 MEAN 489 MAX 11600 MIN 64 AC-FT 353900
WTR YR 1982 TOTAL 74509 MEAN 204 MAX 3640 MIN 69 AC-FT 147800

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1970 to current year. Pesticide analyses: October 1970 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
NOV 06...	1508	294	647	7.9	21.0	5	15	7.1	80	14	260
DEC 21...	1305	144	826	7.9	16.5	5	5.7	9.7	102	12	320
MAR 08...	1305	142	840	7.8	17.0	5	4.8	6.0	62	7.5	310
JUN 15...	1045	154	770	7.8	26.0	10	21	5.0	63	11	280
JUL 15...	0945	104	763	7.8	27.5	10	7.9	2.4	31	14	280
SEP 08...	1215	48	800	7.9	27.0	25	2.5	3.2	41	17	280

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 06...	41	75	18	34	1.0	3.0	220	73	47	.3	14
DEC 21...	83	93	22	46	1.2	3.6	240	88	64	.3	12
MAR 08...	61	90	21	50	1.3	4.0	250	92	69	.4	8.4
JUN 15...	61	83	18	49	1.3	4.3	220	84	64	.3	13
JUL 15...	53	82	19	47	1.3	4.6	230	69	60	.4	14
SEP 08...	52	80	20	50	1.4	5.4	230	75	71	.3	13

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 06...	397	26	9	1.6	.350	1.9	.820	1.1	1.90	.390	3.8
DEC 21...	473	10	4	3.0	.580	3.6	1.00	1.1	2.10	.810	3.6
MAR 08...	485	11	5	1.8	.360	2.2	2.40	1.2	3.60	.000	5.2
JUN 15...	448	48	9	1.9	.540	2.4	1.50	.20	1.70	.450	6.9
JUL 15...	434	15	5	1.8	.680	2.5	2.20	1.9	4.10	2.40	5.8
SEP 08...	453	26	14	2.3	.690	3.0	1.90	1.6	3.50	1.00	6.6

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 06...	1508	1	46	3	<10	1	22
MAR 08...	1305	1	51	<1	<10	3	<10
JUN 15...	1045	2	58	<1	<10	4	8
JUL 15...	0945	2	53	<1	<10	4	9

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 06...	<1	<1	<.1	<1	<1	7
MAR 08...	4	24	<.1	1	1	6
JUN 15...	<1	13	<.1	1	<1	12
JUL 15...	24	14	.1	<1	<1	19

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX

LOCATION.--Lat 29°13'19" long 98°21'20", Bexar County, Hydrologic Unit 12100301, at downstream side of bridge on Farm Road 1604, 2.7 mi (4.3 km) southwest of Elmendorf, 3.3 mi (5.3 km) downstream from Braunig Plant Lake, and 203.0 mi (326.6 km) upstream from mouth.

DRAINAGE AREA.--1,743 mi² (4,514 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Altitude of gage is 385 ft (117 m), from topographic map. Prior to Dec. 19, 1980, at site 2.5 mi (4.0 km) upstream at different datum.

REMARKS.--Water-discharge records good. Flow slightly regulated by Medina Lake (station 08179500) and Olmos flood-control reservoir, combined capacity 269,500 acre-ft (332 hm³). Storage began in Medina Lake in 1913, and Olmos Dam was completed in 1926. Water is diverted above station from Medina River for irrigation in the vicinity of Devine and Lytle, with some water diverted for irrigation near San Antonio. During the current year, records furnished by the city of San Antonio show that upstream from this station 147,700 acre-ft (182 hm³) of sewage effluent was discharged into the San Antonio River from the Rilling Road, Leon Creek, Salado Creek, and Mitchell Lake plants. Records furnished by the San Antonio City Public Service Board show that upstream from this station 9,980 acre-ft (12.3 hm³) was pumped into Braunig Lake, 120 acre-ft (0.148 hm³) was released from Braunig Lake, and 22,610 acre-ft (27.9 hm³) was pumped into Calaveras Lake. For additional information relative to sewage effluent, see station 08181500. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08178700.

AVERAGE DISCHARGE.--20 years (water years 1963-82), 529 ft³/s (14.87 m³/s), 380,400 acre-ft/yr (469 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s (1,130 m³/s) Sept. 27, 1973, gage height, 47.60 ft (14.508 m); minimum, 12 ft³/s (0.34 m³/s) Aug. 24-26, 1963. All stages at site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 61 ft (18.6 m) in 1946. Second highest was 53 ft (16.2 m) in 1913, from information by local residents. All site and datum in use prior to Dec. 19, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,730 ft³/s (219 m³/s) Oct. 7 at 1100 hours, gage height 35.82 ft (10.918 m), no other peak above base of 7,000 ft³/s (198 m³/s); minimum daily, 156 ft³/s (4.42 m³/s) Sept. 12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	336	1540	464	450	340	389	393	268	440	557	170	187
2	354	660	441	434	273	387	378	301	428	406	168	189
3	348	569	440	435	266	378	361	297	424	358	174	191
4	345	521	431	414	265	376	347	360	425	333	176	178
5	356	500	414	306	295	367	354	348	394	327	169	185
6	455	471	426	302	323	360	342	2560	377	346	190	176
7	5330	459	458	299	324	364	328	3950	313	345	205	200
8	4140	465	450	288	311	369	334	970	242	328	207	214
9	1060	539	439	284	269	368	325	568	208	279	375	195
10	812	476	440	283	264	371	317	499	204	184	580	183
11	628	441	441	293	256	377	326	489	198	173	340	157
12	656	426	428	589	309	379	320	1180	719	173	314	156
13	700	415	416	561	368	371	338	1120	647	169	297	172
14	668	402	429	458	368	363	322	1010	282	181	283	399
15	1300	392	442	421	376	372	313	619	269	169	272	239
16	2970	452	434	418	389	379	314	543	252	173	268	240
17	2370	514	425	414	371	374	310	2350	250	169	271	203
18	1810	517	418	424	353	364	301	3220	248	163	270	184
19	1360	502	410	425	345	365	246	898	220	166	243	177
20	1030	480	414	425	518	354	195	709	213	181	201	197
21	894	471	428	424	518	345	183	604	268	188	198	257
22	1020	468	442	430	426	355	243	552	314	186	196	190
23	1150	470	428	422	366	413	363	533	308	198	200	175
24	982	480	417	417	367	382	306	716	317	182	206	174
25	835	451	407	421	369	377	260	611	304	177	209	178
26	777	457	399	414	826	370	243	532	325	175	210	189
27	703	443	412	408	505	388	234	503	313	188	209	184
28	578	444	420	408	406	402	218	489	303	181	193	180
29	550	447	423	409	---	397	213	476	310	173	187	173
30	535	467	443	406	---	420	243	454	314	177	191	169
31	949	---	536	416	---	408	---	439	---	175	190	---
TOTAL	36001	15339	13415	12498	10366	11684	8970	28168	9829	7180	7362	5891
MEAN	1161	511	433	403	370	377	299	909	328	232	237	196
MAX	5330	1540	536	589	826	420	393	3950	719	557	580	399
MIN	336	392	399	283	256	345	183	268	198	163	168	156
AC-FT	71410	30420	26610	24790	20560	23180	17790	55870	19500	14240	14600	11680

CAL YR 1981	TOTAL	305307	MEAN 836	MAX	14600	MIN 203	AC-FT	605600
WTR YR 1982	TOTAL	166703	MEAN 457	MAX	5330	MIN 156	AC-FT	330700

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1966 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to September 1981.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
WATER TEMPERATURES: October 1966 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,240 micromhos Jan. 29, 1973, Aug. 8, 1975; minimum daily, 253 micromhos Oct. 7, 1981.
WATER TEMPERATURES: Maximum daily, 32.0°C June 21, 1969, and July 4, 1980; minimum daily, 5.5°C Jan. 10, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 926 micromhos Apr. 21; minimum daily, 253 micromhos Oct. 7.
WATER TEMPERATURES: Maximum daily, 31.0°C July 31, Aug. 14; minimum daily, 11.0°C Jan. 11, 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
NOV 06...	1320	440	704	7.8	22.0	10	15	6.4	74	19	260
DEC 16...	1413	450	842	7.8	17.0	5	2.3	5.2	55	15	290
MAR 08...	1500	322	900	7.8	18.0	5	5.6	6.2	66	16	300
MAY 18...	0800	4360	386	--	22.0	--	--	--	--	--	160
JUN 15...	1124	273	751	7.8	27.0	10	4.3	5.1	66	12	250
JUL 15...	1305	170	853	7.7	29.5	10	2.6	3.5	47	20	280
SEP 08...	1120	234	792	7.7	28.0	15	1.0	3.5	45	15	250

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 06...	37	75	17	44	1.3	4.4	220	68	48	.4	15
DEC 16...	43	86	19	58	1.6	6.4	250	71	73	.4	15
MAR 08...	30	87	20	63	1.7	4.8	270	82	85	.5	11
MAY 18...	26	53	5.7	17	.6	6.3	130	35	22	.3	11
JUN 15...	21	74	16	52	1.5	5.7	230	65	61	.3	14
JUL 15...	21	81	19	64	1.8	8.0	260	50	78	.5	16
SEP 08...	32	73	17	56	1.6	5.7	220	62	70	.4	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)
NOV 06...	404	21	10	1.8	.680	2.5	1.60	1.1	2.70	1.20	4.6
DEC 16...	479	14	3	1.8	.680	2.5	4.70	1.4	6.10	<.010	7.5
MAR 08...	516	19	9	1.2	.640	1.8	7.50	1.5	9.00	.000	9.9
MAY 18...	228	--	--	--	--	--	--	--	--	--	--
JUN 15...	426	32	8	1.7	.740	2.4	4.30	.40	4.70	1.40	7.8
JUL 15...	473	2	3	1.0	.670	1.7	6.90	1.7	8.60	2.00	7.1
SEP 08...	430	16	5	1.9	1.20	3.1	4.40	4.2	8.60	2.50	5.9

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 06...	1320	2	48	<1	<10	2	11
MAR 08...	1500	1	48	<1	10	2	17
JUN 15...	1124	2	52	<1	10	1	16

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 06...	<1	13	<.1	<1	<1	19
MAR 08...	2	27	<.1	<1	<1	21
JUN 15...	<1	25	<.1	7	<1	14

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	36001	536	309	30000	38	3670	50	4830	210
NOV.	1981	15339	734	420	17400	60	2490	67	2760	270
DEC.	1981	13415	802	457	16600	70	2520	72	2620	280
JAN.	1982	12498	807	460	15500	70	2370	73	2450	280
FEB.	1982	10366	810	462	12900	71	1990	73	2040	290
MAR.	1982	11684	847	482	15200	77	2410	76	2390	290
APR.	1982	8970	867	492	11900	80	1930	77	1870	300
MAY	1982	28168	571	329	25000	41	3130	53	4010	220
JUNE	1982	9829	772	441	11700	66	1750	70	1850	280
JULY	1982	7180	804	458	8880	70	1360	72	1400	280
AUG.	1982	7362	793	452	8980	69	1370	71	1420	280
SEPT	1982	5891	822	468	7440	73	1160	74	1170	290
TOTAL		166703	**	**	182000	**	26100	**	28800	**
WTD. AVG.		457	705	403	**	58	**	64	**	260

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	825	680	765	750	808	764	839	799	747	780	833	851
2	833	601	809	760	804	795	849	821	764	702	828	868
3	825	671	814	773	840	836	891	756	788	756	799	867
4	815	698	807	789	832	835	870	763	796	784	808	875
5	800	716	810	769	854	853	853	807	815	770	841	865
6	777	724	814	801	845	877	834	550	830	759	848	880
7	253	720	777	814	835	865	881	420	786	765	845	818
8	382	721	770	808	805	836	883	548	787	794	842	789
9	605	687	807	798	800	811	878	626	845	818	825	825
10	660	715	809	855	828	847	882	621	855	833	525	854
11	720	720	816	807	830	850	866	661	867	844	678	875
12	772	738	837	777	844	853	875	575	600	819	780	880
13	754	745	834	778	833	866	840	559	585	795	797	838
14	746	760	790	780	855	837	877	513	643	846	805	725
15	625	775	776	787	822	827	890	647	720	851	816	714
16	455	738	811	796	814	811	905	715	779	863	810	796
17	475	736	815	794	838	845	914	450	784	835	787	784
18	510	725	816	797	858	859	913	351	800	838	838	828
19	540	771	798	790	868	854	897	565	821	826	850	813
20	582	777	796	815	758	862	862	681	822	799	859	812
21	618	779	790	817	745	877	926	729	812	845	802	760
22	638	780	784	839	763	869	905	805	778	837	793	818
23	609	770	815	830	795	845	850	815	810	830	818	840
24	592	760	820	833	862	848	845	650	804	838	830	845
25	680	796	826	828	874	860	839	675	831	838	841	841
26	661	788	835	844	725	885	786	747	824	821	843	847
27	672	799	838	827	760	919	795	758	822	796	851	831
28	686	796	776	839	818	879	837	767	840	843	849	807
29	701	790	791	841	---	845	856	832	834	862	846	839
30	722	772	810	860	---	850	861	834	891	858	812	874
31	710	---	740	849	---	819	---	775	---	837	825	---
MEAN	653	742	803	808	818	848	867	671	789	816	810	829

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

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

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX

LOCATION.--Lat 28°57'05", long 98°03'50", Karnes County, Hydrologic Unit 12100303, on left bank 23 ft (7 m) downstream from bridge on Farm Road 791, 0.9 mi (1.4 km) upstream from Scared Dog Creek, 3.6 mi (5.8 km) southwest of Fall City, and 150.5 mi (242.2 km) upstream from mouth.

DRAINAGE AREA.--2,113 mi² (5,473 km²).

PERIOD OF RECORD.--April 1925 to current year.
Water-quality records: Chemical and biochemical analyses: January 1968 to September 1981. Sediment analyses: January 1966 to September 1975.

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 except those for period of no gage-height record, July 25 to Aug. 29, which are fair. For diversions and regulation above station, see REMARKS for Salado Creek (upper station) at San Antonio (station 08178700), Medina River at San Antonio (station 08181500), and San Antonio River near Elmendorf (station 08181800). Flow is slightly regulated by Calaveras Lake on Calaveras Creek, which enters the San Antonio River downstream from the station near Elmendorf. Flow is affected at times by discharge from the flood-detention pools of ten floodwater-retarding structures with a combined detention capacity of 26,130 acre-ft (32.2 hm³). These structures control runoff from 73.8 mi² (191.1 km²). Records furnished by the San Antonio City Public Service Board show that during the current year no water was released into Calaveras Creek from Calaveras Lake.

AVERAGE DISCHARGE.--57 years (water years 1926-82), 400 ft³/s (11.33 m³/s), 289,800 acre-ft (357 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 daily, 19 ft³/s (0.54 m³/s) June 27, 1956.
Maximum stage since at least 1875, that of Sept. 29, 1946.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1913 reached a stage of 28.4 ft (8.66 m), from floodmark, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,270 ft³/s (121 m³/s) Oct. 9 at 1800 hours, gage height, 7.27 ft (2.216 m), no other peak above base of 4,000 ft³/s (113 m³/s); minimum daily, 139 ft³/s (3.94 m³/s) Aug. 4 and 7.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	323	713	443	487	421	461	380	203	415	308	152	170
2	343	1430	459	457	399	413	369	244	417	467	149	171
3	332	783	435	419	307	410	348	230	413	452	142	180
4	331	579	428	414	279	405	342	251	408	387	139	190
5	330	522	423	416	283	403	329	276	402	354	142	190
6	328	490	415	339	279	399	317	341	384	320	142	180
7	352	471	412	295	326	392	328	1390	350	337	139	174
8	2170	444	434	291	337	389	330	2940	322	344	174	170
9	3940	437	439	284	336	392	322	1560	242	340	212	199
10	2060	449	428	282	306	398	330	591	210	324	268	198
11	831	458	426	277	287	399	328	500	185	251	535	184
12	637	451	424	284	281	399	325	477	872	200	409	174
13	592	441	419	402	274	403	332	891	515	188	335	168
14	637	427	408	591	367	398	340	1020	789	186	309	183
15	634	425	401	470	384	386	351	969	363	182	293	309
16	982	412	417	424	386	372	332	600	278	188	280	340
17	2370	418	413	412	395	380	315	518	266	179	280	264
18	2420	498	404	415	399	377	308	1540	257	182	280	257
19	1820	503	395	413	384	364	297	2850	255	177	280	228
20	1380	497	395	422	1120	361	287	1090	243	161	270	209
21	1040	480	395	421	594	358	211	678	221	165	250	197
22	905	469	395	421	599	340	189	580	220	185	240	253
23	864	465	406	421	455	337	184	520	287	187	220	248
24	1050	457	406	429	406	346	292	543	294	184	210	205
25	966	467	400	420	380	374	338	589	316	193	212	196
26	851	450	392	411	409	358	279	591	283	178	215	197
27	754	448	378	415	661	352	231	493	312	160	220	207
28	704	441	385	410	629	341	225	465	319	160	220	205
29	615	438	385	410	---	353	216	462	304	163	210	198
30	553	439	401	414	---	365	207	448	308	156	185	192
31	542	---	407	408	---	363	---	431	---	152	177	---
TOTAL	31656	15402	12768	12374	11683	11788	8982	24281	10450	7410	7289	6236
MEAN	1021	513	412	399	417	380	299	783	348	239	235	208
MAX	3940	1430	459	591	1120	461	380	2940	872	467	535	340
MIN	323	412	378	277	274	337	184	203	185	152	139	168
AC-FT	62790	30550	25330	24540	23170	23380	17820	48160	20730	14700	14460	12370

CAL YR 1981 TOTAL 286410 MEAN 785 MAX 11200 MIN 158 AC-FT 568100
WTR YR 1982 TOTAL 160319 MEAN 439 MAX 3940 MIN 139 AC-FT 318000

NOTE.--No gage-height record July 25 to Aug. 29.

08183900 CIBOLO CREEK NEAR BOERNE, TX

LOCATION.--Lat 29°46'26", long 98°41'50", Kendall County, Hydrologic Unit 12100304, on left bank 0.6 mi (1.0 km) upstream from Southern Pacific Lines bridge, 0.9 mi (1.4 km) downstream from Menger Creek, and 2.5 mi (4.0 km) southeast of Boerne.

DRAINAGE AREA.--68.4 mi² (177.2 km²).

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

REVISED RECORDS.--WRD TX-73-1: 1964-65, 1966(P), 1968-72(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,339.61 ft (408.313 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No know diversion above station. Flow is affected at times by discharge from flood-detention pools of four floodwater-retarding structures with a combined detention-capacity of 8,850 acre-ft (10.9 hm³). This structure controls runoff from 34.0 mi² (88.1 km²). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 29.3 ft³/s (0.830 m³/s), 5.82 in/yr (148 mm/yr), 21,230 acre-ft/yr (26.2 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 (1,030 m³/s); no flow at times in 1962-64, 1966-67, and 1971.
Maximum stage since at least 1892, that of Sept. 27, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Second highest flood in 1952 reached a stage of 16.3 ft (4.97 m), discharge 25,600 ft³/s (725 m³/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,570 ft³/s (72.8 m³/s) May 13, gage height, 5.87 ft (1.789 m), from floodmark, no other peak above base of 900 ft³/s (25.5 m³/s); minimum daily, 0.45 ft³/s (0.013 m³/s) Sept. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	18	7.8	4.2	5.2	4.9	6.0	4.9	10	20	2.5	.62
2	9.4	11	6.6	4.5	4.2	4.9	6.0	4.9	9.8	14	2.1	.68
3	9.4	9.4	6.1	4.9	3.9	4.9	6.0	4.9	11	12	2.1	.65
4	9.4	8.3	5.2	4.1	3.9	5.0	5.6	4.9	10	9.5	2.2	.81
5	9.4	7.8	4.8	4.2	3.9	4.9	5.6	4.9	9.9	9.2	1.8	1.1
6	78	7.8	4.8	4.2	3.9	4.8	4.9	20	9.4	8.6	1.5	1.3
7	91	6.9	5.7	4.5	3.9	4.4	4.9	11	9.0	7.2	1.5	.91
8	36	8.9	5.6	4.7	3.3	3.8	4.9	10	8.1	6.1	1.9	.86
9	24	11	5.7	4.2	3.6	3.6	4.9	8.3	7.9	5.5	4.3	.68
10	17	8.3	5.2	4.0	3.9	3.9	4.9	6.4	8.0	5.2	8.6	.59
11	13	7.8	5.6	3.8	3.6	4.0	4.5	5.2	8.0	4.4	3.9	.45
12	11	8.3	5.6	6.0	3.6	4.4	4.5	4.9	17	4.0	2.2	.61
13	12	7.3	5.2	5.4	3.9	4.5	4.2	1420	16	4.0	1.8	.59
14	15	7.3	6.0	5.5	3.9	4.5	4.2	266	14	3.7	2.2	.83
15	14	7.3	5.6	5.1	3.9	4.3	4.2	75	12	3.6	2.0	.81
16	14	7.3	5.2	4.9	3.9	4.2	4.2	47	12	3.4	1.6	1.3
17	7.7	6.9	4.9	5.2	3.9	4.0	4.2	37	14	3.0	1.5	1.9
18	7.3	6.4	4.4	4.9	3.9	3.8	3.9	29	14	2.8	1.6	1.1
19	6.4	6.0	4.2	4.5	3.7	3.6	3.6	24	15	2.5	1.9	.95
20	5.9	5.2	4.2	4.9	5.2	4.0	3.3	21	14	2.2	2.1	6.0
21	7.0	4.9	4.2	5.2	6.5	4.1	3.3	19	13	2.0	1.8	1.2
22	13	4.2	4.6	5.2	4.2	3.9	9.3	18	24	2.9	1.4	1.1
23	17	4.2	4.9	5.2	3.8	4.5	6.4	17	34	5.6	1.4	.95
24	11	4.2	3.9	5.2	3.5	4.7	6.4	31	17	7.4	1.1	.98
25	9.5	3.9	3.3	5.2	4.2	4.5	6.0	26	13	4.8	.92	1.0
26	9.7	4.2	3.6	4.9	11	4.7	5.6	20	13	3.2	.68	.95
27	8.2	4.5	3.6	4.5	5.9	5.3	5.6	17	15	3.1	.73	.80
28	7.8	5.6	3.6	4.9	5.2	4.9	4.9	15	14	3.0	.76	.70
29	8.3	7.3	3.6	5.2	---	5.2	4.9	14	13	2.9	.94	.69
30	8.9	8.3	3.9	6.0	---	5.9	4.9	13	17	2.5	.65	.71
31	68	---	4.5	6.0	---	6.0	---	12	---	2.3	.58	---
TOTAL	567.7	218.5	152.1	151.2	123.5	140.1	151.8	2211.3	402.1	170.6	60.26	31.82
MEAN	18.3	7.28	4.91	4.88	4.41	4.52	5.06	71.3	13.4	5.50	1.94	1.06
MAX	91	18	7.8	6.0	11	6.0	9.3	1420	34	20	8.6	6.0
MIN	5.9	3.9	3.3	3.8	3.3	3.6	3.3	4.9	7.9	2.0	.58	.45
AC-FT	1130	433	302	300	245	278	301	4390	798	338	120	63

CAL YR 1981 TOTAL 20266.30 MEAN 55.5 MAX 2130 MIN 3.3 AC-FT 40200
WTR YR 1982 TOTAL 4380.98 MEAN 12.0 MAX 1420 MIN .45 AC-FT 8690

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.--36 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.
Maximum stage since at least 1869, that of July 16, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 26 ft (7.9 m) occurred in 1889, but stage for flood in 1913 is unknown, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 1	0600	512	14.5	4.99	1.521
May 6	unknown	1,510	42.8	6.36	1.939
May 13	2200	*3,280	92.9	8.00	2.438

Minimum discharge, no flow most of time.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	1.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.05	.00	.00	.00	.00	.00	217	.00	.00	.00	.00
7	.00	.01	.00	.00	.00	.00	.00	4.2	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.50	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.18	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	427	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	632	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	64	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	6.3	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	1.5	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.70	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.39	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.26	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.19	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.02	.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	190.53	.00	.00	.00	.00	.00	1355.25	.00	.00	.00	.00
MEAN	.000	6.35	.000	.000	.000	.000	.000	43.7	.000	.000	.000	.000
MAX	.00	170	.00	.00	.00	.00	.00	632	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	378	.00	.00	.00	.00	.00	2690	.00	.00	.00	.00

CAL YR 1981 TOTAL 14107.38 MEAN 38.7 MAX 3210 MIN .00 AC-FT 27980
WTR YR 1982 TOTAL 1545.78 MEAN 4.24 MAX 632 MIN .00 AC-FT 3070

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. Flow is affected a times by discharge from flood-detention pools of ten floodwater-retarding structures with combined detention capacity of 16,620 acre-ft (20.5 hm³). These structures control runoff from 62.9 mi² (163 km²).

AVERAGE DISCHARGE.--52 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. Maximum stage since at least 1890, that of Sept. 28, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--In October 1913, a stage of 35 ft (10.7 m) occurred, discharge about 35,000 ft³/s (991 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,120 ft³/s (60.0 m³/s) Nov. 1 at 1300 hours, gage height, 11.44 ft (3.487 m), no peak above base of 3,600 ft³/s (102 m³/s); minimum daily, 8.6 ft³/s (0.24 m³/s) Sept. 5, 10-12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	1230	37	32	31	49	36	29	32	19	10	9.7
2	29	215	36	33	30	45	36	31	29	19	9.5	9.4
3	29	121	36	33	32	43	35	29	28	19	9.3	8.9
4	28	109	36	33	32	43	33	27	28	19	9.3	8.8
5	28	93	35	32	32	41	33	26	29	19	9.0	8.6
6	44	76	35	31	31	40	31	172	30	19	9.0	8.9
7	913	65	35	32	30	38	30	260	29	18	9.2	8.9
8	155	58	35	32	30	38	31	238	28	18	9.3	8.9
9	90	53	34	31	30	37	31	119	27	17	11	8.9
10	64	48	35	31	30	38	29	83	27	17	14	8.6
11	55	52	36	30	30	41	29	72	25	16	15	8.6
12	49	55	35	30	31	42	29	61	100	15	20	8.6
13	45	51	34	31	31	43	29	55	58	15	20	10
14	42	48	34	32	31	43	29	83	38	14	19	181
15	41	46	33	33	30	41	29	550	27	13	18	18
16	40	44	33	35	30	40	29	279	27	13	16	14
17	38	44	32	34	30	39	30	164	30	13	15	16
18	42	44	33	34	30	39	31	118	29	12	13	16
19	51	42	33	34	31	38	31	87	26	12	13	15
20	39	41	33	35	900	37	31	70	23	12	13	14
21	36	39	32	35	134	36	30	59	22	12	13	13
22	39	39	33	35	56	35	30	51	21	13	13	13
23	42	38	33	35	47	34	31	46	21	13	12	13
24	41	39	33	35	46	34	31	46	20	12	11	13
25	39	38	33	34	45	36	31	47	20	12	11	14
26	39	39	32	33	101	34	32	41	20	12	10	14
27	39	38	31	31	62	35	31	41	20	11	10	13
28	38	37	31	31	49	36	30	41	19	11	10	13
29	38	37	31	31	---	35	29	40	19	11	10	12
30	39	38	31	31	---	36	29	38	19	11	9.8	11
31	81	---	32	31	---	37	---	35	---	11	9.7	---
TOTAL	2322	2917	1042	1010	2022	1203	926	3038	871	448	381.1	519.8
MEAN	74.9	97.2	33.6	32.6	72.2	38.8	30.9	98.0	29.0	14.5	12.3	17.3
MAX	913	1230	37	35	900	49	36	550	100	19	20	181
MIN	28	37	31	30	30	34	29	26	19	11	9.0	8.6
AC-FT	4610	5790	2070	2000	4010	2390	1840	6030	1730	889	756	1030

CAL YR 1981	TOTAL	24856.0	MEAN 68.1	MAX 1460	MIN 12	AC-FT	49300
WTR YR 1982	TOTAL	16699.9	MEAN 45.8	MAX 1230	MIN 8.6	AC-FT	33120

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1968 to current year. Chemical and biochemical analyses: October 1969 to current year. Sediment records: October 1968 to September 1969.

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,270 micromhos May 20, 21, 1971; minimum daily, 120 micromhos Oct. 7, 1981.
WATER TEMPERATURES: Maximum daily, 34.0°C July 31, Aug. 8, 9, 1980; minimum daily, 4.0°C Jan. 14, 1982.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,740 micromhos Aug. 5; minimum daily, 120 micromhos Oct. 7.
WATER TEMPERATURES: Maximum daily, 31.5°C July 24-26; minimum daily, 4.0°C Jan. 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 09...	1515	87	905	8.2	23.5	--	--	--	290	61
NOV 16...	1343	44	1200	8.2	20.0	9.7	109	1.0	380	130
FEB 04...	1345	32	1360	8.4	10.0	13.0	115	1.0	420	150
MAR 19...	1330	38	1400	8.3	23.5	9.0	107	1.5	400	120
APR 30...	1235	29	1410	7.4	21.5	7.0	80	1.2	400	130
JUN 09...	1400	26	1140	8.0	27.0	9.8	124	2.1	330	100
SEP 01...	1532	10	1500	8.4	29.5	9.8	131	1.2	380	150

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 09...	90	16	82	2.2	6.4	230	110	90	.3
NOV 16...	117	22	110	2.6	6.6	250	200	130	.3
FEB 04...	130	24	140	3.0	6.5	270	240	170	.4
MAR 19...	120	25	150	3.3	7.1	280	230	170	.4
APR 30...	120	24	150	3.3	6.9	270	250	180	.5
JUN 09...	100	20	130	3.3	7.5	230	200	140	.3
SEP 01...	110	26	170	4.0	8.2	230	270	200	.4

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 09...	15	548	1.4	.040	1.4	.150	.76	.91	.230
NOV 16...	16	770	--	<.020	2.0	.080	1.4	1.50	.350
FEB 04...	2.6	876	--	<.020	.74	<.060	--	.75	.010
MAR 19...	9.8	880	1.0	.060	1.1	.170	.57	.74	.260
APR 30...	19	912	--	<.020	1.0	.100	.59	.69	.230
JUN 09...	13	749	.49	.010	.50	.050	1.1	1.10	.160
SEP 01...	17	940	--	<.020	.30	.210	.79	1.00	.280

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	2322	806	490	3070	81	509	120	762	260
NOV.	1981	2917	842	511	4020	83	653	120	980	270
DEC.	1981	1042	1350	836	2350	160	439	230	651	410
JAN.	1982	1010	1360	843	2300	160	431	230	638	410
FEB.	1982	2022	926	565	3080	95	520	140	777	290
MAR.	1982	1203	1270	780	2530	140	461	210	684	390
APR.	1982	926	1260	777	1940	140	352	210	523	390
MAY	1982	3038	865	524	4300	84	692	130	1040	280
JUNE	1982	871	1230	761	1790	140	326	210	484	380
JULY	1982	448	1530	954	1150	190	229	280	337	450
AUG.	1982	381.1	1430	890	915	170	177	250	261	430
SEPT	1982	519.8	1040	637	894	110	161	170	239	320
TOTAL		16699.9	**	**	28400	**	4950	**	7370	**
WTD. AVG.		46	1030	629	**	110	**	160	**	320

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	1280	1250	1270	1090	240	508	1310	1280	1290	1380	1340	1360
2	1270	1250	1260	---	---	751	1300	1280	1290	1350	1340	1340
3	1290	1260	1270	---	---	895	1320	1290	1300	1380	1350	1360
4	1310	1280	1290	---	---	923	1320	1290	1300	1390	1360	1380
5	1320	1300	1310	---	---	969	1310	1290	1300	1390	1370	1380
6	1330	1200	1310	---	---	1030	1330	1300	1320	1380	1360	1370
7	620	120	355	---	---	1080	1340	1320	1330	1370	1340	1360
8	750	320	549	---	---	1120	1350	1330	1340	1370	1340	1360
9	1040	760	862	---	---	1150	1350	1330	1340	1370	1340	1360
10	1190	1000	1110	---	---	1180	1370	1340	1350	1380	1360	1370
11	1000	960	968	---	---	1160	1360	1340	1350	1390	1370	1380
12	1000	970	985	---	---	1140	1340	1320	1330	1400	1370	1380
13	1020	960	982	---	---	1160	1360	1320	1340	1390	1370	1380
14	1090	1030	1060	---	---	1180	1370	1350	1360	1390	1340	1370
15	1220	1100	1170	---	---	1200	1380	1360	1370	1360	1320	1340
16	1220	1180	1200	1210	1200	1210	1380	1370	1380	1350	1330	1340
17	1210	1180	1200	1210	1200	1200	1390	1370	1380	1340	1290	1310
18	1210	1170	1190	1250	1200	1220	1380	1360	1370	1310	1280	1300
19	1220	880	1010	1240	1220	1240	1380	1360	1370	1330	1300	1310
20	1170	1040	1110	1240	1220	1230	1380	1360	1370	1350	1320	1340
21	1250	1170	1210	1250	1220	1230	1400	1370	1380	1400	1340	1370
22	1510	1230	1320	1260	1240	1250	1390	1360	1380	1400	1360	1380
23	1350	1220	1260	1280	1250	1260	1380	1360	1370	1370	1330	1350
24	1220	1200	1220	1270	1250	1260	1390	1370	1380	1380	1350	1370
25	1250	1200	1220	1290	1250	1270	1390	1370	1380	1390	1370	1380
26	1290	1230	1250	1290	1260	1270	1390	1370	1380	1400	1370	1390
27	1300	1260	1280	1290	1250	1260	1390	1370	1380	1390	1370	1380
28	1290	1260	1270	1280	1260	1270	1390	1370	1380	1380	1370	1380
29	1320	1270	1300	1310	1280	1300	1390	1370	1380	1400	1380	1390
30	1310	1280	1290	1320	1290	1310	1380	1370	1370	1400	1370	1390
31	1320	1130	1290	---	---	---	1390	1370	1380	1390	1370	1380
MONTH	1510	120	1140	1320	240	1140	1400	1280	1350	1400	1280	1360

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1390	1360	1370	1200	1150	1180	1250	1230	1240	1460	1400	1430
2	1390	1380	1380	1220	1190	1210	1240	1230	1240	1460	1390	1420
3	1400	1370	1390	1220	1200	1210	1250	1210	1230	1470	1430	1450
4	1380	1360	1370	1270	1220	1240	1250	1210	1230	1480	1440	1460
5	1370	1350	1360	1270	1250	1270	1260	1230	1250	1470	1440	1450
6	1380	1360	1370	1290	1260	1280	1260	1220	1230	1460	300	796
7	1390	1370	1380	1300	1280	1290	1250	1230	1240	1410	790	1010
8	1410	1380	1400	1310	1280	1300	1290	1250	1270	950	430	597
9	1430	1400	1410	1320	1300	1310	1280	1240	1260	640	510	563
10	1420	1410	1420	1350	1310	1330	1260	1250	1250	850	670	780
11	1430	1400	1410	1370	1330	1350	1260	1240	1250	890	850	872
12	1430	1390	1410	1360	1320	1340	1290	1240	1260	910	880	898
13	1440	1400	1420	1350	1320	1330	1310	1260	1290	930	900	919
14	1440	1410	1430	1340	1310	1330	1310	1290	1300	990	840	903
15	1460	1430	1440	1360	1310	1330	1310	1280	1300	780	420	590
16	1460	1420	1440	1360	1340	1350	1330	1300	1310	---	---	694
17	1450	1420	1440	1390	1350	1370	1320	1280	1310	---	---	816
18	1460	1420	1440	1420	1370	1400	1300	1260	1280	---	---	902
19	1490	1440	1460	1400	1230	1310	1270	1250	1260	---	---	989
20	1460	270	649	1240	1220	1230	1270	1220	1250	---	---	1060
21	540	360	455	1250	1220	1230	1230	1210	1220	---	---	1110
22	1000	550	748	1220	1200	1210	1230	1210	1220	---	---	1160
23	1430	1030	1280	1220	1200	1210	1230	1220	1230	---	---	1200
24	1210	1180	1200	1230	1210	1210	1240	1220	1230	---	---	1200
25	1200	1180	1190	1230	1200	1220	1320	1230	1270	---	---	1190
26	1290	650	945	1200	1180	1190	1330	1280	1300	---	---	1240
27	950	650	808	1190	1180	1180	1300	1260	1280	---	---	1240
28	1140	960	1070	1200	1180	1190	1290	1260	1280	---	---	1240
29	---	---	---	1200	1180	1190	1280	1250	1260	---	---	1250
30	---	---	---	1230	1190	1210	1440	1240	1340	---	---	1270
31	---	---	---	1250	1210	1230	---	---	---	---	---	1300
MONTH	1490	270	1250	1420	1150	1270	1440	1210	1260	1480	300	1060

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	1340	1430	1410	1420	1650	1620	1630	1510	1480	1500
2	---	---	1380	1440	1420	1430	1710	1650	1680	1520	1500	1510
3	---	---	1400	1450	1430	1440	1730	1700	1720	1530	1510	1520
4	---	---	1400	1440	1430	1430	1730	1720	1730	1570	1520	1550
5	---	---	1380	1450	1380	1440	1740	1720	1730	1600	1560	1580
6	---	---	1370	1450	1440	1450	1730	1720	1720	1610	1580	1590
7	---	---	1380	1460	1440	1450	1720	1670	1690	1580	1550	1560
8	---	---	1400	1460	1450	1460	1670	1640	1650	1580	1550	1570
9	---	---	1300	1450	1430	1440	1640	1530	1600	1580	1550	1570
10	1240	1230	1240	1470	1430	1450	1580	1540	1560	1550	1530	1540
11	1270	1240	1250	1490	1460	1470	1550	1430	1510	1580	1530	1560
12	1410	460	871	1510	1480	1490	1430	1380	1420	1590	1570	1580
13	850	530	658	1530	1500	1520	1370	1250	1300	1650	1040	1570
14	1120	870	1010	1560	1530	1540	1240	1220	1230	1260	290	468
15	1260	1130	1190	1590	1550	1570	1240	1200	1220	650	560	586
16	1340	1270	1310	1630	1580	1610	1220	1200	1210	970	660	810
17	1320	1280	1300	1640	1630	1630	1240	1210	1230	1190	990	1090
18	1290	1280	1280	1630	1610	1620	1260	1230	1250	1320	1200	1280
19	1290	1280	1280	1660	1630	1650	1290	1250	1270	1310	1270	1290
20	1320	1280	1300	1680	1660	1670	1340	1290	1310	1340	1280	1310
21	1340	1310	1320	1690	1670	1680	1360	1340	1350	1350	1320	1340
22	1370	1340	1350	1680	1590	1630	1380	1330	1350	1360	1300	1330
23	1400	1370	1380	1620	1590	1600	1400	1370	1380	1360	1310	1330
24	1450	1400	1420	1620	1600	1610	1410	1380	1400	1370	1330	1350
25	1470	1450	1460	1610	1590	1600	1420	1400	1410	1370	1350	1360
26	1470	1440	1450	1600	1580	1590	1440	1420	1420	1370	1340	1350
27	1460	1440	1450	1600	1580	1590	1480	1440	1460	1360	1340	1350
28	1460	1430	1450	1600	1590	1600	1500	1480	1490	1390	1350	1370
29	1440	1420	1430	1620	1600	1610	1500	1480	1490	1410	1390	1400
30	1430	1410	1420	1620	1600	1610	1490	1470	1480	1420	1370	1390
31	---	---	---	1630	1610	1620	1500	1480	1490	---	---	---
MONTH	1470	460	1310	1690	1380	1550	1740	1200	1460	1650	290	1350

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	27.0	24.5	25.5	20.5	19.5	20.0	18.0	15.5	17.0	12.0	10.5	11.5
2	27.0	25.0	26.0	20.0	18.5	19.5	16.0	14.0	15.0	14.0	12.0	13.0
3	27.5	25.5	26.0	---	---	---	16.5	13.5	15.0	16.0	13.5	14.5
4	27.5	25.5	26.5	---	---	---	15.0	13.5	14.5	14.0	12.0	13.0
5	27.0	25.5	26.0	---	---	---	14.5	11.5	13.0	14.0	11.0	12.5
6	28.0	26.0	26.5	---	---	---	14.5	13.5	14.0	16.0	13.0	14.5
7	25.5	24.0	24.5	---	---	---	16.0	14.5	15.0	15.5	11.0	13.0
8	24.5	23.0	23.5	---	---	---	16.5	15.0	15.5	11.0	9.5	10.5
9	24.0	22.5	23.0	---	---	---	17.5	15.5	16.5	11.0	8.5	10.0
10	25.5	23.0	24.0	---	---	---	17.5	15.5	16.5	10.5	7.5	9.5
11	26.5	24.5	25.5	---	---	---	19.0	16.5	17.5	7.0	5.5	6.0
12	26.5	25.0	25.5	---	---	---	18.0	16.5	17.0	7.0	5.0	6.0
13	26.5	25.5	26.0	---	---	---	16.5	15.5	15.5	6.0	4.5	5.5
14	27.5	25.5	26.5	---	---	---	15.0	13.0	14.0	7.0	4.0	5.5
15	27.5	26.0	26.5	---	---	---	14.0	11.5	13.0	7.5	5.0	6.0
16	27.0	25.5	26.5	19.5	18.0	18.5	14.5	11.0	13.0	8.0	6.0	6.5
17	27.0	25.5	26.0	19.5	18.0	18.5	13.5	10.5	12.5	7.0	5.0	6.0
18	26.0	23.5	24.5	20.5	18.5	19.5	11.0	9.0	10.0	9.0	6.5	7.5
19	23.0	20.5	21.5	19.5	17.5	19.0	10.0	7.5	9.0	10.5	8.0	9.5
20	22.0	19.5	20.5	17.5	15.5	16.5	11.5	10.0	11.0	13.0	11.0	12.0
21	21.5	20.5	21.0	16.5	14.0	15.0	15.0	11.5	13.5	15.0	13.0	14.0
22	21.0	19.0	20.5	17.0	14.0	15.5	16.0	13.5	15.0	16.5	15.0	15.5
23	19.0	17.0	17.5	18.5	16.0	17.0	13.5	12.0	13.0	16.0	13.5	15.0
24	17.0	16.0	16.5	18.5	16.0	17.0	12.5	10.0	11.5	15.0	12.0	13.5
25	19.0	16.5	17.5	20.0	17.5	18.5	11.0	8.5	10.0	16.0	13.5	14.5
26	18.0	16.0	17.0	20.5	19.0	19.5	11.5	8.5	10.0	15.0	12.5	13.5
27	18.0	15.0	16.5	19.0	17.5	18.0	12.0	9.0	10.5	14.5	13.0	13.5
28	18.5	15.5	17.0	19.0	17.5	18.5	13.0	11.0	12.0	16.0	13.5	15.0
29	19.0	16.0	17.5	21.0	18.5	19.5	12.0	10.0	11.0	17.0	15.5	16.5
30	19.5	17.5	18.5	21.0	18.5	20.0	11.5	11.0	11.0	18.0	15.5	17.0
31	20.5	19.0	20.0	---	---	---	12.0	11.0	11.5	15.5	13.5	14.5
MONTH	28.0	15.0	22.5	21.0	14.0	18.0	19.0	7.5	13.5	18.0	4.0	11.5

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

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

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

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

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) State Department of Highways and Public Transportation datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 40.6 ft³/s (1.150 m³/s), 2.31 in/yr (59 mm/yr), 29,410 acre-ft/yr (36.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 74,000 ft³/s (2,100 m³/s) Aug. 31, 1981, gage height, 34.10 ft (10.394 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood information begins with the flood in June 1903, which reached a stage of 34 ft (10.4 m), discharge 71,000 ft³/s (2,010 m³/s). A stage of 32 ft (9.8 m), discharge 39,000 ft³/s (1,100 m³/s), occurred in September 1952, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 8	0530	*1,840	52.1	13.26	4.042
Feb. 20	1730	1,330	37.7	11.15	3.399
June 12	1830	1,330	37.7	11.16	3.402

Minimum discharge, no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	50	1.3	1.8	3.8	19	.61	.25	1.0	.04	.00	.08
2	9.0	45	1.3	1.8	4.0	13	.60	.21	.97	.04	.00	.07
3	8.9	53	1.4	1.9	3.6	11	.48	.19	.88	.04	.00	.07
4	8.5	19	1.1	2.1	3.4	9.4	.43	.16	.91	.02	.00	.07
5	8.4	10	1.1	1.8	3.4	7.4	.45	.16	.90	.00	.00	.08
6	8.4	6.5	1.1	1.8	3.1	6.5	.40	77	.75	.00	.00	.07
7	390	4.5	1.4	1.8	3.0	5.2	.36	83	.75	.00	.00	.06
8	1270	3.6	1.4	1.6	3.4	4.6	.38	25	.75	.00	.00	.08
9	198	3.1	1.4	1.6	3.5	4.4	.38	5.8	.75	.00	13	.09
10	46	2.6	1.4	1.5	3.5	4.4	.40	1.8	.75	.04	3.3	.10
11	27	2.4	1.4	1.2	3.6	4.3	.39	.79	.75	.03	.08	.13
12	18	2.2	1.4	1.7	3.5	3.8	.38	.47	434	.03	.04	.13
13	13	2.2	1.4	2.0	3.2	3.8	.37	.41	98	.00	.01	.17
14	11	2.0	1.6	1.8	3.3	1.9	.34	.46	8.1	.00	.00	.09
15	9.9	2.0	1.4	1.8	3.5	1.0	.34	4.5	1.7	.03	.00	13
16	7.8	2.0	1.3	1.8	3.5	.75	.37	1.6	.62	.03	.00	10
17	6.4	1.6	1.2	6.5	3.5	.83	.35	1.5	.36	.01	.00	4.2
18	6.8	1.6	1.0	5.4	3.3	.82	.30	11	.23	.02	.00	.42
19	17	1.5	1.0	4.7	6.3	.75	.33	19	.20	.00	.00	.15
20	27	1.4	1.1	4.7	611	.75	.34	6.0	.16	.00	.00	.11
21	12	1.4	1.2	4.7	573	.74	.36	1.7	.14	.00	.00	.08
22	17	1.4	1.4	4.7	83	.61	.34	.69	.12	.00	.00	.08
23	10	1.6	1.1	4.1	34	.61	.33	.51	.10	.00	.00	.10
24	5.8	1.3	1.0	3.8	21	.61	.38	7.3	.10	.00	.00	.11
25	4.5	1.2	1.0	3.8	76	.60	.56	3.9	.12	.00	.00	.04
26	3.6	1.2	1.2	3.8	71	.48	.51	2.4	.11	.00	.00	.01
27	3.2	1.4	1.2	3.8	25	.47	.41	2.0	.07	.00	.00	.00
28	3.2	1.4	1.2	3.8	34	.48	.31	1.9	.07	.00	.00	.00
29	3.1	1.4	1.2	3.8	---	.49	.26	1.4	.04	.00	.00	.00
30	3.0	1.4	1.2	3.8	---	.61	.23	1.2	.05	.00	.02	.00
31	132	---	1.6	3.8	---	.61	---	1.1	---	.00	.08	---
TOTAL	2298.0	229.9	39.0	93.2	1596.4	109.91	11.69	263.40	553.45	.33	16.53	29.59
MEAN	74.1	7.66	1.26	3.01	57.0	3.55	.39	8.50	18.4	.011	.53	.99
MAX	1270	53	1.6	6.5	611	19	.61	83	434	.04	13	13
MIN	3.0	1.2	1.0	1.2	3.0	.47	.23	.16	.04	.00	.00	.00
CFSM	.31	.03	.005	.01	.24	.02	.002	.04	.08	.000	.002	.004
IN.	.36	.04	.01	.01	.25	.02	.00	.04	.09	.00	.00	.00
AC-FT	4560	456	77	185	3170	218	23	522	1100	.7	33	59

CAL YR 1981 TOTAL 39409.81 MEAN 108 MAX 25500 MIN .04 CFSM .45 IN 6.13 AC-FT 78170
WTR YR 1982 TOTAL 5241.40 MEAN 14.4 MAX 1270 MIN .00 CFSM .06 IN .82 AC-FT 10400

08188500 SAN ANTONIO RIVER AT GOLIAD, TX
(National stream-quality accounting network)

LOCATION.--Lat 28°38'58", long 97°23'04", Goliad County, Hydrologic Unit 12100303, on right bank at upstream side of bridge on U.S. Highway 183, 1.2 mi (1.9 km) southeast of courthouse in Goliad, 11.7 mi (18.8 km) upstream from Manahuilla Creek, and 66.5 mi (107.0 km) upstream from mouth.

DRAINAGE AREA.--3,921 mi^2 (10,155 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1924 to March 1929, February 1939 to current year.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 91.08 ft (27.761 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1929, nonrecording gage at Texas and New Orleans Railroad Co. bridge 0.9 mi (1.4 km) upstream at same datum.

REMARKS.--Water-discharge records good. Many diversions and regulations above station (see station 08181800). Flow is affected at times by discharge from flood-detention pools of 36 floodwater-retarding structures with combined detention capacity of 66,730 acre-ft (82.3 hm^3). These structures control runoff from 213 mi^2 (552 km^2).

AVERAGE DISCHARGE.--47 years (water years 1925-28, 1940-82), 674 ft^3/s (19.09 m^3/s), 488,300 acre-ft/yr (602 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft^3/s (3,910 m^3/s) Sept. 23, 1967, gage height, 53.7 ft (16.37 m), from floodmark, from rating curve extended above 26,000 ft^3/s (736 m^3/s) on basis of slope-area measurement of peak flow; minimum observed, 1.2 ft^3/s (0.034 m^3/s) June 16, 1956.
Maximum stage since 1869, that of Sept. 23, 1967. Flood of July 9, 1942, reached a stage of 44.9 ft (13.69 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in October 1913 and June 15, 1935, reached about the same stage as flood in 1942. Maximum stage since about 1800 occurred in 1869 and was several feet higher than flood of Sept. 23, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,460 ft^3/s (211 m^3/s) Oct. 31 at 1300 hours, gage height, 24.49 ft (7.465 m), no other peak above base of 6,000 ft^3/s (170 m^3/s); minimum daily, 204 ft^3/s (5.78 m^3/s) Aug. 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	653	5010	641	522	513	965	506	333	529	314	222	238
2	586	3330	637	525	513	827	509	324	500	318	216	226
3	608	2650	637	602	513	666	520	319	470	321	212	224
4	624	1890	648	589	509	609	503	346	456	465	214	226
5	638	1260	628	542	432	590	484	357	440	464	211	221
6	613	1060	616	527	382	566	471	397	428	402	204	223
7	602	952	642	529	374	548	455	590	416	373	208	223
8	1100	890	619	480	376	539	447	1010	394	349	211	219
9	2510	843	595	406	410	524	453	2570	369	357	219	214
10	3830	800	596	395	427	517	446	3110	339	366	244	208
11	4320	781	600	389	425	516	441	1550	274	361	356	225
12	1940	821	605	381	402	524	444	869	236	347	335	237
13	1070	796	602	381	374	526	435	746	646	296	572	230
14	875	746	595	382	367	527	433	773	1520	242	479	244
15	834	714	591	471	361	529	429	1220	765	227	400	344
16	861	692	574	699	434	523	437	1490	682	221	372	407
17	842	672	556	601	470	511	440	1540	387	220	356	331
18	1620	654	563	546	471	506	422	1030	317	229	343	422
19	2570	655	565	528	483	514	415	973	296	222	329	332
20	2290	742	558	529	638	506	417	2390	279	226	323	296
21	1790	743	550	527	2600	496	456	2350	270	228	331	261
22	1490	729	548	532	3690	489	421	1180	262	222	325	237
23	1910	709	541	535	1210	483	357	1050	241	219	288	222
24	1630	692	539	532	848	470	327	1070	239	241	259	246
25	1280	689	536	528	1310	464	317	1240	295	251	253	271
26	1260	679	535	530	2250	501	385	833	308	248	244	234
27	1110	684	536	527	1220	517	457	807	320	252	241	218
28	986	664	531	515	836	500	410	724	296	241	241	214
29	914	688	518	517	---	483	361	624	318	227	244	219
30	847	664	506	518	---	481	341	579	326	218	244	224
31	4440	---	514	517	---	513	---	550	---	224	244	---
TOTAL	46643	32899	17922	15802	22838	16930	12939	32944	12618	8891	8940	7636
MEAN	1505	1097	578	510	816	546	431	1063	421	287	288	255
MAX	4440	5010	648	699	3690	965	520	3110	1520	465	572	422
MIN	586	654	506	381	361	464	317	319	236	218	204	208
AC-FT	92520	65260	35550	31340	45300	33580	25660	65340	25030	17640	17730	15150

CAL YR 1981 TOTAL 458739 MEAN 1257 MAX 16000 MIN 257 AC-FT 909900
WTR YR 1982 TOTAL 237002 MEAN 649 MAX 5010 MIN 204 AC-FT 470100

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 September 1982 (discontinued). Sediment records: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1945 to September 1946, September 1958 to current year.
WATER TEMPERATURES: September 1958 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,580 micromhos July 22, 1978; minimum daily, 138 micromhos Oct. 27, 1960.
WATER TEMPERATURES: Maximum daily, 36.0°C June 5, 1969; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,360 micromhos Apr. 26; minimum daily, 330 micromhos Oct. 9.
WATER TEMPERATURES: Maximum, 33.5°C Sept. 29; minimum daily, 7.0°C Jan. 11, 12, 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
09...	1255	2470	337	--	24.5	--	--	--	--	--	--
NOV											
16...	1330	693	1030	7.6	21.0	0	--	7.8	88	1.4	140
25...	1212	690	1060	7.6	20.0	--	--	--	--	--	--
FEB											
08...	1640	370	1280	8.3	11.5	0	--	10.3	94	--	72
MAR											
29...	1430	486	1190	7.9	18.0	--	31	8.0	85	5.1	560
MAY											
03...	1524	315	1290	8.5	25.0	20	1.0	9.0	108	3.6	120
22...	0500	1800	412	--	24.5	--	--	--	--	--	--
JUL											
26...	1540	245	1270	9.1	31.0	--	32	12.0	160	8.0	K130
AUG											
31...	1810	246	1160	8.4	30.5	10	32	6.7	92	1.5	140

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT											
09...	--	110	17	35	4.8	24	1.0	5.7	90	26	32
NOV											
16...	130	330	92	100	20	84	2.1	5.2	240	110	130
25...	--	--	--	--	--	--	--	--	--	--	--
FEB											
08...	52	370	100	110	24	120	2.9	5.9	270	130	170
MAR											
29...	140	370	110	110	23	110	2.5	6.3	260	130	150
MAY											
03...	200	370	120	110	23	120	2.9	6.2	250	140	190
22...	--	150	32	49	7.3	24	.9	5.4	120	38	29
JUL											
26...	K310	380	110	110	25	130	3.1	9.4	270	140	180
AUG											
31...	K80	340	99	98	23	110	2.8	7.9	240	120	150

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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, NO2+NO3 DISSOLVED (MG/L AS N)
OCT										
09...	.2	9.5	--	191	--	--	--	--	--	--
NOV										
16...	.3	20	637	614	95	10	3.4	.030	3.4	3.4
25...	--	--	--	--	--	--	--	--	--	--
FEB										
08...	.3	15	780	738	--	--	4.8	.120	4.9	5.1
MAR										
29...	.3	19	714	705	--	--	--	--	--	6.5
MAY										
03...	.7	21	750	761	87	23	--	--	4.4	4.4
22...	.3	12	--	237	--	--	--	--	--	--
JUL										
26...	.5	7.4	789	764	--	--	--	--	--	1.5
AUG										
31...	.5	17	753	670	65	17	--	--	3.7	3.6

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (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)	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										
09...	--	--	--	--	--	--	--	--	--	--
NOV										
16...	.030	.020	1.5	1.50	.820	.740	5.1	149	279	87
25...	--	--	--	--	--	--	--	--	--	--
FEB										
08...	.370	.360	1.5	1.90	1.80	1.80	6.7	--	--	--
MAR										
29...	--	.780	--	1.80	1.30	1.20	--	80	105	86
MAY										
03...	.070	.090	1.4	1.50	1.10	--	6.6	51	43	96
22...	--	--	--	--	--	--	--	--	--	--
JUL										
26...	--	.110	--	2.50	1.30	1.00	--	104	69	99
AUG										
31...	.260	.120	.24	.50	2.10	2.00	5.2	85	56	98

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
NOV 16...	1330	4	1	3	200	90	110	1	<1	10
FEB 08...	1640	3	1	2	100	30	75	1	<1	10
MAY 03...	1524	4	0	4	<100	--	100	<1	<3	<10
AUG 31...	1810	5	0	5	<100	--	79	<1	<1	<10

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 16...	--	<10	<1	<3	8	4	4	2300	--	<10
FEB 08...	0	10	3	<3	17	14	3	740	730	14
MAY 03...	--	10	<1	1	4	2	2	1300	1300	12
AUG 31...	--	10	1	<1	2	1	1	1300	1300	5

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
NOV 16...	8	3	5	90	80	6	.1	<.1	4	0
FEB 08...	8	6	2	50	30	16	.1	<.1	7	6
MAY 03...	3	0	4	80	--	<3	.1	<.1	11	9
AUG 31...	1	--	<1	60	50	6	.1	<.1	11	6

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 16...	4	1	0	1	<1	<1	20	7	13
FEB 08...	1	1	0	1	<1	<1	30	20	12
MAY 03...	2	2	1	1	<1	<1	20	8	12
AUG 31...	5	2	1	1	<1	<1	10	3	7

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 25...	1212	--	0	--	.0	--	.0	--	.0	--	.0
FEB 08...	1640	.00	--	.00	--	.00	--	.00	--	.00	--
MAY 03...	1524	--	<1	--	<1.0	--	<.1	--	3.0	--	.5

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)	ETHION, TOTAL (UG/L)
NOV 25...	--	.0	--	.0	--	--	.0	--	--	.0	--
FEB 08...	.00	--	.00	--	.15	.00	--	.00	.00	--	.00
MAY 03...	--	.6	--	<.1	.05	--	.2	--	--	<.1	<.01

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)
NOV 25...	--	.0	--	.0	--	.0	--	--	.0	--	--
FEB 08...	.00	--	.00	--	.01	--	.00	.00	--	.00	.00
MAY 03...	--	<.1	--	<.1	--	<.1	<.01	--	<.1	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	PERTHANE 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-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 25...	--	.0	--	--	--	.0	--	--	--	--	--
FEB 08...	.00	--	.00	.00	0	--	.00	.00	.00	.00	.00
MAY 03...	--	<.1	<.01	--	--	<10	<.01	.05	<.01	<.01	<.01

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	46643	753	444	56000	77	9640	77	9660	260
NOV.	1981	32899	743	438	38900	74	6620	75	6690	260
DEC.	1981	17922	1080	643	31100	130	6160	120	5660	350
JAN.	1982	15802	1090	648	27700	130	5520	120	5040	350
FEB.	1982	22838	788	466	28700	84	5160	82	5030	270
MAR.	1982	16930	1100	658	30100	130	6070	120	5510	360
APR.	1982	12939	1200	716	25000	150	5320	130	4680	380
MAY	1982	32944	668	393	34900	62	5540	66	5860	240
JUNE	1982	12618	929	551	18800	100	3500	98	3330	310
JULY	1982	8891	1150	688	16500	140	3440	130	3060	370
AUG.	1982	8940	1120	670	16200	140	3310	120	2980	360
SEPT	1982	7636	1110	661	13600	130	2760	120	2500	360
TOTAL		237002	**	**	337000	**	63000	**	60000	**
WTD. AVG.		649	890	527	**	99	**	94	**	300

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	441	1060	1120	1110	934	1140	1210	956	1110	1300	1140
2	1150	331	1080	1080	1120	953	1170	1240	966	1130	1290	1150
3	1190	372	1070	1050	1140	1000	1160	1250	989	1030	1300	1170
4	1150	561	1050	1020	1120	988	1140	1280	970	1080	1290	1180
5	918	618	1050	1050	1180	999	1120	1210	1000	990	1270	1200
6	1110	681	1040	1060	1220	1010	1150	1180	1010	1030	1280	1210
7	1160	758	1030	1050	1240	1110	1160	1170	1000	1040	1300	1200
8	1170	845	1070	1090	1270	1130	1170	982	1030	1020	1310	1180
9	330	918	1080	1150	1260	1160	1180	913	1060	1130	1340	1170
10	446	959	1100	1170	1240	1180	1210	410	1090	1030	1320	1200
11	368	972	1070	1200	1220	1170	1200	452	1100	1040	1270	1220
12	475	988	1080	1210	1200	1200	1170	524	1150	1040	1130	1180
13	571	994	1060	1230	1230	1190	1180	663	1050	1050	1080	1210
14	715	1000	1050	1250	1250	1170	1200	727	500	1110	963	1140
15	816	998	1080	1150	1260	953	1210	748	446	1180	996	1090
16	886	1030	1090	950	1240	1150	1200	766	871	1220	931	849
17	1040	1040	1100	1010	1200	1160	1210	617	900	1270	892	1070
18	1050	1050	1120	1020	1180	1170	1200	499	785	1290	936	1010
19	1060	1060	1100	1000	1160	1180	1210	565	861	1310	1030	953
20	1070	1070	1080	1040	1020	1170	1190	400	1010	1300	1040	1000
21	1030	1030	1070	1070	650	1160	1150	367	1050	1280	1050	1020
22	999	999	1100	1100	404	899	1200	439	1130	1270	1060	1050
23	1010	1010	1090	1090	477	1160	1240	533	1180	1290	1080	1040
24	1040	1040	1100	1080	547	1180	1270	708	1220	1310	1070	1130
25	660	1030	1100	1070	520	1190	1320	614	1190	1290	1100	1150
26	707	1040	1090	1100	500	1200	1360	739	1170	1300	1140	1120
27	761	1050	1080	1110	590	1170	1280	813	1160	1290	1160	1160
28	742	1040	1100	1120	886	1160	1210	884	1130	1260	1180	1180
29	802	1030	1120	1130	---	1160	1220	895	1120	1240	1190	1190
30	805	1040	1100	1120	---	1150	1270	839	1100	1270	1170	1160
31	420	---	1130	1130	---	1160	---	946	---	1290	1160	---
MEAN	864	900	1080	1100	1020	1120	1200	793	1010	1180	1150	1120

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	20.0	17.0	14.0	18.0	14.0	22.0	22.5	26.5	28.5	28.0	28.5
2	25.0	20.0	15.0	19.0	15.0	20.0	28.0	22.5	27.0	29.0	29.0	28.5
3	28.0	19.0	17.0	20.0	17.0	17.0	23.0	28.0	27.5	28.0	29.0	28.0
4	25.0	21.0	16.0	15.0	18.0	19.0	24.0	23.0	22.5	32.0	19.0	31.0
5	27.0	22.0	17.0	14.0	---	17.0	23.0	25.0	28.0	29.5	29.5	31.0
6	28.0	19.0	19.0	16.0	10.0	14.0	23.0	22.5	27.5	29.0	28.5	27.5
7	27.0	22.0	18.0	15.0	12.0	18.0	21.0	22.0	28.0	29.5	29.0	27.5
8	24.0	23.0	17.0	12.0	14.0	19.0	22.0	24.0	28.5	27.5	28.0	28.0
9	24.0	19.0	16.0	17.0	11.0	17.0	21.0	23.0	30.0	28.0	26.5	30.5
10	27.0	16.0	17.0	12.0	12.0	18.0	19.0	22.5	28.0	32.0	27.0	29.5
11	26.0	17.0	19.0	7.0	14.0	17.0	20.5	24.5	28.5	31.0	27.5	31.0
12	27.0	17.0	23.0	7.0	16.0	25.0	22.0	24.5	27.5	29.0	31.0	28.5
13	26.0	18.0	17.0	8.0	13.0	22.0	23.0	28.0	28.0	30.0	27.5	30.0
14	25.0	21.0	16.0	7.0	14.0	24.0	25.0	25.0	26.0	28.5	30.0	28.0
15	26.0	22.0	14.0	11.0	15.0	22.0	24.0	25.0	25.0	31.5	32.5	27.0
16	27.0	19.0	14.0	8.0	20.0	23.0	25.5	26.0	31.0	32.5	29.0	30.5
17	29.0	20.0	16.0	9.0	19.0	24.0	24.0	25.0	28.0	29.5	30.0	30.0
18	25.0	21.0	10.0	11.0	15.0	30.0	18.5	24.5	30.5	30.5	29.5	18.5
19	23.0	21.0	12.0	14.0	18.0	26.0	25.5	26.0	27.0	31.0	29.0	29.5
20	25.0	17.0	15.0	15.0	19.0	26.0	25.0	26.0	30.0	28.0	28.5	27.0
21	25.0	23.0	16.0	19.0	20.0	25.0	22.0	25.0	29.0	31.0	29.0	26.0
22	23.0	19.0	17.0	18.0	17.0	21.0	21.0	24.0	30.0	29.0	31.0	23.5
23	24.0	18.0	16.0	---	18.0	21.0	18.0	24.5	31.5	31.0	28.5	22.0
24	17.0	18.0	16.0	17.0	19.0	22.0	17.0	25.0	31.5	31.0	29.0	23.0
25	20.0	20.0	15.0	18.0	17.0	20.0	20.0	24.5	29.5	29.0	29.5	24.0
26	17.0	21.0	17.0	14.0	16.0	19.0	19.5	26.5	29.0	30.0	29.0	29.0
27	18.0	18.0	15.0	16.0	13.0	18.0	23.0	28.5	30.0	29.5	28.5	26.5
28	19.0	20.0	16.0	17.0	15.0	17.0	23.5	27.0	29.5	29.0	29.5	27.0
29	19.0	23.0	15.0	18.0	---	16.0	24.0	27.0	29.0	29.5	31.0	33.5
30	20.0	22.0	16.0	19.0	---	17.0	22.0	28.0	29.5	29.0	30.5	26.5
31	25.0	---	17.0	16.0	---	20.0	---	28.5	---	28.5	28.5	---
MEAN	24.0	20.0	16.0	14.0	15.5	20.5	22.5	25.0	28.5	29.5	29.0	27.5

08188600 GUADALUPE-BLANCO RIVER AUTHORITY CALHOUN CANAL FLUME NO. 1 NEAR LONG MOTT, TX

LOCATION.--Lat 28°29'44", long 96°46'18", Calhoun County, Hydrologic Unit 12100204, on right bank at concrete Parshall flume No. 1, 518 ft (158 m) upstream from State Highway 185, 1,900 ft (579 m) downstream from pumping station on Goff Bayou, and 1.1 mi (1.8 km) northwest of Long Mott.

PERIOD OF RECORD.--March 1968 to Feburary 1970 (monthly discharge only), March 1970 to current year.

GAGE.--Water-stage and velocity recorders, duplex water-stage recorder, and Parshall flume. Datum of gage is 23.53 ft (7.172 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 6, 1981, deflection-vane recorder.

REMARKS.--Records fair. Flow is diverted from Guadalupe River 550 ft (168 m) upstream from Guadalupe River near Tivoli (station 08188800), and then through a system of canals, Hog Bayou, and Goff Bayou, a distance of 8.9 mi (14.3 km) to the pumping station on Goff Bayou 1,900 ft (579 m) upstream from flume No. 1. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years (water years 1969-82), 99.7 ft^3/s (2.824 m^3/s), 72,230 acre-ft/yr (89.1 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 1977-82.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	14	26	14	26	22	82	27	168	209	95	218
2	136	14	27	14	21	20	86	31	202	204	106	218
3	128	14	36	14	28	14	54	79	223	204	105	218
4	122	14	31	22	26	15	41	177	224	204	88	207
5	106	9.0	14	27	16	30	65	168	207	209	82	204
6	103	.00	14	27	14	41	76	77	190	218	82	204
7	109	.00	22	27	14	37	69	18	188	231	82	207
8	100	.00	20	11	4.0	.00	85	14	177	224	91	199
9	95	.00	14	.00	20	.00	109	14	187	227	105	197
10	95	.00	26	.00	34	.00	109	14	199	212	86	204
11	95	.00	41	.00	26	.00	101	51	210	204	59	204
12	95	.00	23	.00	33	.00	107	76	215	227	41	201
13	65	.00	14	.00	26	.00	127	55	190	214	62	190
14	54	.00	34	.00	26	.00	144	14	184	204	82	190
15	54	3.0	37	.00	27	.00	128	14	172	212	82	190
16	54	14	33	.00	26	.00	104	14	178	218	76	190
17	54	13	41	.00	37	7.0	101	19	190	218	112	198
18	55	12	28	.00	28	8.0	109	45	190	200	150	213
19	75	14	14	.00	16	17	109	71	190	190	158	218
20	99	42	14	.00	.00	14	99	102	190	190	172	218
21	104	54	14	.00	.00	14	69	149	219	190	177	201
22	76	27	18	11	15	14	68	163	231	173	177	186
23	19	.00	20	27	41	29	68	157	241	155	177	169
24	.00	.00	14	35	37	48	54	167	226	141	185	163
25	.00	.00	14	25	15	.00	41	172	199	136	182	163
26	6.0	.00	14	14	25	20	41	161	190	128	184	163
27	14	8.0	14	14	14	21	41	141	197	115	190	157
28	14	14	23	22	14	27	60	138	207	109	198	134
29	17	14	27	27	---	48	54	136	204	102	204	131
30	21	23	27	27	---	40	37	136	212	95	212	136
31	14	---	23	27	---	55	---	154	---	95	218	---
TOTAL	2122.00	303.00	717	385.00	609.00	541.00	2438	2754	6000	5658	4020	5691
MEAN	68.5	10.1	23.1	12.4	21.8	17.5	81.3	88.8	200	183	130	190
MAX	143	54	41	35	41	55	144	177	241	231	218	218
MIN	.00	.00	14	.00	.00	.00	37	14	168	95	41	131
AC-FT	4210	601	1420	764	1210	1070	4840	5460	11900	11220	7970	11290

CAL YR 1981 TOTAL 29037.20 MEAN 79.6 MAX 239 MIN .00 AC-FT 57600
WTR YR 1982 TOTAL 31238.00 MEAN 85.6 MAX 241 MIN .00 AC-FT 61960

08188750 GUADALUPE-BLANCO RIVER AUTHORITY CALHOUN CANAL FLUME NO. 2 NEAR LONG MOTT, TX

LOCATION.--Lat 28°30'09", long 96°45'40", Calhoun County, Hydrologic Unit 12100204, on left bank at concrete Parshall flume No. 2, 3,700 ft (1,130 m) downstream from State Highway 185, 4,200 ft (1,280 m) downstream from streamflow station 08188600, and 1.4 mi (2.3 km) north of Long Mott.

PERIOD OF RECORD.--October 1971 to June 1972 (monthly discharge only), July 1972 to current year.

GAGE.--Water-stage and velocity recorders, water-stage recorder, and Parshall flume. Datum of gage is 22.37 ft (6.818 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 6, 1981, deflection-vane recorders.

REMARKS.--Records fair except those for periods of low velocities, which are poor. Flow is diverted from Guadalupe River 550 ft (168 m) upstream from Guadalupe River near Tivoli (station 08188800), and then through a system of canals, Hog Bayou, and Goff Bayou, a distance of 8.9 mi (14.3 km) to the pumping station on Goff Bayou 1,900 ft (579 m) upstream from flume No. 1. Diversions to the Union Carbide Co. between flumes 1 (station 08188600) and 2 during the current year were 18,840 acre-ft (23.2 hm^3). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years, 79.7 ft^3/s (2.257 m^3/s), 57,740 acre-ft/yr (71.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 282 ft^3/s (7.99 m^3/s) June 23, 1975; no flow at times in 1972-82.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	.00	23	.00	12	8.0	42	27	155	204	82	204
2	122	.00	17	.00	8.0	14	45	27	194	204	93	204
3	113	.00	26	.00	7.0	14	27	65	223	204	91	204
4	107	.00	21	8.0	8.0	7.0	27	163	217	204	74	196
5	87	.00	.00	14	3.0	.00	52	163	194	209	68	190
6	83	.00	.00	14	.00	.00	63	77	177	213	68	196
7	95	.00	8.0	14	.00	.00	55	18	180	223	68	198
8	87	.00	7.0	5.0	.00	.00	71	14	177	218	77	185
9	82	.00	.00	.00	.00	.00	95	14	187	212	91	184
10	82	.00	.00	.00	.00	.00	95	14	199	198	72	190
11	82	.00	.00	.00	.00	.00	88	57	210	190	45	190
12	65	.00	.00	.00	.00	.00	94	76	215	196	27	190
13	54	.00	.00	.00	.00	.00	113	46	190	182	48	190
14	47	.00	26	.00	.00	.00	131	8.0	184	163	68	190
15	48	.00	33	.00	.00	.00	114	.00	172	172	68	190
16	48	.00	27	.00	.00	.00	90	.00	178	177	62	190
17	48	.00	18	.00	.00	7.0	88	5.0	190	177	99	198
18	48	.00	.00	.00	.00	8.0	95	31	190	177	136	204
19	40	.00	.00	.00	.00	8.0	95	58	190	177	144	204
20	69	.00	.00	.00	.00	.00	67	88	190	177	158	204
21	74	.00	.00	.00	.00	.00	31	135	190	177	163	188
22	55	.00	4.0	11	15	.00	27	150	190	160	163	173
23	19	.00	7.0	27	41	15	27	144	200	141	163	156
24	.00	.00	.00	27	37	39	14	153	204	128	172	150
25	.00	.00	.00	11	10	.00	.00	158	199	122	163	150
26	6.0	.00	.00	.00	.00	20	.00	147	190	114	170	150
27	14	8.0	.00	.00	.00	21	.00	128	197	101	177	144
28	12	14	9.0	8.0	.00	27	24	124	196	93	184	121
29	14	14	14	14	---	48	41	122	190	88	190	117
30	8.0	23	14	14	---	40	32	122	199	82	198	122
31	.00	---	9.0	14	---	32	---	140	---	82	204	---
TOTAL	1731.00	59.00	263.00	181.00	141.00	308.00	1743.00	2474.00	5767	5165	3586	5372
MEAN	55.8	1.97	8.48	5.84	5.04	9.94	58.1	79.8	192	167	116	179
MAX	122	23	33	27	41	48	131	163	223	223	204	204
MIN	.00	.00	.00	.00	.00	.00	.00	.00	155	82	27	117
AC-FT	3430	117	522	359	280	611	3460	4910	11440	10240	7110	10660

CAL YR 1981 TOTAL 24301.50 MEAN 66.6 MAX 231 MIN .00 AC-FT 48200
WTR YR 1982 TOTAL 26790.00 MEAN 73.4 MAX 223 MIN .00 AC-FT 53140

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 mi^2 (26,232 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-68-1: Drainage area.

GAGE.--Duplex water-stage recorder. Datum of gage is 0.04 ft (0.012 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Many small diversions above station. Some regulation by powerplants. Upstream regulation same as that for Guadalupe River at Cuero (station 08175800) and San Antonio River at Goliad (station 08188500).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (upstream from barrier), 13.7 ft (4.18 m) Sept. 22, 1967; minimum, 1.5 ft (0.46 m) Mar. 16, 1967. Maximum gage height (downstream from barrier), 13.6 ft (4.15 m) Sept. 22, 1967; minimum, 0.5 ft (0.15 m) July 12, 14, 1967.
Maximum stage since at least 1936, that of Sept. 22, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1936 reached a stage of 11 ft (3.4 m), present site and datum. Levees along the Navigation Canal from San Antonio Bay to Victoria were built in 1961 and decreased the flood plain materially.

EXTREMES FOR CURRENT YEAR.--Maximum gage height (upstream from barrier), 9.5 ft (2.90 m) Nov. 2, minimum, 1.6 ft (0.49 m) Aug. 2. Maximum gage height (downstream from barrier), 9.1 ft (2.77 m) Nov. 2; minimum, 1.0 ft (0.30 m) Aug. 2.

MAXIMUM DAILY GAGE HEIGHT, IN FEET, UPSTREAM AND DOWNSTREAM FROM SALTWATER BARRIER, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUNE		JULY		AUG		SEPT	
	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up	down
1	6.0	5.9	9.3	8.9	7.1	6.8	6.1	6.0	4.7	4.6	8.2	8.1	5.1	5.0	4.1	4.0	7.8	7.6	4.1	3.3	4.2	2.4	4.0	2.2
2	6.0	5.9	9.5	9.1	7.0	6.7	6.1	6.0	4.8	4.7	8.0	7.9	5.1	5.1	4.0	3.9	7.8	7.6	4.1	3.2	4.4	2.2	4.0	2.2
3	6.0	5.9	9.4	9.0	7.0	6.7	6.1	6.0	4.8	4.7	7.8	7.8	5.0	4.9	3.8	3.7	7.7	7.5	4.2	3.2	4.0	2.5	4.0	2.4
4	5.9	5.8	8.9	8.6	6.9	6.7	6.1	6.0	4.8	4.7	7.7	7.7	4.9	4.8	3.4	3.4	7.6	7.4	4.1	3.0	4.0	2.4	4.0	2.4
5	5.9	5.8	8.6	8.4	6.9	6.6	6.1	6.0	4.8	4.7	7.5	7.4	4.8	4.7	3.5	3.5	7.4	7.2	4.1	3.0	3.9	2.3	4.0	2.2
6	5.9	5.8	8.4	8.2	6.9	6.6	6.1	6.0	4.6	4.5	7.2	7.1	4.7	4.6	3.9	3.8	7.3	7.2	4.4	3.5	3.9	2.3	4.0	2.3
7	5.9	5.9	8.3	8.1	6.9	6.7	6.1	6.0	4.5	4.4	6.9	6.8	4.7	4.6	5.3	5.2	7.2	7.0	4.3	3.6	3.9	2.3	4.0	2.1
8	5.9	5.8	8.2	8.0	6.9	6.7	6.0	5.9	4.4	4.2	6.8	6.7	4.7	4.6	5.4	5.2	7.0	6.9	4.4	3.4	3.9	2.4	4.0	2.2
9	6.4	6.3	8.2	8.0	6.8	6.8	5.9	5.7	4.4	4.2	6.6	6.5	4.3	4.2	6.5	6.4	6.9	6.8	4.2	3.2	4.0	2.5	4.0	2.5
10	7.6	7.4	8.1	7.8	6.8	6.8	5.7	5.6	4.3	4.2	6.4	6.2	4.3	4.1	7.3	7.2	6.6	6.6	4.1	3.3	3.9	2.4	4.1	2.6
11	8.0	7.8	8.0	7.7	6.8	6.7	5.4	5.3	4.4	4.3	6.2	6.1	4.2	4.1	7.7	7.7	6.4	6.3	4.1	3.3	3.9	2.8	4.1	2.8
12	8.2	7.9	7.9	7.7	6.8	6.7	5.2	5.1	4.4	4.3	6.0	5.9	4.2	4.1	7.9	7.8	6.2	6.1	4.1	3.2	2.6	2.5	4.1	2.8
13	8.2	8.0	7.9	7.7	6.7	6.6	5.1	5.1	4.4	4.3	6.0	5.8	4.1	4.0	7.8	7.7	5.9	5.8	4.1	3.2	2.6	2.6	4.1	2.9
14	8.2	7.9	7.9	7.7	6.7	6.6	5.0	4.8	4.4	4.3	6.0	5.9	4.0	3.8	7.7	7.6	5.6	5.6	4.1	3.1	2.9	2.8	4.1	2.6
15	7.8	7.7	7.8	7.6	6.6	6.5	4.9	4.7	4.3	4.2	5.9	5.8	4.0	3.9	7.7	7.6	6.4	6.4	4.1	3.1	3.0	3.0	4.1	2.5
16	7.6	7.4	7.8	7.6	6.6	6.5	4.8	4.7	4.2	4.1	5.8	5.7	4.0	3.8	7.7	7.7	6.4	6.3	4.1	3.1	3.0	3.0	4.1	2.3
17	7.4	7.2	7.7	7.5	6.5	6.4	5.0	4.9	4.2	4.1	5.6	5.5	4.0	3.9	7.9	7.9	6.2	6.0	4.1	3.1	4.3	2.7	4.1	2.5
18	7.3	7.1	7.6	7.4	6.4	6.3	5.2	5.1	4.2	4.1	5.5	5.4	4.0	3.9	8.0	7.9	6.0	5.8	4.1	3.2	4.3	2.4	4.2	2.5
19	7.6	7.4	7.5	7.4	6.3	6.2	5.2	5.1	4.5	4.4	5.5	5.4	4.0	4.0	8.0	7.9	5.4	5.2	4.1	3.2	4.3	2.6	4.2	2.4
20	8.0	7.8	7.4	7.2	6.2	6.1	5.1	4.9	5.9	5.8	5.4	5.3	4.0	3.9	8.1	8.0	5.0	4.8	4.1	2.9	4.3	2.6	4.2	2.4
21	8.1	7.9	7.3	7.2	6.3	6.2	5.1	5.0	7.0	7.0	5.3	5.2	3.9	3.8	8.2	8.1	4.8	4.6	4.0	2.9	4.3	2.6	4.2	2.2
22	8.2	8.0	7.3	7.2	6.3	6.2	5.1	5.1	7.8	7.7	5.2	5.0	4.1	4.0	8.2	8.1	4.6	4.3	4.0	3.0	4.3	2.6	4.2	2.4
23	8.1	7.9	7.3	7.1	6.2	6.2	5.0	5.0	8.1	8.0	5.1	5.0	4.4	4.2	8.2	8.1	4.3	4.0	4.0	2.7	4.3	2.6	4.2	2.4
24	8.1	7.9	7.3	7.2	6.2	6.1	5.1	5.0	8.1	8.1	5.0	4.9	4.4	4.2	8.0	8.0	4.1	3.8	4.0	2.6	4.3	2.6	4.2	2.5
25	8.1	7.9	7.3	7.2	6.1	6.1	5.0	5.0	8.1	8.0	4.9	4.9	4.3	4.2	8.2	8.1	4.0	3.7	4.0	2.6	4.2	2.0	4.2	2.2
26	8.0	7.9	7.3	7.2	6.1	6.1	5.0	4.9	8.2	8.1	5.0	4.9	4.3	4.2	8.2	8.1	4.0	3.7	4.0	2.7	4.2	1.8	4.2	2.5
27	7.8	7.7	7.2	7.0	6.1	6.0	5.0	4.9	8.2	8.2	5.0	4.8	4.3	4.2	8.2	8.1	4.1	3.7	4.0	2.6	4.1	1.9	4.3	2.7
28	7.8	7.6	7.1	6.9	6.1	6.1	4.9	4.8	8.2	8.2	5.0	4.9	4.3	4.2	8.1	8.0	4.1	3.7	4.0	2.4	4.1	1.8	4.2	2.8
29	7.7	7.5	7.1	6.9	6.0	6.0	5.0	4.8	---	---	5.1	5.0	4.3	4.2	8.1	7.9	4.0	3.6	4.0	2.5	4.1	1.8	4.2	2.7
30	7.5	7.4	7.2	6.9	6.1	6.0	5.0	4.8	---	---	5.1	5.1	4.3	4.2	8.0	7.8	3.8	3.5	4.0	2.7	4.2	1.9	4.3	2.9
31	8.6	8.4	---	---	6.1	6.1	4.8	4.7	---	---	5.0	4.9	---	---	7.9	7.8	---	---	4.0	2.6	4.1	2.0	---	---

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1965 to current year. Chemical and biochemcial analyses: October 1968 to current year. Pesticide analyses: October 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1965 to current year.
WATER TEMPERATURES: October 1965 to current year.

INSTRUMENTATON.--Specific conductance is recorded continuously at this station. Beginning March 1981, water temperature is recorded continuously.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,000 micromhos June 1, 1971, Aug. 3, 1978; minimum daily, 159 micromhos Apr. 28, 1980.
WATER TEMPERATURES (1966-69, 1981-82): Maximum daily, 32.0°C on many days during summer months; minimum daily, 8.0°C Jan. 15, 1968.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 952 micromhos June 15; minimum daily, 194 micromhos Nov. 3.
WATER TEMPERATURES: Maximum daily, 32.0°C June 23, 26, 27; minimum daily, 8.5°C Jan. 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (FTU)	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 18...	1620	700	7.9	20.5	5	44	7.8	88	1.1	260	44
FEB 03...	1435	844	7.9	15.0	5	31	9.4	93	2.2	300	48
MAR 17...	1610	858	8.0	23.5	10	22	7.9	94	2.0	300	46
APR 29...	1620	872	7.8	23.5	10	41	8.4	97	1.6	310	67
JUN 08...	1200	634	7.9	27.0	20	34	6.0	76	3.3	240	34
AUG 31...	1652	834	7.7	31.5	10	38	7.0	96	1.5	270	36

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 18...	81	15	44	1.2	3.9	220	59	61	.2	17	413
FEB 03...	88	19	58	1.5	3.5	250	64	88	.4	12	483
MAR 17...	89	18	62	1.7	4.0	250	59	89	.3	13	485
APR 29...	90	20	68	1.8	3.9	240	75	100	.4	17	519
JUN 08...	73	15	39	1.1	4.1	210	39	58	.3	15	369
AUG 31...	77	18	68	1.9	4.1	230	63	100	.3	18	487

DATE	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 18...	70	6	--	<.020	1.2	.070	1.3	1.40	.230	6.0
FEB 03...	69	10	2.4	.030	2.4	<.060	--	.68	.500	3.3
MAR 17...	53	12	1.9	.020	1.9	.100	.58	.68	.340	4.3
APR 29...	90	14	--	<.020	2.2	<.060	--	.93	.620	4.8
JUN 08...	101	17	--	<.020	1.0	<.060	--	.80	.350	5.2
AUG 31...	59	15	.86	.040	.90	.200	.90	1.10	3.10	4.1

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	793	761	777	338	261	289	784	748	766	---	---	---
2	804	772	788	273	202	244	780	736	758	---	---	---
3	799	775	787	227	194	205	762	736	749	---	---	---
4	801	791	796	290	229	256	771	748	760	---	---	---
5	813	793	803	412	352	382	776	770	773	---	---	---
6	806	797	802	460	410	435	780	761	773	---	---	---
7	839	769	804	461	449	455	761	744	751	---	---	---
8	769	708	734	536	512	527	759	751	756	---	---	---
9	751	700	719	552	533	544	756	747	751	---	---	---
10	881	765	844	533	501	516	747	732	740	---	---	---
11	765	434	599	570	539	554	741	719	730	---	---	---
12	610	420	479	619	596	608	743	730	737	---	---	---
13	454	417	432	625	611	619	754	743	749	---	---	---
14	459	424	443	640	626	633	760	752	756	869	832	850
15	492	461	476	652	640	647	758	740	749	865	836	850
16	545	494	523	650	640	645	752	748	749	861	850	855
17	580	548	567	671	653	662	751	747	750	899	854	875
18	606	579	598	707	674	690	753	749	750	901	882	893
19	651	613	632	723	697	712	753	750	751	882	821	848
20	658	635	648	730	718	726	757	751	754	822	789	806
21	633	522	551	745	729	738	760	757	758	814	793	804
22	566	551	558	753	737	745	766	759	762	823	796	805
23	561	556	558	759	735	747	---	---	---	837	826	833
24	562	531	546	763	741	751	---	---	---	846	826	835
25	553	537	545	752	732	742	---	---	---	842	804	823
26	545	534	540	769	750	758	---	---	---	846	824	835
27	592	542	567	774	753	764	---	---	---	842	819	830
28	642	612	627	773	755	764	---	---	---	848	821	838
29	654	641	648	776	754	765	---	---	---	853	830	843
30	641	632	636	779	755	767	---	---	---	854	835	844
31	632	338	485	---	---	---	---	---	---	869	846	858
MONTH	881	338	629	779	194	596	784	719	753	901	789	840

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	864	851	857	428	380	414	838	806	822	851	824	834
2	855	831	843	505	429	465	860	827	841	831	822	828
3	844	836	840	580	509	547	858	844	849	846	827	835
4	845	836	840	604	571	584	853	846	850	868	837	855
5	840	832	836	649	609	629	870	851	859	874	838	864
6	847	839	843	673	651	664	860	840	850	869	834	850
7	846	837	841	668	649	658	852	833	842	847	780	801
8	841	820	832	710	671	691	858	827	842	780	718	737
9	842	832	836	724	710	716	851	835	841	725	694	709
10	867	844	859	734	713	725	858	845	853	854	697	756
11	876	862	871	766	734	750	863	843	854	774	533	653
12	881	864	873	781	756	768	852	838	846	560	494	514
13	874	847	863	800	782	792	853	837	846	606	549	578
14	868	850	858	793	781	786	861	846	853	591	538	563
15	854	801	835	801	781	790	881	845	863	557	440	476
16	877	839	858	817	801	809	851	840	845	503	453	474
17	851	777	814	841	816	828	862	841	853	527	507	515
18	797	784	791	840	815	828	859	853	856	553	468	528
19	806	792	799	819	814	816	859	844	850	479	468	476
20	794	753	773	830	820	825	860	848	855	472	439	456
21	753	650	702	836	831	834	868	856	864	---	---	---
22	686	645	668	841	831	836	868	854	861	---	---	---
23	724	510	612	835	829	832	866	831	850	---	---	---
24	531	505	519	830	827	828	831	737	791	---	---	---
25	508	430	484	841	832	836	782	757	771	---	---	---
26	496	426	460	832	825	829	802	775	785	---	---	---
27	445	360	383	832	825	829	777	766	773	---	---	---
28	377	341	358	845	838	842	833	773	798	---	---	---
29	---	---	---	845	842	844	858	834	846	---	---	---
30	---	---	---	849	843	846	879	843	861	---	---	---
31	---	---	---	847	836	842	---	---	---	---	---	---
MONTH	881	341	748	849	380	751	881	737	839	874	439	665

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	777	764	771	848	821	836	859	826	842
2	---	---	---	778	754	765	890	814	841	854	826	840
3	---	---	---	776	762	769	857	830	844	826	783	810
4	---	---	---	795	765	778	882	840	861	806	781	793
5	---	---	---	824	790	803	907	863	885	851	820	836
6	---	---	---	841	817	829	875	831	853	820	791	806
7	---	---	---	821	775	802	885	850	868	848	814	831
8	670	667	668	776	721	748	880	849	865	858	830	842
9	676	658	669	763	732	748	849	810	830	873	831	845
10	682	656	669	752	725	738	831	768	805	855	813	834
11	699	680	687	739	720	730	842	764	810	852	806	832
12	709	674	697	728	712	721	880	852	866	848	813	831
13	714	702	707	753	724	739	932	869	900	850	798	830
14	733	705	716	780	757	770	903	884	891	865	829	847
15	952	745	876	793	766	781	908	835	864	866	827	851
16	748	548	644	783	698	740	846	765	815	850	787	819
17	704	580	644	791	733	762	864	767	815	914	816	861
18	637	580	608	792	619	706	800	760	777	885	809	845
19	717	641	694	797	684	740	792	741	773	867	806	847
20	725	707	718	811	774	715	764	712	736	870	720	782
21	715	669	688	819	773	800	752	720	735	800	743	774
22	715	688	703	818	779	805	783	720	755	820	761	792
23	739	710	727	827	789	807	792	746	775	791	755	775
24	754	730	743	821	788	808	814	764	797	796	762	786
25	762	730	747	831	786	814	819	781	799	808	759	787
26	768	743	756	839	800	826	816	786	799	848	809	830
27	790	758	779	842	800	827	821	788	809	841	806	822
28	785	758	772	846	795	827	821	789	802	832	789	818
29	782	747	774	845	801	832	814	788	801	841	798	822
30	791	747	775	853	807	837	821	788	805	817	780	802
31	---	---	---	841	821	835	831	792	813	---	---	---
MONTH	952	548	716	853	619	780	932	712	820	914	720	821

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	28.0	27.0	27.5	21.5	20.0	20.5	20.5	19.5	20.0	---	---	---
2	28.0	27.0	27.5	20.5	19.0	20.0	19.0	18.5	18.5	---	---	---
3	28.0	27.5	27.5	20.5	19.0	20.0	18.5	17.5	18.0	---	---	---
4	28.5	27.5	28.0	20.5	19.5	20.0	18.5	17.0	17.5	---	---	---
5	28.5	27.5	28.0	20.5	19.5	20.0	17.0	16.0	16.5	---	---	---
6	28.5	27.5	28.0	21.0	19.5	20.0	17.0	16.5	16.5	---	---	---
7	28.0	27.5	28.0	20.5	19.5	20.0	17.0	16.5	16.5	---	---	---
8	27.5	26.5	27.0	21.0	20.5	20.5	17.5	17.0	17.0	---	---	---
9	26.5	26.0	26.0	20.5	18.5	19.5	18.0	17.5	17.5	---	---	---
10	26.0	25.5	26.0	18.5	17.5	18.0	18.0	17.5	17.5	---	---	---
11	26.5	25.5	26.0	18.0	17.0	17.5	18.5	17.5	18.0	---	---	---
12	26.5	25.5	26.0	17.5	17.5	17.5	19.0	18.0	18.5	---	---	---
13	26.5	26.0	26.0	18.0	17.5	18.0	18.5	17.5	18.0	---	---	---
14	27.0	26.0	26.5	18.5	17.5	18.0	17.5	16.0	17.0	9.5	9.0	9.5
15	27.5	26.5	27.0	19.5	18.0	18.5	16.0	15.5	15.5	10.0	8.5	9.5
16	27.5	27.0	27.0	19.5	19.0	19.0	15.5	15.0	15.5	10.5	9.5	10.0
17	27.5	26.5	27.0	20.0	19.0	19.5	15.5	14.5	15.0	9.5	9.0	9.5
18	27.0	25.5	26.5	20.5	19.5	20.0	14.0	13.0	13.5	10.0	9.0	9.5
19	25.5	24.0	24.5	20.5	19.5	20.0	13.0	12.5	12.5	11.5	10.0	10.5
20	24.0	23.5	24.0	19.5	18.5	18.5	13.5	12.5	13.0	13.0	11.5	12.5
21	24.0	23.5	23.5	18.0	17.5	18.0	15.0	13.5	14.5	15.0	13.5	14.0
22	23.5	22.5	23.0	18.0	17.5	18.0	16.5	15.0	15.5	17.0	15.0	16.0
23	22.0	20.5	21.0	19.0	17.5	18.5	---	---	---	17.0	16.5	16.5
24	20.5	19.0	19.5	19.5	18.5	19.0	---	---	---	16.5	16.0	16.5
25	19.5	19.0	19.0	20.0	19.0	19.5	---	---	---	16.5	16.0	16.5
26	19.0	18.5	19.0	20.5	20.0	20.0	---	---	---	16.5	15.5	16.0
27	19.0	18.0	18.5	20.5	20.0	20.0	---	---	---	15.5	15.0	15.5
28	19.0	18.0	18.5	20.5	19.5	20.0	---	---	---	16.5	15.5	16.0
29	19.5	18.5	19.0	21.0	20.5	20.5	---	---	---	17.5	16.5	17.0
30	20.0	19.0	19.5	21.5	20.5	21.0	---	---	---	18.0	17.5	17.5
31	21.5	20.0	20.5	---	---	---	---	---	---	17.5	17.0	17.0
MONTH	28.5	18.0	24.5	21.5	17.0	19.5	20.5	12.5	16.5	18.0	8.5	14.0

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

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

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

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

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 except those for period of no gage-height record, which are fair. No known diversion above station. Recording rain gage is located at station.

AVERAGE DISCHARGE.--12 years, 54.4 ft³/s (1.541 m³/s), 8.41 in/yr (214 mm/yr), 39,410 acre-ft/yr (48.6 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)
Nov. 2	1800	*3,290	93.2	17.14	5.224
Mar. 1	1000	829	23.5	11.57	3.527

Minimum discharge, no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	2040	2.8	1.5	.29	814	.52	.00	166	.00	.00	.00
2	1.8	3130	2.7	1.6	.29	709	.52	.00	122	.00	.00	.00
3	1.8	3050	2.6	1.6	.29	538	.46	.00	80	.00	.00	.00
4	1.6	2500	2.5	1.7	.29	357	.34	.00	57	.00	.00	.00
5	1.4	1960	2.1	1.5	.29	234	.26	.00	39	.00	.00	.00
6	1.5	1430	2.3	1.5	.29	154	.17	.00	24	.00	.00	.00
7	1.4	970	3.0	1.6	.29	89	.13	8.7	14	.00	.00	.00
8	1.5	690	3.3	1.5	.29	54	.13	6.0	9.9	.00	.00	.00
9	1.1	519	3.5	1.2	.29	37	.09	2.6	7.1	.00	.00	.00
10	.91	360	3.5	.36	.29	25	.07	1.5	5.5	.00	.00	.00
11	.90	256	3.6	.29	.29	17	.02	1.1	4.1	.00	.00	.00
12	.80	196	3.4	.29	.29	12	.02	1.0	2.5	.00	.00	.00
13	.78	146	3.1	.29	.29	9.2	.01	.70	1.5	.00	.00	.00
14	.61	102	2.8	.29	.29	7.1	.00	10	1.3	.00	.00	.00
15	.51	75	2.9	.29	.29	5.7	.00	3.5	1.2	.00	.00	.00
16	.46	59	3.4	.29	.29	4.7	.00	1.1	.93	.00	.00	.00
17	.36	44	2.8	.36	.29	4.0	.00	1.1	.77	.00	.00	.00
18	.62	32	2.1	.36	.29	3.4	.00	1.1	.53	.00	.00	.00
19	1.2	24	1.8	.36	.52	2.9	.00	1.1	.40	.00	.00	.00
20	1.0	17	1.8	.36	51	2.4	.00	1.0	.23	.00	.00	.00
21	.66	12	1.9	.36	181	2.0	.00	1.2	.18	.00	.00	.00
22	.99	10	1.7	.36	100	1.5	.00	6.7	.16	.00	.00	.00
23	24	8.5	1.5	.36	61	1.3	.00	32	.07	.00	.00	.00
24	62	7.3	1.2	.36	46	1.2	.00	76	.01	.00	.00	.00
25	67	6.4	1.0	.36	198	1.0	.00	38	.00	.00	.00	.00
26	58	5.5	.92	.36	737	.74	.00	57	.00	.00	.00	.00
27	40	4.6	.90	.36	664	.55	.00	96	.00	.00	.00	.00
28	23	4.0	.90	.36	684	.52	.00	125	.00	.00	.00	.00
29	14	3.8	1.0	.36	---	.52	.00	171	.00	.00	.00	.00
30	9.6	3.4	1.0	.36	---	.52	.00	229	.00	.00	.00	.00
31	883	---	1.3	.29	---	.52	---	209	---	.00	.00	---
TOTAL	1204.80	17665.5	69.32	21.13	2727.74	3089.77	2.74	1081.40	538.38	.00	.00	.00
MEAN	38.9	589	2.24	.68	97.4	99.7	.091	34.9	17.9	.000	.000	.000
MAX	883	3130	3.6	1.7	737	814	.52	229	166	.00	.00	.00
MIN	.36	3.4	.90	.29	.29	.52	.00	.00	.00	.00	.00	.00
CFSM	.44	6.71	.03	.008	1.11	1.14	.001	.40	.20	.000	.000	.000
IN.	.51	7.48	.03	.01	1.16	1.31	.00	.46	.23	.00	.00	.00
AC-FT	2390	35040	137	42	5410	6130	5.4	2140	1070	.00	.00	.00

CAL YR 1981	TOTAL	54960.72	MEAN	151	MAX	4040	MIN	.00	CFSM	1.72	IN	23.29	AC-FT	109000
WTR YR 1982	TOTAL	26400.78	MEAN	72.3	MAX	3130	MIN	.00	CFSM	.82	IN	11.19	AC-FT	52370

NOTE.--No gage-height record Jan. 11, 12, Apr. 12 to May 23, June 24-28.

08189200 COPANO CREEK NEAR REFUGIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1970 to current year. Pesticide analyses: June 1970 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT											
20...	1620	.91	1160	7.6	22.0	88	6.9	78	1.6	110	22
JAN											
13...	1400	.29	1520	7.6	5.5	48	11.3	90	2.7	210	69
APR											
06...	1628	.16	1000	7.7	21.0	130	6.0	67	3.3	170	0
MAY											
25...	1600	19	356	7.3	24.5	92	5.6	67	4.0	64	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT										
20...	36	4.9	200	8.6	7.1	88	120	250	.2	11
JAN										
13...	67	10	240	7.5	7.8	140	120	330	.2	14
APR										
06...	53	8.1	140	4.9	9.4	170	22	210	.3	19
MAY										
25...	20	3.5	48	2.7	7.0	69	40	51	.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										
20...	683	45	--	.030	<.09	.100	1.4	1.50	.110	20
JAN										
13...	873	22	--	<.020	<.09	<.070	--	1.10	.040	9.8
APR										
06...	564	126	.08	.050	.13	.180	2.1	2.30	.200	20
MAY										
25...	234	169	.11	.050	.16	.360	2.5	2.90	.280	29

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							
20...	1620	2	370	<1	0	2	140
MAY							
25...	1600	1	140	2	10	4	310

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						
20...	1	15	.0	<1	<1	21
MAY						
25...	1	18	<.1	<1	<1	57

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.--43 years (water years 1940-82), 122 ft³/s (3.455 m³/s), 2.40 in/yr (61 mm/yr), 88,390 acre-ft/yr (109 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,000 ft³/s (2,240 m³/s) Sept. 12, 1971, gage height, 38.25 ft (11.659 m); minimum observed, 0.7 ft³/s (0.02 m³/s) Oct. 7, 9, 1940, Aug. 18-20, Sept. 5, 1945, Dec 29, 31, 1949, Jan. 1, 1950, July 13, Aug. 28, 1963, July 18, 19, 22-26, 31, Aug. 1, 2, 1971.
Maximum stage since about 1899, that of Sept. 12, 1971. Flood of Sept. 21, 1967, reached a stage of 36.5 ft (11.13 m), discharge 60,200 ft³/s (1,700 m³/s). Flood of July 7, 1942, reached a stage of 33.3 ft (10.15 m), discharge 41,700 ft³/s (1,180 m³/s). Flood of Nov. 1, 1981, reached a stage of 31.9 ft (9.723 m), from floodmark. Flood of May 13, 1972, reached a stage of 28.25 ft (8.611 m).

EXTREMES OUTSIDE PERIOD OF RECORD.-Floods in August 1914 and May 17, 1938, reached a stage of 32.3 ft (9.85 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 1	unknown	*24,500	694	a31.90	9.723
Feb. 27	0300	7,570	214	26.33	8.025
May 26	0900	4,890	138	23.68	7.218

a From floodmark.

Minimum daily discharge, 6.8 ft³/s (0.19 m³/s) Sept. 27-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	16600	80	51	35	786	55	51	116	29	15	9.4
2	33	14800	71	50	34	365	53	50	101	30	15	9.4
3	33	5240	66	49	35	232	51	45	90	29	14	12
4	33	1690	63	46	36	178	49	42	83	28	14	9.4
5	33	464	61	43	34	148	48	39	77	27	14	9.4
6	34	247	62	42	33	124	47	42	72	26	14	9.7
7	43	165	64	41	33	110	44	55	68	26	14	8.9
8	46	136	69	39	33	101	45	99	63	26	17	8.6
9	40	125	78	38	33	94	45	63	60	25	23	8.3
10	37	119	72	38	33	89	43	49	56	25	33	8.0
11	35	116	66	37	33	86	44	44	54	25	28	7.7
12	34	112	63	37	32	83	45	43	52	23	18	7.7
13	34	108	60	38	31	79	45	50	50	24	14	7.9
14	33	105	57	38	31	76	44	166	49	24	14	8.6
15	32	102	57	39	32	75	43	192	47	23	13	12
16	32	99	56	38	34	72	43	101	45	23	13	19
17	32	98	55	38	34	70	42	69	44	22	12	14
18	34	96	53	38	32	68	41	54	43	22	12	12
19	35	95	50	38	35	66	41	109	42	21	12	10
20	35	91	50	39	83	63	42	85	40	20	12	9.5
21	33	86	52	40	750	61	41	56	39	19	12	8.6
22	62	84	53	41	543	59	120	44	38	18	12	8.3
23	119	83	52	40	207	57	262	96	37	18	14	7.9
24	185	81	49	38	110	57	136	1040	36	17	14	7.6
25	121	79	47	37	1030	57	155	3180	36	17	12	7.6
26	78	78	46	36	5190	55	169	4620	35	16	11	6.9
27	61	75	46	34	6570	54	103	2050	33	16	11	6.8
28	51	73	46	34	2570	53	77	485	32	16	11	6.8
29	44	72	47	35	---	53	62	260	31	15	11	6.8
30	50	74	47	36	---	54	54	183	30	15	10	6.8
31	2000	---	49	36	---	56	---	142	---	15	9.6	---
TOTAL	3506	41393	1787	1224	17686	3581	2089	13604	1599	680	448.6	275.6
MEAN	113	1380	57.6	39.5	632	116	69.6	439	53.3	21.9	14.5	9.19
MAX	2000	16600	80	51	6570	786	262	4620	116	30	33	19
MIN	32	72	46	34	31	53	41	39	30	15	9.6	6.8
CFSM	.16	2.00	.08	.06	.92	.17	.10	.64	.08	.03	.02	.01
IN.	.19	2.23	.10	.07	.95	.19	.11	.73	.09	.04	.02	.01
AC-FT	6950	82100	3540	2430	35080	7100	4140	26980	3170	1350	890	547

CAL YR 1981 TOTAL 142190.0 MEAN 390 MAX 16600 MIN 17 CFSM .57 IN 7.67 AC-FT 282000
WTR YR 1982 TOTAL 87873.2 MEAN 241 MAX 16600 MIN 6.8 CFSM .35 IN 4.74 AC-FT 174300

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 September 1981.
WATER TEMPERATURES: September 1961 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 100,000 micromhos Nov. 28, 1965; minimum daily, 85 micromhos Sept. 13, 1971.
WATER TEMPERATURES: Maximum daily, 39.0°C June 20, 1981; minimum daily, 0.0°C Jan. 18, 1977.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV												
19...	1430	95	1620	7.8	21.0	11	7.3	81	1.4	84	140	370
FEB												
10...	1325	34	852	7.9	12.0	--	9.9	93	.5	52	130	250
MAR												
30...	1110	54	1860	7.9	21.0	8.0	8.0	90	.9	140	220	400
MAY												
04...	1550	41	1880	7.5	26.5	13	8.8	109	1.5	170	K440	390
JUL												
27...	1430	16	1960	8.1	30.0	12	6.6	86	2.4	130	200	390
AUG												
31...	1510	9.5	2300	7.9	30.0	18	7.2	97	2.3	64	140	440

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV											
19...	84	120	18	190	4.5	3.8	290	11	350	.2	41
FEB											
10...	0	89	6.2	61	1.7	3.6	280	21	84	.3	21
MAR											
30...	110	122	23	240	5.5	3.5	290	50	400	.2	39
MAY											
04...	120	120	22	230	5.3	3.9	270	31	420	.4	37
JUL											
27...	100	120	23	260	6.0	7.0	290	47	460	.3	47
AUG											
31...	170	130	27	320	6.7	3.9	270	48	570	.3	47

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
19...	964	908	.19	<.060	1.30	.030	.020	<.020	82	21	65
FEB											
10...	488	455	.15	.080	.54	.010	.010	<.010	82	7.5	88
MAR											
30...	1050	1050	.20	.140	.48	<.010	<.010	.020	94	14	51
MAY											
04...	1100	1030	.10	.070	.66	.060	<.010	.070	44	4.9	88
JUL											
27...	1140	1140	<.10	.120	.70	.040	<.010	.010	73	3.2	84
AUG											
31...	1370	1310	.29	<.060	1.00	.120	.080	.010	87	2.2	79

08189500 MISSION RIVER AT REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
NOV 19...	1430	9	1	8	600	50	550	<1	<1	<10
FEB 10...	1325	3	0	3	300	0	300	<1	<1	10
MAY 04...	1550	9	1	8	500	0	530	<1	<3	<10
AUG 31...	1510	9	0	9	600	200	400	<1	<1	<10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)
NOV 19...	<10	<1	<3	5	1	4	470	--	<10	2
FEB 10...	<10	3	<1	10	9	1	390	350	40	6
MAY 04...	10	1	<1	3	--	<1	300	--	<9	4
AUG 31...	<10	<1	<1	<1	--	<1	490	480	10	<1

DATE	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
NOV 19...	0	7	170	50	120	.1	.0	.1	1	0
FEB 10...	--	<1	60	40	20	<.1	--	<.1	4	--
MAY 04...	--	<1	180	130	47	.1	--	<.1	5	--
AUG 31...	--	<1	290	220	70	.1	--	<.1	<1	--

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 19...	3	1	0	1	<1	<1	10	2	8
FEB 10...	<1	1	--	<1	<1	<1	20	10	10
MAY 04...	<1	1	0	1	1	<1	10	--	<12
AUG 31...	<1	1	0	1	<1	<1	10	0	10

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.--18 years, 43.8 ft³/s (1.240 m³/s), 2.41 in/yr (61 mm/yr), 31,730 acre-ft/yr (39.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,800 ft³/s (2,340 m³/s) Sept. 22, 1967, gage height, 42.22 ft (12.869 m), from floodmark, from rating curve extended above 14,000 ft³/s (396 m³/s) on basis of slope-area measurements of 29,600 and 82,800 ft³/s (838 and 2,340 m³/s); no flow at times in 1964-67 and 1971.
Maximum stage since at least 1914, that of Sept. 22, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of September 1954 reached a stage of 33 ft (10.1 m), discharge 19,600 ft³/s (555 m³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 1	0500	1,500	42.5	13.83	4.215
May 25	0900	*2,390	67.7	16.40	4.999

Minimum daily discharge, 0.79 ft³/s (0.022 m³/s) Sept. 13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	786	7.7	8.6	7.1	10	5.7	6.6	12	5.4	3.9	1.4
2	6.7	91	7.3	8.5	7.7	8.1	5.7	8.3	10	5.2	3.8	1.4
3	6.8	37	7.0	8.0	7.9	7.3	5.7	11	9.7	5.4	3.8	1.3
4	7.0	22	7.1	7.7	7.9	7.3	5.4	5.9	9.6	5.4	3.8	1.4
5	7.1	17	7.1	7.1	7.9	7.1	4.6	5.0	9.3	5.4	4.0	1.4
6	10	14	7.2	7.2	7.9	6.8	4.3	4.9	8.7	5.2	3.8	1.2
7	9.2	12	8.7	7.3	7.9	6.1	4.0	5.5	8.2	5.1	3.7	1.2
8	8.1	11	10	7.2	7.9	5.7	4.2	6.2	8.0	4.9	3.7	1.1
9	7.4	10	8.5	6.9	8.0	5.6	4.4	4.7	7.6	4.9	4.7	1.1
10	7.3	9.4	7.7	6.9	7.9	5.6	4.5	4.4	7.1	4.9	6.0	.99
11	7.1	9.0	7.8	6.9	7.9	5.6	4.9	4.4	7.1	4.9	4.9	.99
12	7.1	8.9	7.6	6.9	7.9	5.6	6.4	4.4	7.1	4.9	4.2	.89
13	7.1	8.9	7.4	7.3	7.9	5.6	5.0	4.7	7.0	4.9	3.7	.79
14	144	8.7	7.4	7.9	7.9	5.6	4.6	4.9	6.8	4.7	3.4	1.8
15	56	8.4	7.4	7.7	8.1	5.6	4.5	4.6	6.6	4.7	3.2	3.0
16	26	8.2	8.3	7.8	8.9	5.6	4.4	4.5	6.2	4.7	2.9	2.9
17	18	8.1	7.8	7.7	8.3	5.7	4.4	4.3	6.2	4.7	2.9	2.7
18	15	8.2	7.3	7.3	8.1	5.7	4.4	4.0	6.2	4.7	2.6	2.6
19	16	8.1	6.9	7.9	8.6	5.7	4.4	4.0	6.0	4.9	2.7	2.5
20	13	7.9	7.4	7.9	24	5.7	4.4	4.0	5.2	4.6	2.6	2.3
21	10	7.6	7.8	7.9	76	5.7	4.4	3.8	5.4	4.6	2.6	1.9
22	14	7.4	7.9	8.0	22	5.7	4.4	3.9	5.6	4.6	3.2	1.9
23	32	7.7	7.7	7.9	8.2	5.7	5.0	56	5.6	4.6	6.2	1.4
24	67	7.5	6.9	7.6	7.0	5.7	6.1	164	5.6	4.6	4.2	1.2
25	31	7.5	6.8	7.2	11	5.7	8.5	1350	5.6	4.6	2.9	1.3
26	20	7.6	6.8	7.3	26	5.7	7.5	139	5.6	4.4	2.6	1.4
27	15	7.7	6.9	7.1	26	5.6	5.4	42	5.6	4.2	2.3	1.4
28	12	7.7	7.2	7.2	15	5.6	4.9	25	5.6	4.0	2.2	1.6
29	10	8.7	7.3	7.5	---	5.6	4.5	20	5.5	4.0	1.9	1.7
30	9.6	8.3	7.5	7.8	---	5.6	4.4	16	5.4	4.0	1.7	1.8
31	84	---	7.9	7.5	---	5.7	---	13	---	4.0	1.7	---
TOTAL	690.1	1171.5	234.3	233.7	366.9	188.3	151.0	1939.0	210.1	147.1	105.8	48.56
MEAN	22.3	39.1	7.56	7.54	13.1	6.07	5.03	62.5	7.00	4.75	3.41	1.62
MAX	144	786	10	8.6	76	10	8.5	1350	12	5.4	6.2	3.0
MIN	6.6	7.4	6.8	6.9	7.0	5.6	4.0	3.8	5.2	4.0	1.7	.79
CFSM	.09	.16	.03	.03	.05	.03	.02	.25	.03	.02	.01	.007
IN.	.10	.18	.04	.04	.06	.03	.02	.29	.03	.02	.02	.01
AC-FT	1370	2320	465	464	728	373	300	3850	417	292	210	96

CAL YR 1981 TOTAL 22789.70 MEAN 62.4 MAX 3530 MIN 3.5 CFSM .25 IN 3.43 AC-FT 45200
WTR YR 1982 TOTAL 5486.36 MEAN 15.0 MAX 1350 MIN .79 CFSM .06 IN .83 AC-FT 10880

08189800 CHILTIPIN CREEK AT SINTON, TX

LOCATION.--Lat 28°02'48", long 97°30'13", San Patricio County, Hydrologic Unit 12100407, on left bank at upstream end of bridge on U.S. Highway 77, 0.2 mi (0.3 km) upstream from Missouri Pacific Railroad Co. bridge, and 0.8 mi (1.3 km) northeast of Sinton.

DRAINAGE AREA.--128 mi² (332 km²).

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

REVISED RECORDS.--WRD TX-72-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 18.74 ft (5.712 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversions above station. An undetermined amount of water from oilfield operations enters stream upstream at various points. Several observations of water temperature werre made during the year.

AVERAGE DISCHARGE.--12 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 at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stages since 1910, 30.27 ft (9.226 m) Sept. 22, 1967, and 28.8 ft (8.78 m) in April 1930, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 1	1000	3,050	86.4	a12.62	3.847
Feb. 25	2200	*4,740	134	17.16	5.230
May 25	1000	3,210	90.9	13.04	3.975

a From floodmark.

Minimum discharge, no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2520	.05	.06	.65	40	.53	.16	1.7	.20	.02	.13
2	.00	844	.03	.07	.66	16	.60	.19	.68	.05	.02	.16
3	.00	106	.02	.05	.53	7.7	.16	.22	.33	.04	.03	.21
4	.00	49	.02	.04	.64	4.8	.12	.19	.21	.04	.03	.17
5	.01	22	.02	.04	.55	3.2	.16	.16	.14	.04	.03	.25
6	.00	11	.13	.05	.02	1.4	.09	.56	.13	.05	.03	.23
7	.00	5.2	.05	.11	.02	.93	.09	.26	.11	.05	.01	.33
8	.00	2.9	.04	.09	.03	.72	.10	.14	.11	.02	.00	.32
9	.00	.77	.04	.06	.01	.49	.11	.11	.11	.03	.67	.39
10	.00	.31	.03	.10	.00	.40	2.8	.09	.16	.03	.05	.44
11	.00	.18	.03	.03	.01	.51	27	.04	.16	.03	.00	.47
12	.00	.11	.05	.03	.01	.45	15	.04	.16	.03	.00	.53
13	.00	.08	.02	.03	.00	.37	4.8	1.3	.20	.03	.00	.65
14	.00	.06	.04	.03	.00	.32	1.8	.19	.24	.03	.00	.72
15	.00	.04	.02	.03	.00	.34	.89	.04	.28	.03	.00	.91
16	.00	.02	.02	.03	.00	.59	.47	.02	.30	.03	.00	.76
17	.00	.00	.02	.02	.00	.72	.23	.02	.29	.03	.00	.77
18	.22	.00	.02	.02	.01	.91	.11	.01	.39	.03	.00	.78
19	.00	.00	.01	.03	.37	.91	.10	.02	.43	.04	.00	.94
20	.00	.00	.02	.04	9.5	1.3	.08	.03	.46	.03	.00	.89
21	.00	.00	.03	.05	.42	.09	.03	.04	.53	.02	.00	.83
22	1.4	.00	.02	.05	.04	.07	.04	.04	.60	.02	.00	.54
23	18	.00	.02	.03	.00	.07	.04	51	.57	.02	.04	.57
24	34	.00	.01	.02	.00	.08	.13	115	.60	.02	.05	.69
25	19	.02	.01	.03	1940	.18	.06	2480	.65	.01	.04	.62
26	5.1	.07	.01	.03	3540	.13	.05	875	.72	.02	.05	.77
27	.79	.09	.02	.03	830	.16	.03	131	.71	.01	.08	.93
28	.12	.05	.03	.03	105	.17	.06	47	.77	.02	.08	.98
29	.02	.46	.01	.05	---	.24	.10	19	.66	.03	.10	.95
30	.01	.08	.11	.14	---	.34	.14	7.5	.44	.02	.13	.65
31	392	---	.07	.72	---	.30	---	3.4	---	.03	.12	---
TOTAL	470.67	3562.44	1.02	2.14	6428.47	83.89	55.92	3732.77	12.84	1.08	1.58	17.58
MEAN	15.2	119	.033	.069	230	2.71	1.86	120	.43	.035	.051	.59
MAX	392	2520	.13	.72	3540	40	27	2480	1.7	.20	.67	.98
MIN	.00	.00	.01	.02	.00	.07	.03	.01	.11	.01	.00	.13
CFSM	.12	.93	.000	.001	1.80	.02	.02	.94	.003	.000	.000	.005
IN.	.14	1.04	.00	.00	1.87	.02	.02	1.08	.00	.00	.00	.01
AC-FT	934	7070	2.0	4.2	12750	166	111	7400	25	2.1	3.1	35

CAL YR 1981 TOTAL 17718.56 MEAN 48.5 MAX 2520 MIN .00 CFSM .38 IN 5.15 AC-FT 35140
WTR YR 1982 TOTAL 14370.40 MEAN 39.4 MAX 3540 MIN .00 CFSM .31 IN 4.18 AC-FT 28500

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.--59 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.
Maximum stage since at least 1866, that of Sept. 24, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1913 reached a stage of about 29 ft (8.8 m), discharge 210,000 ft³/s (5,950 m³/s); flood of Sept. 21, 1923, reached a stage of about 26.5 ft (8.08 m), discharge 160,000 ft³/s (4,530 m³/s); from information by local residents. Discharges based on rating curve mentioned above.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 700 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 11	1330	36,000	1,020	16.2	4.94
Oct. 13	1830	*62,700	1,780	19.5	5.94
May 16	2330	5,150	146	7.85	2.393

Minimum daily discharge, 41 ft³/s (1.16 m³/s) Sept. 2, 5-11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142	370	219	162	131	156	122	102	154	126	69	42
2	138	360	216	161	131	150	120	100	156	123	68	41
3	133	350	209	159	130	149	119	97	157	120	66	43
4	128	339	208	157	130	147	118	95	153	118	65	42
5	124	332	206	157	130	144	117	96	153	127	63	41
6	141	324	207	157	129	143	116	110	151	122	63	41
7	368	319	204	155	130	141	117	108	152	115	62	41
8	433	315	202	154	129	140	115	104	153	112	62	41
9	331	307	202	154	129	138	113	103	148	109	61	41
10	291	300	198	152	129	138	112	102	147	106	60	41
11	7640	296	197	151	128	136	112	107	143	104	59	41
12	987	294	197	155	127	135	111	128	150	102	59	42
13	12000	288	194	153	126	135	109	199	147	99	58	43
14	4210	283	192	151	126	135	108	182	142	97	57	42
15	1500	278	192	151	126	135	108	159	138	96	56	42
16	1030	271	188	148	126	133	108	529	135	95	55	42
17	843	267	185	148	126	132	106	385	135	94	54	44
18	727	263	183	145	125	132	104	170	131	91	53	45
19	640	256	183	144	127	132	104	156	132	89	53	46
20	587	252	179	144	135	132	104	147	184	87	52	54
21	546	249	177	143	140	131	105	142	167	86	51	50
22	547	246	175	142	134	132	105	140	147	84	50	51
23	539	243	172	141	129	132	104	139	136	84	49	53
24	498	238	172	140	127	131	105	204	131	84	48	53
25	471	238	171	138	158	129	103	201	146	83	47	53
26	450	232	171	138	179	129	101	163	145	80	47	51
27	433	232	170	135	169	129	98	153	136	78	46	51
28	416	227	167	135	161	126	98	150	130	76	45	50
29	407	226	166	134	---	126	97	149	126	75	44	50
30	394	225	166	133	---	125	103	148	124	73	43	50
31	383	---	164	132	---	123	---	149	---	71	42	---
TOTAL	37477	8420	5832	4569	3767	4196	3262	4917	4349	3006	1707	1367
MEAN	1209	281	188	147	135	135	109	159	145	97.0	55.1	45.6
MAX	12000	370	219	162	179	156	122	529	184	127	69	54
MIN	124	225	164	132	125	123	97	95	124	71	42	41
CFSM	1.58	.37	.25	.19	.18	.18	.14	.21	.19	.13	.07	.06
IN.	1.82	.41	.28	.22	.18	.20	.16	.24	.21	.15	.08	.07
AC-FT	74340	16700	11570	9060	7470	8320	6470	9750	8630	5960	3390	2710

CAL YR 1981	TOTAL 133250	MEAN 365	MAX 12000	MIN 45	CFSM .48	IN 6.49	AC-FT 264300		
WTR YR 1982	TOTAL 82869	MEAN 227	MAX 12000	MIN 41	CFSM .30	IN 4.03	AC-FT 164400		

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN 20...	1229	144	424	7.9	17.0	0	.40	9.6	102	.6	K14
MAY 14...	1002	183	397	8.1	20.0	5	.70	8.4	95	.6	53
JUL 15...	0920	98	407	7.4	25.5	<1	.90	7.0	88	2.6	20

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
JAN 20...	22	210	23	62	14	8.0	.3	.8	190	15	10
MAY 14...	85	190	14	58	12	7.5	.2	1.1	180	10	12
JUL 15...	K100	200	8	56	14	8.2	.3	1.1	190	12	13

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 20...	.1	10	234	0	0	<.020	1.7	<.070	.58	<.010	1.7
MAY 14...	.2	11	220	4	4	<.020	1.2	<.060	1.00	<.010	1.7
JUL 15...	.1	13	232	<2	<2	<.020	1.0	<.060	.50	<.010	.8

08190000 NUECES RIVER AT LAGUNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 20...	1229	1	38	<1	<10	1	<10
JUL 15...	0920	1	42	<1	<10	<1	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 20...	<1	<1	<.1	<1	<1	<3
JUL 15...	<1	<1	<.1	<1	<1	6

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN 20...	1229	.00	.00	.00	.00	.00	.00	.00	.00
JUL 15...	0920	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JAN 20...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL 15...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 20...	.00	.00	.00	.00	0	.00	.00	.00	.00
JUL 15...	<.01	<.01	<.01	<.01	<1	<.01	<.01	<.01	<.01

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 except those below 1 ft³/s (0.028 m³/s), which are fair. In ordinary years, a large part of streamflow from basin is lost by seepage into the Balcones Fault Zone of the Edwards and associated limestones above station. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--37 years (water years 1940-50, 1957-82), 37.4 ft³/s (1.059 m³/s), 27,100 acre-ft/yr (33.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246,000 ft³/s (6,970 m³/s) Sept. 20, 1964, gage height, 31.3 ft (9.54 m), from floodmark, from rating curve extended above 4,500 ft³/s (127 m³/s) on basis of slope-area measurements of 10,000, 51,000, 150,000, and 246,000 ft³/s (283, 1,440, 4,250, and 6,970 m³/s); no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, about 40 ft (12.2 m) June 14, 1935, discharge 550,000 ft³/s (15,600 m³/s), based on slope-area measurements of 580,000 ft³/s (16,400 m³/s) at site 33 mi (53 km) upstream from gage and 536,000 ft³/s (15,200 m³/s) at site 24 mi (39 km) downstream from gage, present site and datum, from gage-height relation of 1935 and 1955 flood peaks at site 0.6 mi (1.0 km) upstream. Flood in 1900 reached a stage of about 34 ft (10.4 m), and flood of Sept. 24, 1955, reached a stage of 27.1 ft (8.26 m), from floodmark at present site, discharge 150,000 ft³/s (4,250 m³/s), by slope-area measurement.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 7	--	15,200	430	unknown	---
Oct. 11	--	29,700	841	unknown	---
Oct. 13	unknown	*39,000	1,100	a19.22	5.858

a From inside floodmark.

Minimum daily discharge, 0.01 ft³/s (0.0003 m³/s), Aug. 28 to Sept. 7, 10-12, 15, 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	47	5.0	1.5	.64	7.4	.53	.24	3.9	1.5	.08	.01
2	2.7	44	4.8	1.5	.69	6.4	.48	.20	3.7	1.4	.07	.01
3	2.3	40	4.7	1.3	.64	5.1	.44	.18	3.3	1.2	.06	.01
4	2.0	36	4.6	1.0	.64	4.0	.41	.16	3.1	1.1	.05	.01
5	1.6	33	4.3	.80	.64	2.9	.38	.19	2.9	1.2	.05	.01
6	1000	31	4.2	.69	.64	2.0	.34	.52	2.9	1.0	.04	.01
7	5050	28	4.1	.58	.64	2.0	.34	.55	2.7	.97	.04	.01
8	470	25	3.9	.53	.64	1.8	.34	.83	2.5	.90	.09	.02
9	183	21	3.8	.54	.60	1.6	.30	.77	2.4	.76	.15	.02
10	114	20	3.6	.52	.58	1.5	.30	.65	2.2	.69	.09	.01
11	10300	18	3.5	.47	.53	1.3	.30	.93	2.2	.61	.07	.01
12	2420	17	3.4	.47	.53	1.3	.30	1.4	2.4	.48	.05	.01
13	10200	15	3.2	.45	.53	1.2	.30	103	1.9	.46	.05	.02
14	2070	14	3.0	.42	.53	.98	.30	104	1.8	.46	.04	.02
15	494	13	3.0	.43	.53	.63	.30	73	1.7	.42	.04	.01
16	308	12	2.8	.40	.53	.53	.29	56	1.5	.39	.03	.01
17	248	11	2.7	.43	.51	.53	.27	36	1.4	.34	.03	.02
18	215	10	2.5	.39	.47	.66	.27	21	1.4	.31	.04	.07
19	193	8.9	2.4	.43	.47	.74	.32	14	1.7	.30	.04	.09
20	172	8.3	2.3	.43	.79	.54	.28	11	3.1	.27	.03	.14
21	152	7.9	2.1	.47	1.0	.53	.25	10	6.0	.26	.03	.13
22	142	7.5	1.9	.47	.64	.53	.34	9.2	6.1	.23	.03	.08
23	126	7.2	2.1	.49	.64	.56	.54	8.2	4.8	.22	.02	.06
24	113	6.8	2.0	.47	.64	.48	.55	7.6	3.5	.20	.02	.05
25	104	6.8	2.0	.53	1.9	.33	.49	6.8	2.7	.18	.02	.05
26	93	6.4	1.9	.53	3.4	.19	.39	6.8	2.3	.16	.02	.04
27	82	6.3	1.9	.58	6.6	.23	.25	6.4	2.0	.15	.02	.03
28	73	6.1	1.8	.58	7.7	.30	.24	5.7	1.9	.12	.01	.03
29	66	6.1	1.7	.64	---	.53	.21	5.1	1.7	.10	.01	.03
30	60	5.5	1.6	.59	---	.58	.30	4.6	1.5	.10	.01	.02
31	54	---	1.5	.64	---	.56	---	4.0	---	.09	.01	---
TOTAL	34513.8	518.8	92.3	19.27	34.29	47.93	10.35	499.02	81.2	16.57	1.34	1.04
MEAN	1113	17.3	2.98	.62	1.22	1.55	.35	16.1	2.71	.53	.043	.035
MAX	10300	47	5.0	1.5	7.7	7.4	.55	104	6.1	1.5	.15	.14
MIN	1.6	5.5	1.5	.39	.47	.19	.21	.16	1.4	.09	.01	.01
AC-FT	68460	1030	183	38	68	95	21	990	161	33	2.7	2.1

CAL YR 1981 TOTAL 65484.96 MEAN 179 MAX 10300 MIN .00 AC-FT 129900
WTR YR 1982 TOTAL 35835.91 MEAN 98.2 MAX 10300 MIN .01 AC-FT 71080

08192000 NUECES RIVER BELOW UVALDE, TX

LOCATION.--Lat 29°07'25", long 99°53'40", Uvalde County, Hydrologic Unit 12110103, on right bank at McDaniel Ranch, 5.7 mi (9.2 km) upstream from bridge on U.S. Highway 83, 8.8 mi (14.2 km) southwest of Uvalde, 18.2 mi (29.3 km) downstream from West Nueces River, and at mile 366.0 (588.9 km).

DRAINAGE AREA.--1,947 mi² (5,043 km²).

PERIOD OF RECORD.--April 1939 to current year. October 1927 to April 1939, published as "near Uvalde"; records equivalent only during periods of floodflow.

REVISED RECORDS.--WSP 1732: 1956(M).

GAGE.--Water-stage recorder. Datum of gage is 796.12 ft (242.657 m) National Geodetic Vertical Datum of 1929. Oct. 4, 1927, to Apr. 30, 1939, water-stage recorder at site 6.2 mi (10.0 km) upstream at different datum.

REMARKS.--Records good. Part of flow of Nueces River enters Edwards and associated limestones in the Balcones Fault Zone which crosses basin downstream from Laguna (station 08190000) and upstream from this station. At low stage, most of headwater flow enters this formation. Many small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--43 years, 123 ft³/s (3.483 m³/s), 89,110 acre-ft/yr (110 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 ft³/s (5,350 m³/s) Sept. 24, 1955, gage height, 24.61 ft (7.501 m), from floodmark, from rating curve extended above 34,000 ft³/s (963 m³/s) on basis of conveyance study and slope-area measurement of peak flow; no flow at times in 1951-57.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1836, 40.4 ft (12.31 m) June 14, 1935, from floodmark discharge at former site, 616,000 ft³/s (17,400 m³/s), by slope-area measurement. Large floods also occurred in 1901 and 1913, stages unknown.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.08 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 7	1630	8,450	239	9.88	3.011	May 12	0730	8,220	233	9.77	2.978
Oct. 12	0130	46,900	1,330	15.1	4.60	May 17	0630	10,200	289	10.62	3.237
Oct. 14	0500	*58,500	1,660	a15.2	4.63	May 25	1430	354	10.0	4.41	1.344
Feb. 26	0530	264	7.48	4.22	1.286	June 19	2400	385	10.9	4.47	1.362
May 6	1600	523	14.8	4.62	1.408						

a From floodmark.

Minimum daily discharge, 30 ft³/s (0.85 m³/s) Sept. 18, 19, 26-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	361	189	129	90	149	91	60	199	133	52	33
2	83	354	185	127	88	141	89	59	198	127	51	32
3	83	346	180	125	87	130	86	60	197	118	51	32
4	79	338	172	122	86	126	85	60	194	127	49	32
5	77	331	172	120	85	123	80	61	187	118	48	32
6	79	318	168	119	82	117	79	202	183	121	48	33
7	2640	312	168	116	82	112	79	176	172	115	48	32
8	2360	306	164	115	82	109	77	112	168	106	49	32
9	795	293	161	115	82	104	77	98	164	101	48	32
10	428	287	161	111	81	103	75	90	157	96	46	32
11	4710	287	157	108	81	103	75	88	150	92	46	31
12	17900	282	157	114	78	103	71	2480	155	88	44	31
13	7970	276	154	116	77	105	71	395	157	86	44	32
14	26300	270	154	112	77	104	70	316	154	79	43	31
15	4160	264	154	108	77	103	70	277	146	77	42	31
16	1980	256	154	108	77	101	69	243	140	75	42	31
17	1310	253	150	106	76	100	68	2980	133	73	42	31
18	1050	248	146	106	74	100	66	610	124	69	40	30
19	906	237	143	106	74	99	65	387	137	66	40	30
20	825	232	143	106	78	99	62	319	194	64	39	32
21	748	227	143	106	79	99	60	287	167	62	39	32
22	738	222	141	105	87	96	60	266	185	63	39	31
23	687	217	138	102	89	96	60	253	154	61	37	31
24	629	212	135	100	86	96	61	241	140	60	36	31
25	576	208	134	99	101	95	58	303	127	59	36	31
26	503	203	133	97	196	94	58	306	133	58	36	30
27	474	198	133	95	181	94	58	270	140	57	35	30
28	437	198	132	94	162	92	59	248	130	55	35	30
29	411	194	129	94	---	90	59	230	124	54	35	30
30	385	189	129	90	---	92	65	218	118	53	34	30
31	377	---	130	90	---	92	---	208	---	53	33	---
TOTAL	79785	7919	4709	3361	2595	3267	2103	11903	4727	2566	1307	938
MEAN	2574	264	152	108	92.7	105	70.1	384	158	82.8	42.2	31.3
MAX	26300	361	189	129	196	149	91	2980	199	133	52	33
MIN	77	189	129	90	74	90	58	59	118	53	33	30
AC-FT	158300	15710	9340	6670	5150	6480	4170	23610	9380	5090	2590	1860

CAL YR 1981 TOTAL 182063.6 MEAN 499 MAX 26300 MIN 8.8 AC-FT 361100
WTR YR 1982 TOTAL 125180.0 MEAN 343 MAX 26300 MIN 30 AC-FT 248300

08193000 NUECES RIVER NEAR ASHERTON, TX

LOCATION.--Lat 28°30'00", long 99°40'54", Dimmit County, Hydrologic Unit 12110103, on right bank 28 ft (9 m) downstream from bridge on Farm Road 190, 0.1 mi (0.2 km) downstream from El Moro Creek, 5.8 mi (9.3 km) northeast of Asherton, and at mile 288.3 (463.9 km).

DRAINAGE AREA.--4,082 mi² (10,572 km²).

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

REVISED RECORDS.--WSP 1118: 1944.

GAGE.--Water-stage recorder. Datum of gage is 470.92 ft (143.536 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 2, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good. Part of flow of the Nueces River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Since March 1948, flow slightly regulated by Upper Nueces Reservoir, capacity 7,590 acre-ft (9.36 hm³), 13 mi (21 km) upstream. Many small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--43 years, 185 ft³/s (5.239 m³/s), 134,000 acre-ft/yr (165 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, 9,340 ft³/s (265 m³/s) Oct. 16 at 0600 hours, gage height, 28.59 ft (8.714 m), no other peak above base of 2,000 ft³/s (56.6 m³/s); no flow July 31 to Sept. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	511	176	103	35	146	66	2.1	184	2.5	.00	.00
2	49	483	153	106	31	157	63	1.5	160	1.5	.00	.00
3	45	455	148	104	25	152	55	.91	129	1.1	.00	.00
4	41	433	142	99	22	147	50	.55	109	1.2	.00	.00
5	36	414	131	91	19	143	49	18	105	8.2	.00	.00
6	29	397	124	80	24	133	48	36	100	62	.00	.00
7	27	377	129	76	31	126	46	38	88	72	.00	.00
8	34	362	129	72	35	126	44	38	73	58	.00	.00
9	1420	343	122	70	32	124	37	72	61	46	.00	.00
10	1350	313	113	72	24	117	33	108	49	32	.00	.00
11	658	302	107	71	19	108	35	101	43	23	.00	.00
12	511	292	108	78	16	101	37	85	36	24	.00	.00
13	4410	280	105	98	12	97	33	345	43	21	.00	.00
14	6380	275	108	100	11	96	27	992	64	15	.00	.00
15	8020	272	103	96	16	97	20	425	63	12	.00	.00
16	9220	268	95	90	24	97	11	288	51	8.9	.00	.00
17	7510	258	90	86	27	95	5.2	287	35	5.2	.00	.00
18	4230	248	90	80	23	90	2.5	963	25	2.3	.00	.00
19	2190	243	87	74	20	85	1.7	1420	17	.91	.00	.00
20	1440	232	91	71	30	80	1.3	632	14	.40	.00	.00
21	1140	220	89	68	49	74	1.0	562	22	.21	.00	.00
22	999	218	88	64	60	71	.83	508	34	.10	.00	.00
23	992	223	82	57	56	69	.83	425	46	.03	.00	.00
24	901	212	78	48	50	71	.92	373	40	.02	.00	.00
25	815	206	89	43	48	71	.91	371	35	.02	.00	.00
26	745	200	95	40	74	70	.70	285	30	.02	.00	.00
27	677	199	95	39	91	71	.61	274	23	.01	.00	.00
28	631	200	88	37	113	71	.75	284	14	.01	.00	.00
29	590	197	79	33	---	70	.88	260	8.4	.01	.00	.00
30	559	199	79	36	---	65	1.9	231	4.6	.01	.00	.00
31	536	---	98	37	---	68	---	208	---	.00	.00	---
TOTAL	56235	8832	3311	2219	1017	3088	674.03	9634.06	1706.0	397.65	.00	.00
MEAN	1814	294	107	71.6	36.3	99.6	22.5	311	56.9	12.8	.000	.000
MAX	9220	511	176	106	113	157	66	1420	184	72	.00	.00
MIN	27	197	78	33	11	65	.61	.55	4.6	.00	.00	.00
AC-FT	111500	17520	6570	4400	2020	6130	1340	19110	3380	789	.00	.00

CAL YR 1981 TOTAL 176418.74 MEAN 483 MAX 9330 MIN .00 AC-FT 349900
WTR YR 1982 TOTAL 87113.74 MEAN 239 MAX 9220 MIN .00 AC-FT 172800

08194000 NUECES RIVER AT COTULLA, TX

LOCATION.--Lat 28°25'34", long 99°14'23", La Salle County, Hydrologic Unit 12110105, on left bank at downstream side of bridge on U.S. Highway 81, 0.4 mi (0.6 km) upstream from Missouri Pacific Railroad Co. bridge, 0.8 mi (1.3 km) southwest of Cotulla, 1.0 mi (1.6 km) upstream from Lind Dam, and at mile 235.7 (379.2 km).

DRAINAGE AREA.--5,260 mi² (13,620 km²).

PERIOD OF RECORD.--November 1923 to current year. November 1923 to September 1926 monthly discharge only, published in WSP 1312; figures of daily discharge for Oct. 31, 1923, to Sept. 30, 1926, published in WSP 588, 608, and 628, have been found to be unreliable and should not be used. Gage-height records collected in this vicinity in 1914-17 and since 1922 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1732: 1957(M). See PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 368.08 ft (112.191 m) National Geodetic Vertical Datum of 1929. Oct. 31, 1923, to Aug. 3, 1924, nonrecording gage at approximate site of present gage at datum 7.28 ft (2.219 m) higher. Aug. 4, 1924, to Nov. 19, 1934, nonrecording gage at site 5,000 ft (1,520 m) downstream at datum 8.42 ft (2.566 m) higher. Nov. 20, 1934, to July 14, 1938, water-stage recorder, and July 15, 1938, to Apr. 30, 1963, nonrecording gage, at present site and datum.

REMARKS.--Records good except those below 10 ft³/s (0.28 m³/s), which are poor. Part of flow of Nueces River and its headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Low flow is slightly regulated by small storage reservoirs above station, with most diverted above station by pumping (see REMARKS for Nueces River near Asherton, station 08193000). Several observation of water temperature were made during the year.

AVERAGE DISCHARGE.--58 years (water years 1925-82), 276 ft³/s (7.816 m³/s), 200,000 acre-ft/yr (247 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,600 ft³/s (2,340 m³/s) June 18, 1935, gage height, 32.4 ft (9.88 m), from floodmarks, from rating curve extended above 43,000 ft³/s (1,220 m³/s) on basis of slope-area measurement of peak flow; no flow at times each year.
Maximum stage since at least 1879, that of June 18, 1935.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 19, 1899, reached a stage of 29.7 ft (9.05 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--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)
Oct. 19	1100	*7,660	217	16.85	5.136
May 17	1800	2,500	70.8	12.81	3.904

Maximum discharge, no flow Aug. 4 to Sept. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	573	194	82	32	92	65	11	226	21	.16	.00
2	53	539	193	94	37	117	60	7.7	203	18	.08	.00
3	48	508	176	104	38	146	61	6.0	180	17	.03	.00
4	44	483	154	104	35	154	61	4.8	159	14	.00	.00
5	43	458	147	103	32	150	56	4.4	132	12	.00	.00
6	41	434	142	100	26	143	48	3.9	114	8.0	.00	.00
7	260	417	133	92	24	139	45	3.2	108	6.2	.00	.00
8	343	400	125	81	21	129	46	2.8	107	4.6	.00	.00
9	57	379	127	75	22	124	45	3.4	96	13	.00	.00
10	126	364	129	72	29	124	45	24	83	53	.00	.00
11	717	344	125	67	34	124	43	61	67	42	.00	.00
12	1080	318	115	70	33	120	37	99	149	33	.00	.00
13	961	305	108	71	27	111	34	105	147	27	.00	.00
14	712	296	108	73	23	104	33	96	53	21	.00	.00
15	1120	285	108	90	19	99	38	280	45	19	.00	.00
16	1780	276	108	99	19	96	35	711	65	21	.00	.00
17	4380	273	107	97	18	96	30	1740	67	18	.00	.00
18	6500	270	99	89	18	96	25	991	57	16	.00	.00
19	7520	260	94	85	19	96	21	336	45	14	.00	.00
20	6250	247	93	81	30	91	17	680	36	13	.00	.00
21	4030	240	89	75	29	84	15	1050	28	12	.00	.00
22	2720	230	90	72	29	80	13	1000	23	11	.00	.00
23	2190	219	91	69	44	75	11	658	19	8.6	.00	.00
24	1840	215	90	63	58	69	9.9	523	18	5.1	.00	.00
25	1520	218	85	57	60	68	7.4	433	36	1.5	.00	.00
26	1260	213	80	49	61	65	5.4	382	46	.69	.00	.00
27	1060	205	86	45	54	67	4.2	357	42	.54	.00	.00
28	891	199	94	42	70	69	3.9	289	39	.43	.00	.00
29	760	199	98	42	---	69	3.3	275	32	.29	.00	.00
30	675	198	94	40	---	70	15	279	27	.30	.00	.00
31	624	---	87	34	---	70	---	258	---	.25	.00	---
TOTAL	49663	9565	3569	2317	941	3137	933.1	10674.2	2449	431.50	.27	.00
MEAN	1602	319	115	74.7	33.6	101	31.1	344	81.6	13.9	.009	.000
MAX	7520	573	194	104	70	154	65	1740	226	53	.16	.00
MIN	41	198	80	34	18	65	3.3	2.8	18	.25	.00	.00
CFSM	.31	.06	.02	.01	.006	.02	.006	.07	.02	.003	.000	.000
IN.	.35	.07	.03	.02	.01	.02	.01	.08	.02	.00	.00	.00
AC-FT	98510	18970	7080	4600	1870	6220	1850	21170	4860	856	.5	.00

CAL YR 1981	TOTAL	241267.60	MEAN	661	MAX	21200	MIN	.00	CFSM	.13	IN	1.71	AC-FT	478600
WTR YR 1982	TOTAL	83680.07	MEAN	229	MAX	7520	MIN	.00	CFSM	.04	IN	.59	AC-FT	166000

08194200 SAN CASIMIRO CREEK NEAR FREER, TX

LOCATION.--Lat 27°57'53", long 98°58'00", Webb County, Hydrologic Unit 12110105, at downstream side of bridge on Farm Road 863, 11.4 mi (18.3 km) upstream from mouth, and 22 mi (35 km) northwest of Freer.

DRAINAGE AREA.--469 mi² (1,215 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 298 ft (90.8 m) State Department of Highways and Public Transportation datum.

REMARKS.--Records good except those for periods of no gage-height record, Oct. 2-19 and Oct. 30 to Dec. 2, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 69.6 ft³/s (1.971 m³/s), 50,420 acre-ft/yr (62.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,000 ft³/s (2,320 m³/s) Oct. 17, 1971, gage height, 26.87 ft (8.190 m), from rating curve extended above 21,000 ft³/s (595 m³/s) on basis of flow-through-culverts, contracted-opening, and flow-over-road determination of 82,000 ft³/s (2,320 m³/s); no flow for many days each year. Maximum stage since at least 1946, that of Oct. 17, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Second highest stage, 26 ft (7.9 m), discharge 65,200 ft³/s (1,850 m³/s), occurred in 1954, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,600 ft³/s (470 m³/s) May 18 at 1200 hours, gage-height, 23.50 ft (7.163 m), no other peak above base of 500 ft³/s (14.2 m³/s); no flow July 8 to Sept. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	4.3	.21	.12	.10	9.4	.04	179	12	.03	.00	.00
2	3.8	3.0	.18	.15	.10	2.1	.03	201	9.3	.03	.00	.00
3	3.5	2.4	.15	.15	.09	.72	.03	46	6.8	.03	.00	.00
4	3.3	1.9	.15	.13	.08	.35	.03	2.7	5.2	.02	.00	.00
5	3.0	1.7	.13	.12	.10	.20	.03	.66	4.2	.02	.00	.00
6	2.8	1.7	.14	.12	.08	.14	.02	.24	3.3	.02	.00	.00
7	10	1.6	.15	.12	.08	.10	.02	.12	2.5	.00	.00	.00
8	20	1.4	.15	.09	.09	.08	.03	.10	1.9	.00	.00	.00
9	10	1.4	.15	.08	.10	.07	.02	.07	1.3	.00	.00	.00
10	5.0	1.3	.16	.08	.08	.06	.02	.05	.91	.00	.00	.00
11	1.9	1.1	.18	.06	.08	.06	.02	.04	.62	.00	.00	.00
12	1.7	1.0	.18	.07	.08	.06	.02	.04	.63	.00	.00	.00
13	1.6	1.0	.18	.06	.08	.04	.02	.03	.58	.00	.00	.00
14	1.4	1.0	.15	.06	.08	.04	.02	.02	.49	.00	.00	.00
15	1.3	.90	.13	.07	.08	.04	.02	.02	.34	.00	.00	.00
16	1.3	.80	.12	.08	.07	.04	.02	1.1	.26	.00	.00	.00
17	1.1	.71	.12	.07	.06	.04	.02	513	.23	.00	.00	.00
18	1.1	.63	.10	.06	.06	.03	.01	11800	.16	.00	.00	.00
19	1.0	.63	.10	.08	.09	.04	.02	6620	.11	.00	.00	.00
20	.80	.56	.10	.07	.10	.04	.02	2110	.09	.00	.00	.00
21	.71	.56	.10	.07	.10	.03	.02	474	.08	.00	.00	.00
22	17	.49	.10	.12	.08	.03	.03	86	.07	.00	.00	.00
23	114	.49	.08	.07	.08	.04	.02	74	.06	.00	.00	.00
24	207	.42	.08	.08	.08	.04	.02	54	.05	.00	.00	.00
25	120	.36	.08	.10	.52	.04	.02	41	.05	.00	.00	.00
26	92	.36	.08	.08	14	.03	.02	36	.05	.00	.00	.00
27	53	.36	.08	.08	118	.04	.02	34	.06	.00	.00	.00
28	36	.30	.09	.09	61	.04	.02	32	.05	.00	.00	.00
29	25	.26	.08	.11	---	.04	.02	28	.04	.00	.00	.00
30	12	.21	.10	.11	---	.04	2.9	22	.04	.00	.00	.00
31	6.8	---	.13	.10	---	.04	---	16	---	.00	.00	---
TOTAL	768.11	32.84	3.93	2.85	195.54	14.06	3.55	22371.19	51.47	.15	.00	.00
MEAN	24.8	1.09	.13	.092	6.98	.45	.12	722	1.72	.005	.000	.000
MAX	207	4.3	.21	.15	118	9.4	2.9	11800	12	.03	.00	.00
MIN	.71	.21	.08	.06	.06	.03	.01	.02	.04	.00	.00	.00
AC-FT	1520	65	7.8	5.7	388	28	7.0	44370	102	.3	.00	.00

CAL YR 1981	TOTAL	58322.02	MEAN	160	MAX	5500	MIN	.00	AC-FT 115700
WTR YR 1982	TOTAL	23443.69	MEAN	64.2	MAX	11800	MIN	.00	AC-FT 46500

NOTE.--No gage-height record Oct. 2-20, Oct. 30 to Dec. 2.

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.--39 years (water years 1944-82), 447 ft³/s (12.66 m³/s), 323,900 acre-ft/yr (399 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,500 ft³/s (2,170 m³/s) Sept. 24, 1967, gage height, 26.57 ft (8.099 m); no flow at times.
Maximum stage since about 1902, that of Sept. 24, 1967. Flood of Oct. 11, 1946, reached a stage of 26.46 ft (8.065 m), discharge 70,000 ft³/s (1,980 m³/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in June 1935 reached a stage of 23.7 ft (7.22 m) and in July 1942 about 22 ft (6.7 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges peak above base of 1,800 ft³/s (51.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 28	0200	4,720	134	18.10	5.517
May 22	1800	*12,900	365	20.43	6.227

Minimum daily discharge, 0.09 ft³/s (0.003 m³/s) Aug. 23.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	2210	216	95	45	220	58	14	320	16	1.4	.31
2	59	1300	212	93	43	111	58	45	308	13	1.3	.31
3	62	672	208	91	41	71	55	201	281	10	1.2	.31
4	54	584	205	86	37	74	52	217	250	7.8	1.1	.31
5	50	538	203	87	35	89	50	87	222	6.1	1.0	.43
6	45	508	187	98	36	114	47	45	194	4.7	.94	.50
7	42	482	166	102	37	132	46	27	164	3.5	.93	.54
8	39	459	155	103	37	131	47	18	133	2.9	.85	.61
9	41	435	150	99	36	126	43	14	109	2.7	.84	.63
10	278	414	141	95	32	122	38	11	96	2.7	.70	.63
11	504	396	133	87	29	115	35	9.8	90	2.4	.70	.57
12	256	381	131	81	28	109	32	8.8	83	2.4	.63	.56
13	190	369	131	77	25	108	30	8.0	77	2.3	.59	31
14	507	351	128	74	26	106	31	7.7	78	2.2	.56	658
15	663	331	118	73	30	99	30	15	140	2.1	.50	8.3
16	757	319	110	73	32	93	26	60	151	5.6	.40	.50
17	753	310	107	72	29	87	23	90	74	14	.31	.49
18	761	301	104	78	27	81	21	388	46	9.7	.31	.40
19	832	296	103	90	26	76	22	681	37	6.1	.24	.31
20	911	291	105	95	27	76	22	902	44	4.2	.18	1.2
21	1000	285	100	94	28	75	20	1880	43	2.9	.13	2.9
22	1080	277	96	88	35	74	19	11100	36	2.5	.12	.33
23	1210	269	93	84	47	73	18	10400	28	2.2	.09	.31
24	1370	262	90	78	50	72	17	6800	21	2.1	.10	.31
25	1790	254	89	72	50	69	16	4480	15	2.0	.30	.30
26	2930	243	89	67	42	66	15	3340	11	1.9	.31	.24
27	4320	238	88	65	95	63	14	2700	8.5	1.9	.35	.24
28	4610	239	88	63	294	57	13	2050	6.7	1.8	.31	.24
29	4060	233	84	56	---	55	12	863	5.8	1.7	.31	.24
30	3380	223	84	52	---	55	13	431	12	1.6	.31	.24
31	2800	---	91	48	---	57	---	349	---	1.6	.31	---
TOTAL	35415	13470	4005	2516	1299	2856	923	47242.3	3084.0	142.6	17.32	711.26
MEAN	1142	449	129	81.2	46.4	92.1	30.8	1524	103	4.60	.56	23.7
MAX	4610	2210	216	103	294	220	58	11100	320	16	1.4	658
MIN	39	223	84	48	25	55	12	7.7	5.8	1.6	.09	.24
CFSM	.14	.06	.02	.01	.006	.01	.004	.19	.01	.001	.000	.003
IN.	.16	.06	.02	.01	.01	.01	.00	.21	.01	.00	.00	.00
AC-FT	70250	26720	7940	4990	2580	5660	1830	93710	6120	283	34	1410

CAL YR 1981 TOTAL 349662.04 MEAN 958 MAX 16500 MIN .00 CFSM .12 IN 1.59 AC-FT 693600
WTR YR 1982 TOTAL 111681.48 MEAN 306 MAX 11100 MIN .09 CFSM .04 IN .51 AC-FT 221500

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.--57 years (water years 1925-29, 1931-82), 114 ft³/s (3.228 m³/s), 3.83 in/yr (97 mm/yr), 82,590 acre-ft/yr (102 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 162,000 ft³/s (4,590 m³/s) July 1, 1932, gage height, 34.44 ft (10.497 m), from floodmarks, from rating curve extended above 44,000 ft³/s (1,250 m³/s) on basis of flow-over-dam measurement of 56,600 ft³/s (1,600 m³/s) and slope-area measurement of 162,000 ft³/s (4,590 m³/s); no flow Aug. 5, 1956, to Jan 6, 1957.
Maximum stage since at least 1869, that of July 1, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 7	1300	1,170	33.1	5.46	1.664	May 17	--	1,100	31.2	unknown	---
Oct. 13	1700	*30,600	867	a16.8	5.121	May 24	1000	1,460	41.3	5.64	1.719
May 13	1400	14,100	399	a11.38	3.469						

a From floodmark.

Minimum daily discharge, 37 ft³/s (1.05 m³/s) Sept. 11, 12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	241	162	131	114	138	103	95	150	101	60	39
2	98	235	159	130	113	132	103	92	148	98	57	39
3	94	231	158	128	111	128	102	89	144	95	57	43
4	92	227	156	125	112	126	99	88	141	91	56	44
5	90	224	154	126	114	122	98	90	137	123	55	40
6	101	219	153	124	109	118	96	118	135	107	54	41
7	542	215	147	127	108	118	97	104	133	101	52	40
8	395	213	145	126	108	118	96	98	130	96	57	40
9	262	209	146	126	106	117	95	98	128	93	63	38
10	216	204	145	126	106	115	95	99	125	91	60	38
11	195	200	143	125	105	115	96	103	122	90	58	37
12	181	199	142	135	105	115	95	108	130	87	56	37
13	6520	195	142	125	105	115	94	2640	128	85	55	91
14	1550	193	142	124	104	113	93	640	121	84	51	124
15	672	192	139	122	102	111	93	370	117	82	51	69
16	502	189	142	120	102	111	94	280	115	80	49	61
17	440	186	140	118	99	111	92	390	116	78	48	53
18	397	184	138	122	101	111	92	220	111	77	48	52
19	366	178	137	118	103	109	89	200	111	74	50	52
20	347	176	136	118	113	109	87	187	167	74	48	54
21	335	174	136	119	109	109	91	180	118	70	48	56
22	336	173	132	118	107	106	94	173	113	70	47	54
23	327	176	133	115	104	107	97	166	108	71	46	52
24	305	173	133	115	102	107	96	447	105	73	45	52
25	294	172	131	115	128	105	94	208	105	73	44	51
26	284	170	129	115	152	105	92	177	104	69	42	51
27	275	168	136	115	163	106	91	170	101	67	41	50
28	267	167	133	112	149	105	90	167	99	65	40	50
29	261	170	133	116	---	106	89	164	98	64	40	49
30	255	165	134	113	---	106	98	160	99	63	40	49
31	251	---	133	112	---	104	---	156	---	61	39	---
TOTAL	16351	5818	4389	3761	3154	3518	2841	8277	3659	2553	1557	1546
MEAN	527	194	142	121	113	113	94.7	267	122	82.4	50.2	51.5
MAX	6520	241	162	135	163	138	103	2640	167	123	63	124
MIN	90	165	129	112	99	104	87	88	98	61	39	37
CFSM	1.30	.48	.35	.30	.28	.28	.23	.66	.30	.20	.12	.13
IN.	1.50	.53	.40	.35	.29	.32	.26	.76	.34	.23	.14	.14
AC-FT	32430	11540	8710	7460	6260	6980	5640	16420	7260	5060	3090	3070

CAL YR 1981 TOTAL 131405 MEAN 360 MAX 12900 MIN 72 CFSM .89 IN 12.07 AC-FT 260600
WTR YR 1982 TOTAL 57424 MEAN 157 MAX 6520 MIN 37 CFSM .39 IN 5.27 AC-FT 113900

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
20...	0932	118	415	7.9	14.0	0	.30	9.8	98	.9	37	160
MAY												
14...	1445	553	346	8.1	21.5	10	5.3	8.5	99	.8	1000	1800
JUL												
14...	1100	88	387	7.5	26.5	<1	1.2	7.4	95	1.0	36	550

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JAN											
20...	210	23	62	14	6.9	.2	.8	190	11	13	.1
MAY											
14...	170	14	53	10	4.7	.2	1.9	160	9.0	8.3	.2
JUL											
14...	190	13	54	14	7.7	.3	1.0	180	15	12	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN											
20...	10	232	5	0	<.020	1.5	<.070	--	.81	<.010	1.2
MAY											
14...	10	193	11	3	<.020	1.8	.190	.60	.79	<.010	4.5
JUL											
14...	12	224	<2	<2	<.020	.64	<.060	--	.40	<.010	.9

08195000 FRIO RIVER AT CONCAN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 20...	0932	1	31	<1	<10	<1	<10
JUL 14...	1100	<1	35	1	<10	1	7

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 20...	<1	<1	<.1	<1	<1	<3
JUL 14...	1	2	<.1	<1	<1	12

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN 20...	0932	.00	.00	.00	.00	.00	.00	.00	.00
JUL 14...	1100	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JAN 20...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL 14...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 20...	.00	.00	.00	.00	0	.00	.00	.00	.00
JUL 14...	<.01	<.01	<.01	<.01	<1	<.01	<.01	<.01	<.01

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX

LOCATION.--Lat 29°30'16", long 99°46'52", Uvalde County, Hydrologic Unit 12110106, on right bank 2.3 mi (3.7 km) upstream from bridge on U.S. Highway 83, 3.1 mi (5.0 km) upstream from Rocky Creek, and 4.3 mi (6.9 km) southeast of Reagan Wells.

DRAINAGE AREA.--117 mi² (303 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1712: 1953. WSP 1923: 1955(M).

GAGE.--Water-stage recorder. Datum of gage is 1,335.2 ft (406.97 m) State Department of Highways and Public Transportation datum.

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

AVERAGE DISCHARGE.--30 years, 35.2 ft³/s (0.997 m³/s), 4.09 in/yr (104 mm/yr), 25,500 acre-ft/yr (31.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 ft³/s (3,480 m³/s) Aug. 13, 1966, gage height, 27.6 ft (8.41 m), from floodmark, from rating curve extended above 900 ft³/s (25.5 m³/s) on basis of slope-area measurements of 11,400, 30,700, 64,700, and 123,000 ft³/s (323, 869, 1,830, and 3,480 m³/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875 occurred in 1880, about 33 ft (10.1 m). Flood of June 14, 1935, reached a stage of 26.0 ft (7.92 m), discharge at site 2.6 mi (4.2 km) upstream, 64,700 ft³/s (1,830 m³/s), and that of July 1, 1932, reached a stage of 23 ft (7.0 m), discharge at site 2.0 mi (3.2 km) upstream, 30,700 ft³/s (869 m³/s), from information by local residents.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 13	1200	*10,300	292	13.60	4.145	May 17	0200	1,700	48.1	5.59	1.704
May 13	1200	980	27.8	4.30	1.311	May 24	0800	2,250	63.7	6.47	1.972

Minimum daily discharge, 4.9 ft³/s (0.14 m³/s) Sept. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	33	22	18	13	19	14	14	60	31	9.4	5.5
2	13	31	22	18	14	19	14	12	56	30	8.8	5.4
3	12	31	22	18	14	18	13	11	57	29	8.1	5.5
4	13	30	20	17	13	18	12	11	57	30	7.9	5.5
5	12	30	20	17	14	17	12	12	50	62	7.4	5.2
6	14	29	20	17	14	17	12	23	46	54	7.2	5.3
7	34	28	20	17	14	16	11	18	43	42	7.1	5.1
8	48	28	20	17	14	16	12	16	39	36	8.9	5.2
9	36	27	20	17	14	16	12	14	36	33	9.1	5.2
10	30	27	20	16	14	17	11	15	34	28	9.1	5.1
11	28	26	20	16	14	17	11	16	31	25	8.6	4.9
12	26	26	20	17	14	16	11	30	31	23	7.8	5.0
13	1830	26	20	18	14	16	11	300	30	21	7.3	9.7
14	329	26	20	18	13	16	11	103	28	20	7.0	15
15	155	26	20	17	14	16	11	56	26	18	6.9	18
16	122	25	20	17	13	16	11	42	24	17	6.4	16
17	103	25	19	16	13	16	10	389	24	16	6.6	15
18	66	25	19	16	13	16	10	95	21	15	6.9	13
19	56	24	19	16	14	16	11	65	21	14	6.6	13
20	52	24	19	16	16	16	11	54	72	13	6.0	15
21	49	24	19	16	16	16	10	48	80	13	6.3	14
22	49	23	19	16	16	16	11	43	57	13	6.3	12
23	48	23	19	15	15	16	12	39	46	15	6.7	12
24	44	23	19	15	15	16	11	515	40	15	6.4	12
25	42	23	19	14	18	15	11	164	37	14	6.5	11
26	40	23	19	14	24	14	11	111	36	12	6.5	10
27	38	23	18	15	22	15	11	96	34	11	6.5	9.2
28	37	23	17	14	21	14	11	86	32	11	6.4	8.2
29	36	23	18	15	---	14	10	77	31	11	6.3	7.6
30	35	23	18	15	---	14	13	69	32	11	5.9	7.3
31	35	---	19	14	---	14	---	64	---	9.8	5.7	---
TOTAL	3445	778	606	502	423	498	342	2608	1211	692.8	222.6	280.9
MEAN	111	25.9	19.5	16.2	15.1	16.1	11.4	84.1	40.4	22.3	7.18	9.36
MAX	1830	33	22	18	24	19	14	515	80	62	9.4	18
MIN	12	23	17	14	13	14	10	11	21	9.8	5.7	4.9
CFSM	.95	.22	.17	.14	.13	.14	.10	.72	.35	.19	.06	.08
IN.	1.10	.25	.19	.16	.13	.16	.11	.83	.39	.22	.07	.09
AC-FT	6830	1540	1200	996	839	988	678	5170	2400	1370	442	557

CAL YR 1981	TOTAL	29398.0	MEAN 80.5	MAX 3130	MIN 12	CFSM .69	IN 9.35	AC-FT 58310		
WTR YR 1982	TOTAL	11609.3	MEAN 31.8	MAX 1830	MIN 4.9	CFSM .27	IN 3.69	AC-FT 23030		

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 20...	1046	16	380	7.8	12.0	0	.30	10.0	95	1.1	K16	34
MAY 14...	1232	96	344	8.1	22.0	10	.50	8.3	99	.7	240	380
JUL 14...	1415	20	349	7.5	30.5	<1	1.1	7.6	104	.8	K9	89

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JAN 20...	190	14	58	12	6.1	.2	.5	180	14	14	.1
MAY 14...	180	16	54	9.9	4.7	.2	1.0	160	15	7.6	.1
JUL 14...	180	19	52	12	6.6	.2	.8	160	15	11	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 20...	7.9	221	6	0	<.020	1.6	.070	.50	.57	.010	.9
MAY 14...	9.3	198	14	4	<.020	1.0	.190	.68	.87	<.010	3.6
JUL 14...	12	206	<2	<2	<.020	.46	<.060	--	.40	.030	1.2

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 20...	1046	<1	32	<1	<10	<1	<10
JUL 14...	1415	<1	37	<1	<10	<1	5

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 20...	<1	<1	<.1	<1	<1	<3
JUL 14...	5	<1	<.1	<1	<1	6

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN 20...	1046	.00	.00	.00	.00	.00	.00	.00	.00
JUL 14...	1415	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JAN 20...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL 14...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 20...	.00	.00	.00	.00	0	.00	.00	.00	.00
JUL 14...	<.01	<.01	<.01	<.01	<1	<.01	<.01	<.01	<.01

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 fair. Part of flow of Frio River enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Concan (station 08195000) and this station. Most of low flow enters this formation. Many diversions for irrigation above station. An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--30 years, 30.3 ft³/s (0.858 m³/s), 21,950 acre-ft/yr (27.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 88,500 ft³/s (2,510 m³/s) Aug. 13, 1966, gage height, 23.88 ft (7.279 m), from floodmark, from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of slope-area measurements of 24,400, 53,000, and 88,500 ft³/s (691, 1,500, and 2,510 m³/s); no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887, about 35 ft (10.7 m) in 1894. Flood of July 1, 1932, reached a stage of about 30 ft (9.1 m). A higher flood than that of 1894 occurred prior to 1887. Above information by local residents.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 13	2230	*21,700	615	13.93	4.246
May 13	--	7,620	216	9.68	2.950

Minimum discharge, no flow most of time.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.1	.00	.00	.00	.00	.00	.00	2.3	.00	.00	.00
2	.00	.95	.00	.00	.00	.00	.00	.00	1.2	.00	.00	.00
3	.00	.83	.00	.00	.00	.00	.00	.00	.54	.00	.00	.00
4	.00	.73	.00	.00	.00	.00	.00	.00	.18	.00	.00	.00
5	.00	.72	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00
6	.00	.64	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	65	.60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	48	.53	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	5.5	.45	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	2.0	.45	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.53	.45	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	4040	.39	.00	.00	.00	.00	.00	1100	.00	.00	.00	.00
14	3160	.35	.00	.00	.00	.00	.00	580	.00	.00	.00	.00
15	531	.26	.00	.00	.00	.00	.00	160	.00	.00	.00	.00
16	267	.20	.00	.00	.00	.00	.00	98	.00	.00	.00	.00
17	175	.15	.00	.00	.00	.00	.00	200	.00	.00	.00	.00
18	122	.12	.00	.00	.00	.00	.00	110	.00	.00	.00	.00
19	89	.10	.00	.00	.00	.00	.00	83	.00	.00	.00	.00
20	71	.06	.00	.00	.00	.00	.00	62	.00	.00	.00	.00
21	57	.01	.00	.00	.00	.00	.00	46	.00	.00	.00	.00
22	61	.00	.00	.00	.00	.00	.00	35	.00	.00	.00	.00
23	50	.00	.00	.00	.00	.00	.00	26	.00	.00	.00	.00
24	37	.00	.00	.00	.00	.00	.00	150	.00	.00	.00	.00
25	26	.00	.00	.00	.00	.00	.00	95	.00	.00	.00	.00
26	16	.00	.00	.00	.00	.00	.00	49	.00	.00	.00	.00
27	9.1	.00	.00	.00	.00	.00	.00	31	.00	.00	.00	.00
28	5.4	.00	.00	.00	.00	.00	.00	19	.00	.00	.00	.00
29	3.5	.00	.00	.00	---	.00	.00	11	.00	.00	.00	.00
30	2.3	.00	.00	.00	---	.00	.00	6.4	.00	.00	.00	.00
31	1.6	---	.00	.00	---	.00	---	3.9	---	.00	.00	---
TOTAL	8844.93	9.69	.00	.00	.00	.00	.00	2865.30	4.26	.00	.00	.00
MEAN	285	.32	.000	.000	.000	.000	.000	92.4	.14	.000	.000	.000
MAX	4040	1.1	.00	.00	.00	.00	.00	1100	2.3	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	17540	19	.00	.00	.00	.00	.00	5680	8.4	.00	.00	.00

CAL YR 1981	TOTAL	64795.64	MEAN	178	MAX	13000	MIN	.00	AC-FT 128500
WTR YR 1982	TOTAL	11724.18	MEAN	32.1	MAX	4040	MIN	.00	AC-FT 23250

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.--40 years, 57.0 ft³/s (1.614 m³/s), 3.76 in/yr (96 mm/yr), 41,300 acre-ft/yr (50.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,200 ft³/s (1,560 m³/s) June 17, 1958, gage height, 28.3 ft (8.63 m), from floodmark at present site, from rating curve extended above 6,900 ft³/s (195 m³/s) on basis of slope-area measurement of 55,200 ft³/s (1,560 m³/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1892, about 33 ft (10.1 m) July 2, 1932, from information by local residents. There is a legend that a flood in the middle 1800's reached a stage of nearly 63 ft (19.2 m), see flood history for station 08198500.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 13	1330	*18,600	527	a17.2	5.24
May 13	1230	7,720	219	10.61	3.234

a From floodmark.

Minimum daily discharge, 6.6 ft³/s (0.19 m³/s) Aug. 7.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	90	60	50	37	47	29	29	58	28	8.8	7.2
2	49	88	58	50	37	43	27	31	58	27	8.6	9.5
3	48	87	58	49	37	41	26	25	56	26	7.9	9.6
4	46	85	60	45	35	39	26	24	55	24	8.0	9.6
5	45	83	58	46	36	38	26	23	53	29	7.4	9.6
6	56	81	58	44	37	37	24	58	52	28	7.3	9.6
7	221	79	58	44	37	35	24	48	51	25	6.6	8.8
8	178	79	57	42	39	35	25	39	49	23	29	8.8
9	116	78	56	43	38	35	25	33	47	22	33	9.9
10	94	75	56	48	34	35	24	30	46	20	22	11
11	83	75	56	44	34	35	24	31	44	20	21	11
12	76	75	52	54	36	34	23	36	47	18	17	9.6
13	3260	73	52	51	36	34	24	1250	49	18	14	10
14	518	73	54	48	35	33	23	259	45	18	13	19
15	301	71	54	46	35	32	22	132	42	17	12	23
16	220	70	54	46	35	31	22	101	41	16	12	19
17	179	67	52	44	34	32	21	88	38	15	10	18
18	156	67	52	44	31	32	22	81	37	14	10	14
19	142	66	50	44	32	30	22	77	36	14	10	13
20	135	63	52	44	39	29	22	73	38	14	10	54
21	127	63	53	44	40	29	23	71	38	14	9.6	36
22	130	63	53	44	37	29	25	71	36	13	9.6	27
23	125	63	48	42	34	29	29	68	33	15	8.9	22
24	115	63	48	42	32	30	30	74	31	15	8.7	19
25	112	62	48	40	37	30	29	70	30	13	8.0	19
26	107	61	48	40	60	29	27	67	30	13	7.4	18
27	102	60	48	39	62	29	24	67	29	12	7.8	17
28	100	60	48	40	52	29	23	67	29	11	7.4	14
29	97	63	48	40	---	29	22	65	27	10	7.3	13
30	97	63	50	40	---	30	25	63	26	9.6	6.7	13
31	95	---	50	38	---	30	---	60	---	9.5	6.7	---
TOTAL	7178	2146	1649	1375	1068	1030	738	3211	1251	551.1	355.7	482.2
MEAN	232	71.5	53.2	44.4	38.1	33.2	24.6	104	41.7	17.8	11.5	16.1
MAX	3260	90	60	54	62	47	30	1250	58	29	33	54
MIN	45	60	48	38	31	29	21	23	26	9.5	6.6	7.2
CFSM	1.13	.35	.26	.22	.19	.16	.12	.51	.20	.09	.06	.08
IN.	1.30	.39	.30	.25	.19	.19	.13	.58	.23	.10	.06	.09
AC-FT	14240	4260	3270	2730	2120	2040	1460	6370	2480	1090	706	956

CAL YR 1981	TOTAL	75010.0	MEAN	206	MAX	3780	MIN	24	CFSM	1.00	IN 13.55	AC-FT	148800
WTR YR 1982	TOTAL	21035.0	MEAN	57.6	MAX	3260	MIN	6.6	CFSM	.28	IN 3.80	AC-FT	41720

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
19...	1236	44	455	8.0	10.5	0	.40	11.5	106	1.2	20	49
MAY												
12...	1340	37	428	8.1	21.5	5	.60	8.3	98	.6	220	380
JUL												
13...	1400	18	403	7.6	28.5	<1	.70	7.8	103	1.1	K9	75

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JAN											
19...	240	28	74	13	7.6	.2	.9	210	28	12	.1
MAY											
12...	210	23	64	13	7.4	.2	1.2	190	28	12	.2
JUL											
13...	200	17	59	12	8.2	.3	1.2	180	24	12	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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											
19...	11	273	0	0	<.020	.99	.100	.42	.52	<.010	.9
MAY											
12...	10	250	<2	3	<.020	.47	.180	1.9	2.10	<.010	1.5
JUL											
13...	13	238	<2	<2	<.020	.33	<.060	--	.50	.040	1.0

08198000 SABINAL RIVER NEAR SABINAL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 19...	1236	<1	31	<1	<10	1	<10
JUL 13...	1400	<1	32	<1	10	<1	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 19...	1	<1	<.1	<1	<1	4
JUL 13...	<1	1	<.1	<1	<1	13

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN 19...	1236	.00	.00	.00	.00	.00	.00	.00	.00
JUL 13...	1400	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JAN 19...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL 13...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 19...	.00	.00	.00	.00	0	.00	.00	.00	.00
JUL 13...	<.01	<.01	<.01	<.01	<1	<.01	<.01	<.01	<.01

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 except those below 5.0 ft³/s (0.142 m³/s), which are fair. 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.--30 years, 33.0 ft³/s (0.935 m³/s), 23,910 acre-ft/yr (29.5 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)
Oct. 13	1900	*19,100	541	a21.14	6.443
May 13	1700	2,020	57.2	9.85	3.002

a From floodmark.

Minimum daily discharge, 0.77 ft³/s (0.022 m³/s) Sept. 25.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	21	5.3	5.0	2.5	1.9	1.8	1.5	4.2	2.9	1.4	1.5
2	5.0	19	5.0	4.9	2.5	1.8	1.8	1.3	4.2	2.9	1.4	1.3
3	4.9	19	4.8	4.7	2.5	1.8	2.0	1.3	4.0	2.7	1.2	1.4
4	4.7	18	4.5	4.5	2.5	1.8	2.1	1.3	3.9	2.7	1.2	2.0
5	4.3	17	4.5	4.3	2.4	1.8	2.0	1.3	3.7	2.7	1.2	1.9
6	14	15	4.3	4.1	2.4	1.6	1.9	5.9	3.6	2.6	1.0	2.3
7	18	14	4.3	3.9	2.2	1.6	2.1	1.7	3.6	2.6	1.0	2.7
8	6.4	13	4.2	3.8	2.1	1.6	2.1	1.8	3.6	2.5	1.1	2.8
9	6.2	12	4.0	3.6	2.1	1.5	2.0	1.7	3.4	2.5	1.6	2.8
10	6.2	12	3.7	3.5	2.0	1.5	2.0	1.8	3.3	2.4	1.5	2.6
11	6.1	11	3.7	3.3	2.0	1.5	1.8	2.5	3.0	2.2	1.2	2.6
12	5.8	11	3.5	3.8	2.0	1.5	1.8	3.6	3.3	2.2	1.1	2.6
13	2020	11	3.4	3.6	2.0	1.5	1.5	398	3.0	2.1	1.0	2.3
14	816	11	3.2	3.5	1.9	1.5	1.5	380	3.0	2.1	1.0	1.9
15	210	10	3.0	3.3	1.9	1.7	1.4	81	3.0	2.1	.92	1.4
16	118	9.8	2.9	3.2	1.9	1.8	1.0	40	3.0	2.1	.92	1.2
17	81	9.2	2.8	3.1	1.9	1.8	1.3	31	2.6	2.1	.92	1.1
18	60	8.8	2.5	3.1	1.9	1.8	2.3	20	2.6	2.0	.92	1.0
19	50	8.2	2.5	3.0	1.9	1.9	2.0	13	2.5	1.9	1.2	.93
20	45	7.9	3.0	2.9	2.3	2.4	2.3	9.2	2.7	1.5	.92	2.3
21	41	7.2	4.2	2.9	1.9	2.2	2.6	7.1	2.4	1.3	1.0	.93
22	47	6.8	5.3	2.8	1.9	2.0	2.8	6.4	2.4	1.3	1.1	.85
23	43	6.3	4.6	2.8	1.9	2.0	2.6	5.6	2.4	1.6	1.2	.78
24	38	6.0	4.6	2.7	1.9	2.0	2.4	5.3	2.5	2.2	1.2	.78
25	35	5.6	4.7	2.7	2.4	1.9	2.3	5.3	2.4	2.1	1.2	.77
26	32	5.5	4.8	2.7	2.3	2.0	1.8	5.3	2.3	2.2	1.2	.78
27	30	5.3	5.0	2.6	1.9	2.3	1.7	5.3	2.5	1.8	1.1	.79
28	28	5.3	5.0	2.6	1.9	2.2	1.7	5.0	2.6	2.0	1.0	.78
29	26	5.1	4.8	2.6	---	2.2	1.6	4.6	2.6	1.9	1.1	.82
30	25	5.3	5.0	2.5	---	2.2	1.9	4.3	3.7	1.7	1.3	.90
31	23	---	4.9	2.5	---	2.0	---	4.3	---	1.5	1.6	---
TOTAL	3854.7	316.3	128.0	104.5	59.0	57.3	58.1	1056.4	92.0	66.4	35.70	46.81
MEAN	124	10.5	4.13	3.37	2.11	1.85	1.94	34.1	3.07	2.14	1.15	1.56
MAX	2020	21	5.3	5.0	2.5	2.4	2.8	398	4.2	2.9	1.6	2.8
MIN	4.3	5.1	2.5	2.5	1.9	1.5	1.0	1.3	2.3	1.3	.92	.77
AC-FT	7650	627	254	207	117	114	115	2100	182	132	71	93

CAL YR 1981 TOTAL 45451.12 MEAN 125 MAX 4340 MIN .95 AC-FT 90150
WTR YR 1982 TOTAL 5875.21 MEAN 16.1 MAX 2020 MIN .77 AC-FT 11650

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.--30 years, 39.5 ft³/s (1.119 m³/s), 6.22 in/yr (158 mm/yr), 8,620 acre-ft/yr (35.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,800 ft³/s (1,980 m³/s) June 17, 1958, gage height, 28.2 ft (8.60 m), from floodmark, from rating curve extended above 2,600 ft³/s (73.6 m³/s) on basis of slope-area measurements of 18,600 and 69,800 ft³/s (527 and 1,980 m³/s); no flow at times in 1952-57, 1962-64, 1967, and 1971.
Maximum stage since at least 1907, that of June 17, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1932 reached a stage of about 26 ft (7.9 m), discharge 58,500 ft³/s (1,660 m³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 13	1600	1,610	45.6	4.71	1.436
May 13	0930	*2,420	68.5	5.39	1.643

Minimum discharge, 1.3 ft³/s (0.037 m³/s) Sept. 10-12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	29	14	9.6	7.2	6.8	5.3	7.2	43	12	4.1	2.1
2	12	26	14	9.6	7.2	6.8	5.3	4.7	42	14	4.4	2.1
3	12	26	13	9.0	6.5	6.5	4.7	6.9	41	14	4.1	2.1
4	11	24	13	6.8	6.5	6.5	4.4	6.5	39	12	4.1	1.9
5	11	24	13	8.2	6.8	6.2	4.7	5.9	37	13	3.8	1.9
6	28	24	13	8.2	6.3	5.9	3.8	37	35	12	3.8	1.7
7	91	23	13	7.9	6.5	5.6	4.4	14	34	12	3.5	1.5
8	33	27	13	7.6	6.5	8.9	4.7	11	33	11	13	1.7
9	28	24	13	7.6	6.2	5.9	4.1	10	31	10	12	1.5
10	26	23	13	7.6	5.9	5.6	4.1	12	31	9.9	8.5	1.4
11	24	21	13	7.4	6.2	5.6	3.8	13	30	11	6.5	1.4
12	23	21	12	11	6.2	5.9	4.1	14	58	9.6	5.6	1.3
13	202	21	12	9.6	5.6	5.9	4.1	379	36	9.3	4.7	6.2
14	69	21	13	9.1	5.6	5.9	3.8	74	31	9.0	4.4	6.1
15	53	20	12	9.3	5.9	5.6	4.1	55	29	8.6	4.1	3.1
16	50	20	12	9.0	5.6	5.6	4.4	49	28	7.9	4.4	2.7
17	48	20	11	8.2	5.3	5.6	4.1	69	27	7.6	4.1	2.7
18	42	19	11	8.6	4.7	5.3	3.5	50	26	7.6	4.4	2.7
19	39	18	11	8.6	5.6	5.3	4.4	46	22	7.6	3.8	3.1
20	33	17	11	8.6	8.4	5.3	4.1	44	25	7.2	3.5	5.2
21	32	16	11	8.6	6.8	5.6	3.5	37	23	7.2	5.2	4.4
22	42	16	11	9.0	6.5	5.6	5.9	42	21	12	3.5	2.9
23	38	16	10	8.2	5.9	5.6	6.3	49	20	10	3.3	2.5
24	33	16	10	7.9	5.6	5.9	5.3	75	19	6.1	2.9	2.3
25	32	16	10	7.6	6.9	5.3	4.7	56	18	4.7	2.7	2.3
26	29	16	10	7.2	11	4.7	4.1	52	18	4.7	2.7	1.9
27	28	15	9.6	7.6	7.6	5.6	3.8	53	18	4.4	2.7	1.5
28	28	15	9.6	7.6	7.2	5.0	3.8	54	16	4.4	2.5	1.4
29	27	16	10	7.9	---	5.3	3.5	51	16	4.4	2.3	1.4
30	27	16	10	8.6	---	5.9	5.3	48	14	4.1	2.3	1.4
31	39	---	10	7.2	---	5.3	---	45	---	4.1	2.1	---
TOTAL	1202	606	361.2	258.9	182.2	180.5	132.1	1470.2	861	271.4	139.0	74.4
MEAN	38.8	20.2	11.7	8.35	6.51	5.82	4.40	47.4	28.7	8.75	4.48	2.48
MAX	202	29	14	11	11	8.9	6.3	379	58	14	13	6.2
MIN	11	15	9.6	6.8	4.7	4.7	3.5	4.7	14	4.1	2.1	1.3
CFSM	.45	.23	.14	.10	.08	.07	.05	.55	.33	.10	.05	.03
IN.	.52	.26	.16	.11	.08	.08	.06	.63	.37	.12	.06	.03
AC-FT	2380	1200	716	514	361	358	262	2920	1710	538	276	148

CAL YR 1981	TOTAL	33366.2	MEAN 91.4	MAX 2110	MIN 9.6	CFSM 1.06	IN 14.40	AC-FT 66180		
WTR YR 1982	TOTAL	5738.9	MEAN 15.7	MAX 379	MIN 1.3	CFSM .18	IN 2.48	AC-FT 11380		

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 18...	1602	8.6	420	8.1	9.5	0	.50	12.0	109	.4	K2	K10
MAY 11...	1606	14	362	8.2	22.0	5	.70	8.8	105	.5	--	64
JUL 12...	1600	9.6	339	7.8	32.0	<1	1.5	8.6	121	1.1	K2000	37

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JAN 18...	220	43	71	11	7.1	.2	1.0	180	38	11	.2
MAY 11...	180	36	54	10	6.5	.2	1.3	140	41	9.7	.3
JUL 12...	170	36	50	10	7.4	.3	1.3	130	38	10	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 18...	10	258	18	13	<.020	.47	.110	.32	.43	<.010	1.1
MAY 11...	8.8	216	4	4	<.020	.13	.180	.50	.68	<.010	1.9
JUL 12...	14	209	<2	<2	<.020	.10	<.060	--	.60	.070	1.3

08200000 HONDO CREEK NEAR TARPLEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 18...	1602	<1	29	<1	<10	<1	<10
JUL 12...	1600	1	25	1	10	1	7

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 18...	<1	<1	<.1	<1	<1	3
JUL 12...	3	2	.1	<1	<1	16

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN 18...	1602	.00	.00	.00	.00	.00	.00	.00	.00
JUL 12...	1600	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JAN 18...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL 12...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 18...	.00	.00	.00	.00	0	.00	.00	.00	.00
JUL 12...	<.01	<.01	<.01	<.01	<1	<.01	<.01	<.01	<.01

08200700 HONDO CREEK AT KING WATERHOLE NEAR HONDO, TX

LOCATION.--Lat 29°23'26", long 99°09'04", Medina County, Hydrologic Unit 12110107, on left bank 0.3 mi (0.5 km) downstream from county road low-water crossing, 3.1 mi (5.0 km) north of Hondo, and 7.8 mi (12.6 km) upstream from Verde Creek.

DRAINAGE AREA.--142 mi² (368 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 897.87 ft (273.671 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Most of the low flow of Hondo Creek enters Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Tarpley (station 08200000) and this station. Small diversions above station for irrigation, amounts unknown.

AVERAGE DISCHARGE.--22 years, 14.5 ft³/s (0.411 m³/s), 10,500 acre-ft/yr (12.9 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.--Maximum discharge, 86 ft³/s (2.44 m³/s) May 13 at 2100 hours, gage height, 2.15 ft (0.655 m), no peak above base of 500 ft³/s (14.2 m³/s); no flow most of time.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.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	.94	.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	12	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	9.4	.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	22.34	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.72	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	12	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	44	.00	.00	.00	.00

CAL YR 1981	TOTAL	9687.64	MEAN 26.5	MAX 2350	MIN .00	AC-FT	19220	
WTR YR 1982	TOTAL	22.34	MEAN .061	MAX 12	MIN .00	AC-FT	44	

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX

LOCATION.--Lat 29°34'23", long 99°24'10", Medina County, Hydrologic Unit 12110107, on right bank 200 ft (61 m) upstream from county road crossing, 4.5 mi (7.2 km) downstream from Cascade Creek, and 7.9 mi (12.7 km) southeast of Utopia.

DRAINAGE AREA.--43.1 mi² (111.6 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder, crest-stage gages, and concrete control. Datum of gage is 1,265.8 ft (385.82 m) Magnolia Oil Co. datum, adjustment unknown.

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

AVERAGE DISCHARGE.--21 years, 19.0 ft³/s (0.538 m³/s), 5.99 in/yr (152 mm/yr), 13,770 acre-ft/yr (17.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,500 ft³/s (1,090 m³/s) July 15, 1973, gage height, 14.4 ft (4.39 m), from floodmark, from rating curve extended above 910 ft³/s (25.8 m³/s) on basis of field estimate of flow over and around end of dam, 14,100 ft³/s (399 m³/s), and slope-area measurement of 52,600 ft³/s (1,490 m³/s); no flow for many days in 1963-64.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1901, 16.4 ft (5.00 m) June 17, 1958, from floodmarks, discharge 52,600 ft³/s (1,490 m³/s), by slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 13	1130	*8,970	254	7.81	2.380
May 13	0800	1,210	34.3	3.89	1.186
Aug. 8	1700	1,130	32.0	3.82	1.164

Minimum daily discharge, 0.97 ft³/s (0.027 m³/s) Mar. 17.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	11	5.7	3.6	2.5	3.1	2.2	4.6	21	6.3	2.0	3.4
2	5.3	11	5.7	3.6	2.6	3.0	2.2	3.7	21	5.3	1.8	3.4
3	4.9	11	5.7	3.5	2.4	2.8	2.2	2.7	20	5.2	1.7	3.4
4	4.6	10	5.7	2.8	2.4	2.8	2.2	2.6	20	4.9	1.7	3.4
5	4.4	10	5.7	2.7	2.5	2.8	2.3	2.4	18	6.0	1.7	3.1
6	14	10	5.3	3.0	2.6	2.6	2.0	25	17	5.2	1.7	3.1
7	36	10	5.3	3.3	2.4	2.6	2.1	7.2	17	4.6	1.8	3.0
8	15	11	4.9	2.9	2.4	2.6	2.5	5.4	16	4.3	105	2.8
9	10	9.6	4.9	2.8	2.5	2.6	2.3	4.9	15	3.9	58	2.8
10	9.4	9.6	4.9	3.0	2.6	2.6	2.3	4.9	14	3.9	23	2.6
11	8.5	9.1	4.9	2.6	2.4	2.6	2.3	5.0	13	3.8	14	2.6
12	8.3	9.0	4.6	4.8	2.4	2.6	2.2	6.4	16	3.6	12	2.6
13	467	9.0	4.6	3.9	2.4	2.6	2.2	210	14	3.6	10	8.3
14	60	9.0	5.1	3.5	2.4	2.5	2.1	53	12	3.6	9.6	4.1
15	36	8.9	4.6	3.7	2.4	1.4	1.9	41	11	3.4	9.0	3.0
16	29	8.1	4.6	3.3	2.4	1.2	2.1	37	11	3.4	7.9	2.9
17	24	7.2	4.2	2.9	2.4	.97	2.2	80	10	3.1	7.4	2.6
18	20	7.4	3.9	2.9	2.2	1.9	1.9	48	10	3.1	7.0	2.4
19	19	6.8	3.9	3.1	2.4	2.2	2.0	40	9.0	3.1	6.5	2.4
20	18	2.7	3.9	3.1	4.2	2.3	2.2	36	10	3.1	6.1	2.7
21	17	6.1	3.9	3.1	9.0	2.6	2.3	35	9.4	3.1	5.7	2.3
22	20	7.0	3.8	3.1	3.3	2.4	2.9	33	8.8	2.8	5.3	2.0
23	16	7.1	3.3	2.9	2.6	2.2	4.1	30	7.4	2.8	5.3	2.0
24	15	6.6	3.4	2.8	2.4	2.2	3.1	61	7.0	2.8	4.9	1.9
25	14	6.5	3.4	2.9	3.5	2.2	3.0	40	7.0	2.8	4.6	1.8
26	13	6.5	3.4	2.5	6.8	2.0	2.5	35	6.9	2.6	4.6	1.7
27	13	6.5	3.4	2.4	3.6	2.4	2.3	33	6.1	2.4	4.6	1.5
28	15	6.5	3.4	2.5	3.1	2.4	2.1	33	6.1	2.4	3.9	1.4
29	13	7.0	3.4	2.6	---	2.3	2.2	30	6.1	2.2	3.9	1.4
30	13	6.7	3.5	3.0	---	2.4	3.6	27	6.2	2.2	3.6	1.4
31	13	---	3.6	2.4	---	2.4	---	25	---	2.0	3.6	---
TOTAL	960.7	246.9	136.6	95.2	84.8	73.27	71.5	1001.8	366.0	111.5	337.9	82.0
MEAN	31.0	8.23	4.41	3.07	3.03	2.36	2.38	32.3	12.2	3.60	10.9	2.73
MAX	467	11	5.7	4.8	9.0	3.1	4.1	210	21	6.3	105	8.3
MIN	4.4	2.7	3.3	2.4	2.2	.97	1.9	2.4	6.1	2.0	1.7	1.4
CFSM	.72	.19	.10	.07	.07	.06	.06	.75	.28	.08	.25	.06
IN.	.83	.21	.12	.08	.07	.06	.06	.86	.32	.10	.29	.07
AC-FT	1910	490	271	189	168	145	142	1990	726	221	670	163

CAL YR 1981 TOTAL 17209.10 MEAN 47.1 MAX 818 MIN 2.7 CFSM 1.09 IN 14.85 AC-FT 34130
WTR YR 1982 TOTAL 3568.17 MEAN 9.78 MAX 467 MIN .97 CFSM .23 IN 3.08 AC-FT 7080

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 19...	0948	3.1	428	8.2	9.0	0	.50	11.2	100	.6	23	23
MAY 12...	1032	6.1	378	8.2	23.0	5	.60	8.9	109	.6	K1800	580
JUL 13...	1017	3.7	356	7.6	28.0	5	1.0	8.1	107	1.3	K15	160

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JAN 19...	220	62	69	12	7.0	.2	.9	160	53	12	.1
MAY 12...	190	58	57	11	6.2	.2	1.5	130	48	10	.2
JUL 13...	170	40	50	11	7.4	.3	1.2	130	38	12	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 19...	10	260	2	2	<.020	.69	.120	.33	.45	<.010	1.1
MAY 12...	9.2	221	23	3	<.020	.42	.190	1.1	1.30	<.010	2.0
JUL 13...	14	212	<2	<2	<.020	.14	<.060	--	.40	.030	1.0

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 19...	0948	<1	25	1	<10	<1	<10
JUL 13...	1017	<1	26	<1	10	<1	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 19...	1	<1	<.1	<1	<1	<3
JUL 13...	1	2	<.1	<1	<1	17

DATE	TIME	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN 19...	0948	.00	.00	.00	.00	.00	.00	.00	.00
JUL 13...	1017	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JAN 19...	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL 13...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 19...	.00	.00	.00	.00	0	.00	.00	.00	.00
JUL 13...	<.01	<.01	<.01	<.01	<1	<.01	<.01	<.01	<.01

08202700 SECO CREEK AT ROWE RANCH NEAR D'HANIS, TX

LOCATION.--Lat 29°21'43", long 99°17'05", Medina County, Hydrologic Unit 12110107, on left bank 2.9 mi (4.7 km) north of D'Hanis and 8.0 mi (12.9 km) downstream from Rocky Creek.

DRAINAGE AREA.--168 mi^2 (435 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 900.88 ft (274.588 m) National Geodetic Vertical Datum of 1929. Prior to October 1970, published as "at Crook Ranch, near D'Hanis".

REMARKS.--Records good. All of low flow of Seco Creek enters Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Miller Ranch (station 08201500) and this station. No known diversion above station.

AVERAGE DISCHARGE.--21 years (water years 1962-82), 8.84 ft^3/s (0.250 m^3/s), 6,400 acre-ft/yr (7.89 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,500 ft^3/s (864 m^3/s) July 15, 1973, gage height, 26.0 ft (7.92 m), from floodmark, from rating curve extended above 16,000 ft^3/s (453 m^3/s) on the basis of slope-area measurement of 35,800 ft^3/s (1,010 m^3/s); no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 35.7 ft (10.88 m) May 31, 1935, from information by local resident. Other floods occurred Aug. 31, 1894, 33 ft (10.1 m); September 1919, 28 ft (8.5 m); July 2, 1932, 28.2 ft (8.60 m), discharge 35,800 ft^3/s (1,010 m^3/s), by slope-area measurement; June 17, 1958, 32.4 ft (9.88 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 440 ft^3/s (12.5 m^3/s) Oct. 13 at 1930 hours, gage height, 9.21 ft (2.807 m), no peak above base of 600 ft^3/s (17.0 m^3/s); no flow most of time.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.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	65	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	40	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.27	.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	105.27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MEAN	3.40	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	65	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	209	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

CAL YR 1981 TOTAL 6325.44 MEAN 17.3 MAX 2150 MIN .00 AC-FT 12550
WTR YR 1982 TOTAL 105.27 MEAN .29 MAX 65 MIN .00 AC-FT 209

08205500 FRIO RIVER NEAR DERBY, TX

LOCATION.--Lat 28°44'11", long 99°08'40", Frio County, Hydrologic Unit 12110106, on right bank 17 ft (5 m) downstream from centerline of railroad tracks, 35 ft (11 m) right of the Missouri Pacific Railroad Co. bridge abutment, 167 ft (51 m) downstream from Interstate Highway 35, 917 ft (280 m) downstream from Leona River, 2.5 mi (4.0 km) south of Derby, and 122.4 mi (196.9 km) upstream from mouth.

DRAINAGE AREA.--3,493 mi² (9,047 km²).

PERIOD OF RECORD.--August 1915 to current year.

REVISED RECORDS.--WSP 568: 1915-16, 1918-22. WSP 763: Drainage area. WSP 1312: 1917-18(M). WSP 1923: 1954.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 449.11 ft (136.889 m) National Geodetic Vertical Datum of 1929. Aug. 1, 1915, to Apr. 21, 1931, nonrecording gage, and Apr. 22, 1931, to Mar. 6, 1940, water-stage recorder at same site and datum. Mar. 7, 1940, to May 4, 1972, water-stage recorder, and May 5 to Nov. 1, 1972, nonrecording gage at site 167 ft (51 m) upstream at same datum.

REMARKS.--Records good. Part of flow of Frio River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone upstream from U.S. Highway 90 (see REMARKS for stations 08197500, 08198500, 08200700, and 08202700). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Many small diversions for irrigation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--67 years, 140 ft³/s (3.965 m³/s), 101,400 acre-ft/yr (125 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft³/s (6,510 m³/s) July 4, 1932, gage height, 29.45 ft (8.976 m), from floodmarks, from rating curve extended above 76,000 ft³/s (2,150 m³/s) on basis of slope-area measurement of peak flow; no flow at times most years.
Maximum stage since at least 1860, that of July 4, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft³/s (31.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 7	0300	3,290	93.2	7.80	2.377
Oct. 15	1900	*4,260	121	8.75	2.667
May 15	1700	1,910	54.1	5.52	1.682

Minimum daily discharge, 2.5 ft³/s (0.071 m³/s) Aug. 8, 12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	133	72	72	50	88	65	47	74	28	4.4	8.1
2	39	124	76	73	49	91	67	48	68	23	5.1	8.8
3	38	114	76	74	48	74	66	51	63	19	4.9	8.8
4	38	107	73	72	45	69	64	52	61	19	3.4	8.8
5	35	103	72	70	44	66	62	51	56	21	3.7	10
6	50	98	73	70	43	61	59	51	54	20	4.6	10
7	2560	96	74	64	43	58	58	382	52	21	3.0	10
8	1200	96	75	69	46	57	59	766	48	129	2.5	10
9	476	89	80	66	46	58	58	256	45	101	3.0	10
10	222	85	81	65	46	58	57	143	45	49	3.4	10
11	113	81	79	64	45	59	57	102	44	36	3.1	9.6
12	77	81	79	65	47	60	55	86	46	29	2.5	9.0
13	60	79	78	66	48	63	55	409	43	25	5.4	8.8
14	394	77	76	69	50	62	54	570	40	23	7.1	9.0
15	3330	79	74	75	49	66	52	1600	37	22	6.0	9.2
16	2620	85	74	73	46	64	51	924	44	19	6.3	9.1
17	808	83	71	72	45	66	51	467	44	18	6.5	9.0
18	569	83	68	68	45	66	46	309	41	15	6.9	9.3
19	443	81	68	67	44	65	43	228	35	14	6.9	9.0
20	363	78	68	66	45	63	43	185	35	14	6.5	9.5
21	306	78	66	64	48	62	45	149	32	13	6.4	10
22	366	77	69	62	45	62	46	130	34	14	6.2	9.2
23	424	78	72	62	48	61	46	124	89	12	6.8	9.1
24	408	77	72	62	54	61	43	119	58	10	6.9	9.0
25	308	76	70	61	53	62	44	106	41	11	6.3	9.0
26	249	76	66	60	53	60	43	102	34	9.0	6.3	9.0
27	213	73	62	59	49	62	42	103	31	7.8	8.1	9.1
28	184	72	62	82	50	64	43	97	29	8.4	8.8	9.2
29	166	72	63	65	---	62	41	89	28	5.0	9.5	9.0
30	146	74	68	55	---	64	48	80	27	6.2	8.8	9.0
31	145	---	72	55	---	64	---	79	---	4.7	8.1	---
TOTAL	16389	2605	2229	2067	1324	1998	1563	7905	1378	746.1	177.4	277.6
MEAN	529	86.8	71.9	66.7	47.3	64.5	52.1	255	45.9	24.1	5.72	9.25
MAX	3330	133	81	82	54	91	67	1600	89	129	9.5	10
MIN	35	72	62	55	43	57	41	47	27	4.7	2.5	8.1
AC-FT	32510	5170	4420	4100	2630	3960	3100	15680	2730	1480	352	551

CAL YR 1981	TOTAL	142862.3	MEAN 391	MAX 8860	MIN 5.3	AC-FT	283400	
WTR YR 1982	TOTAL	38659.1	MEAN 106	MAX 3330	MIN 2.5	AC-FT	76680	

08206600 FRIO RIVER AT TILDEN, TX

LOCATION.--Lat 28°28'02", long 98°32'50", McMullen County, Hydrologic Unit 12110108, on left end at downstream side of bridge on State Highway 16 in Tilden, 300 ft (91 m) downstream from Leoncita Creek, 1.3 mi (2.1 km) upstream from Salt Branch, 1.8 mi (2.9 km) downstream from Big Slough, and 44.2 mi (71.1 km) upstream from mouth.

DRAINAGE AREA.--4,493 mi² (11,637 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 216.04 ft (65.849 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good prior to Aug. 27 and fair thereafter. Part of flow of Frio River and its headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin upstream from U.S. Highway 90 (see REMARKS for station 08205500). Considerable loss of flow into various permeable formations also occurs downstream from the Balcones Fault Zone. Many small diversions above station for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s (357 m³/s) May 19, 1980, at 0900 hours, gage height, 26.35 ft (8.031 m); minimum daily, 0.04 ft³/s (0.001 m³/s) July 21, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1932 reached a stage of 38.44 ft (11.72 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 11	2100	*4,230	120	21.52	6.559
Oct. 20	0100	2,360	66.8	18.84	5.742

Minimum daily dischrge, 0.15 ft³/s (0.004 m³/s) Sept. 7-12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	159	74	69	78	59	56	96	70	26	4.0	.17
2	37	149	73	73	70	54	56	117	66	24	2.7	.17
3	36	140	74	74	66	52	56	58	65	23	2.5	.16
4	36	130	74	75	63	67	56	47	62	26	2.1	.16
5	37	123	74	76	61	77	57	43	59	27	1.7	.16
6	37	115	74	76	61	70	57	43	56	24	1.6	.16
7	37	109	74	76	60	63	57	44	53	20	1.3	.15
8	46	105	74	76	57	59	56	46	50	17	1.7	.15
9	345	101	74	77	57	56	55	51	48	17	2.2	.15
10	773	98	74	75	56	54	54	304	46	16	2.4	.15
11	3170	97	76	74	56	53	53	408	42	72	4.1	.15
12	3180	93	77	74	56	52	53	216	45	69	2.7	.15
13	1790	90	79	74	57	52	53	110	59	44	2.1	.50
14	609	87	77	74	57	53	51	85	100	33	1.5	5.5
15	157	87	76	74	56	55	51	96	79	26	1.3	4.3
16	141	85	74	74	56	57	51	316	55	21	.87	3.3
17	444	83	72	76	55	58	50	432	46	18	.65	2.8
18	800	83	70	80	57	58	49	571	42	16	.60	2.5
19	1810	85	70	82	58	60	48	774	42	16	.60	2.4
20	2160	84	70	81	61	60	47	813	41	15	.57	2.3
21	1320	83	69	79	59	61	46	324	37	13	.57	2.1
22	534	83	69	79	61	61	58	163	33	11	.52	2.0
23	340	82	69	77	64	60	46	137	31	9.1	.45	2.0
24	308	81	64	76	58	57	44	117	30	8.8	.39	1.9
25	327	77	68	74	56	57	44	108	28	9.7	.30	1.8
26	353	79	73	73	56	55	45	96	54	9.8	.26	1.8
27	312	80	71	73	60	53	42	91	53	9.2	.23	1.7
28	251	79	71	72	62	54	38	85	38	7.8	.21	1.7
29	216	79	69	71	---	54	38	83	29	8.2	.20	1.6
30	195	77	67	71	---	55	46	81	26	5.3	.19	1.6
31	175	---	67	78	---	56	---	76	---	4.9	.18	---
TOTAL	20014	2903	2237	2333	1674	1792	1513	6031	1485	646.8	40.69	43.68
MEAN	646	96.8	72.2	75.3	59.8	57.8	50.4	195	49.5	20.9	1.31	1.46
MAX	3180	159	79	82	78	77	58	813	100	72	4.1	5.5
MIN	36	77	64	69	55	52	38	43	26	4.9	.18	.15
AC-FT	39700	5760	4440	4630	3320	3550	3000	11960	2950	1280	81	87

CAL YR 1981 TOTAL 145037.80 MEAN 397 MAX 7300 MIN 5.5 AC-FT 287700
WTR YR 1982 TOTAL 40713.17 MEAN 112 MAX 3180 MIN .15 AC-FT 80750

08206600 FRIO RIVER AT TILDEN, TX--Continued

WATER-QUALITY RECORDS

LOCATION.--Lat 28°28'02", long 98°32'50", McMullin County, Hydrologic Unit 12110108, at left downstream end of State Highway 16 bridge in Tilden, 300 ft (91 m) downstream from Leoncita Creek, 1.3 mi (2.1 km) upstream from Salt Branch, and 1.8 mi (2.9 km) downstream from Big Slough.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
NOV 03...	1442	141	1210	8.4	19.0	5	56	8.0	86	2.1	410
DEC 15...	1333	78	1800	7.8	12.5	5	19	10.6	100	1.4	520
JAN 19...	1352	84	1660	8.1	9.0	0	5.0	9.1	79	1.6	510
APR 27...	1156	41	2110	8.2	21.5	5	62	7.8	90	1.8	630
JUN 08...	1340	51	1470	8.0	28.0	10	43	6.7	87	2.2	430
JUL 13...	1410	43	1690	8.1	29.0	10	48	6.5	84	1.9	460

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 03...	200	120	26	93	2.1	3.4	210	150	180	.2	14
DEC 15...	310	150	36	160	3.0	3.2	210	250	310	.3	13
JAN 19...	320	150	33	150	3.1	2.8	190	240	300	.2	13
APR 27...	420	180	43	190	3.3	3.7	210	290	370	.4	14
JUN 08...	230	130	26	130	2.9	4.3	200	190	240	.3	15
JUL 13...	300	130	34	160	3.4	4.8	160	220	300	.2	12

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 03...	713	94	15	3.1	.020	3.1	.250	.49	.74	.030	4.2
DEC 15...	1050	34	3	--	<.020	4.4	.070	.57	.64	.010	2.7
JAN 19...	1000	51	3	--	<.020	5.4	.160	1.4	1.60	<.010	1.8
APR 27...	1220	117	24	--	<.020	3.1	.060	.69	.75	.090	3.9
JUN 08...	856	73	15	--	<.020	2.6	.060	.94	1.00	.100	4.5
JUL 13...	957	13	4	.76	.020	.78	.060	.84	.90	.040	4.8

08206600 FRIO RIVER AT TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 03...	1442	1	90	<1	<10	2	<10
JAN 19...	1352	1	81	1	<10	1	21
APR 27...	1156	2	<100	1	<10	1	40
JUL 13...	1410	2	100	<1	10	2	4

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 03...	<1	2	3.2	1	<1	7
JAN 19...	<1	5	4.5	1	<1	43
APR 27...	<1	10	.6	1	<1	20
JUL 13...	3	4	2.9	<1	<1	8

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)
JAN 19...	1352	.00	0	.00	.00	.0	.00	.0	.00	.3	.00
JUL 13...	1410	<.10	<1	<.10	<.01	<.1	<.10	<1.0	<.01	<.1	<.01

DATE	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL (UG/L)
JAN 19...	.3	.00	.0	.00	.00	.0	.00	.00	.0	.00
JUL 13...	.1	<.01	<.1	<.01	<.01	<.1	<.01	<.01	<.1	<.01

DATE	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)
JAN 19...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00
JUL 13...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 19...	.00	.00	.0	.00	0	.0	.00	.00	.00	.00
JUL 13...	<.01	<.01	<.1	<.01	<1	<10	<.01	--	--	--

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX

LOCATION.--Lat 28°35'14", long 98°32'44", McMullen County, Hydrologic Unit 12110109, on left bank 25 ft (8 m) downstream from State Highway 16, 0.3 mi (0.5 km) upstream from mouth of Bruce Branch, 0.9 mi (1.4 km) downstream from mouth of Far Live Oak Creek, 3 mi (5 km) upstream from San Patricio Creek, 7 mi (11 km) downstream from Clear Creek, 8.7 mi (14.0 km) north of Tilden, and 13 mi (21 km) upstream from mouth.

DRAINAGE AREA.--793 mi² (2,054 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 242.95 ft (74.051 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. There are five diversions above station, but amounts are unknown. At times, excess water from Bexar-Medina-Atascosa Counties Water Improvement District No. 1 system enters San Miguel Creek basin via Chacon Creek 52 mi (84 km) upstream (amounts unknown).

AVERAGE DISCHARGE.--18 years, 69.5 ft³/s (1.968 m³/s), 50,350 acre-ft/yr (62.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s (583 m³/s) May 16, 1980, gage height, 27.31 ft (8.324 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1919, 32.6 ft (9.94 m) in 1942; stage of 1919 flood not known, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,500 ft³/s (297 m³/s) Oct. 9 at 0600 hours, gage height, 22.96 ft (6.998 m), no other peak above base of 900 ft³/s (25.5 m³/s); no flow for several days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	24	11	15	11	20	14	173	12	16	.00	.00
2	2.2	21	10	12	14	18	18	212	12	9.1	.00	.00
3	2.0	20	10	11	15	14	15	48	11	5.9	.00	.00
4	1.8	20	9.7	9.2	14	12	13	30	10	4.5	.00	.00
5	1.7	20	9.3	10	11	10	11	22	8.3	4.3	.00	.00
6	3.1	18	15	19	9.2	8.7	8.4	20	5.7	16	.00	.00
7	3.1	17	14	18	7.9	7.7	7.4	17	4.2	16	.00	.00
8	1780	16	12	16	9.3	7.4	7.4	14	3.8	19	.00	.00
9	8710	15	11	14	11	5.7	6.8	42	3.3	22	.00	.00
10	2280	14	11	12	9.8	6.7	6.2	32	3.1	14	.00	.00
11	173	14	14	14	9.2	6.6	6.2	23	2.1	9.1	3.9	.00
12	94	19	14	14	10	9.2	6.4	17	65	4.8	3.2	.00
13	69	23	15	13	14	12	6.0	12	213	2.7	.89	.00
14	56	25	16	11	14	10	5.7	9.3	126	2.5	.05	.00
15	45	21	17	11	12	9.2	4.9	7.9	38	6.6	.03	55
16	38	18	15	12	12	8.8	5.9	6.0	23	7.0	.02	28
17	33	16	15	12	11	9.7	6.4	152	60	5.5	2.7	44
18	44	16	15	12	9.1	10	6.2	256	58	3.7	7.4	15
19	67	16	14	12	11	11	6.6	84	44	2.1	5.3	6.0
20	220	14	16	12	15	10	6.5	95	32	.89	4.2	3.7
21	54	13	16	11	323	9.5	6.7	38	23	.27	5.2	3.5
22	63	13	16	11	101	8.7	6.3	23	18	.13	4.1	3.1
23	471	12	15	11	39	10	5.3	23	14	.06	2.3	2.5
24	429	12	15	8.8	25	10	4.9	113	17	.04	.82	3.3
25	182	15	14	8.1	23	8.9	4.6	31	17	.02	.11	3.8
26	72	14	15	10	22	7.4	12	24	11	.00	.03	4.7
27	49	12	15	12	17	7.3	25	21	7.4	.00	.00	4.3
28	41	12	13	13	14	9.2	25	18	5.5	.00	.00	3.7
29	34	12	14	16	---	9.5	23	18	3.9	.00	.00	2.5
30	30	12	16	13	---	8.9	19	16	3.5	.00	.00	1.7
31	27	---	16	10	---	7.9	---	13	---	.00	.00	---
TOTAL	15077.3	494	429.0	383.1	793.5	304.0	299.8	1610.2	854.8	172.21	40.25	184.80
MEAN	486	16.5	13.8	12.4	28.3	9.81	9.99	51.9	28.5	5.56	1.30	6.16
MAX	8710	25	17	19	323	20	25	256	213	22	7.4	55
MIN	1.7	12	9.3	8.1	7.9	5.7	4.6	6.0	2.1	.00	.00	.00
AC-FT	29910	980	851	760	1570	603	595	3190	1700	342	80	367

CAL YR 1981 TOTAL 35681.46 MEAN 97.8 MAX 8710 MIN .11 AC-FT 70770
WTR YR 1982 TOTAL 20642.96 MEAN 56.6 MAX 8710 MIN .00 AC-FT 40950

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)
NOV 03...	1105	20	1980	7.9	17.5	10	7.5	8.3	87	1.1	560
DEC 15...	1025	17	2440	8.1	12.5	5	5.0	8.3	78	1.2	780
JAN 19...	1108	12	1760	7.9	10.0	5	2.6	10.6	94	1.0	510
APR 27...	1025	25	2340	8.0	19.0	10	24	8.3	90	1.9	720
JUN 08...	1040	3.7	1230	7.8	27.0	20	15	6.2	78	2.1	350
JUL 13...	1020	2.6	867	7.9	29.0	10	9.4	6.2	80	2.9	300

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 03...	210	160	38	200	3.9	7.9	350	310	270	.3	23
DEC 15...	460	220	55	250	3.9	8.7	320	380	430	.4	16
JAN 19...	250	150	34	160	3.2	5.3	260	270	250	.3	13
APR 27...	460	200	54	220	3.6	7.7	260	390	380	.5	16
JUN 08...	150	100	24	110	2.7	9.3	200	180	170	.4	17
JUL 13...	100	87	20	63	1.7	6.0	200	100	99	.4	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)
NOV 03...	1220	10	8	.27	.020	.29	.130	.46	.59	.050	5.0
DEC 15...	1510	14	10	--	<.020	<.10	.100	.53	.63	.050	5.7
JAN 19...	1040	27	1	--	<.020	<.09	.170	.44	.61	.020	3.6
APR 27...	1420	35	29	--	<.020	.43	.110	.75	.86	.150	5.6
JUN 08...	731	30	15	.36	.020	.38	.110	.69	.80	.140	5.2
JUL 13...	510	12	<2	--	<.020	.21	.080	.52	.60	.070	4.6

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 03...	1105	3	140	<1	<10	4	<10
JAN 19...	1108	1	80	<1	<10	1	<10
APR 27...	1025	2	<100	<1	10	2	30
JUL 13...	1020	4	84	<1	10	2	9

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 03...	2	110	1.9	<1	<1	7
JAN 19...	3	33	.7	<1	<1	12
APR 27...	<1	50	1.2	<1	<1	30
JUL 13...	1	13	2.1	<1	<1	12

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
JAN 19...	1108	.00	0	.00	.0	.00	.0	.00	.0	.00	.0
JUL 13...	1020	<.10	<1	<.10	<1.0	<.01	<.1	<.10	2.0	<.01	<.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)	ETHION, TOTAL (UG/L)
JAN 19...	.00	.6	.00	.0	.00	.00	.0	.00	.00	.0	.00
JUL 13...	<.01	1.2	<.01	<.1	.01	<.01	<.1	<.01	<.01	<.1	<.01

DATE	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)
JAN 19...	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00	.00
JUL 13...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 19...	.00	.0	.00	.00	0	.0	.00	.00	.00	.00	.00
JUL 13...	<.01	<.1	<.01	<.10	<1	<10	<.01	<.01	<.01	<.01	<.01

08208000 ATASCOSA RIVER AT WHITSETT, TX

LOCATION.--Lat 28°37'18", long 98°17'02", Live Oak County, Hydrologic Unit 12110110, on right bank 1,000 ft (305 m) upstream from bridge on Farm Road 99, 1.1 mi (1.8 km) southwest of Whitsett, 3.9 mi (6.3 km) downstream from La Parita Creek, and 13.1 mi (21.1 km) upstream from mouth.

DRAINAGE AREA.--1,171 mi² (3,033 km²).

PERIOD OF RECORD.--September 1924 to May 1926, May 1932 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 159.04 ft (48.475 m) National Geodetic Vertical Datum of 1929. Prior to May 8, 1926, nonrecording gage at bridge 1,200 ft (366 m) downstream at datum 1.38 ft (0.421 m) higher.

REMARKS.--Records good except those for period of no gage-height record Oct. 1 to Nov. 3, which are poor. Considerable loss of flow into various permeable formations occurs upstream from this station. Records from the Lower Nueces River Water Supply District indicate that during the current year the Campbellton water wells discharged 252 acre-ft (311,000 m³) into the Atascosa River 12 mi (19 km) upstream from this station. There are several small diversions above station.

AVERAGE DISCHARGE.--51 years (water years 1925, 1933-82), 133 ft³/s (3.767 m³/s), 96,360 acre-ft/yr (119 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft³/s (3,430 m³/s) Sept. 23, 1967, gage height, 41.3 ft (12.59 m), from floodmark, from rating curve extended above 24,000 ft³/s (680 m³/s) on basis of slope-area measurement of peak flow; no flow at times.
Maximum stage since at least 1881, that of Sept. 23, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Second highest stage, 41 ft (12.5 m), discharge 106,000 ft³/s (3,000 m³/s), occurred in September 1919.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 22	1100	1,860	52.7	19.20	5.852
May 25	1800	*2,710	76.7	21.51	6.556

Minimum discharge, no flow for several days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	54	17	13	9.6	75	16	16	15	3.8	.03	.00
2	11	47	16	13	9.5	50	18	17	12	3.5	.00	.00
3	11	43	19	15	9.0	39	18	22	11	5.2	.00	.00
4	10	38	16	14	8.6	34	20	20	11	8.1	.00	.00
5	10	32	15	13	8.5	30	20	20	9.3	7.3	.00	.00
6	17	27	15	13	8.4	27	17	19	8.4	6.9	.00	.08
7	15	24	15	13	8.3	24	16	136	7.6	5.1	.00	1.2
8	13	22	15	11	8.4	22	15	120	7.0	3.7	.00	2.1
9	12	21	15	10	8.6	22	14	67	6.2	2.8	.00	3.7
10	11	20	15	9.9	8.4	22	13	35	5.7	2.2	1.6	3.3
11	11	19	14	9.2	8.4	21	12	24	5.9	1.8	.45	2.8
12	10	18	13	9.1	8.8	20	12	19	8.5	1.6	.05	2.5
13	10	18	12	9.8	8.9	20	11	15	683	2.5	2.5	32
14	10	18	12	9.7	8.6	19	11	13	530	2.0	3.7	296
15	10	18	12	10	8.6	19	10	14	127	1.4	2.2	93
16	10	17	12	11	8.6	18	10	13	59	1.1	1.2	36
17	10	17	11	11	8.6	18	9.9	13	37	.84	.71	15
18	10	16	12	11	8.6	18	9.3	12	24	.69	.36	37
19	33	16	12	11	12	18	9.2	20	17	.59	.08	20
20	22	15	13	11	24	17	12	134	12	.50	.04	10
21	18	16	14	11	676	16	14	70	9.5	.50	.03	6.0
22	16	16	14	11	1620	15	10	34	8.5	.40	.00	3.8
23	14	16	14	12	419	15	11	30	7.1	.70	.00	2.2
24	54	16	14	12	109	16	11	54	6.8	.88	.00	1.3
25	290	15	13	12	73	16	17	1760	6.3	.77	.00	1.0
26	250	16	13	11	91	16	16	1090	5.7	.67	.00	.74
27	170	16	13	12	247	18	15	101	6.7	.49	.00	.61
28	112	16	12	12	141	19	14	46	5.9	.24	.00	.53
29	96	15	12	12	---	20	13	31	4.9	.11	.00	.44
30	80	15	12	11	---	19	12	23	4.3	.05	.00	.35
31	64	---	13	10	---	17	---	19	---	.11	.00	---
TOTAL	1421	657	425	353.7	3568.4	720	406.4	4007	1662.3	66.54	12.95	571.65
MEAN	45.8	21.9	13.7	11.4	127	23.2	13.5	129	55.4	2.15	.42	19.1
MAX	290	54	19	15	1620	75	20	1760	683	8.1	3.7	296
MIN	10	15	11	9.1	8.3	15	9.2	12	4.3	.05	.00	.00
AC-FT	2820	1300	843	702	7080	1430	806	7950	3300	132	26	1130

CAL YR 1981 TOTAL 18610.70 MEAN 51.0 MAX 2630 MIN 2.3 AC-FT 36910
WTR YR 1982 TOTAL 13871.94 MEAN 38.0 MAX 1760 MIN .00 AC-FT 27510

NOTE.--No gage-height record Oct. 1 to Nov. 3.

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), of which 5,530 mi² (14,300 km²) is above Choke Canyon Dam. See Remarks.

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. As of about mid-July 1982, flow of the Frio River has been impounded in the Choke Canyon Reservoir, conservation-pool storage of 696,800 acre-ft (859 hm³), about 11 mi (18 km) upstream from gage and on the Frio River. Release from Choke Canyon Dam is 1.0 ft³/s (0.028 m³/s), although the gates have been opened and closed several times since about mid-July. Part of flow of Nueces and Frio Rivers and their headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone upstream from U.S. Highway 90 (see REMARKS for stations 08194600 and 08205500). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Many small diversions for irrigation and municipal supply above station. Minor upstream regulation by small reservoirs and by ground-water supplements (see station 08208000 Atascosa River at Whitsett). Gage-height telemeter at station.

AVERAGE DISCHARGE.--67 years, 857 ft³/s (24.27 m³/s), 620,900 acre-ft/yr (766 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 141,000 ft³/s (3,990 m³/s) Sept. 23, 1967, gage height, 49.21 ft (14.999 m); no flow at times.
Maximum stage since about 1875, that of Sept. 23, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,410 ft³/s (266 m³/s) May 26 at 0600 hours, gage height, 29.84 ft (9.095 m), no other peak above base of 16,000 ft³/s (170 m³/s); minimum daily 1.4 ft³/s (0.040 m³/s) Sept. 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	3420	321	199	151	485	159	154	527	60	26	1.6
2	125	2850	314	205	153	372	159	436	477	59	24	1.5
3	90	1950	310	203	154	287	159	451	442	61	23	1.5
4	108	926	292	202	152	221	159	422	395	58	21	2.1
5	112	779	301	208	144	205	158	375	353	56	13	1.5
6	112	734	300	233	137	222	152	239	316	50	8.8	1.6
7	123	704	288	242	133	245	146	184	282	47	7.0	1.5
8	106	695	272	231	133	255	145	259	248	43	6.3	1.4
9	494	657	264	226	130	249	143	177	214	43	6.2	1.8
10	3320	622	276	219	125	240	145	154	184	43	5.9	2.9
11	5130	598	284	207	123	232	136	195	166	44	5.8	4.1
12	3340	570	256	198	119	223	126	432	165	41	10	4.9
13	3030	548	248	190	117	215	119	301	790	12	14	73
14	2660	532	254	185	120	212	116	192	1810	6.2	11	609
15	1320	512	287	181	117	211	114	166	1090	5.5	8.7	717
16	819	487	262	179	120	205	110	154	528	5.1	11	132
17	844	467	238	176	122	199	104	313	346	4.3	8.3	51
18	1100	448	220	177	120	192	98	572	245	3.9	7.0	29
19	1440	432	217	186	122	185	95	1070	200	13	6.1	50
20	2130	421	220	212	139	181	93	1460	173	14	5.0	26
21	2780	414	222	218	391	180	102	1770	164	34	3.6	15
22	2650	405	220	215	1360	178	117	1950	152	39	3.6	9.3
23	2280	395	207	204	1550	178	108	2620	136	38	5.1	6.3
24	2830	384	203	198	441	177	106	5510	116	36	4.5	6.8
25	2990	369	201	193	275	173	97	8600	98	34	3.4	5.1
26	2420	357	197	183	261	167	96	9270	86	33	3.1	3.5
27	2330	346	194	176	293	167	88	6680	79	31	2.6	2.4
28	2710	342	194	174	398	163	89	3810	85	28	2.1	2.0
29	3330	341	193	173	---	158	93	2580	79	27	1.8	1.9
30	3860	335	193	167	---	158	96	1340	69	26	1.6	1.8
31	3830	---	193	156	---	157	---	657	---	28	1.5	---
TOTAL	58542	22040	7641	6116	7600	6692	3628	52493	10015	1023.0	261.0	1767.5
MEAN	1888	735	246	197	271	216	121	1693	334	33.0	8.42	58.9
MAX	5130	3420	321	242	1550	485	159	9270	1810	61	26	717
MIN	90	335	193	156	117	157	88	154	69	3.9	1.5	1.4
AC-FT	116100	43720	15160	12130	15070	13270	7200	104100	19860	2030	518	3510

CAL YR 1981 TOTAL 531278.0 MEAN 1456 MAX 17900 MIN 18 AC-FT 1054000
WTR YR 1982 TOTAL 177818.5 MEAN 487 MAX 9270 MIN 1.4 AC-FT 352700

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 and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to September 1982 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1945 to September 1947, September 1950 to September 1952, October 1974 to September 1981.
WATER TEMPERATURES: October 1975 to September 1981.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,310 micromhos Jan. 17, 1977; minimum daily, 157 micromhos May 26, 1975.
WATER TEMPERATURES: Maximum daily, 32.0°C on several days during summer of 1977-78 and 1981; minimum daily, 7.0°C Jan. 2, 3, 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
19...	1720	1640	564	8.0	24.0	120	--	8.1	95	1.2	4000
NOV											
30...	1408	34	1090	8.2	21.0	--	17	8.8	99	1.4	80
JAN											
21...	1732	218	--	--	16.0	--	--	--	--	--	--
FEB											
23...	1220	1680	755	7.9	18.0	60	310	7.1	74	4.7	4500
MAY											
25...	1200	8520	400	7.9	26.5	70	15	4.2	52	2.3	--
27...	1711	5800	508	7.6	27.5	--	--	5.3	67	2.4	260
AUG											
17...	1102	8.5	2500	7.7	30.0	30	9.5	5.5	74	5.5	K81
SEP											
21...	1100	16	1090	7.5	25.5	--	46	4.8	58	7.8	K1000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT											
19...	3700	190	54	61	10	31	1.0	5.5	140	39	58
NOV											
30...	180	370	160	110	23	97	2.2	3.9	210	120	190
JAN											
21...	--	--	--	--	--	--	--	--	--	--	--
FEB											
23...	16000	170	71	50	11	81	2.9	10	99	92	120
MAY											
25...	--	130	13	46	3.8	29	1.1	8.9	118	24	44
27...	1200	--	--	--	--	--	--	--	--	--	--
AUG											
17...	440	560	380	170	34	320	5.9	22	180	300	590
SEP											
21...	620	230	110	78	9.5	200	5.9	18	121	170	280

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT										
19...	.2	12	328	301	511	94	<.020	--	.88	.070
NOV										
30...	.2	13	669	683	--	--	--	--	1.5	--
JAN										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
23...	.2	11	444	435	238	56	.110	--	1.1	.400
MAY										
25...	.2	23	252	250	22	6	--	<.10	<.10	.160
27...	--	--	--	--	--	--	--	--	--	--
AUG										
17...	1.7	24	1610	1570	26	5	--	.60	.59	.550
SEP										
21...	1.0	22	876	851	--	--	--	--	.89	--

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA DISSOLVED (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)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, 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 19...	<.060	.78	.85	.100	.090	.050	19	558	2470	96
NOV 30...	.110	--	.69	.040	.020	.050	--	57	5.2	86
JAN 21...	--	--	--	--	--	--	--	--	--	--
FEB 23...	.340	1.2	1.60	.290	.210	<.010	16	473	2150	94
MAY 25...	.130	1.2	1.40	.410	.320	.330	9.8	33	759	85
27...	--	--	--	--	--	--	--	--	--	--
AUG 17...	.560	1.8	2.30	.220	.250	.090	9.6	28	.64	97
SEP 21...	4.30	--	10.0	.400	.400	.280	--	60	2.6	99

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)
OCT 19...	1720	4	1	3	300	200	68	<1	--	<1
FEB 23...	1220	8	5	3	200	100	74	<1	--	<1
MAY 25...	1200	4	0	4	100	20	79	4	3	1
AUG 17...	1102	7	0	7	100	0	200	<1	--	<1

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
OCT 19...	10	<10	3	<3	14	12	2	11000	--	<10
FEB 23...	20	<10	4	<3	20	12	8	13000	13000	52
MAY 25...	<10	<10	<1	<1	29	20	9	580	530	51
AUG 17...	10	<10	1	<1	2	1	1	720	680	40

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
OCT 19...	13	12	1	250	--	<1	.2	.2	.0	8
FEB 23...	9	5	4	190	190	3	.1	--	<.1	6
MAY 25...	42	41	1	40	40	2	.2	--	<.1	2
AUG 17...	3	--	<1	300	140	160	.1	.0	.1	2

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 19...	--	<1	<1	--	<1	<1	<1	60	60	4
FEB 23...	2	4	1	--	<1	<1	<1	70	--	<3
MAY 25...	0	2	<1	--	<1	<1	<1	30	20	11
AUG 17...	--	<1	1	0	1	<1	<1	10	0	20

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
OCT 19...	1720	--	0	--	.0	--	.0	--	.0	--	.1
FEB 23...	1220	<.10	<1	<.10	<1.0	<.01	<.1	<.10	<1.0	<.01	.2
MAY 25...	1200	<.10	--	<.10	--	<.01	--	<.10	--	<.01	--

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL (UG/L)
OCT 19...	--	.3	--	.0	--	--	.0	--	--	.0	--
FEB 23...	<.01	.2	<.01	<.1	.01	<.01	<.1	<.01	<.01	<.1	.00
MAY 25...	<.01	--	<.01	--	<.01	<.01	--	<.01	<.01	--	<.01

DATE	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)
OCT 19...	--	.0	--	.0	--	.0	--	--	.0	--	--
FEB 23...	<.01	<.1	<.01	<.1	<.01	<.1	.00	<.01	<.1	.00	.00
MAY 25...	<.01	--	<.01	--	<.01	--	<.01	<.01	--	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT 19...	--	.0	--	--	--	.0	--	--	--	--	--
FEB 23...	<.01	<.1	.01	<.10	<1	<10	.00	.03	.00	.01	.00
MAY 25...	<.01	--	<.01	<.10	<1	--	<.01	.03	<.01	<.01	<.01

08210400 LAGARTO CREEK NEAR GEORGE WEST, TX

LOCATION.--Lat 28°03'34", long 98°05'48", Live Oak County, Hydrologic Unit 12110111, near right bank 75 ft (23 m) downstream from bridge on U.S. Highway 281, 0.6 mi (1.0 km) upstream from Dix Hollow, and 19.3 mi (31.1 km) south of George West.

DRAINAGE AREA.--155 mi^2 (401 km^2).

PERIOD OF RECORD.--April 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 197.77 ft (60.280 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known regulation or diversion.

AVERAGE DISCHARGE.--10 years, 1.98 ft^3/s (0.056 m^3/s), 1,430 acre-ft/yr (1.76 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,350 ft^3/s (180 m^3/s) Aug. 11, 1980, gage height, 16.50 ft (5.029 m); no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1887, 25.1 ft (7.65 m), discharge 33,500 ft^3/s (949 m^3/s) Oct. 17, 1971. Second highest stage, 24.3 ft (7.41 m), discharge 29,500 ft^3/s (835 m^3/s) occurred Sept. 12, 1971. The third and fourth highest floods occurred in 1914 and September 1967 (stages unknown).

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

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

CAL YR 1981 TOTAL 1216.84 MEAN 3.33 MAX 437 MIN .00 AC-FT 2410
WTR YR 1982 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00

08210500 LAKE CORPUS CHRISTI NEAR MATHIS, TX

LOCATION.--Lat 28°02'17", long 97°52'15", San Patricio-Jim Wells County line, Hydrologic Unit 12110111, on right upstream corner of outlet tower at right end of Wesley E. Seale Dam on Nueces River, 0.6 mi (1.0 km) upstream from bridge on State Highway 359, and 4.5 mi (7.2 km) southwest of Mathis.

DRAINAGE AREA.--16,656 mi² (43,139 km²).

PERIOD OF RECORD.--September 1948 to current year. Prior to October 1960, monthend records only. The Soil Conservation Service, U.S. Department of Agriculture, in cooperation with the Texas Board of Water Engineers (now Texas Department of Water Resources), collected fragmentary gage-height records in connection with sedimentation studies from Feb. 2, 1942, to July 10, 1947.

REVISED RECORDS.--WSP 1923: 1953(M), 1957(M).

GAGE.--Nonrecording gage read twice daily. Supplemental water-stage recorder operated by city of Corpus Christi. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1957, nonrecording gage at various sites 0.2 mi (0.3 km) upstream at datum 0.52 ft (0.158 m) higher. Oct. 1, 1957, to Apr. 3, 1961, nonrecording gage near left end of Mathis Dam 0.2 mi (0.3 km) upstream at present datum.

REMARKS.--Mathis Dam was completed and storage began July 24, 1934. The original capacity at spillway crest (elevation, 74.5 ft or 22.71 m) was 54,000 acre-ft (66.6 hm³), but by March 1948 had decreased to 39,400 acre-ft (48.6 hm³) because of sedimentation. Wesley E. Seale Dam was completed and deliberate impoundment began on Apr. 26, 1958, submerging the old Mathis Dam. Wesley E. Seale Dam is a rolled earthfill dam, 5,930 ft (1,810 m) long, including two spillways. The 1,320-foot (402 m) north spillway has 33 gates that are operated by movable hydraulic lifts. The 1,080-foot (329 m) south spillway has 27 gates that are electrically operated from the control tower. The gates were repaired and modified in August 1966. All gates in both spillways are 37.5 by 8.75 ft (11.4 by 2.67 m) wide. Water for municipal supply for the city of Corpus Christi is released downstream through a 4.0-foot-diameter (1.2 m) cylinder valve and three 2.5- by 4.0-foot (0.8 by 1.2 m) rectangular openings. The releases are diverted from the river at Calallen 35 mi (56 km) downstream for domestic, municipal, irrigation, mining, and industrial uses in the Corpus Christi area. The city of Alice withdrew 6,370 acre-ft (7.85 hm³) from the lake during the current year for municipal use. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	106.0	-
Top of north spillway gates	94.3	278,200
Top of south spillway gates	93.8	268,500
Crest of spillways	88.0	170,200
Lowest gated outlet (invert)	55.5	646

COOPERATION.--The capacity curve is from an October 1972 survey. Elevation record furnished by the city of Corpus Christi and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 320,000 acre-ft (395 hm³) Sept. 22, 1967, and Sept. 12, 1971; maximum elevation, 94.82 ft (28.901 m) Sept. 22, 1967; minimum contents, 14,740 acre-ft (18.2 hm³) May 5, 1951, elevation, 67.62 ft (20.611 m).

EXTREMES (at 0600) FOR CURRENT YEAR.--Maximum contents, 274,300 acre-ft (338 hm³) Oct. 23, May 23, 25, and June 16, elevation, 94.1 ft (28.68 m); minimum, 209,600 acre-ft (258 hm³) Sept. 27-30, elevation, 90.5 ft (27.58 m).

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

90.5	209,600	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 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 0600

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	266600	272400	270400	266600	262800	268500	268500	266600	272400	264700	240600	221300
2	266600	272400	268500	266600	262800	268500	268500	266600	272400	264700	240600	219600
3	264700	272400	268500	266600	262800	268500	268500	266600	272400	264700	238800	219600
4	264700	272400	270400	266600	262800	268500	268500	266600	272400	262800	238800	219600
5	264700	272400	268500	266600	262800	270400	268500	268500	272400	262800	237000	217900
6	264700	270400	268500	266600	264700	272400	268500	268500	272400	260900	237000	217900
7	264700	270400	268500	266600	260900	268500	268500	270400	272400	260900	235300	217900
8	264700	268500	268500	268500	260900	268500	268500	268500	272400	260900	235300	216200
9	264700	270400	270400	264700	264700	268500	268500	268500	272400	259000	235300	216200
10	262800	268500	268500	264700	260900	268500	268500	268500	272400	259000	235300	214600
11	268500	268500	268500	266600	260900	268500	268500	268500	272400	259000	233500	214600
12	270400	268500	268500	264700	260900	268500	268500	268500	270400	257100	233500	212900
13	272400	268500	270400	266600	260900	268500	268500	268500	270400	257100	231700	212900
14	272400	268500	270400	264700	260900	268500	268500	270400	272400	259000	231700	212900
15	272400	268500	268500	262800	260900	268500	268500	270400	272400	255300	230000	216200
16	272400	268500	268500	262800	260900	268500	268500	268500	274300	255300	230000	217900
17	272400	268500	270400	262800	260900	270400	268500	266600	272400	253400	230000	216200
18	272400	268500	270400	262800	260900	268500	268500	270400	272400	251600	228200	216200
19	272400	268500	268500	262800	262800	270400	266600	270400	272400	251600	228200	214600
20	270400	268500	268500	262800	262800	268500	268500	270400	272400	249700	228200	214600
21	270400	268500	266600	262800	262800	268500	268500	270400	270400	249700	228200	216200
22	272400	268500	266600	262800	262800	272400	268500	272400	270400	249700	228200	214600
23	274300	268500	268500	264700	264700	270400	268500	274300	270400	247900	226500	214600
24	272600	268500	268500	262800	268500	270400	268500	272400	270400	247900	224800	212900
25	272400	268500	268500	262800	268500	270400	266600	274300	270400	246100	224800	211200
26	270400	268500	266600	264700	272400	270400	266600	272400	268500	246100	224800	211200
27	272400	270400	266600	262800	268500	268500	266600	272400	268500	246100	224800	209600
28	272400	270400	266600	264700	268500	268500	266600	272400	268500	244200	223000	209600
29	272400	270400	266600	262800	---	268500	266600	272400	266600	242400	223000	209600
30	272400	268500	266600	262800	---	268500	264700	272400	266600	242400	221300	209600
31	272400	---	266600	264700	---	268500	---	272400	---	242400	221300	---
MAX	274300	272400	270400	268500	272400	272400	268500	274300	274300	264700	240600	221300
MIN	262800	268500	266600	262800	260900	268500	264700	266600	266600	242400	221300	209600
(†)	94.0	93.8	93.7	93.6	93.8	93.8	93.6	94.0	93.7	92.4	91.2	90.5
(‡)	+5800	-3900	-1900	-1900	+3800	0	-3800	+7700	-5800	-24200	-21100	-11700

CAL YR 1981 MAX 276200 MIN 230000 ‡ +16900
WTR YR 1982 MAX 274300 MIN 209600 ‡ -57000

† 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.--43 years, 850 ft³/s (24.07 m³/s), 615,800 acre-ft/yr (759 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft³/s (3,910 m³/s) Sept. 24, 1967, gage height, 47.7 ft (14.54 m), from floodmark; minimum daily, 6.8 ft³/s (0.19 m³/s) Aug. 15, 1940.
Maximum stage since at least 1888, that of Sept. 24, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of about 40 ft (12 m) occurred Sept. 20, 1919, from information by Texas and New Orleans Railroad Co. and is the second highest known.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,010 ft³/s (227 m³/s) May 27 at 0400 hours, gage height, 24.85 ft (7.574 m); minimum daily, 90 ft³/s (2.55 m³/s) Feb. 17.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	5090	319	163	106	110	153	123	256	170	187	175
2	127	2990	199	163	114	107	149	101	186	171	187	181
3	123	2780	190	207	148	107	124	101	229	170	186	181
4	119	1170	265	222	103	108	116	109	250	169	194	176
5	120	978	188	171	227	192	140	120	230	170	198	171
6	125	957	188	152	279	702	129	125	210	173	219	172
7	164	887	197	318	92	126	114	173	204	186	234	173
8	128	877	214	331	99	108	114	120	192	184	225	172
9	140	928	199	135	154	107	115	119	176	189	198	171
10	146	521	190	226	101	107	180	118	171	200	178	152
11	1440	326	190	233	98	108	118	117	164	200	175	147
12	3970	160	198	154	112	109	110	118	225	199	165	161
13	2840	221	229	371	106	108	110	169	167	200	157	169
14	2880	394	360	128	98	108	110	127	164	199	157	170
15	2000	390	211	118	94	108	111	118	592	196	157	163
16	1090	398	134	183	91	108	111	118	954	195	163	141
17	877	392	311	156	90	108	139	123	524	195	168	141
18	1160	383	243	119	111	108	111	117	196	195	173	146
19	1250	493	177	118	105	107	112	242	190	195	177	158
20	1410	384	201	119	106	107	234	833	205	194	171	170
21	2050	172	176	114	104	125	219	916	176	194	171	164
22	3010	189	198	104	104	183	234	1750	172	194	171	159
23	3720	187	290	127	104	123	157	4740	180	193	172	159
24	2810	198	243	104	105	108	114	4160	186	193	171	159
25	3260	180	170	114	408	223	108	7470	186	193	171	158
26	2620	192	173	113	1080	151	106	7860	173	193	171	159
27	1720	217	195	103	211	152	103	7710	172	213	170	174
28	2240	200	230	103	111	148	103	6780	171	219	171	173
29	3180	194	182	104	---	133	116	3200	171	206	172	173
30	3540	284	172	319	---	156	142	1920	171	192	172	174
31	4270	---	165	440	---	157	---	724	---	188	171	---
TOTAL	52658	22732	6597	5532	4661	4512	4002	50521	7243	5928	5552	4942
MEAN	1699	758	213	178	166	146	133	1630	241	191	179	165
MAX	4270	5090	360	440	1080	702	234	7860	954	219	234	181
MIN	119	160	134	103	90	107	103	101	164	169	157	141
AC-FT	104400	45090	13090	10970	9250	8950	7940	100200	14370	11760	11010	9800

CAL YR 1981	TOTAL	532307	MEAN	1458	MAX	17100	MIN 83	AC-FT	1056000
WTR YR 1982	TOTAL	174880	MEAN	479	MAX	7860	MIN 90	AC-FT	346900

08211000 NUECES RIVER NEAR MATHIS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1947 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1947 to current year.
WATER TEMPERATURES: October 1947 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,580 micromhos Apr. 19, 20, 1977; minimum daily, 216 micromhos Sept. 19, 1971.
WATER TEMPERATURES (1947-76, 1980-82): Maximum daily, 36.0°C Aug. 8, 1964; minimum daily, 3.0°C Jan. 19, 1968.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 822 micromhos Sept. 29; minimum daily, 471 micromhos Oct. 9, 10, 12.
WATER TEMPERATURES: Maximum daily, 31.5°C Sept. 11-13; minimum daily, 10.0°C Jan. 11, 13, Feb. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
14...	1400	2750	475	--	160	25	55	6.6	32
NOV									
05...	1235	990	501	--	170	29	56	7.0	39
DEC									
17...	1030	277	536	16.5	190	88	61	8.6	45
MAY									
24...	1515	3820	695	25.5	--	--	--	--	--
27...	1540	7660	711	25.5	230	78	73	11	57
JUN									
11...	1011	166	761	27.0	230	75	72	11	64
JUL									
15...	1041	195	771	28.5	220	80	70	11	68
SEP									
29...	1600	168	821	--	230	82	73	12	71

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT								
14...	1.1	6.7	140	24	55	.2	19	282
NOV								
05...	1.4	6.8	140	21	66	.2	18	298
DEC								
17...	1.5	8.0	140	28	70	.2	18	323
MAY								
24...	--	--	150	--	--	--	--	--
27...	1.7	7.5	150	59	100	.3	16	414
JUN								
11...	1.9	7.8	150	65	120	.2	16	446
JUL								
15...	2.1	7.7	140	66	120	.2	17	444
SEP								
29...	2.1	8.3	150	65	130	.2	20	470

08211000 NUECES RIVER NEAR MATHIS, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	52658	484	278	39600	55	7810	38	5430	150
NOV.	1981	22732	512	294	18000	60	3670	40	2470	160
DEC.	1981	6597	523	300	5340	62	1100	41	732	160
JAN.	1982	5532	544	312	4660	66	983	43	638	170
FEB.	1982	4661	575	329	4140	72	904	45	567	170
MAR.	1982	4512	602	344	4190	77	941	47	574	180
APR.	1982	4002	662	377	4080	90	971	52	557	200
MAY	1982	50521	708	402	54900	100	13700	55	7490	210
JUNE	1982	7243	768	435	8500	110	2230	59	1160	220
JULY	1982	5928	773	438	7010	120	1850	60	955	220
AUG.	1982	5552	787	445	6670	120	1780	61	909	220
SEPT	1982	4942	812	459	6120	130	1670	62	833	230
TOTAL		174880	**	**	163000	**	37600	**	22300	**
WTD. AVG.		479	606	346	**	80	**	47	**	180

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	477	498	518	526	553	591	682	687	750	770	779	793
2	475	507	520	527	563	593	673	687	755	773	780	803
3	479	508	521	525	560	590	658	687	753	774	782	802
4	480	504	520	543	574	583	649	683	756	773	782	808
5	480	524	514	535	560	585	648	688	762	773	781	807
6	486	512	515	533	563	584	650	691	754	769	781	803
7	474	513	521	529	569	604	651	687	764	774	780	805
8	476	513	513	534	570	600	648	694	761	772	781	805
9	471	517	515	542	569	532	651	689	763	772	784	808
10	471	523	524	531	575	600	645	689	767	771	781	812
11	475	549	519	577	579	595	650	689	766	768	783	811
12	471	537	519	546	575	598	653	690	768	772	787	812
13	475	543	518	536	578	601	651	687	767	773	786	812
14	475	519	520	544	578	601	651	694	769	774	785	811
15	476	516	526	542	582	603	662	704	764	783	787	810
16	477	523	529	537	578	604	662	692	773	774	786	811
17	478	527	519	545	577	610	661	695	772	774	788	812
18	479	525	525	545	578	606	666	694	774	774	788	815
19	481	525	522	545	590	602	662	694	772	772	790	814
20	483	523	523	550	606	607	661	690	768	771	790	815
21	483	524	522	564	580	612	668	699	771	773	790	818
22	480	527	527	557	578	621	664	691	778	774	792	819
23	482	525	531	561	576	613	670	691	777	775	792	816
24	484	522	524	559	581	617	666	694	780	775	793	816
25	485	525	533	562	576	613	666	701	776	773	791	820
26	491	520	529	569	580	628	672	712	775	774	792	821
27	494	526	528	558	581	617	675	713	774	773	792	819
28	495	523	526	553	583	618	681	718	777	774	795	819
29	494	526	543	559	---	620	688	733	776	778	794	822
30	499	522	531	547	---	629	682	739	774	777	794	821
31	496	---	520	550	---	630	---	745	---	773	793	---
MEAN	481	522	523	546	575	603	662	698	768	773	787	812

08211000 NUECES RIVER NEAR MATHIS, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	20.5	19.5	15.5	15.0	16.0	22.0	22.0	27.5	28.0	30.0	30.0
2	28.0	22.5	19.5	16.0	15.5	16.0	24.0	22.0	28.0	28.0	30.0	31.0
3	27.5	24.0	20.0	16.0	15.0	16.0	21.0	23.0	27.0	29.0	30.0	31.0
4	27.0	22.5	19.0	15.5	14.0	15.5	21.0	23.0	27.0	30.0	30.0	31.0
5	27.5	22.0	19.0	15.5	12.0	15.0	23.0	22.0	28.0	30.0	30.5	31.0
6	27.0	22.0	19.0	15.5	10.0	14.5	22.0	23.0	28.0	30.0	30.5	31.0
7	27.0	22.0	19.0	14.0	11.0	15.0	21.0	23.0	28.0	30.0	30.5	31.0
8	28.0	22.0	19.0	14.0	12.0	15.5	23.0	24.0	29.0	29.5	30.5	31.0
9	29.0	20.5	19.0	14.5	12.0	15.5	21.0	23.0	28.0	30.0	29.0	30.0
10	29.0	20.0	19.5	13.0	11.5	16.0	20.0	23.0	28.5	30.0	30.0	31.0
11	29.0	20.0	19.5	10.0	14.0	16.0	20.0	23.0	28.5	30.0	30.0	31.5
12	---	20.0	19.5	12.0	16.0	18.0	23.0	23.0	28.0	30.0	30.5	31.5
13	---	20.0	19.0	10.0	16.0	18.0	22.0	24.0	28.5	30.0	30.5	31.5
14	28.5	20.0	18.5	14.0	16.0	18.0	23.0	25.0	28.5	30.0	30.5	30.0
15	27.5	20.5	18.0	12.0	16.0	19.0	22.0	25.0	28.5	30.0	30.5	30.0
16	27.5	21.0	18.5	12.0	16.0	19.0	22.0	25.0	28.5	30.0	31.0	30.5
17	27.5	21.0	16.0	11.0	16.0	19.0	22.0	25.0	---	30.0	31.0	30.5
18	27.0	21.0	15.0	12.0	14.5	20.0	22.0	25.0	---	30.0	31.0	30.5
19	27.0	19.5	15.5	12.0	14.5	20.5	23.0	25.5	---	30.0	30.5	30.5
20	27.0	19.0	17.0	13.0	14.5	20.5	22.0	26.0	---	30.0	30.5	30.0
21	27.0	20.0	18.0	13.5	15.0	---	21.5	26.0	29.0	30.0	30.5	30.0
22	---	20.0	17.5	13.5	15.5	20.0	21.5	26.0	30.0	30.0	30.5	29.0
23	---	20.5	16.0	13.5	16.0	20.0	22.0	25.5	30.0	30.0	30.5	30.0
24	---	20.5	14.5	14.0	16.0	20.5	22.0	25.5	29.5	30.0	30.5	30.0
25	---	21.0	15.0	14.5	15.0	25.0	---	26.0	29.5	30.5	30.5	30.0
26	---	20.5	15.0	14.5	14.5	23.5	22.5	26.0	---	30.5	30.0	30.0
27	---	20.0	15.0	14.0	15.0	20.0	22.0	26.0	---	30.5	30.0	30.0
28	---	20.5	15.0	14.5	15.5	19.0	22.5	26.5	---	30.5	30.0	30.0
29	21.0	21.0	15.0	14.5	---	21.0	22.0	26.5	29.5	31.0	30.0	30.0
30	21.0	20.0	14.0	14.5	---	21.5	22.0	26.5	29.5	31.0	30.0	28.5
31	21.0	---	14.0	15.0	---	---	---	27.0	---	30.0	30.0	---
MEAN	27.0	21.0	17.5	13.5	14.5	18.5	22.0	24.5	28.5	30.0	30.5	30.5

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 oil-field operations enters stream upstream at various points. Recording rain gage is located at station.

AVERAGE DISCHARGE.--10 years, 37.3 ft³/s (1.056 m³/s), 27,020 acre-ft/yr (33.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft³/s (343 m³/s) Aug. 10, 1980, gage height, 29.37 ft (8.952 m); minimum, 0.25 ft³/s (0.07 m³/s) Aug. 26, 27, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of about 24.5 ft (7.47 m) occurred in May 1968, from information by local resident.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 1	1500	1,890	53.5	19.79	6.032
Feb. 26	0100	*5,790	164	a25.90	7.897

a From floodmark.

Minimum daily discharge, 1.7 ft³/s (0.048 m³/s) Oct. 4, 15, 16, Sept 22-24.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	1770	3.2	2.5	2.7	69	2.5	22	4.8	2.9	2.0	1.9
2	1.9	908	3.2	2.6	2.7	38	2.6	5.2	4.2	2.9	2.0	2.0
3	1.8	413	3.1	2.7	2.7	25	2.6	4.4	3.6	2.9	2.0	2.0
4	1.7	206	3.1	2.5	2.7	19	2.5	3.6	3.5	2.5	2.0	2.0
5	2.0	91	3.2	2.5	2.7	15	2.4	2.9	3.5	2.5	2.0	2.1
6	2.0	40	4.3	2.5	2.7	11	2.3	3.2	3.5	2.3	2.1	2.0
7	5.7	24	3.8	2.7	2.7	5.4	2.2	2.9	3.3	2.3	2.0	1.8
8	15	16	3.4	2.6	2.7	4.5	2.2	2.5	3.0	2.3	7.9	2.2
9	2.8	11	3.7	2.5	2.7	3.9	2.2	2.2	3.0	2.3	12	2.3
10	2.6	7.9	3.6	2.3	2.7	3.6	2.5	2.1	2.8	2.1	3.7	2.2
11	2.6	6.2	4.1	2.2	2.7	3.6	2.2	2.2	2.8	2.0	3.2	2.1
12	2.4	5.3	3.9	2.7	2.6	3.6	2.0	2.4	2.8	2.1	2.6	2.0
13	2.8	4.5	3.4	2.7	2.6	3.6	1.9	2.5	2.8	2.0	2.4	2.0
14	2.0	4.3	3.8	3.3	2.6	3.6	1.8	2.5	2.9	2.0	2.3	2.0
15	1.7	4.2	3.5	3.6	2.6	3.3	2.1	2.1	2.8	2.1	2.2	2.0
16	1.7	3.7	3.6	3.6	2.5	3.1	2.3	1.9	2.6	2.0	2.2	2.0
17	1.9	3.3	4.1	3.5	2.7	3.1	2.3	2.2	2.6	1.9	2.1	1.8
18	9.8	3.2	3.6	3.2	2.8	3.0	2.3	3.2	2.7	1.8	2.1	2.0
19	3.9	3.2	3.9	3.2	3.8	2.7	2.2	2.6	2.7	2.0	2.1	2.0
20	2.7	3.4	4.1	2.8	74	2.7	1.9	2.0	3.8	2.0	2.3	2.0
21	3.8	2.2	4.2	2.8	53	2.7	1.9	1.8	3.0	2.0	2.1	1.9
22	27	2.3	3.8	2.8	21	2.7	1.9	1.9	2.4	2.1	2.0	1.7
23	173	2.1	3.8	2.8	8.8	2.7	1.9	3.8	2.9	2.1	2.0	1.7
24	284	2.5	3.2	2.8	7.3	2.7	2.1	54	5.3	2.0	2.0	1.7
25	131	3.0	3.2	2.7	2140	2.7	2.1	548	3.9	2.0	2.1	1.9
26	44	2.6	3.6	2.7	3450	2.7	2.2	322	3.5	2.0	2.2	1.8
27	20	2.7	3.1	2.7	696	3.1	2.4	93	4.9	1.9	2.0	1.8
28	12	2.8	3.0	2.7	175	2.8	2.5	28	3.7	2.0	2.0	2.2
29	8.5	3.5	2.9	3.0	---	2.5	2.4	14	2.7	2.0	1.9	2.3
30	5.7	3.2	3.2	3.0	---	2.5	27	8.7	2.7	2.0	1.9	2.3
31	412	---	3.1	2.7	---	2.5	---	5.8	---	1.9	1.8	---
TOTAL	1190.0	3555.1	109.7	86.9	6677.0	256.3	91.4	1155.6	98.7	66.9	83.2	59.7
MEAN	38.4	119	3.54	2.80	238	8.27	3.05	37.3	3.29	2.16	2.68	1.99
MAX	412	1770	4.3	3.6	3450	69	27	548	5.3	2.9	12	2.3
MIN	1.7	2.1	2.9	2.2	2.5	2.5	1.8	1.8	2.4	1.8	1.8	1.7
AC-FT	2360	7050	218	172	13240	508	181	2290	196	133	165	118

CAL YR 1981 TOTAL 15116.0 MEAN 41.4 MAX 1770 MIN 1.1 AC-FT 29980
WTR YR 1982 TOTAL 13430.5 MEAN 36.8 MAX 3450 MIN 1.7 AC-FT 26640

08211520 OSO CREEK AT CORPUS CHRISTI, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: July 1972 to current year. Pesticide analyses: July 1972 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT 20...	1030	2.7	2760	7.8	20.5	42	6.1	68	2.3	540	360
JAN 12...	1547	2.7	4700	7.5	8.5	6.9	10.3	90	3.4	940	760
APR 06...	1003	2.2	5900	7.7	21.0	40	5.6	64	6.6	1100	900
MAY 25...	0950	530	232	8.0	24.5	400	6.8	82	2.2	52	0
JUN 29...	1138	2.9	3200	7.7	30.0	41	3.9	51	4.0	610	450
AUG 10...	1149	3.9	3300	4.6	30.0	48	7.4	100	3.4	570	410

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 20...	170	28	360	6.7	13	180	150	730	.4	25
JAN 12...	290	53	640	9.1	16	180	240	1400	.4	19
APR 06...	340	61	840	11	18	200	280	1800	.4	20
MAY 25...	18	1.7	24	1.5	4.0	60	11	25	.4	13
JUN 29...	190	32	430	7.6	13	160	180	920	.4	23
AUG 10...	180	29	480	8.8	14	160	170	930	.3	21

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 20...	1590	57	3.8	.120	3.9	.380	1.2	1.60	5.00	11
JAN 12...	2770	7	6.4	.230	6.6	1.40	1.4	2.80	5.00	10
APR 06...	3480	84	6.0	.440	6.4	.680	2.0	2.70	4.40	9.5
MAY 25...	133	796	.46	.340	.80	.430	1.1	1.50	.510	13
JUN 29...	1880	52	2.4	.250	2.6	.450	1.5	1.90	3.20	10
AUG 10...	1920	82	.90	.100	1.0	.410	1.6	2.00	3.10	10

08211520 OSO CREEK AT CORPUS CHRISTI, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 20...	1030	12	200	1	10	2	50
MAY 25...	0950	31	37	<1	10	2	83
AUG 10...	1149	20	100	1	<10	2	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)
OCT 20...	1	180	.2	<1	<1	20
MAY 25...	<1	5	<.1	<1	<1	12
AUG 10...	<1	370	.1	<1	<1	20

08211800 SAN DIEGO CREEK AT ALICE, TX

LOCATION.--Lat 27°45'59", long 98°04'31", Jim Wells County, Hydrologic Unit 12110204, at bridge on Edith Drive in Alice, 540 ft (165 m) downstream from Texas and New Orleans Railroad Co. bridge, and 3.2 mi (5.1 km) upstream from confluence with Chiltipin Creek.

DRAINAGE AREA.--319 mi^2 (826 km^2).

PERIOD OF RECORD.--September 1963 to current year.

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

GAGE.--Water-stage recorder. Datum of gage is 189.60 ft (57.790 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is affected at times by discharge from flood-detention pools of ten floodwater-retarding structures with a combined detention capacity of 35,980 acre-ft (44.4 hm^3). These structures control runoff from 170 mi^2 (440 km^2) in the San Diego-Rosita drainage basins. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 9.43 ft^3/s (0.267 m^3/s), 6,830 acre-ft/yr (8.42 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft^3/s (544 m^3/s) Oct. 17, 1971, gage height, 17.70 ft (5.395 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1928, 18.2 ft (5.55 m) April 1949, equivalent gage height in channel modified in 1955, 17.2 ft (5.24 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43 ft^3/s (1.22 m^3/s) Feb. 25 at 1800 hours, gage height, 4.63 ft (1.411 m), no peak above base of 250 ft^3/s (7.08 m^3/s); no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.55	.02	.38	.17	4.2	.57	1.2	.71	.00	.00	.00
2	.00	.41	.01	.41	.18	2.4	.57	.96	.58	.00	.00	.00
3	.00	.42	.01	.38	.16	1.6	.31	1.1	.54	.00	.00	.00
4	.00	.42	.00	.25	.17	1.2	.27	.83	.51	.00	.00	.00
5	.00	.38	.00	.21	.21	1.1	.24	.49	.46	.00	.00	.00
6	.00	.35	.01	.20	.25	.94	.21	.75	.34	.00	.00	.00
7	.01	.41	.01	.18	.30	.79	.21	.55	.31	.00	.00	.00
8	.03	.50	.70	.15	.38	.72	.21	.63	.25	.00	.00	.00
9	.51	.36	.48	.07	.41	.55	.21	.42	.21	.00	.00	.00
10	1.6	.20	.36	.04	.34	.43	.21	.46	.16	.00	.00	.00
11	.63	.15	.30	.10	.36	.36	.19	.46	.14	.00	.00	.00
12	.32	.18	.23	.09	.44	.33	.21	.41	.12	.00	.00	.00
13	.31	.23	.15	.13	.37	.39	.19	.37	.11	.00	.00	.00
14	.23	.24	.21	.13	.54	.39	.19	.49	.07	.00	.00	.00
15	.17	.27	.25	.13	.55	.42	.21	.34	.05	.00	.00	.00
16	.09	.25	.34	.14	.43	.55	.21	.45	.06	.00	.00	.00
17	.12	.23	.26	.13	.58	.46	.21	.71	.05	.00	.00	.00
18	2.8	.27	.19	.54	.47	1.0	.19	1.0	.03	.00	.00	.00
19	.88	.28	.12	1.5	2.2	.77	.19	1.8	.02	.00	.00	.00
20	.50	.22	.10	.74	2.3	.49	.15	1.9	.00	.00	.00	.00
21	.69	.16	.09	.52	2.7	.41	.18	1.2	.00	.00	.00	.00
22	2.2	.13	.16	.44	2.5	.43	.20	1.1	.00	.00	.00	.00
23	11	.13	.13	.29	1.6	.59	.22	1.8	.00	.00	.00	.00
24	9.5	.13	.09	.20	.98	.60	.23	4.1	.00	.00	.00	.00
25	14	.15	.09	.15	14	.53	.22	3.9	.00	.00	.00	.00
26	7.6	.14	.08	.23	15	.49	.22	3.4	.00	.00	.00	.00
27	2.2	.09	.09	.25	11	.62	.22	2.5	.00	.00	.00	.00
28	1.2	.07	.12	.29	9.1	.55	.24	1.7	.00	.00	.00	.00
29	.87	.05	.18	.32	---	.55	.38	1.2	.00	.00	.00	.00
30	.75	.04	.41	.28	---	.57	.71	.89	.00	.00	.00	.00
31	.69	---	.52	.19	---	.57	---	.84	---	.00	.00	---
TOTAL	58.90	7.41	5.71	9.06	67.69	25.00	7.77	37.95	4.72	.00	.00	.00
MEAN	1.90	.25	.18	.29	2.42	.81	.26	1.22	.16	.000	.000	.000
MAX	14	.55	.70	1.5	15	4.2	.71	4.1	.71	.00	.00	.00
MIN	.00	.04	.00	.04	.16	.33	.15	.34	.00	.00	.00	.00
AC-FT	117	15	11	18	134	50	15	75	9.4	.00	.00	.00

CAL YR 1981 TOTAL 441.71 MEAN 1.21 MAX 76 MIN .00 AC-FT 876
WTR YR 1982 TOTAL 224.21 MEAN .61 MAX 15 MIN .00 AC-FT 445

NOTE.--No gage-height record Mar. 31 to Apr. 27, Aug. 26 to Sept. 30.

08211850 LAKE ALICE AT ALICE, TX

LOCATION.--Lat 27°47'25", long 98°03'39", Jim Wells County, Hydrologic Unit 12110204, on right bank just upstream from Alice Dam on Chiltipin Creek, 1.8 mi (2.9 km) upstream from confluence of Chiltipin and San Diego Creeks, and 2.6 mi (4.2 km) northeast of Alice.

DRAINAGE AREA.--150 mi² (388 km²).

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by city of Alice).

REMARKS.--The lake is formed by a rolled earthfill dam, which is 11,525 ft (3,513 m) long. The dam consists of the main embankment 3,470 ft (1,060 m) long and two protective levees. The west protective levee is 4,275 ft (1,303 m) long and the east protective levee is 2,343 ft (714 m) long. Storage began Oct. 26, 1964, and the dam was completed Mar. 16, 1965. The spillway, 1,000 ft (305 m) wide, is located between the main embankment and the west levee. Collapsible flashboards, 3.5 ft (1.1 m) high, were added to the crest of the spillway. The main spillway is 414 ft (126 m) wide with thirteen 30-foot-wide (9 m) slots for gates, but no gates have been installed at the present time. The main spillway is located between the main embankment and the east levee. The spillway is a concrete siphon-type spillway, 22.5 ft (6.9 m) wide with a 3.5-foot (1.1 m) opening, and is in the main enbankment section. The dam is the property of the Alice Water Authority and was built to store water for use by the city of Alice. The area and capacity tables are based on revised maps surveyed in 1963. Flow is affected at times by discharge from flood-detention pools of eight floodwater-retarding structures with combined detention capacity of 25,160 acre-ft (31.0 hm³). These structures control runoff from 131 mi² (339 km²). Records furnished by the city of Alice show that 5,220 acre-ft (6.44 hm³) was diverted during the current year for municipal use. Records furnished by the city of Corpus Christi show that 6,370 acre-ft (7.85 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 observed, 947 acre-ft (1.17 hm³) Feb. 27 to Mar. 8, elevation, 192.50 ft (58.674 m); minimum, 86 acre-ft (0.106 hm³) Aug. 8 at 1800 hours, elevation, 189.06 ft (57.625 m).

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

189.0	82	192.0	754
190.0	195	193.0	1,160
191.0	423		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	271	438	497	565	652	947	803	845	718	372	108	111
2	268	441	497	575	659	947	803	849	694	366	107	111
3	266	441	497	584	659	947	803	853	666	361	101	109
4	266	441	494	584	659	947	806	849	652	347	97	111
5	275	441	494	584	669	947	806	849	648	336	97	114
6	277	444	503	598	669	947	806	860	638	317	94	117
7	286	444	513	594	669	947	806	860	635	295	90	117
8	284	450	516	598	676	947	806	856	628	271	88	117
9	286	450	523	598	687	841	806	856	614	258	91	121
10	286	450	529	604	687	814	806	856	608	246	96	122
11	284	453	532	601	690	773	810	856	598	239	99	123
12	279	453	532	611	701	769	810	860	601	230	100	123
13	266	459	507	611	697	769	810	876	591	218	102	119
14	266	462	494	614	697	776	810	868	581	208	103	124
15	266	469	481	614	711	776	806	860	571	198	104	121
16	266	472	484	611	718	776	791	853	568	191	108	124
17	262	472	494	614	718	776	784	864	551	185	108	123
18	279	475	494	621	718	776	787	864	532	179	104	124
19	260	481	497	628	780	776	787	860	519	175	105	121
20	246	478	503	641	791	776	780	853	510	172	105	126
21	248	478	510	641	791	780	780	845	500	163	108	128
22	303	481	516	652	791	780	780	849	491	159	112	126
23	377	484	513	645	791	787	780	845	475	148	113	125
24	400	487	516	645	856	795	780	837	462	144	111	122
25	414	481	516	655	876	799	784	825	450	147	110	124
26	414	491	523	645	943	799	784	818	429	139	109	121
27	414	491	526	648	947	799	784	814	414	131	108	117
28	417	491	535	655	947	803	795	810	397	126	108	122
29	417	494	535	648	---	803	795	787	377	119	111	121
30	423	500	555	655	---	803	837	762	383	115	111	121
31	435	---	558	655	---	803	---	740	---	112	113	---
MAX	435	500	558	655	947	947	837	876	718	372	113	128
MIN	246	438	481	565	652	769	780	740	377	112	88	109
(†)	191.04	191.25	191.43	191.72	192.50	192.13	192.22	191.96	190.86	189.36	189.37	189.44
(‡)	+164	+65	+58	+97	+292	-144	+34	-97	-357	-271	+1	+8

CAL YR 1981 MAX 1440 MIN 246 ‡ -50
WTR YR 1982 MAX 947 MIN 88 ‡ -150

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

08211900 SAN FERNANDO CREEK AT ALICE, TX

LOCATION.--Lat 27°46'20", long 98°02'00", Jim Wells County, Hydrologic Unit 12110204, on left bank 34 ft (10 m) downstream from downstream bridge of two bridges on State Highways 44 and 359, 0.5 mi (0.8 km) downstream from confluence of San Diego and Chiltipin Creeks, 2.3 mi (3.7 km) upstream from head of Pintas Creek, and 2.7 mi (4.3 km) northeast of Alice.

DRAINAGE AREA.--507 mi^2 (1,313 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 161.68 ft (49.280 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for Apr. 30 to May 23, and Sept. 1-30, which are fair. San Diego Creek joins Chiltipin Creek below Lake Alice to form San Fernando Creek. Flow is regulated by Lake Alice (station 08211850) 2.3 mi (3.7 km) upstream from Chiltipin Creek since Oct. 26, 1964. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08211800. Records furnished by city of Alice show that 3,200 acre-ft (3.95 hm^3) of sewage effluent was discharged into San Diego Creek 1.3 mi (2.1 km) upstream, which comprises most of the low flow. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years (water years 1966-82), 26.0 ft^3/s (0.736 m^3/s), 18,840 acre-ft/yr (23.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,800 ft^3/s (759 m^3/s) Sept. 12, 1971, gage height, 16.51 ft (5.032 m); minimum daily, 0.2 ft^3/s (0.006 m^3/s) Aug. 2 and Sept. 16, 1965.
Maximum stage since at least 1949, that of Sept. 12, 1971. Another high stage for this period was 15.86 ft (4.834 m) Sept. 23, 1967, discharge 16,900 ft^3/s (479 m^3/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Other high stages since at least 1949 are 15.5 ft (4.72 m) Sept. 9, 1962, discharge 14,600 ft^3/s (413 m^3/s) from field estimate, and 14.2 ft (4.33 m) Sept. 14, 1951. Discharge for flood of Sept. 14, 1951, may have exceeded that for 1962 as the highway was raised between 1952 and 1962. Flood in 1951 was higher at site of discontinued station "San Fernando Creek near Alice". Flood in 1962 was higher than that of 1967 at site of discontinued station; there is a diversion into the Pintas Creek basin between the two gaging sites, and apparently this diversion was greater in 1967 than in 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 48 ft^3/s (1.36 m^3/s) Oct. 24 at 0400 hours, gage height, 2.14 ft (0.652 m); minimum daily, 0.25 ft^3/s (0.007 m^3/s) Sept. 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	2.9	2.2	2.5	3.1	4.5	3.2	3.7	2.9	2.5	1.8	.38
2	3.1	2.8	2.0	2.4	2.9	3.5	3.2	3.8	2.7	2.2	1.5	1.1
3	2.9	2.9	2.2	2.4	2.5	3.4	2.9	3.5	2.7	2.0	1.7	.38
4	2.9	2.8	2.2	2.3	2.3	3.4	2.8	2.7	2.7	1.8	1.6	1.9
5	3.3	2.7	1.9	2.5	2.4	3.3	2.7	3.3	2.4	1.7	1.8	1.7
6	3.4	2.8	2.0	2.5	2.6	3.1	2.6	3.0	2.7	1.9	1.7	1.7
7	2.9	2.5	2.1	2.6	2.5	3.0	2.6	3.1	2.3	1.9	1.6	1.4
8	3.0	2.7	2.0	2.6	2.6	2.9	2.6	2.8	2.6	1.9	1.5	.25
9	3.0	2.6	2.3	2.4	2.4	3.0	2.6	2.6	2.5	2.0	2.1	.90
10	3.2	2.4	2.3	2.4	2.5	3.0	2.6	2.7	2.3	2.1	2.4	1.3
11	3.0	2.5	2.2	2.4	2.4	3.0	2.5	2.7	2.2	1.8	1.9	1.3
12	3.0	2.6	2.3	2.5	2.3	3.0	2.6	2.5	2.4	1.9	2.4	1.7
13	2.9	2.6	2.1	2.7	2.2	3.0	2.5	2.4	2.2	2.0	2.2	1.3
14	2.6	2.4	2.1	2.5	2.4	3.0	2.5	2.8	2.3	2.1	2.4	.87
15	2.5	2.4	2.2	2.7	2.4	3.1	2.6	2.4	2.4	2.3	2.3	.72
16	2.3	2.5	2.0	2.6	2.4	3.3	2.6	2.7	2.7	2.0	2.4	.60
17	2.4	2.5	2.1	2.4	2.4	3.0	2.6	3.3	2.3	2.1	2.6	1.3
18	3.0	2.3	2.3	2.3	2.3	3.1	2.5	3.9	2.3	2.3	2.7	1.8
19	3.5	2.4	2.0	2.7	3.0	3.3	2.5	4.6	2.3	2.0	2.6	2.1
20	3.1	2.4	2.0	3.3	3.5	3.2	2.3	5.0	2.4	2.2	2.6	2.0
21	2.8	2.5	2.2	2.8	3.3	3.1	2.5	4.4	2.3	2.1	1.4	1.9
22	3.1	2.5	2.5	2.6	3.4	3.1	2.7	4.1	2.1	2.1	2.0	1.6
23	12	2.5	2.3	2.6	3.2	3.1	2.8	4.8	2.0	2.2	2.9	1.1
24	31	2.7	2.1	2.3	3.1	3.1	2.9	5.7	2.7	2.5	2.5	1.6
25	8.8	2.7	1.9	2.4	9.6	3.0	2.8	5.0	2.2	2.4	1.1	.37
26	5.9	2.7	2.0	2.5	31	3.0	2.8	4.2	2.4	2.0	1.8	1.7
27	4.3	2.0	2.2	2.5	12	3.1	2.8	3.9	1.9	2.2	2.0	1.0
28	3.5	1.9	2.1	2.5	6.0	3.0	2.8	3.4	2.3	2.1	2.0	.38
29	3.2	2.4	2.2	2.4	---	3.1	2.9	3.2	2.3	2.0	1.9	1.3
30	3.2	2.5	2.5	2.5	---	3.2	4.0	2.9	2.4	1.7	1.8	1.1
31	3.1	---	2.7	2.3	---	3.2	---	2.9	---	1.8	.40	---
TOTAL	139.9	76.1	67.2	78.1	122.7	98.1	82.0	108.0	71.9	63.8	61.60	36.75
MEAN	4.51	2.54	2.17	2.52	4.38	3.16	2.73	3.48	2.40	2.06	1.99	1.23
MAX	31	2.9	2.7	3.3	31	4.5	4.0	5.7	2.9	2.5	2.9	2.1
MIN	2.3	1.9	1.9	2.3	2.2	2.9	2.3	2.4	1.9	1.7	.40	.25
AC-FT	277	151	133	155	243	195	163	214	143	127	122	73

CAL YR 1981 TOTAL 2915.80 MEAN 7.99 MAX 633 MIN 1.5 AC-FT 5780
WTR YR 1982 TOTAL 1006.15 MEAN 2.76 MAX 31 MIN .25 AC-FT 2000

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, crest-stage gage, 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.--15 years, 5.86 ft³/s (0.166 m³/s), 4,250 acre-ft/yr (5.24 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,300 ft³/s (150 m³/s) Sept. 13, 1971, gage height, 12.66 ft (3.859 m); no flow at times in 1970-82.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1929, 15.0 ft (4.57 m) Sept. 13, 1951, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,080 ft³/s (87.2 m³/s) May 25 at 1400 hours, gage height, 11.60 ft (3.536 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 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.04	.00	.00	.00	.00	.00	.00	.50	.00	.00	.00
2	.00	.03	.00	.00	.00	.00	.00	.00	.19	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.08	.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	.03	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.01	.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	.01	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.02	.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	.33	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.28	.00	.00	.00	.03	.00	.00	.00	.00	.00	.00	.00
20	.08	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
21	.34	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00	.00
22	.21	.00	.00	.00	.03	.00	.00	.00	.00	.00	.00	.00
23	5.6	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
24	11	.00	.00	.00	.00	.00	.00	26	.00	.00	.00	.00
25	9.9	.00	.00	.00	.09	.00	.00	2400	.00	.00	.00	.00
26	3.2	.00	.00	.00	.34	.00	.00	1700	.00	.00	.00	.00
27	.89	.00	.00	.00	.05	.00	.00	345	.00	.00	.00	.00
28	.34	.00	.00	.00	.02	.00	.00	36	.00	.00	.00	.00
29	.13	.00	.00	.00	---	.00	.00	11	.00	.00	.00	.00
30	.07	.00	.00	.00	---	.00	.00	3.6	.00	.00	.00	.00
31	.05	---	.00	.00	---	.00	---	1.1	---	.00	.00	---
TOTAL	32.42	.07	.00	.00	.62	.00	.00	4522.70	.91	.00	.00	.00
MEAN	1.05	.002	.000	.000	.022	.000	.000	146	.030	.000	.000	.000
MAX	11	.04	.00	.00	.34	.00	.00	2400	.50	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	64	.1	.00	.00	1.2	.00	.00	8970	1.8	.00	.00	.00

CAL YR 1981 TOTAL 2481.32 MEAN 6.80 MAX 337 MIN .00 AC-FT 4920
WTR YR 1982 TOTAL 4556.72 MEAN 12.5 MAX 2400 MIN .00 AC-FT 9040

08212400 LOS OLMOS CREEK NEAR FALFURRIAS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1974 to September 1982 (discontinued). Pesticide analyses: October 1978 to September 1979.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1981.
WATER TEMPERATURES: October 1974 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,380 micromhos July 5, 1976; minimum daily, 58 micromhos Apr. 21, 1979.
WATER TEMPERATURES (1974-77): Maximum daily, 33.0°C July 29, Aug. 1, 1976, May 30, 1977; minimum daily, 3.0°C Nov. 28, 1977.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 28...	1420	9.0	113	7.2	17.0	32	9.8	1.8

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 28...	5.8	.5	11	7.0	7.9	.1	14

08364000 RIO GRANDE AT EL PASO, TX

LOCATION.--Lat 31°48'10", long 106°32'25", El Paso County, Hydrologic Unit 13030102, at gaging station on the downstream side of the Courchesne Bridge, 5.6 mi (9.0 km) upstream from the Santa Fe Street-Juarez Avenue bridge between El Paso, Tex., and Cd. Juarez, Mex., and 1.7 mi (2.7 km) upstream from the American Dam.

DRAINAGE AREA.--29,267 mi² (75,802 km²).

PERIOD OF RECORD.--Chemical analyses: February 1930 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1982 are given in International Boundary and Water Commission Water Bulletins Nos. 51 and 52.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT											
22...	1240	152	2100	8.1	19.0	--	--	--	--	--	480
NOV											
03...	0900	130	2100	8.2	10.0	15	9.5	--	750	880	510
17...	0745	135	2250	8.2	11.0	--	--	--	--	--	490
DEC											
16...	1000	110	2330	8.1	6.5	--	--	--	--	--	480
JAN											
07...	1400	70	2420	8.2	11.0	13	10.8	--	18000	880	490
20...	1230	103	2340	8.0	14.5	--	--	--	--	--	460
FEB											
18...	0846	75	2070	8.3	11.0	--	--	--	--	--	440
MAR											
11...	1000	500	1200	7.9	13.5	88	8.9	--	480	2700	290
17...	1100	679	982	7.9	12.0	--	--	--	--	--	250
APR											
19...	1640	545	988	8.0	21.0	--	--	--	--	--	250
MAY											
13...	0930	572	1300	8.1	15.0	33	8.1	--	680	1600	310
19...	1115	626	1020	7.9	22.0	--	--	--	--	--	250
JUN											
15...	0730	606	1030	8.0	20.5	--	--	--	--	--	260
JUL											
02...	0800	208	1000	8.1	23.0	120	6.4	86	450	1100	270
21...	1130	725	1050	7.9	28.0	--	--	--	--	--	250
AUG											
18...	0805	714	1090	7.9	--	--	--	--	--	--	270
SEP											
08...	0900	681	1100	8.2	20.0	60	7.3	93	750	1300	290
17...	0725	611	1350	8.1	21.0	--	--	--	--	--	330

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
22...	210	140	32	280	5.8	13	270	490	240	--	27
NOV											
03...	240	150	33	280	5.6	12	--	500	240	.8	27
17...	210	140	34	320	6.5	12	280	530	270	--	28
DEC											
16...	220	140	32	340	7.0	11	260	520	280	--	27
JAN											
07...	240	140	34	360	7.3	10	--	550	290	.8	29
20...	210	130	33	360	7.6	12	250	610	280	--	25
FEB											
18...	180	130	29	290	6.2	12	260	450	260	--	21
MAR											
11...	93	86	19	170	4.5	6.8	--	270	140	.8	19
17...	77	74	15	110	3.2	6.2	170	190	96	--	17
APR											
19...	69	75	15	110	3.2	7.0	180	210	84	--	17
MAY											
13...	100	94	19	160	4.1	7.3	--	280	130	.6	19
19...	72	76	15	120	3.4	7.4	180	210	'86	--	18
JUN											
15...	81	78	16	120	3.4	7.4	180	220	89	--	18
JUL											
02...	91	80	16	130	3.6	8.0	--	230	94	.6	19
21...	73	75	16	120	3.4	7.6	180	220	92	--	19
AUG											
18...	76	80	16	130	3.6	7.3	190	220	96	--	21
SEP											
08...	86	86	18	150	4.0	7.4	--	250	110	.6	22
17...	120	100	20	170	4.2	8.5	210	280	130	--	24

08364000 RIO GRANDE AT EL PASO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
22...	--	1380	--	--	--	--	--	--	--	--
NOV										
03...	1340	1410	--	--	.61	.140	--	64	22	51
17...	--	1500	--	--	--	--	--	--	--	--
DEC										
16...	--	1510	--	--	--	--	--	--	--	--
JAN										
07...	1620	1560	.28	.220	.85	.060	.070	88	17	41
20...	--	1600	--	--	--	--	--	--	--	--
FEB										
18...	--	1350	--	--	--	--	--	--	--	--
MAR										
11...	824	851	.14	.340	.88	.120	.090	321	433	53
17...	--	610	--	--	--	--	--	--	--	--
APR										
19...	--	626	--	--	--	--	--	--	--	--
MAY										
13...	841	836	.10	.080	1.80	.230	.120	178	275	72
19...	--	641	--	--	--	--	--	--	--	--
JUN										
15...	--	657	--	--	--	--	--	--	--	--
JUL										
02...	651	683	.18	<.060	1.60	.360	.080	245	138	96
21...	--	658	--	--	--	--	--	--	--	--
AUG										
18...	--	685	--	--	--	--	--	--	--	--
SEP										
08...	824	766	.25	.060	1.10	.350	.110	216	397	74
17...	--	859	--	--	--	--	--	--	--	--

08371500 RIO GRANDE ABOVE RIO CONCHO NEAR PRESIDIO, TX

LOCATION.--Lat 29°37'15", long 104°28'50", Presidio County, Hydrologic Unit 13040201, at gaging station 7.8 mi (12.6 km) upstream from the junction of Rio Conchos, about 10 mi (16 km) northwest of Presidio, Tex., and Ojinaga, Chihuahua, Mex., and 285.7 mi (459.7 km) downstream from the American Dam at El Paso.

DRAINAGE AREA.--34,966 mi² (90,562 km²), United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: February 1935 to September 1981 (discontinued). Prior to 1964, published as "Rio Crande at Upper Presidio".

REMARKS.--Records of specific conductance and discharge for water year 1982 are given in International Boundary and Water Commission Water Bulletins Nos. 51 and 52.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 14...	0850	575	2010	7.7	21.0	420	260	130	23
NOV 18...	1120	116	4280	7.6	16.0	790	590	220	59
DEC 15...	1600	96	4590	7.6	12.0	800	580	220	62

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 14...	250	5.5	8.9	160	350	350	7.0	1220
NOV 18...	640	10	12	200	770	900	8.5	2730
DEC 15...	690	11	12	220	780	1000	8.2	2900

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. Pesticide analyses: October 1975 to September 1982 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

REMARKS.--Records of and discharge for water year 1981 are given in International Boundary and Water Commission Water Bulletins Nos. 51 and 52. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,110 micromhos Dec. 4, 1974; minimum daily, 225 micromhos May 2, 1981.
WATER TEMPERATURES: Maximum daily, 32.0°C June 13, 1977, July 25, 26 1979, July 4, 1980, and June 8, 1981; minimum daily, 9.0°C Jan. 12, 1975, Jan. 8, 1976, and Jan. 18, 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT												
07...	1440	7400	940	7.7	23.0	6600	7.9	96	.5	4400	3900	260
DEC												
02...	1405	1020	1270	7.8	15.5	60	8.2	85	.6	400	440	330
FEB												
03...	1350	1020	1410	7.8	12.0	22	9.0	86	1.4	K37	40	350
APR												
07...	1315	1740	990	7.8	21.0	72	8.6	100	1.5	K35	52	250
JUN												
09...	1310	2460	840	7.8	27.0	1600	8.7	113	1.3	1700	2200	210
AUG												
04...	1230	884	998	7.9	28.0	39	9.0	118	1.5	2200	2500	250

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
07...	160	84	13	110	3.1	5.5	100	280	75	.8	17
DEC											
02...	160	96	21	160	4.1	6.4	170	300	140	1.1	23
FEB											
03...	190	102	24	180	4.4	6.3	160	330	170	1.2	23
APR											
07...	97	74	15	110	3.2	5.6	150	250	72	1.4	24
JUN											
09...	78	68	10	100	3.1	5.9	133	220	47	1.4	21
AUG											
04...	120	69	18	130	3.8	5.7	130	280	81	1.5	25

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
07...	814	645	.89	.100	1.70	3.00	.020	.030	13000	260000	94
DEC											
02...	870	850	.76	<.070	.45	.020	.040	.020	153	421	100
FEB											
03...	917	932	.45	<.060	.57	<.010	<.010	.020	90	248	99
APR											
07...	634	642	.84	<.060	.49	.100	<.010	<.010	175	822	96
JUN											
09...	574	575	.75	<.060	.90	.180	.040	.040	3300	21900	99
AUG											
04...	703	688	.36	.060	.80	.050	.010	.010	57	136	100

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)
OCT											
07...	1440	31	27	4	2800	2700	120	1	<1	140	140
FEB											
03...	1350	8	1	7	100	5	95	<1	<1	10	--
JUN											
09...	1310	8	0	8	600	500	78	1	<1	<10	--
AUG											
04...	1230	8	0	8	<100	--	89	<1	1	<10	--

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)
OCT										
07...	0	75	<3	130	130	2	13000	13000	80	120
FEB										
03...	<10	1	<3	11	10	1	750	730	22	3
JUN										
09...	10	17	<1	35	34	1	36000	--	<3	18
AUG										
04...	<10	<1	<1	3	--	<1	1000	990	12	7

DATE	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
OCT										
07...	120	1	4000	4000	4	.8	.8	.0	180	180
FEB										
03...	1	2	40	40	2	.1	--	<.1	3	2
JUN										
09...	--	<1	1300	--	<1	.1	--	<.1	32	--
AUG										
04...	--	<1	40	40	3	.2	--	<.1	55	--

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT										
07...	1	6	4	2	1	1	0	720	660	62
FEB										
03...	1	1	0	1	<1	--	<1	70	0	70
JUN										
09...	<1	1	0	1	<1	--	<1	180	180	4
AUG										
04...	<1	1	0	1	<1	--	<1	20	0	34

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
OCT											
07...	1440	--	0	--	.0	--	.0	--	.0	--	2.5
FEB											
03...	1350	.00	--	.00	--	.00	--	.00	--	.00	--
JUN											
09...	1310	<.10	<1	<.10	<1.0	<.01	<.1	<.10	<1.0	<.01	.2

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	ETHION, TOTAL (UG/L)
OCT 07...	--	5.4	--	20	--	--	.0	--	--	.1	--
FEB 03...	.00	--	.00	--	.00	.00	--	.00	.00	--	.00
JUN 09...	<.01	.7	<.01	.2	<.01	<.01	<.1	<.01	<.01	<.1	<.01

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)
OCT 07...	--	.0	--	.0	--	.0	--	--	.0	--	--
FEB 03...	.00	--	.00	--	.00	--	.00	.00	--	.00	.00
JUN 09...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	PERTHANE 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-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT 07...	--	.0	--	--	--	.0	--	--	--	--	--
FEB 03...	.00	--	.00	.00	0	--	.00	.00	.00	.00	.00
JUN 09...	<.01	<.1	<.01	<.10	<1	<10	<.01	<.01	<.01	<.01	<.01

08407500 PECOS RIVER AT RED BLUFF, NM
(National stream-quality accounting network station)

LOCATION.--Lat 32°04'30", long 104°02'21", in SW1/4NW1/4NE1/4 sec. 1, T. 26 S., R. 28 E., Eddy County, Hydrologic Unit 13060011, on right bank at Red Bluff, 0.2 mi (0.3 km) downstream from Red Bluff Draw, 1.6 mi (2.6 km) northwest of the El Paso Natural Gas (Pecos River) compressor station, 5.2 mi (8.4 km) north of the New Mexico-Texas State line, 5.5 mi (8.8 km) upstream from Delware River, and 411.2 mi (661.6 km) upstream from mouth. Water-quality sampling site 1.4 mi (2.3 km) downstream at mile 409.8 (659.4 km).

DRAINAGE AREA.--19,540 mi^2 (50,610 km^2), approximately (contributing area).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1937 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,850.05 ft (868.695 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for the period of no gage-height record, Nov. 2 to Jan. 7, which are poor. Flow regulated by many reservoirs and diversions dams. Diversions and ground-water withdrawals above station for irrigation of about 202,000 acres (820 km^2), 1959 determination.

AVERAGE DISCHARGE.--45 years (1938-82), 167 ft^3/s (4.729 m^3/s), 121,000 acre-ft/yr (149 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 111,000 ft^3/s (3,140 m^3/s) Aug. 23, 1966, gage height, 33.32 ft (10.156 m), from rating curve extended above 32,000 ft^3/s (900 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.19 ft^3/s (0.005 m^3/s) Aug. 1, 1966.
The flood of Aug. 23, 1966, exceeded all floods at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1904 reached a stage of 28.0 ft (8.53 m), from information by Panhandle and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,860 ft^3/s (109 m^3/s) Sept. 16, gage height, 9.10 ft (2.774 m); no peak above base of 1,800 ft^3/s (51.0 m^3/s); minimum, 6.5 ft^3/s (0.18 m^3/s) July 20.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	42	58	45	40	36	42	49	27	121	17	22
2	35	41	58	46	39	34	41	93	25	33	76	23
3	35	42	58	47	38	33	39	80	24	23	52	25
4	35	41	57	50	37	36	38	71	18	31	52	26
5	35	41	55	49	37	35	31	76	13	41	30	30
6	38	45	58	46	37	34	23	80	11	32	24	40
7	46	48	60	46	38	34	25	75	9.7	22	26	30
8	47	48	60	46	39	34	22	67	9.2	17	28	26
9	45	47	60	47	41	71	16	68	8.7	16	28	23
10	43	47	60	49	42	96	22	67	11	14	30	22
11	44	47	59	50	42	78	34	52	13	13	31	23
12	44	46	60	51	39	58	22	46	11	23	36	23
13	42	47	62	53	37	103	17	46	17	19	36	37
14	42	50	62	55	40	132	27	35	239	21	36	34
15	41	51	62	56	39	98	22	26	73	22	32	165
16	39	53	61	56	36	79	16	28	55	24	30	1250
17	34	54	60	56	38	75	11	37	22	18	26	255
18	35	56	60	56	39	67	11	26	12	13	459	117
19	53	57	60	57	37	64	10	20	19	11	95	63
20	53	57	59	56	37	59	12	25	16	11	59	208
21	48	59	59	56	35	63	27	28	10	18	36	126
22	47	60	63	55	34	56	24	23	12	15	26	64
23	46	60	62	53	34	48	31	22	18	14	23	53
24	51	60	61	49	36	37	46	22	19	14	22	46
25	52	60	58	48	37	28	31	19	24	14	28	42
26	51	57	48	47	37	24	27	20	23	15	33	40
27	44	53	44	42	37	25	26	23	20	15	29	37
28	44	54	44	40	37	23	19	22	22	14	27	59
29	41	56	47	40	---	23	15	19	19	12	26	97
30	41	57	46	40	---	25	82	25	17	12	27	35
31	41	---	44	39	---	31	---	30	---	14	24	---
TOTAL	1328	1536	1765	1526	1059	1639	809	1320	817.6	682	1504	3041
MEAN	42.8	51.2	56.9	49.2	37.8	52.9	27.0	42.6	27.3	22.0	48.5	101
MAX	53	60	63	57	42	132	82	93	239	121	459	1250
MIN	34	41	44	39	34	23	10	19	8.7	11	17	22
AC-FT	2630	3050	3500	3030	2100	3250	1600	2620	1620	1350	2980	6030

CAL YR 1981 TOTAL 19703.0 MEAN 54.0 MAX 884 MIN 12 AC-FT 39080
WTR YR 1982 TOTAL 17026.6 MEAN 46.6 MAX 1250 MIN 8.7 AC-FT 33770

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1937 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1937 to current year.
WATER TEMPERATURES: October 1952 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 51,400 micromhos June 20, 1972; minimum daily, 268 micromhos Sept. 18, 1946.
WATER TEMPERATURES: Maximum daily, 36.0°C July 31, 1966, July 13, 1970; minimum daily, 1.0°C Jan. 10, 11, 1962, Jan. 13, 1963, Dec. 19, 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV										
03...	1230	39	12500	8.3	14.0	2.4	12.1	83	K0	2200
DEC										
08...	1100	59	10500	7.9	7.0	2.5	10.6	160	73	2100
FEB										
02...	1030	38	14200	8.4	7.0	2.8	--	K2	K1	2200
MAR										
29...	1230	24	13200	8.4	15.0	6.6	9.4	K10	120	2000
JUN										
03...	1300	24	20800	8.1	24.0	6.3	10.2	K0	1200	3200
JUL										
26...	1000	18	22000	8.3	26.0	1.4	8.1	190	1500	2900
AUG										
27...	1400	28	13500	8.1	29.0	2.6	11.0	170	2200	2000

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)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV										
03...	520	230	2000	18	55	1900	3600	.8	11	8650
DEC										
08...	510	200	1600	15	45	1800	2800	.8	11	7110
FEB										
02...	480	240	2500	23	2.6	1900	4400	.8	8.5	10200
MAR										
29...	430	220	2200	22	65	1700	3800	.5	2.2	8830
JUN										
03...	710	350	3900	30	110	2300	6400	.9	4.7	14200
JUL										
26...	650	320	4100	33	120	2600	7100	.8	12	13300
AUG										
27...	470	210	2400	23	69	1800	4000	.7	10	8820

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV									
03...	8380	.79	.250	1.40	.050	.020	195	21	95
DEC									
08...	7050	1.4	.150	1.30	.050	.050	20	3.2	51
FEB									
02...	9610	1.0	.140	1.30	<.010	<.010	7540	774	98
MAR									
29...	8480	<.10	.490	1.30	<.010	<.010	106	6.9	86
JUN									
03...	13800	.18	.480	2.00	.040	<.010	285	18	56
JUL									
26...	14900	<.10	.270	1.80	.100	.050	20	.97	76
AUG									
27...	9000	<.10	.070	1.90	.100	.090	29	2.2	78

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
NOV 03...	1230	2	1	1	<100	--	100	<1	--	1	20
FEB 02...	1030	2	1	1	100	0	100	1	0	1	20
MAR 29...	1230	2	1	1	100	--	<100	<1	--	1	20
JUN 03...	1300	2	0	2	<100	--	200	<1	--	1	30
AUG 27...	1400	3	0	3	100	0	100	<1	--	<1	20

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 03...	0	20	<1	--	1	14	10	4	390	350	40
FEB 02...	0	20	1	--	<1	5	4	1	170	70	100
MAR 29...	--	<10	2	1	1	14	13	1	600	380	220
JUN 03...	0	30	<1	--	<1	4	3	1	450	340	110
AUG 27...	0	20	<1	--	<1	1	0	2	320	280	40

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)
NOV 03...	9	8	1	60	30	30	.2	--	<.1	5
FEB 02...	2	1	1	100	40	60	.1	--	<.1	2
MAR 29...	2	--	<1	150	10	140	.2	.1	.1	2
JUN 03...	1	--	<1	110	50	60	.2	--	<.1	5
AUG 27...	<1	--	<1	180	130	50	.1	.0	.2	<1

DATE	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 03...	2	3	1	0	2	<1	<1	50	10	40
FEB 02...	1	1	3	1	2	<1	<1	30	0	30
MAR 29...	1	1	2	0	2	<1	1	30	0	30
JUN 03...	--	<1	1	0	1	<1	<1	30	0	40
AUG 27...	--	1	2	1	1	<1	<1	30	10	20

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 03...	1230	--	0	--	.0	--	.0	--	.0	--	.0
JUN 03...	1300	<.10	--	<.10	--	<.01	--	<.10	--	<.01	--

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)	ETHION, TOTAL (UG/L)
NOV 03...	--	.1	--	.0	--	--	.0	--	--	.0	--
JUN 03...	<.01	--	<.01	--	<.01	<.01	--	<.01	<.01	--	<.01

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)
NOV 03...	--	.0	--	.0	--	.0	--	--	.0	--	--
JUN 03...	<.01	--	<.01	--	<.01	--	<.01	<.01	--	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	PERTHANE 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-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 03...	--	.0	--	--	--	.0	--	--	--	--	--
JUN 03...	<.01	--	<.01	<.10	<1	--	<.01	<.01	<.01	<.01	<.01

08407500 PECOS RIVER AT RED BLUFF, NM--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13700	12500	10900	11700	13600	14500						
2	13600	12600	11200	11500	13400	14300						
3	13600	11000	11200	11600	15100	13300						
4	13800	12600	11200	12200	15400	13200						
5	13700	13900	10300	12300	14300	13500						
6	13300	13300	10200	12300	13400	14400						
7	13500	13100	10600	12000	14500	14900						
8	13900	12600	10300	13300	14400	15400						
9	13300	13100	10600	11300	13100	17000						
10	13200	13500	10300	12200	13000	14000						
11	13200	12700	10300	12300	14600	13900						
12	13100	12900	10300	12200	14400	12100						
13	12700	13600	10200	11700	14100	11800						
14	12700	12300	10200	11700	13500	11600						
15	12500	12100	10200	12100	13000	12100						
16	13200	12000	10700	12500	13600	9420						
17	13100	11800	10700	11800	13900	10300						
18	12800	11700	10200	11200	13400	9550						
19	13100	11600	10300	11200	14200	11700						
20	13600	12600	10400	11500	15100	10100						
21	13600	11600	10400	11200	14800	10100						
22	13600	10700	10400	11300	14900	14300						
23	---	11600	10400	11700	15600	10800						
24	12400	13000	10800	11900	14900	11800						
25	12100	11000	11300	15400	14300	10800						
26	12600	11000	12900	13300	14400	10900						
27	12100	10700	11200	15400	14600	10800						
28	11700	10700	10400	13000	14300	11700						
29	11800	11200	10700	13100	---	10800						
30	12300	11000	10800	13200	---	12200						
31	12300	---	11100	13200	---	13000						
MEAN	13000	12100	10700	12300	14200	12400						

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

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

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 food except those above 10 ft³/s (0.28 m³/s), which are fair. One small upstream diversion. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--45 years (water years 1938-82), 13.2 ft³/s (0.374 m³/s), 9,560 acre-ft/yr (11.8 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 6,500 ft³/s (184 m³/s) on basis of slope-area measurements at gage heights 12.84, 17.55, and 27.0 ft (3.914, 5.349, and 8.230 m); no flow for many days most years. Maximum discharge since at least 1911, that of Oct. 2, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 932 ft³/s (26.4 m³/s) Aug. 18, gage height, 5.81 ft (1.771 m), no peak above base of 1,700 ft³/s (48.1 m³/s); minimum, 0.27 ft³/s (0.008 m³/s) July 31.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	4.0	4.7	5.3	5.0	4.6	3.6	6.6	1.5	146	.54	.46
2	3.8	4.0	4.7	5.3	5.1	4.5	3.4	4.8	1.5	19	46	.41
3	3.9	4.2	4.8	5.2	5.1	4.3	3.4	4.3	1.4	8.6	2.6	.40
4	3.8	4.3	4.9	5.2	5.1	4.2	3.3	4.0	1.4	5.9	2.1	.39
5	3.7	4.3	4.9	5.1	5.1	4.1	3.3	13	1.4	3.3	1.5	.38
6	4.1	4.4	5.0	5.3	5.1	4.1	3.3	4.6	1.3	2.5	.90	.40
7	5.0	4.5	5.1	5.3	5.1	4.1	3.2	3.5	1.3	2.0	.70	.36
8	5.5	4.5	5.1	5.3	5.2	4.1	3.0	3.1	1.2	15	.82	.36
9	5.2	4.4	5.1	5.3	5.1	4.1	2.9	2.9	1.1	32	3.0	.38
10	5.0	4.4	5.1	5.4	5.1	4.1	2.9	2.8	1.1	2.4	1.8	24
11	4.9	4.5	5.1	5.5	5.3	4.1	2.8	2.7	1.2	1.7	1.2	98
12	4.9	4.7	5.3	5.8	5.3	4.0	2.8	2.7	1.3	24	.95	9.6
13	4.8	4.8	5.0	6.3	5.2	4.0	2.7	2.5	18	4.0	.79	2.3
14	4.7	4.8	4.9	5.8	5.1	4.0	2.6	2.4	15	2.2	.69	1.6
15	4.7	4.7	4.9	5.8	5.1	4.2	2.7	2.3	49	1.7	.57	2.9
16	4.6	4.7	4.9	5.6	5.1	3.8	2.6	2.3	8.8	1.4	1.4	2.2
17	4.6	4.7	4.9	5.3	5.1	3.8	2.6	2.2	4.2	1.2	.78	1.4
18	4.5	4.7	4.9	5.4	5.1	3.8	2.6	2.3	3.2	1.1	96	1.3
19	4.5	4.5	5.0	5.4	4.9	3.8	2.7	3.1	2.8	.96	2.3	1.4
20	4.4	4.5	5.0	5.3	4.9	3.6	2.7	2.3	3.0	.94	1.1	1.5
21	4.4	4.7	5.0	5.3	4.9	3.6	2.7	2.0	2.9	.76	.81	4.4
22	4.3	4.9	5.0	5.2	4.9	3.6	3.4	1.9	2.7	.66	.67	18
23	4.2	4.9	5.1	5.2	4.8	3.7	4.0	2.1	3.1	.56	.57	3.6
24	4.2	4.9	5.1	5.1	4.7	3.7	4.1	2.1	2.4	.52	.52	2.0
25	4.1	4.7	5.1	5.2	4.8	3.6	4.1	2.2	2.1	.46	.49	1.8
26	4.1	4.5	5.2	5.3	4.7	3.6	3.7	2.9	1.9	.47	.50	1.6
27	4.1	4.6	5.2	5.4	4.6	3.7	3.5	4.3	1.8	.43	.55	1.5
28	4.1	4.7	5.2	5.5	4.7	3.8	3.3	2.3	1.7	.38	.54	10
29	4.2	4.9	5.3	5.4	---	3.7	4.2	1.8	1.5	.35	.49	76
30	4.2	4.8	5.1	5.2	---	3.6	50	1.6	1.7	.31	.46	3.4
31	4.0	---	5.2	5.2	---	3.6	---	1.5	---	.55	.48	---
TOTAL	136.3	137.2	155.8	166.9	140.2	121.5	142.1	99.1	141.5	281.35	171.82	272.04
MEAN	4.40	4.57	5.03	5.38	5.01	3.92	4.74	3.20	4.72	9.08	5.54	9.07
MAX	5.5	4.9	5.3	6.3	5.3	4.6	50	13	49	146	96	98
MIN	3.7	4.0	4.7	5.1	4.6	3.6	2.6	1.5	1.1	.31	.46	.36
AC-FT	270	272	309	331	278	241	282	197	281	558	341	540

CAL YR 1981	TOTAL	2821.96	MEAN 7.73	MAX 166	MIN .00	AC-FT 5600		
WTR YR 1982	TOTAL	1965.81	MEAN 5.39	MAX 146	MIN .31	AC-FT 3900		

08410000 RED BLUFF RESERVOIR NEAR ORLA, TX

LOCATION.--Lat 31°54'04", long 103°54'35", Reeves County, Hydrologic Unit 13070001, at right end of Red Bluff Dam on the Pecos River, 2.8 mi (4.5 km) upstream from Salt Creek, and 5.2 mi (8.4 km) north of Orla.

DRAINAGE AREA.--20,720 mi² (53,660 km²), approximately (contributing area).

PERIOD OF RECORD.--February 1937 to current year. Monthly contents only for some periods, published in WSP 1312.

GAGE.--Nonrecording gage. Datum of gage is 0.43 ft (0.131 m) below National Geodetic Vertical Datum of 1929.

REMARKS.--The reservoir is formed by a rock-faced earthfill dam 9,200 ft (2,800 m) long. The dam was completed and storage began in September 1936. The dam and reservoir are owned and operated by the Red Bluff Water Power Control District. The water is used for power development and for irrigation from Mentone to Grandfalls. The uncontrolled emergency spillway, 790 ft (241 m) wide, is a cut through natural ground located to the right of right end of dam. The controlled service spillway is equipped with 12 tainter gates that are 25 by 15 ft (8 by 5 m) high. Inflow is regulated by many reservoirs and diversions dams. 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, 62,450 acre-ft (77.0 hm³) Mar. 20 to Apr. 2, gage height, 2,807.7 ft (855.79 m); minimum observed, 41,500 acre-ft (51.2 hm³) Aug. 2, gage height, 2,801.0 ft (853.74 m).

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

2,801.0	41,500
2,804.0	50,000
2,808.0	63,500

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51200	53000	55100	57900	60000	61050	62450	50600	51800	50900	41750	44900
2	51200	53000	55100	57900	60000	61400	62450	50600	51500	51200	41500	44600
3	51200	53000	55100	57900	60000	61400	61400	50600	51500	51200	44000	44600
4	51200	53000	55100	57900	60000	61400	61050	50600	51500	51200	44000	44600
5	51200	53000	55450	58250	60000	61400	60350	50900	51200	51200	44000	44600
6	51500	53350	55450	58250	60000	61400	59650	50900	51200	51200	44000	44600
7	51500	53350	55450	58250	60000	61400	58950	51200	51200	51200	44000	44600
8	51500	53350	55800	58250	60000	61400	57900	51200	50900	51200	44000	44600
9	51800	53350	55800	58600	60000	61400	57200	51500	50600	50900	44000	44600
10	51800	53350	55800	58600	60000	61400	56500	51500	50600	50900	44000	44300
11	51800	53700	56150	58600	60350	61750	55800	51800	50300	50900	44000	44600
12	52100	53700	56150	58600	60350	61750	55100	51800	50000	50900	44000	44600
13	52100	53700	56150	58600	60350	61750	54400	51800	49700	50900	44000	44600
14	52100	53700	56500	58600	60350	61750	53700	51800	50000	50900	44000	44600
15	52100	54050	56500	58600	60350	62100	52700	51800	50000	50600	44000	44600
16	52400	54050	56500	58950	60700	62100	52100	51800	50000	50600	43750	46700
17	52400	54050	56500	58950	60700	62100	51200	51800	50000	50300	43750	47000
18	52400	54050	56850	58950	60700	62100	50600	51800	50000	50000	43750	47600
19	52400	54050	56850	58950	60700	62100	50300	51800	50000	49700	44900	47600
20	52400	54400	56850	59300	60700	62450	50000	51800	50000	49400	45200	47600
21	52400	54400	56850	59300	60700	62450	49700	51800	50000	48800	45200	47600
22	52700	54400	57200	59300	61050	62450	49700	51800	49700	47900	45200	47300
23	52700	54400	57200	59300	61050	62450	49700	51800	49700	47000	45200	47300
24	52700	54400	57200	59300	61050	62450	49700	51800	49700	46400	45200	47300
25	53000	54750	57200	59300	61050	62450	49700	51800	49700	45800	45200	47300
26	53000	54750	57200	59650	61050	62450	49700	51800	49700	45200	44900	47300
27	53000	54750	57550	59650	61050	62450	49700	51800	49700	44300	44900	47300
28	53000	54750	57550	59650	61050	62450	49700	51800	49700	43750	44900	47000
29	53000	54750	57550	59650	---	62450	50000	51800	49400	43250	44900	47000
30	53000	54750	57550	60000	---	62450	50600	51800	49400	42750	44900	47300
31	53000	---	57550	60000	---	62450	---	51800	---	42250	44900	---
MAX	53000	54750	57550	60000	61050	62450	62450	51800	51800	51200	45200	47600
MIN	51200	53000	55100	57900	60000	61050	49700	50600	49400	42250	41500	44300
(†)	2805.0	2805.5	2806.3	2807.0	2807.3	2807.7	2804.2	2804.6	2803.8	2801.3	2802.3	2803.1
(‡)	+1500	+1750	+2800	+2450	+1050	+1400	-11850	+1200	-2400	-7150	+2650	+2400

CAL YR 1981 MAX 78650 MIN 51200 ‡ -15150
WTR YR 1982 MAX 62450 MIN 41500 ‡ -4200

† 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.--45 years (water years 1938-82), 164 ft³/s (4.644 m³/s), 118,800 acre-ft/yr (146 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, 419 ft³/s (11.9 m³/s) July 24 at 1330 hours, gage height, 4.75 ft (1.448 m); minimum daily, 5.3 ft³/s (0.15 m³/s) May 17, 18.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	178	9.1	11	10	8.6	8.9	8.5	11	6.6	81	8.0	12
2	22	9.2	11	10	8.3	8.9	78	11	5.8	35	9.7	12
3	15	9.0	11	10	8.4	8.9	282	11	12	32	9.2	21
4	15	9.5	10	9.4	8.4	8.9	284	10	95	24	8.6	11
5	16	10	10	9.5	8.4	8.9	280	17	90	20	8.5	11
6	15	11	10	9.5	8.3	8.9	276	18	88	19	9.7	10
7	18	11	11	9.5	7.9	8.9	283	14	88	17	9.0	9.7
8	19	11	11	9.5	8.4	8.9	283	11	92	49	9.8	9.6
9	17	11	11	9.5	7.9	8.9	290	9.7	124	19	12	9.5
10	16	11	11	9.5	7.9	8.9	291	8.8	127	15	16	10
11	29	10	12	9.5	8.3	8.9	292	8.5	129	16	18	14
12	30	11	11	9.5	8.2	8.9	292	8.4	129	48	14	14
13	20	11	12	9.2	7.9	8.9	292	7.5	126	104	13	13
14	16	12	11	9.5	7.4	8.5	290	6.2	136	94	13	11
15	14	13	11	9.5	7.3	8.4	288	6.2	138	91	12	10
16	14	12	11	9.5	6.9	7.6	286	5.7	134	81	13	8.8
17	12	11	10	9.5	6.8	7.4	290	5.3	110	83	13	35
18	11	12	9.1	9.3	6.6	7.6	290	5.3	27	77	13	92
19	11	11	9.4	8.9	6.5	8.4	211	6.1	22	76	13	93
20	11	10	10	8.9	6.9	7.6	89	5.8	27	137	15	98
21	12	10	11	8.9	7.4	6.8	98	5.4	30	272	16	106
22	13	10	9.8	8.9	8.1	6.5	100	5.6	27	401	17	108
23	20	11	8.9	8.9	8.9	7.5	90	7.4	22	412	17	112
24	19	12	8.9	8.9	8.9	8.6	63	7.2	18	418	18	106
25	15	12	8.9	8.9	8.2	8.3	61	6.4	16	417	13	77
26	14	12	10	8.9	7.7	7.9	59	11	15	416	12	75
27	13	12	10	8.9	8.0	8.0	55	37	13	381	13	74
28	12	11	10	8.9	8.7	8.4	12	15	14	27	12	74
29	13	11	10	8.9	---	8.9	8.9	9.5	14	13	12	75
30	13	13	10	8.4	---	8.9	8.6	9.4	14	10	12	81
31	11	---	9.7	8.4	---	8.7	---	7.2	---	8.5	12	---
TOTAL	654	328.8	320.7	286.6	221.2	259.7	5531.0	307.6	1889.4	3893.5	391.5	1392.6
MEAN	21.1	11.0	10.3	9.25	7.90	8.38	184	9.92	63.0	126	12.6	46.4
MAX	178	13	12	10	8.9	8.9	292	37	138	418	18	112
MIN	11	9.0	8.9	8.4	6.5	6.5	8.5	5.3	5.8	8.5	8.0	8.8
AC-FT	1300	652	636	568	439	515	10970	610	3750	7720	777	2760

CAL YR 1981 TOTAL 28519.0 MEAN 78.1 MAX 465 MIN 6.9 AC-FT 56570
WTR YR 1982 TOTAL 15476.6 MEAN 42.4 MAX 418 MIN 5.3 AC-FT 30700

08412500 PECOS RIVER NEAR ORLA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1937 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1937 to current year.
WATER TEMPERATURES: March 1953 to current year.

REMARKS.--October 1937 to September 1969, this station was published as 08410100 Pecos River below Red Bluff Dam, near Orla. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 29,400 micromhos May 16, 1978; minimum daily, 1,610 micromhos June 2, 1948.
WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 13, 1978, and Aug. 13, 1982; minimum daily, 0.0°C Jan. 11, 1982.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 27,200 micromhos May 31; minimum daily, 10,100 micromhos Oct. 1.
WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 13; minimum daily, 0.0°C Jan. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
21...	1545	12	21300	18.0	3400	3300	860	310	4000
DEC									
03...	1235	9.9	23800	9.0	3600	3500	910	320	4500
APR									
28...	1330	9.3	13700	20.0	2700	2500	650	250	2400
JUN									
30...	1405	14	15900	29.0	2800	2700	680	260	2800
AUG									
25...	1615	13	17100	29.0	3000	2900	720	280	3100

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT								
21...	30	33	110	3100	7000	1.5	4.0	15400
DEC								
03...	33	36	120	3200	7800	1.5	3.5	16800
APR								
28...	20	52	110	2200	4000	1.0	1.6	9620
JUN								
30...	25	54	100	2500	4700	1.1	4.2	11100
AUG								
25...	25	73	100	2400	5200	.9	8.8	11800

08412500 PECOS RIVER NEAR ORLA, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	654	18000	12400	21900	5400	9500	2500	4490	*
NOV.	1981	328.8	23400	16300	14500	7300	6500	3100	2780	*
DEC.	1981	320.7	23100	16200	14000	7200	6260	3100	2690	*
JAN.	1982	286.6	23400	16400	12700	7300	5670	3100	2420	*
FEB.	1982	221.2	23500	16400	9820	7400	4410	3100	1880	*
MAR.	1982	259.7	23300	16300	11400	7300	5110	3100	2190	*
APR.	1982	5531.0	12100	8130	121000	3300	49200	1900	28500	*
MAY	1982	307.6	21900	15300	12700	6800	5640	3000	2470	*
JUNE	1982	1889.4	13900	9360	47700	3900	19700	2100	10800	*
JULY	1982	3893.5	13100	8810	92700	3600	37800	2000	21400	*
AUG.	1982	391.5	16000	10900	11500	4600	4830	2400	2520	*
SEPT	1982	1392.6	14300	9660	36300	4000	15000	2200	8240	*
TOTAL		15476.6	**	**	407000	**	170000	**	90500	**
WTD. AVG.		42	14400	9730	**	4100	**	2200	**	**

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10100	23100	23600	23300	23500	24000	24600	21800	26900	13800	14000	15200
2	10500	23100	23700	23400	23600	24200	24700	22000	27000	14800	13700	15000
3	11600	23000	23500	23700	23600	24200	11700	23000	26400	15400	15300	14900
4	17500	22100	23600	23800	23600	24300	11700	23100	13500	16700	16300	14100
5	19700	22800	23500	23700	23700	24300	11800	22900	13000	17700	15300	14500
6	20800	23000	23400	23800	23600	24200	11700	24300	13100	17100	15000	14800
7	21300	23100	23300	23700	23600	24300	11800	24200	13200	16300	15800	14800
8	23100	23200	23400	23600	23700	24200	11900	24100	13100	14000	15300	14800
9	23500	23100	23300	23500	23800	24100	11800	23600	12800	13700	14800	14800
10	23200	23300	23200	23600	23700	24100	11700	23000	12900	15300	15600	14700
11	22000	23500	23100	23400	23800	24200	11700	23500	12900	15300	21700	14700
12	25000	23400	22900	23400	23600	24200	11800	23900	12800	15300	18200	17000
13	20500	23500	23000	23400	23300	24300	11700	24300	12800	15400	16800	19100
14	18400	23600	23000	23000	23500	24200	11600	24100	12900	14100	16300	17300
15	17600	23500	23100	23400	23600	23400	11700	24100	14000	13800	15900	17000
16	18800	23600	23000	23300	23400	22300	11800	23800	13400	13600	15600	16500
17	19900	23500	22900	23400	23500	21900	11700	23600	13300	13400	15400	16300
18	20500	23600	22800	23600	23400	22100	11800	23700	13700	13300	15300	14200
19	20600	23500	22900	23300	23300	22200	11800	23600	17100	13400	15000	14100
20	21200	23600	22800	23200	23300	22100	12800	23600	16400	13200	14900	14000
21	21300	23500	22900	23300	23200	22200	12700	23900	21300	12900	14900	14000
22	21600	23400	23000	23300	23400	21400	12600	24300	18800	13000	15300	14000
23	21900	23500	23100	23200	23400	22200	12900	24400	18200	12000	16600	13900
24	23400	23400	23000	23300	23400	22800	14000	24300	17700	11900	17200	14300
25	23600	23500	23100	23200	23500	22600	14100	24600	17200	12900	17000	14400
26	23500	23600	22900	23300	23600	22500	14000	25600	17000	13000	16800	14200
27	23300	23700	23000	23200	23400	22400	13800	15000	16700	12900	15500	14100
28	23200	23600	23100	23200	23600	22400	13800	14400	15900	13500	15800	14000
29	23000	23700	23000	23100	---	22500	15400	16100	15800	14200	15200	13900
30	23000	23600	23100	23300	---	22400	20600	19500	15900	14200	15100	13500
31	23100	---	23000	23500	---	23900	---	27200	---	13900	15100	---
MEAN	20500	23400	23100	23400	23500	23200	13500	22900	16200	14200	15800	14900

08412500 PECOS RIVER NEAR ORLA, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	13.0	9.5	6.0	7.0	11.0	18.0	18.0	22.0	25.0	28.0	28.0
2	21.0	11.0	8.0	8.0	6.0	12.0	16.0	19.0	24.0	25.0	27.0	27.5
3	23.0	12.0	8.0	8.0	4.0	---	15.0	21.0	25.0	27.0	28.0	26.0
4	23.0	12.0	8.0	5.0	4.0	13.0	13.0	22.0	22.0	28.0	29.0	25.0
5	24.0	12.0	7.5	6.0	2.0	11.0	15.0	21.0	24.0	27.0	28.5	---
6	23.0	14.0	8.0	7.0	5.0	10.0	14.0	19.0	24.0	27.0	28.0	25.0
7	20.0	14.0	11.0	6.0	3.0	9.0	15.0	20.0	24.0	28.0	27.0	29.0
8	19.0	---	8.0	6.0	5.0	9.0	16.0	21.5	23.0	---	---	24.0
9	19.0	12.5	8.0	3.0	6.0	11.0	15.0	21.0	23.0	27.0	22.0	25.0
10	20.0	10.5	8.0	---	5.0	14.0	16.0	23.0	24.0	28.0	27.0	---
11	22.0	11.0	9.0	.0	8.0	15.0	---	25.0	25.0	28.0	27.0	25.0
12	22.0	12.0	10.0	3.0	8.0	16.0	17.0	23.0	23.0	26.5	28.0	24.0
13	22.0	11.0	11.0	3.0	9.0	16.0	20.0	24.0	23.0	26.0	31.0	23.0
14	21.0	11.0	11.0	2.0	9.0	17.0	---	20.0	24.5	28.0	28.0	24.0
15	22.0	13.0	9.0	3.0	13.0	16.0	18.0	20.0	23.0	25.0	27.0	26.0
16	22.0	12.0	9.0	2.0	11.0	15.0	17.0	22.0	23.0	26.0	28.0	24.0
17	21.0	13.0	8.0	2.0	---	14.0	17.0	22.0	24.0	25.0	28.0	24.0
18	18.0	12.0	5.0	8.0	13.0	17.0	18.0	23.0	25.0	26.0	30.0	23.0
19	17.0	11.0	4.0	6.0	16.0	18.0	18.0	25.0	26.0	26.0	---	23.0
20	16.0	10.0	6.0	9.0	14.0	16.0	17.0	24.0	---	25.0	28.0	23.0
21	18.0	10.0	8.0	10.0	13.0	15.0	13.5	23.0	22.0	26.0	27.0	21.5
22	16.0	9.0	---	10.0	18.0	15.0	13.0	23.0	28.0	26.0	27.0	21.5
23	14.0	10.0	6.0	6.0	18.0	16.0	13.0	24.0	27.0	---	26.0	21.0
24	13.0	11.0	---	7.0	14.0	15.0	---	23.0	26.0	25.0	26.0	21.5
25	15.0	11.0	6.0	8.0	12.0	13.0	17.0	23.0	27.0	26.0	27.0	22.0
26	13.0	---	5.0	7.0	10.5	13.0	18.0	24.0	---	26.0	26.0	20.0
27	13.0	10.0	7.0	6.0	8.0	13.0	17.0	---	27.0	26.0	27.0	21.0
28	13.0	10.5	6.0	8.0	10.5	14.0	17.0	27.0	29.5	26.0	27.0	22.5
29	14.0	13.0	8.0	9.5	---	---	24.0	22.0	28.0	26.0	27.0	22.5
30	17.0	12.0	8.0	9.0	---	16.0	21.0	---	27.0	27.0	27.0	---
31	15.0	---	7.0	6.0	---	14.0	---	24.0	---	28.0	28.0	---
MEAN	18.5	11.5	8.0	6.0	9.5	14.0	16.5	22.5	25.0	26.5	27.5	24.0

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.--36 years (water years 1923-24, 1940, 1943-57, 1965-82), 8.18 ft^3/s (0.232 m^3/s), 5,930 acreft/yr (7.31 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 1981 TO SEPTEMBER 1982
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	.00	.00
2	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.02	.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	.01	.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	.07	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.07	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.02	.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	.02	.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	.28	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00
MEAN	.009	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.07	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.6	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00

CAL YR 1981 TOTAL 379.91 MEAN 1.04 MAX 15 MIN .00 AC-FT 754
WTR YR 1982 TOTAL 0.29 MEAN .001 MAX .07 MIN .00 AC-FT .60

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

AVERAGE DISCHARGE.--34 years (water years 1940, 1943-57, 1965-82), 8.86 ft^3/s (0.251 m^3/s), 6,420 acre-ft/yr (7.92 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 189 ft^3/s (5.35 m^3/s) Sept. 28, 1978; no flow at times each year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	.11	.00	.00	.00	.00	.00	5.1	.08	5.6	9.2	1.9
2	29	.10	.00	.00	.00	.00	.00	6.1	.52	5.6	27	1.9
3	23	.09	.00	.00	.00	.00	.00	4.9	.28	36	24	1.9
4	4.4	.07	.00	.00	.00	.00	.00	4.1	.12	36	41	2.2
5	3.0	.07	.00	.00	.00	.00	.00	4.9	.06	23	27	2.2
6	2.6	.06	.00	.00	.00	.00	.00	4.4	.06	19	19	2.2
7	2.6	.04	.00	.00	.00	.00	.00	3.5	21	17	15	2.2
8	2.2	.04	.00	.00	.00	.00	2.1	4.3	30	14	15	2.2
9	1.9	.04	.00	.00	.00	.00	62	4.9	26	10	11	2.6
10	1.9	.02	.00	.00	.00	.00	8.8	5.1	22	9.2	6.9	3.0
11	1.9	.02	.00	.00	.00	.00	5.9	3.6	20	20	6.9	3.0
12	1.6	.02	.00	.00	.00	.00	5.9	2.7	27	24	6.2	3.0
13	1.3	.00	.00	.00	.00	.00	5.8	1.8	34	18	6.2	3.0
14	1.3	.00	.00	.00	.00	.00	25	1.4	36	26	6.9	2.6
15	1.9	.00	.00	.00	.00	.00	33	1.0	35	15	7.6	3.0
16	1.6	.00	.00	.00	.00	.00	28	.84	35	1.1	11	3.4
17	1.3	.00	.00	.00	.00	.00	28	.83	40	.70	8.4	4.4
18	1.1	.00	.00	.00	.00	.00	28	.62	44	.54	6.9	3.0
19	.88	.00	.00	.00	.00	.00	14	.41	32	.40	5.4	3.0
20	.65	.00	.00	.00	.00	.00	8.9	.58	.71	.40	3.9	1.9
21	.54	.00	.00	.00	.00	.00	7.1	.35	.57	.29	3.9	2.0
22	.54	.00	.00	.00	.00	.00	5.7	.20	.44	.29	3.4	2.0
23	.43	.00	.00	.00	.00	.00	5.5	.17	3.9	.54	3.0	2.0
24	.35	.00	.00	.00	.00	.00	14	.18	10	.70	1.9	2.0
25	.29	.00	.00	.00	.00	.00	17	.15	11	.54	1.9	2.0
26	.25	.00	.00	.00	.00	.00	13	.10	9.1	.54	1.9	1.9
27	.20	.00	.00	.00	.00	.00	20	.06	8.5	.54	1.9	1.9
28	.19	.00	.00	.00	.00	.00	31	.02	6.3	.54	1.9	1.9
29	.16	.00	.00	.00	---	.00	23	.01	4.7	.54	1.9	1.9
30	.16	.00	.00	.00	---	.00	7.0	.00	3.2	.40	1.9	1.9
31	.13	---	.00	.00	---	.00	---	.00	---	.16	1.9	---
TOTAL	112.37	.68	.00	.00	.00	.00	398.70	62.32	461.54	286.62	290.0	72.1
MEAN	3.62	.023	.000	.000	.000	.000	13.3	2.01	15.4	9.25	9.35	2.40
MAX	29	.11	.00	.00	.00	.00	62	6.1	44	36	41	4.4
MIN	.13	.00	.00	.00	.00	.00	.00	.00	.06	.16	1.9	1.9
AC-FT	223	1.3	.00	.00	.00	.00	791	124	915	569	575	143

CAL YR 1981 TOTAL 3327.01 MEAN 9.12 MAX 61 MIN .00 AC-FT 6600
WTR YR 1982 TOTAL 1684.33 MEAN 4.61 MAX 62 MIN .00 AC-FT 3340

08418000 WARD COUNTY IRRIGATION DISTRICT NO. 1 CANAL NEAR BARSTOW, TX

LOCATION.--Lat 31°32'26", long 103°29'42", Ward County, Hydrologic Unit 13070001, on left bank 0.6 mi (1.0 km) downstream from headgate and 7.9 mi (12.7 km) northwest of Barstow.

PERIOD OF RECORD.--February 1922 to September 1925 (published as "Barstow Canal near Barstow"), August 1939 to May 1941, October 1941 to September 1957, and March 1964 to current year.

GAGE.--Water-stage recorder. Concrete weir since Nov. 20, 1968. Altitude of gage is 2,600 ft (792 m) from topographic map. Prior to Aug. 15, 1939, at site about 3,000 ft (910 m) upstream at different datum.

REMARKS.--Records good. Local runoff is deleted from daily discharge record. Water is diverted from left bank of Pecos River and is used for irrigation in the vicinity of Barstow. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years (water years 1923-25, 1940, 1942-57, 1965-82), 27.2 ft^3/s (0.770 m^3/s), 19,710 acre-ft/yr (24.3 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 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.04	.00	.30	.03	.00	.10	.06	.00	.30	.33	.16
2	.89	.00	.00	.23	.00	.00	.02	.00	.00	.30	.33	.16
3	.54	.00	.00	.20	.00	.00	.00	.00	.00	.30	.24	.18
4	.54	.00	.00	.10	.00	.00	.01	.00	.00	.30	.18	.18
5	.54	.00	.04	.10	.00	.00	24	.00	.00	.30	.18	.18
6	.30	.00	.25	.04	.00	.00	31	.00	.00	.25	.15	.16
7	.30	.00	.43	.22	.00	.00	16	.00	.00	.20	.16	.17
8	.30	.00	1.0	.30	.00	.00	4.4	.00	.00	.20	.16	.17
9	.20	.00	1.7	.30	.00	.00	4.2	.00	5.7	.20	.15	.03
10	.20	.00	1.9	.24	.00	.00	4.0	.00	14	1.1	.19	.00
11	.20	.00	1.9	.16	.00	.00	3.8	.00	16	1.2	.31	.00
12	.20	.00	1.9	.10	.00	.00	15	.00	16	.41	.48	.00
13	.20	.00	1.9	.10	.00	.00	25	.00	15	.37	.45	.00
14	.10	.00	1.7	.06	.00	.00	21	.00	19	.40	.48	.00
15	.10	.00	1.6	.00	.00	.00	17	.00	22	.37	.49	.00
16	.10	.00	1.6	.00	.00	.00	16	.00	14	21	.51	.00
17	.10	.00	1.8	.00	.00	.00	21	.00	2.6	33	.41	.00
18	.10	.00	1.9	.00	.00	.00	29	.00	2.0	30	.31	.00
19	.10	.00	1.9	.00	.00	.00	38	.00	1.9	22	.27	.00
20	.10	.00	1.7	.00	.00	.00	24	.00	1.8	21	.25	.00
21	.10	.00	1.5	.00	.00	.00	9.3	.00	1.7	8.8	.25	19
22	.10	.00	1.2	.00	.00	.00	.30	.00	1.6	1.6	.25	38
23	.10	.00	1.1	.00	.00	.00	.21	.00	1.4	1.6	.25	41
24	.10	.00	1.1	.00	.00	.00	.20	.00	1.3	1.6	.24	39
25	.10	.00	.88	.00	.00	.00	.16	.00	.93	4.7	.22	43
26	.10	.00	.84	.00	.00	.00	.10	.00	.84	20	.20	44
27	.10	.00	.74	.00	.00	.00	.10	.00	.84	19	.20	36
28	.10	.00	.54	.01	.00	.00	.10	.00	.75	8.0	.19	24
29	.10	.00	.47	.20	---	.00	.10	.00	.57	.54	.20	21
30	.10	.00	.30	.11	---	.00	.10	.00	.40	.54	.17	21
31	.10	---	.30	.10	---	.89	---	.00	---	.35	.15	---
TOTAL	7.31	.04	32.19	2.87	.03	.89	304.20	.06	140.33	199.93	8.35	327.39
MEAN	.24	.001	1.04	.093	.001	.029	10.1	.002	4.68	6.45	.27	10.9
MAX	1.1	.04	1.9	.30	.03	.89	38	.06	22	33	.51	44
MIN	.10	.00	.00	.00	.00	.00	.00	.00	.00	.20	.15	.00
AC-FT	14	.08	64	5.7	.06	1.8	603	.1	278	397	17	649

CAL YR 1981 TOTAL 1276.28 MEAN 3.50 MAX 44 MIN .00 AC-FT 2530
WTR YR 1982 TOTAL 1023.59 MEAN 2.80 MAX 44 MIN .00 AC-FT 2030

08431700 LIMPIA CREEK ABOVE FORT DAVIS, TX
(Hydrologic bench-mark station)

LOCATION.--Lat 30°36'48", long 104°00'04", Jeff Davis County, Hydrologic Unit 13070005, on left downstream side of bridge on State Highway 118, about 1,400 ft (430 m) upstream from Jones Creek, and 6.8 mi (10.9 km) west of Fort Davis.

DRAINAGE AREA.--52.4 mi² (135.7 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 5,175.00 ft (1,577.340 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1979, at site 600 ft (183 m) upstream at datum 3.71 ft (1.131 m) higher.

REMARKS.--Water-discharge records good. No diversion above station. Recording rain gage at station.

AVERAGE DISCHARGE.--17 years, 2.67 ft³/s (0.0756 m³/s), 0.69 in/yr (18 mm/yr), 1,930 acre-ft/yr (2.38 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,420 ft³/s (96.9 m³/s) Sept. 25, 1978, gage height, 12.63 ft (3.850 m), present datum, from rating curve extended above 150 ft³/s (4.25 m³/s) on basis of slope-area measurements of 1,130, 1,560, and 2,630 ft³/s (32.0, 44.2, and 74.5 m³/s); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1925, about 13.7 ft (4.18 m) in 1939, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31 ft³/s (0.88 m³/s) Oct. 9 at 0300 hours, gage height, 2.08 ft (0.634 m), no peak above base of 1,000 ft³/s (28.3 m³/s); no flow most of year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	.44	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	1.0	.34	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	1.2	.24	.00	.00	.00	.00	.00	.00	.00	.00	.63	.00
4	.82	.24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	2.4	.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	14	.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	18	.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	21	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	24	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	13	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	11	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	8.4	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	6.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	4.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	3.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	3.1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	2.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	2.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	2.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	1.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	1.6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	1.6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	1.4	.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	1.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.82	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.68	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.68	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.68	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.44	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.44	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	153.36	2.09	.00	.00	.00	.00	.00	.00	.00	.00	.63	.00
MEAN	4.95	.070	.000	.000	.000	.000	.000	.000	.000	.000	.020	.000
MAX	24	.44	.00	.00	.00	.00	.00	.00	.00	.00	.63	.00
MIN	.44	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.09	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
IN.	.11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	304	4.1	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.00
(†)	1.95	0	0	.11	0	0	.06	2.82	1.36	.80	3.18	.02

CAL YR 1981 TOTAL 1279.45 MEAN 3.51 MAX 267 MIN .00 CFSM .07 IN .91 AC-FT 2540 † 17.23
WTR YR 1982 TOTAL 156.08 MEAN .43 MAX 24 MIN .00 CFSM .008 IN .11 AC-FT 310 † 10.30

08433000 BARRILLA DRAW NEAR SARAGOSA, TX

LOCATION.--Lat 30°57'28", long 103°27'33", Reeves County, Hydrologic Unit 13070005, on right bank at downstream side of bridge on U.S. Highway 290 (Interstate 10), 12.2 mi (19.6 km) east of Saragosa, 17.0 mi (27.4 km) east of Balmorhea, and 34.4 mi (55.3 km) west of Fort Stockton.

DRAINAGE AREA.--612 mi^2 (,585 km^2).

PERIOD OF RECORD.--December 1924 to July 1926, June to September 1932 (published as "Barrilla Creek"), October 1975 to current year.

REVISED RECORDS.--WSP 1312: 1925.

GAGE.--Water stage recorder. Datum of gage is 3,078.36 ft (938.284 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1975, water-stage recorder at site 600 ft (180 m) upstream at 6.07-foot (1.850 m) higher datum.

REMARKS.--Records poor. Considerable diversion for irrigation by spreader dams above station.

AVERAGE DISCHARGE.--7 years, 3.88 ft^3/s (0.110 m^3/s), 2,810 acre-ft/yr (3.46 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft^3/s (439 m^3/s) Aug. 30, 1932, gage height, 10.45 ft (3.185 m), site and datum then in use no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 41 ft^3/s (1.16 m^3/s) June 17 at 2230 hours, gage height, 4.56 ft (1.390 m); no flow most of year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	4.2	.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	1.5	.00	.00	.00	.00
5	.00	.00	.00	.00	3.5	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	5.0	.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	.68	3.4	.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	1.4	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.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	2.2	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	1.3	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	5.5	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	1.5	.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	.87	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	2.1	.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	8.50	.00	4.20	1.50	16.07	.68	3.40	.00
MEAN	.000	.000	.000	.000	.30	.000	.14	.048	.54	.022	.11	.000
MAX	.00	.00	.00	.00	5.0	.00	4.2	1.5	5.5	.68	3.4	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	17	.00	8.3	3.0	32	1.3	6.7	.00

CAL YR 1981	TOTAL	1111.03	MEAN 3.04	MAX	653	MIN .00	AC-FT 2200	
WTR YR 1982	TOTAL	34.35	MEAN .094	MAX	5.5	MIN .00	AC-FT 68	

08436500 PECOS COUNTY WATER IMPROVEMENT DISTRICT NO. 2 (UPPER DIVERSION) CANAL NEAR GRANDFALLS, TX

LOCATION.--Lat 31°18'43", long 102°55'10", Ward County, Hydrologic Unit 13070001, on left bank about 2.5 mi (4.0 km) upstream from bridge on State Highway 18, 4.6 mi (7.4 km) southwest of Grandfalls, and 12.5 mi (20.1 km) downstream from headgate of canal.

PERIOD OF RECORD.--March 1922 to July 1925 (published as "Imperial Highline Canal near Grandfalls"), August 1939 to September 1957, and March 1964 to current year.

GAGE.--Water-stage recorder. Concrete weir since Dec. 8, 1947. Altitude of gage is 2,455 ft (748 m), from topographic map. Prior to Aug. 21, 1939, water-stage recorder at site 8.5 mi (13.7 km) upstream at different datum. Aug. 21 to Oct. 3, 1939, and May 25 to Aug. 4, 1941, staff gage, and Oct. 4, 1939, to May 21, 1941, and Aug. 5, 1941, to Sept. 30, 1957, water-stage recorder at site 2.5 mi (4.0 km) downstream at different datum.

REMARKS.--Records good. Local runoff is deleted from daily discharge record. Water is diverted from right bank of Pecos River and is used for irrigation and to supply water for Imperial Reservoir. Water is released from Imperial Reservoir into Pecos County Water Improvement District No. 2 canal and into Pecos County Water Improvement District No. 3 canal for irrigation.

AVERAGE DISCHARGE.--37 years (water years 1924, 1940-57, 1965-82), 30.3 ft^3/s (0.858 m^3/s), 21,950 acre-ft/yr (27.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 368 ft^3/s (10.4 m^3/s) Sept. 18, 1923; no flow at times each year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	130	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	46	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.8	.00
4	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.05	.00
5	.00	.00	.00	.00	.00	.00	.00	9.2	.00	.00	.00	.00
6	.95	.00	.00	.00	.00	.00	.00	3.7	.00	.00	.00	.00
7	4.0	.00	.00	.00	.00	.00	.00	.56	.00	.00	.00	.00
8	2.2	.00	.00	.00	.00	.00	32	.02	.00	.00	.00	.00
9	1.9	.00	.00	.00	.00	.00	174	.00	.00	.00	.00	.00
10	.16	.00	.00	.00	.00	.00	191	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	198	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	198	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	203	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	206	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	201	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	197	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	195	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	197	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	198	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	186	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	134	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	144	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	137	.05	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	69	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	7.7	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.27	.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	22	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	141	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	148	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	157	.00	---
TOTAL	9.21	.00	.00	.00	.00	.00	2867.97	13.55	.00	468.00	181.85	.00
MEAN	.30	.000	.000	.000	.000	.000	95.6	.44	.000	15.1	5.87	.000
MAX	4.0	.00	.00	.00	.00	.00	206	9.2	.00	157	130	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	18	.00	.00	.00	.00	.00	5690	27	.00	928	361	.00

CAL YR 1981	TOTAL	5973.88	MEAN 16.4	MAX 244	MIN .00	AC-FT	11850
WTR YR 1982	TOTAL	3540.58	MEAN 9.70	MAX 206	MIN .00	AC-FT	7020

08437500 PECOS COUNTY WATER IMPROVEMENT DISTRICT NO. 2 CANAL NEAR IMPERIAL, TX

LOCATION.--Lat 31°16'38", long 102°43'54", Pecos County, Hydrologic Unit 13070001, on left bank about 2.4 mi (3.9 km) west of Imperial and 7.7 mi (12.4 km) downstream from Imperial Reservoir.

PERIOD OF RECORD.--April 1940 to May 1941, March 1942 to September 1957, and March 1964 to current year. Records since March 1942 are equivalent to earlier records if diversions to Pecos County Water Improvement District No. 3 canal near Imperial (station 08437600) are added to flow past station.

GAGE.--Water-stage recorder. Wooden weir June 1, 1943, to Feb. 29, 1964, and concrete weir since Mar. 1, 1964. Altitude of gage is about 2,400 ft (732 m), from topographic map. Prior to July 11, 1940, at site 1.5 mi (2.4 km) upstream at different datum. July 12, 1940, to Mar. 23, 1942, at site 2.5 mi (4.0 km) upstream at datum 3.36 ft (1.024 m) higher. Mar. 24, 1942, to May 31, 1943, at site 0.5 mi (0.8 km) upstream at datum 0.70 ft (0.213 m) higher.

REMARKS.--Records good. Local runoff is deleted from daily discharge record. Water is diverted from Imperial Reservoir (on right bank of Pecos River) for irrigation in the vicinity of Imperial, and at times includes water diverted from the Pecos River through Cut Around Canal. The total flow at this station does not include 119 acre-ft (147,100 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.--33 years (water years 1943-57, 1965-82), 11.8 ft^3/s (0.334 m^3/s), 8,550 acre-ft/yr (10.5 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 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	.00	.00	.00	.00	.00	40	.00	.00	.00	.00	.00
2	15	.00	.00	.00	.00	.00	41	.00	.00	.00	.00	.00
3	15	.00	.00	.00	.00	.00	31	.00	40	.00	.00	.00
4	18	.00	.00	.00	.00	.00	20	.00	44	.00	.00	.00
5	17	.00	.00	.00	.00	.00	14	.00	31	.00	.00	.00
6	16	.00	.00	.00	.00	.00	1.8	.00	21	.00	.00	.00
7	12	.00	.00	.00	.00	.00	.00	.00	43	22	.00	.00
8	.01	.00	.00	.00	.00	.00	.00	.00	3.6	23	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	19	.00	17
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	16	.00	18
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	16	.00	6.5
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	10	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.63	.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	3.2	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	9.2	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	17	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	17	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	17	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	18	13	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	19	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	16	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.5	.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	3.2	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	7.6	.00	.00	.00	.00	.00	50
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	47
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	109.01	.00	.00	.00	.00	10.80	147.80	.00	182.60	164.13	76.40	138.50
MEAN	3.52	.000	.000	.000	.000	.35	4.93	.000	6.09	5.29	2.46	4.62
MAX	18	.00	.00	.00	.00	7.6	41	.00	44	23	17	50
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	216	.00	.00	.00	.00	21	293	.00	362	326	152	275

CAL YR 1981 TOTAL 1467.65 MEAN 4.02 MAX 61 MIN .00 AC-FT 2910
WTR YR 1982 TOTAL 829.24 MEAN 2.27 MAX 50 MIN .00 AC-FT 1640

08437600 PECOS COUNTY WATER IMPROVEMENT DISTRICT NO. 3 CANAL NEAR IMPERIAL, TX

LOCATION.--Lat 31°16'51", long 102°44'26", Pecos County, Hydrologic Unit 13070001, on left bank about 220 ft (67 m) upstream from bridge on Farm Road 11, 0.3 mi (0.5 km) downstream from headgate (Pecos No. 2 canal), and 2.9 mi (4.7 km) west of Imperial.

PERIOD OF RECORD.--March 1940 to September 1941, March 1942 to September 1957, and March 1964 to current year.

GAGE.--Water-stage recorder. Concrete weir since Mar. 7, 1944. Altitude of gage is 2,390 ft (728 m), from topographic map. Prior to Jan. 10, 1941, at site 350 ft (107 m) downstream at datum 6.79 ft (2.070 m) lower. Jan. 10, 1941, to Mar. 29, 1942, at site 200 ft (61 m) downstream at datum 3.65 ft (1.113 m) lower.

REMARKS.--Records good. Local runoff is deleted from daily discharge record. Water is diverted from Imperial Reservoir (on right bank of Pecos River), 7.6 mi (12.2 km) upstream, for irrigtion in the vicinity of Imperial, and at times includes water diverted from the Pecos River by Cut Around Canal.

AVERAGE DISCHARGE.--34 years (water years 1941, 1943-57, 1965-82), 8.85 ft^3/s (0.251 m^3/s), 6,410 acre-ft/yr (7.90 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 175 ft^3/s (4.96 m^3/s) Aug. 11, 1940; no flow at times each year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	21	.00	.00	.00	.00	.00	1.7	.00	.00	.00	.00	.00
3	21	.00	.00	.00	.00	.00	26	.00	.00	.00	.00	.00
4	12	.00	.00	.00	.00	.00	16	.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	27	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	19	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.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	25	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.8	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.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	---	1.1	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.75	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.04	---	.00	---	.00	.00	---
TOTAL	75.00	.00	.00	.00	.00	1.89	43.70	.00	.00	76.04	.00	.00
MEAN	2.42	.000	.000	.000	.000	.061	1.46	.000	.000	2.45	.000	.000
MAX	21	.00	.00	.00	.00	1.1	26	.00	.00	27	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	149	.00	.00	.00	.00	3.7	87	.00	.00	151	.00	.00

CAL YR 1981 TOTAL 544.30 MEAN 1.49 MAX 33 MIN .00 AC-FT 1080
WTR YR 1982 TOTAL 196.63 MEAN .54 MAX 27 MIN .00 AC-FT 390

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 fair. 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. An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--34 years (water years 1940, 1943-57, 1965-82), 18.8 ft^3/s (0.532 m^3/s), 13,620 acre-ft/yr (16.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 198 ft^3/s (5.61 m^3/s) Apr. 9, 1947; no flow at times each year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.70	80	.09	.04	.00	.00	.00	13	.00	.00	.00	.00
2	2.7	85	.06	.04	.00	.00	.00	13	.00	.00	.00	.00
3	6.3	92	.07	.04	.00	.00	3.8	14	.00	.00	6.3	.00
4	28	66	.09	.04	.00	.00	.00	17	.00	.00	11	.00
5	22	.65	.07	.04	.00	.00	.00	16	.00	.00	6.3	.00
6	50	.14	.07	.02	.00	.00	.00	14	.00	.00	3.2	.00
7	79	.14	.07	.04	.00	.00	.00	14	.00	.00	1.4	.00
8	71	.14	.07	.04	.00	.00	.00	8.8	.00	.00	.84	.00
9	58	.14	.07	.04	.00	.00	.00	.27	.00	.00	.55	.00
10	44	.14	.07	.04	.00	.00	.00	.21	.00	.00	.50	.00
11	38	.14	.07	.04	.00	.00	.00	.18	.00	.00	.17	.00
12	37	.14	.07	.04	.00	.00	.00	.22	.00	.00	.02	.00
13	36	.14	.07	.04	.00	.00	.00	.17	.00	.00	.00	.00
14	34	.09	.07	.04	.00	.00	.00	.11	.00	.00	.00	.00
15	32	.09	.07	.04	.00	.00	.00	.06	.00	.00	.00	.00
16	39	.09	.07	.00	.00	.00	.00	.14	.00	.00	.00	.00
17	83	.09	.07	.00	.00	.00	.00	.07	.00	.00	.00	.00
18	60	.09	.07	.00	.00	.00	.00	.05	.00	.00	.00	.00
19	28	.09	.07	.00	.00	.00	.00	.14	.00	.00	.00	.00
20	31	.09	.07	.00	.00	.00	.00	.24	.00	.00	.00	.00
21	29	.09	.07	.00	.00	.00	72	.08	.03	.00	.00	.00
22	30	.09	.07	.00	.00	.00	78	.05	.00	.00	.00	.00
23	30	.09	.07	.00	.00	.00	76	.48	.00	.00	.00	.00
24	29	.09	.07	.00	.00	.00	66	.00	.00	.18	.00	.00
25	29	.09	.07	.00	.00	.00	83	.00	.00	9.7	.00	.00
26	30	.09	.06	.00	.00	2.8	78	.02	.00	27	.00	.00
27	31	.09	.06	.00	.00	.16	12	.00	.00	30	.00	.00
28	29	.09	.05	.00	.00	.76	12	.00	.00	30	.00	.00
29	27	.09	.04	.00	---	.03	13	.00	.00	8.2	.00	.00
30	27	.09	.04	.00	---	.00	13	.00	.00	.00	.00	.00
31	55	---	.04	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	1125.70	326.30	2.07	.58	.00	3.75	506.80	112.29	.03	105.08	30.28	.00
MEAN	36.3	10.9	.067	.019	.000	.12	16.9	3.62	.001	3.39	.98	.000
MAX	83	92	.09	.04	.00	2.8	83	17	.03	30	11	.00
MIN	.70	.09	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	2230	647	4.1	1.2	.00	7.4	1010	223	.06	208	60	.00

CAL YR 1981 TOTAL 4067.04 MEAN 11.1 MAX 128 MIN .00 AC-FT 8070
WTR YR 1982 TOTAL 2212.88 MEAN 6.06 MAX 92 MIN .00 AC-FT 4390

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 mi^2 (76,560 km^2), 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 ft^3/s (11.3 m^3/s), 7.2 mi (11.6 km) downstream at datum 2,269.65 ft (691.789 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. Flow is largely regulated by Red Bluff Reservoir (station 08410000). Numerous diversions above station for irrigation.

AVERAGE DISCHARGE.--43 years, 85.7 ft^3/s (2.427 m^3/s), 62,090 acre-ft/yr (76.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft^3/s (566 m^3/s) Oct. 5, 1941, gage height, 20.49 ft (6.245 m), at supplementary gage; minimum daily, 1.9 ft^3/s (0.054 m^3/s) June 19, July 14, 1982.
Maximum stage since at least 1932, that of Oct. 5, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 181 ft^3/s (5.13 m^3/s) June 26 at 1200 hours, gage height, 3.20 ft (0.975 m); minimum daily, 1.9 ft^3/s (0.054 m^3/s) June 19, July 14.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	33	39	37	19	22	27	13	24	15	3.0	11
2	41	35	38	38	18	24	24	30	20	12	12	9.4
3	41	35	38	38	18	24	22	35	17	9.6	21	10
4	44	34	37	38	17	27	21	28	13	8.5	14	11
5	48	32	37	37	16	28	20	34	11	7.1	9.0	11
6	88	30	38	38	17	26	19	41	12	6.1	6.4	11
7	74	29	38	38	19	26	18	33	20	7.9	5.5	10
8	54	28	38	37	18	29	19	50	12	6.5	5.2	11
9	49	26	38	37	17	32	23	152	9.8	5.3	4.9	11
10	58	30	38	38	14	33	21	86	7.4	5.2	4.6	11
11	73	44	38	34	10	34	19	29	7.0	3.3	4.6	10
12	73	49	38	31	12	34	66	14	6.2	3.1	3.6	11
13	70	49	39	30	12	34	54	7.1	4.8	2.8	3.6	15
14	60	48	40	32	11	33	33	4.2	3.8	1.9	3.8	15
15	52	49	39	32	11	31	25	3.5	4.1	21	4.3	12
16	45	47	39	33	11	31	20	3.3	3.7	15	4.6	12
17	40	46	37	32	11	31	17	3.3	2.8	8.5	4.9	12
18	37	47	37	31	12	31	15	3.4	2.2	4.3	5.5	12
19	34	46	36	32	11	32	14	7.7	1.9	3.2	5.8	12
20	31	44	37	33	11	31	15	6.4	2.4	2.8	6.1	12
21	32	44	37	31	13	30	17	6.5	2.9	2.8	6.4	12
22	53	44	38	33	14	30	19	6.5	33	2.5	7.0	10
23	72	44	37	31	15	30	21	8.1	18	2.8	7.0	9.4
24	63	40	37	29	15	28	21	11	19	4.3	9.0	9.0
25	61	38	36	28	14	30	19	14	52	2.8	9.8	9.8
26	54	39	39	25	16	31	18	16	130	2.2	11	11
27	51	38	40	23	16	31	17	122	83	2.8	9.8	9.8
28	50	39	40	22	17	30	14	79	49	2.8	10	11
29	47	39	37	26	---	30	12	50	30	2.6	11	11
30	42	39	37	22	---	30	14	36	21	2.2	11	12
31	38	---	37	20	---	29	---	30	---	2.4	11	---
TOTAL	1617	1185	1174	986	405	922	664	963.0	623.0	179.3	235.4	334.4
MEAN	52.2	39.5	37.9	31.8	14.5	29.7	22.1	31.1	20.8	5.78	7.59	11.1
MAX	88	49	40	38	19	34	66	152	130	21	21	15
MIN	31	26	36	20	10	22	12	3.3	1.9	1.9	3.0	9.0
AC-FT	3210	2350	2330	1960	803	1830	1320	1910	1240	356	467	663

CAL YR 1981 TOTAL 16198.5 MEAN 44.4 MAX 247 MIN 7.4 AC-FT 32130
WTR YR 1982 TOTAL 9288.1 MEAN 25.4 MAX 152 MIN 1.9 AC-FT 18420

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 September 1982 (discontinued). 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 September 1982 (discontinued).
WATER TEMPERATURES: October 1953 to January 1959, March 1964 to September 1982 (discontinued).

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 38,900 micromhos Aug. 6, 1965; minimum daily, 790 micromhos Apr. 26, 1957.
WATER TEMPERATURES: Maximum daily, 35.0°C July 16, Sept. 6, 1969, July 26, Aug. 18, 27, 1978; minimum daily, 3.0°C Feb. 3, 4, 1956, Jan. 9, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 25,700 micromhos Sept. 27; minimum daily, 9,130 micromhos May 23.
WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 14; minimum daily, 5.0°C Jan. 11, 13, 16, Feb. 5, 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
20...	0830	32	14300	17.0	2800	2700	620	300	2500
APR									
27...	1010	17	24900	20.0	5000	5000	960	640	4800
JUN									
29...	1040	31	18400	28.0	3400	3300	720	390	3300
AUG									
24...	1050	7.5	24500	26.0	4700	4700	1000	540	4600

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT								
20...	21	40	67	2600	4200	1.4	1.0	10300
APR								
27...	29	55	75	4000	8200	2.5	6.8	18700
JUN								
29...	27	70	56	3100	5600	1.7	25	13200
AUG								
24...	29	60	71	4200	7700	2.1	5.5	18200

08446500 PECOS RIVER NEAR GIRVIN, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	1617	13200	9030	39400	3700	16000	2200	9660	*
NOV.	1981	1185	17700	12400	39600	5100	16200	3000	9510	*
DEC.	1981	1174	20000	14100	44600	5800	18400	3300	10600	*
JAN.	1982	986	21200	15100	40100	6200	16600	3600	9490	*
FEB.	1982	405	21900	15600	17000	6400	7050	3700	4020	*
MAR.	1982	922	23100	16500	41200	6900	17100	3900	9670	*
APR.	1982	664	24400	17600	31500	7300	13100	4100	7350	*
MAY	1982	963.0	16100	11200	29100	4600	11900	2700	7010	*
JUNE	1982	623.0	17700	12400	20900	5100	8570	3000	5000	*
JULY	1982	179.3	20700	14600	7090	6000	2930	3500	1680	*
AUG.	1982	235.4	22400	15900	10100	6600	4200	3800	2390	*
SEPT	1982	334.4	24900	18000	16200	7500	6760	4200	3780	*
TOTAL		9288.1	**	**	337000	**	139000	**	80200	**
WTD. AVG.		25	19100	13400	**	5500	**	3200	**	**

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12700	13900	20300	20900	21800	22400	23300	23500	12300	16700	23500	24000
2	12800	14200	20100	21000	21700	22700	23500	22500	12400	16800	23000	24800
3	12000	14700	20200	21000	21800	22600	23400	22700	12600	17300	20700	24600
4	12700	15200	19700	20900	21900	22700	23500	22800	12800	18000	19600	24300
5	13300	15900	19400	21100	21700	22800	23600	23200	12900	18800	19500	25000
6	9750	16700	19000	21100	21700	22700	23700	20000	13100	19300	19300	24700
7	12800	17200	18900	21200	21900	22700	23800	21500	13000	19900	19500	24900
8	13200	17800	18500	21300	21700	22800	23600	20400	13700	20200	18800	25100
9	13400	18100	18800	21200	21700	22900	23900	19600	13700	20900	19200	25300
10	13500	18000	18500	21200	21600	23000	24000	16400	13800	21000	19600	25200
11	12800	17500	19100	21300	21700	22800	24300	14000	13900	21200	19700	25100
12	12900	16800	19400	21300	21900	23000	24900	13600	14000	22500	19900	24900
13	13000	16500	19700	21100	21800	22600	24700	14100	14200	22200	21000	24700
14	13600	16700	19800	21300	21700	23100	24500	13800	14300	22900	21800	24800
15	13500	17000	19900	21200	21700	23200	24300	13400	14400	21300	22200	24700
16	13600	17200	20000	21300	21900	23400	24000	12800	14900	21800	22300	24400
17	14100	17400	20100	21400	22000	23300	24200	12300	15100	22800	22600	24700
18	14200	17600	20200	21400	22100	23100	24300	11600	15200	22900	23000	24800
19	14300	17800	20100	21300	22000	23200	24400	11300	15400	23000	22800	24900
20	14400	17900	20300	21400	22000	23300	24700	10000	15800	23500	23000	24900
21	14500	18300	20400	21300	22200	23100	25500	10100	16100	23700	23200	24400
22	14300	18600	20500	21200	22100	23400	25600	10000	16400	24000	23600	25000
23	14400	19000	20600	21400	21600	23300	25400	9130	17800	23000	23900	24600
24	14300	19400	20500	21200	22300	23700	25300	9870	18200	23700	24300	24700
25	14100	19800	20600	21300	22400	23600	25300	9440	19100	24500	24000	25200
26	13900	20200	20500	21300	22100	23700	25400	10600	20700	24300	24200	25600
27	13200	20300	20700	21400	22200	23400	25100	11000	21800	24500	24300	25700
28	12700	20200	20800	21300	22100	23500	25200	11400	19700	24200	24300	25500
29	12800	20200	20700	21400	---	23600	25000	12000	17800	24300	24400	25600
30	13000	20400	20800	21600	---	23500	23500	12200	17100	24100	24600	25500
31	13300	---	20700	21500	---	23400	---	12400	---	23800	24400	---
MEAN	13300	17700	20000	21300	21900	23100	24400	14800	15400	21800	22100	24900

08446500 PECOS RIVER NEAR GIRVIN, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	17.0	13.0	13.0	12.0	17.0	20.0	17.0	27.0	28.0	31.0	30.0
2	26.0	17.0	13.0	14.0	10.0	18.0	18.0	17.0	18.0	29.0	29.0	29.0
3	26.0	18.0	10.0	11.0	9.0	18.0	17.0	24.0	30.0	30.0	29.0	29.0
4	26.0	18.0	13.0	12.0	6.0	19.0	23.0	24.0	28.0	---	30.0	30.0
5	24.0	18.0	12.0	12.0	5.0	12.0	22.0	24.0	28.0	29.0	25.0	30.0
6	23.0	18.0	13.0	15.0	5.0	12.0	18.0	22.0	28.0	30.0	30.0	29.0
7	20.0	19.0	14.0	10.0	8.0	12.0	20.0	25.0	26.0	29.0	30.0	29.0
8	18.0	19.0	15.0	10.0	12.0	16.0	18.0	20.0	28.0	27.0	30.0	29.0
9	22.0	17.0	16.0	10.0	10.0	16.0	21.0	20.0	30.0	28.0	28.0	30.0
10	24.0	17.0	15.0	6.0	9.0	15.0	20.0	25.0	29.0	28.0	30.0	28.0
11	23.0	17.0	16.0	5.0	11.0	18.0	20.0	26.0	28.0	28.0	30.0	30.0
12	24.0	16.0	15.0	6.0	12.0	18.0	23.0	20.0	29.0	30.0	30.0	30.0
13	22.0	17.0	15.0	5.0	10.0	19.0	23.0	26.0	29.0	31.0	---	30.0
14	23.0	17.0	13.0	9.0	16.0	20.0	25.0	23.0	28.0	30.0	33.0	29.0
15	25.0	17.0	15.0	10.0	10.0	21.0	25.0	27.0	28.0	29.0	30.0	27.0
16	25.0	18.0	15.0	5.0	15.0	21.0	24.0	26.0	27.0	25.0	32.0	28.0
17	24.0	18.0	12.0	7.0	16.0	21.0	25.0	26.0	29.0	32.0	27.0	24.0
18	21.0	18.0	10.0	12.0	16.0	21.0	22.0	27.0	30.0	27.0	31.0	29.0
19	20.0	15.0	10.0	9.0	16.0	21.0	24.0	26.0	25.0	32.0	31.0	28.0
20	21.0	16.0	13.0	10.0	15.0	20.0	20.0	27.0	29.0	30.0	31.0	27.0
21	20.0	15.0	15.0	11.0	---	20.0	15.0	28.0	28.0	32.0	29.0	26.0
22	16.0	15.0	10.0	11.0	19.0	17.0	12.0	---	30.0	30.0	29.0	26.0
23	19.0	17.0	10.0	12.0	20.0	17.0	12.0	27.0	30.0	27.0	32.0	27.0
24	19.0	15.0	11.0	13.0	18.0	22.0	19.0	24.0	26.0	28.0	29.0	28.0
25	18.0	16.0	11.0	13.0	11.0	17.0	22.0	28.0	29.0	30.0	30.0	27.0
26	17.0	17.0	14.0	10.0	10.0	17.0	22.0	28.0	29.0	31.0	31.0	27.0
27	19.0	12.0	15.0	11.0	11.0	19.0	21.0	28.0	28.0	32.0	32.0	28.0
28	17.0	17.0	14.0	14.0	12.0	15.0	23.0	24.0	28.0	32.0	26.0	28.0
29	19.0	17.0	11.0	16.0	---	17.0	24.0	28.0	30.0	27.0	30.0	27.0
30	21.0	15.0	11.0	12.0	---	18.0	19.0	28.0	26.0	31.0	30.0	---
31	18.0	---	14.0	12.0	---	19.0	---	28.0	---	26.0	26.0	---
MEAN	21.5	17.0	13.0	10.5	12.0	18.0	20.5	25.0	28.0	29.5	29.5	28.0

08447020 INDEPENDENCE CREEK NEAR SHEFFIELD, TX

LOCATION.--Lat 30°27'07", long 101°43'58", Terrell County, Hydrologic Unit 13070010, on left bank 0.5 mi (0.8 km) downstream from Joe Chandler Ranch Headquarters, 1.0 mi (1.6 km) upstream from mouth, 6 mi (10 km) downstream from bridge on Farm Road 1217, and 17 mi (27 km) southeast of Sheffield.

DRAINAGE AREA.--763 mi^2 (1,976 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 1,883 ft (574 m) National Geodetic Vertical Datum of 1929, by topographic division plane table survey.

REMARKS.--Records good. The Chandler Estate and the Roden Ranch have permits to divert 243 acre-ft (300,000 m^3) and 530 acre-ft (653,000 m^3) annually, respectively. Rain gage and gage-height satellite telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--8 years, 30.2 ft^3/s (0.855 m^3/s), 21,880 acre-ft/yr (27.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,100 ft^3/s (2,210 m^3/s) Sept. 20, 1974, gage height, 16.74 ft (5.102 m), from rating curve extended above 130 ft^3/s (3.68 m^3/s) on basis of slope-area measurement of peak flow; minimum, 13 ft^3/s (0.37 m^3/s) July 26, 1974, and Nov. 16, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, about 22 ft (6.7 m) June 28, 1954, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 80 ft^3/s (2.27 m^3/s) June 19 at 1800 hours, gage height, 2.64 ft (0.805 m), no peak above base of 700 ft^3/s (19.8 m^3/s); minimum daily, 17 ft^3/s (0.48 m^3/s) for several days in August and September.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	29	25	25	25	24	24	33	23	21	19	17
2	23	29	25	25	25	24	24	28	22	23	19	17
3	23	29	25	25	24	25	23	26	22	21	19	17
4	23	29	25	25	24	24	23	24	22	21	19	18
5	23	29	25	25	24	24	23	31	21	21	18	18
6	23	29	25	25	24	24	23	35	21	21	18	18
7	24	29	25	26	24	24	23	27	21	21	18	18
8	24	29	25	24	24	24	24	25	21	20	20	18
9	24	29	25	24	24	23	24	24	19	19	21	18
10	24	28	25	24	24	23	24	24	18	19	21	17
11	25	28	25	25	24	23	23	24	20	18	20	17
12	26	28	25	26	23	23	23	24	20	19	19	17
13	61	28	25	26	23	23	23	24	21	19	19	18
14	35	26	26	26	23	23	23	24	21	19	19	18
15	31	26	26	26	23	24	23	24	21	19	19	18
16	31	26	26	26	23	24	22	24	21	19	19	18
17	31	26	25	26	23	24	22	23	21	19	19	19
18	31	26	25	26	23	24	22	24	20	19	19	19
19	30	26	25	26	23	24	22	24	32	19	19	19
20	29	26	25	26	25	24	23	23	33	19	19	19
21	29	26	25	26	25	24	23	23	25	19	19	20
22	38	26	25	26	24	24	24	23	24	19	18	19
23	33	26	24	26	24	24	27	23	22	20	18	19
24	31	26	24	25	24	24	26	24	24	22	17	19
25	30	26	24	25	24	23	24	24	22	21	17	19
26	29	26	25	25	24	23	23	24	21	20	18	19
27	29	26	25	25	24	24	23	23	21	19	17	19
28	29	26	25	25	24	24	23	23	21	20	17	19
29	29	26	25	25	---	24	23	23	21	19	17	19
30	29	26	25	25	---	24	23	23	20	19	17	20
31	29	---	25	25	---	24	---	23	---	19	17	---
TOTAL	898	815	775	785	668	737	700	771	661	613	575	550
MEAN	29.0	27.2	25.0	25.3	23.9	23.8	23.3	24.9	22.0	19.8	18.5	18.3
MAX	61	29	26	26	25	25	27	35	33	23	21	20
MIN	22	26	24	24	23	23	22	23	18	18	17	17
AC-FT	1780	1620	1540	1560	1320	1460	1390	1530	1310	1220	1140	1090

CAL YR 1981 TOTAL 11470 MEAN 31.4 MAX 774 MIN 19 AC-FT 22750
WTR YR 1982 TOTAL 8548 MEAN 23.4 MAX 61 MIN 17 AC-FT 16950

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. Pesticide analyses: October 1975 to September 1982 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1980 to current year.
WATER TEMPERATURES: November 1980 to current year.

INSTRUMENTATION.--Beginning November 1980, specific conductance and temperature are recorded continuously at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Records of discharge for water year 1982 are given in International Boundary and Water Commission Water Bulletins Nos. 51 and 52.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,000 micromhos Mar. 21, 22, 1981; minimum daily, 230 micromhos Oct. 11, 1981.
WATER TEMPERATURES: Minimum daily, 32.5°C June 8, 1981; minimum daily, 4.0°C Jan. 13, 14, 1982.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,040 micromhos Apr. 9; minimum daily, 230 micromhos Oct. 11.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 17, 18, 20; minimum daily, 4.0°C Jan. 13, 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT												
07...	1015	690	3500	7.6	24.0	1.6	8.4	105	.8	42	65	700
DEC												
02...	1010	294	2730	7.7	13.0	.50	8.3	82	.2	K14	K16	580
FEB												
03...	0945	257	3750	7.9	10.0	.80	8.6	80	.8	K9	K14	770
APR												
07...	0930	211	4000	7.9	19.0	.40	10.1	115	.8	K9	24	760
JUN												
09...	0920	191	3000	7.9	26.5	1.1	9.8	125	.7	25	38	720
AUG												
04...	0915	180	2340	7.8	28.0	1.4	9.3	122	1.6	27	34	500

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
07...	570	160	73	490	8.1	9.5	130	480	860	.8	14
DEC											
02...	440	140	56	360	6.5	7.2	140	360	640	.7	15
FEB											
03...	610	180	78	550	8.6	8.4	160	500	950	.8	15
APR											
07...	610	170	82	560	8.8	8.8	150	490	950	.9	14
JUN											
09...	590	160	77	430	7.0	7.3	126	380	760	.8	14
AUG											
04...	370	110	55	360	7.0	6.2	130	300	610	.8	14

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
07...	2240	2170	1.1	.110	.48	.010	.010	.030	33	61	12
DEC											
02...	1730	1660	1.8	<.070	.84	<.010	.030	.020	9	7.1	17
FEB											
03...	2480	2380	.85	<.060	.44	<.010	<.010	.010	5	3.5	72
APR											
07...	2480	2370	1.4	<.060	.36	<.010	<.010	<.010	5	2.8	80
JUN											
09...	1920	1910	.91	<.060	.60	.040	.020	.010	5	2.6	55
AUG											
04...	1570	1530	.61	.070	.60	<.010	.020	.010	8	3.9	85

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 07...	1015	2	1	1	200	0	200	1	1	0	10
FEB 03...	0945	1	0	1	100	0	100	<1	--	<1	10
JUN 09...	0920	1	0	1	<100	--	<100	<1	--	<1	30
AUG 04...	0915	1	0	1	<100	--	<100	<1	--	<1	<10

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 07...	0	10	3	3	0	7	6	1	150	110	40
FEB 03...	0	10	1	--	<1	7	6	1	70	60	10
JUN 09...	0	30	<1	--	<1	5	4	1	40	10	30
AUG 04...	--	<10	4	--	<1	4	--	<1	80	50	30

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
OCT 07...	1	0	2	20	10	10	.1	.0	.1	6	6
FEB 03...	2	1	1	<10	--	10	.1	--	<.1	1	0
JUN 09...	2	--	<1	10	--	<10	.1	--	<.1	3	--
AUG 04...	6	--	<1	<10	--	<10	.2	--	<.1	5	--

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 07...	0	0	0	0	1	1	0	70	10	60
FEB 03...	1	1	0	1	<1	--	<1	70	0	70
JUN 09...	<1	1	0	1	<1	--	<1	10	0	10
AUG 04...	<1	<1	--	<1	<1	--	<1	60	40	20

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 07...	1015	--	0	--	.0	--	.0	--	.0	--	.0
FEB 03...	0945	.00	--	.00	--	.00	--	.00	--	.00	--
JUN 09...	0920	<.10	<1	<.10	<1.0	<.01	<.1	<.10	<1.0	<.01	<.1

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)	ETHION, TOTAL (UG/L)
OCT 07...	--	.1	--	.0	--	--	.0	--	--	.0	--
FEB 03...	.00	--	.00	--	.00	.00	--	.00	.00	--	.00
JUN 09...	<.01	.1	<.01	<.1	<.01	<.01	<.1	<.01	<.01	<.1	<.01

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)
OCT 07...	--	.0	--	.0	--	.0	--	--	.0	--	--
FEB 03...	.00	--	.00	--	.00	--	.00	.00	--	.00	.00
JUN 09...	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	PERTHANE 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-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT 07...	--	.0	--	--	--	.0	--	--	--	--	--
FEB 03...	.00	--	.00	.00	0	--	.00	.00	.00	.00	.00
JUN 09...	<.01	<.1	<.01	<.10	<1	<10	<.01	<.01	<.01	<.01	<.01

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	43068	993	566	65800	210	24300	120	13700	200
NOV.	1981	9766	2430	1410	37100	530	13900	300	7840	490
DEC.	1981	8552	2980	1750	40400	660	15300	370	8660	600
JAN.	1982	7893	3500	2070	44200	790	16900	450	9600	690
FEB.	1982	6879	3780	2250	41900	870	16100	490	9160	740
MAR.	1982	7176	3820	2280	44200	880	17000	500	9680	750
APR.	1982	6035	3780	2250	36700	870	14100	490	8040	740
MAY	1982	12754	2110	1220	42100	460	15800	260	8930	430
JUNE	1982	6430	2700	1570	27300	590	10300	340	5830	540
JULY	1982	5259	2050	1170	16700	440	6200	250	3490	420
AUG.	1982	4527	2320	1340	16400	500	6120	280	3450	470
SEPT	1982	4013	2280	1310	14200	490	5310	280	2990	460
TOTAL		122352	**	**	427000	**	162000	**	91300	**
WTD. AVG.		335	2210	1290	**	490	**	280	**	440

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	3420	2340	2060	2280	2770	2420	2610	3350	3320	3330
2	---	---	3410	2340	2110	2260	2780	2080	2730	3400	3340	3360
3	---	---	3420	2380	2070	2280	2800	2730	2750	3380	3350	3370
4	---	---	3430	2380	2150	2300	2770	2750	2760	3410	3370	3380
5	---	---	3440	2400	2080	2310	2780	2750	2770	3420	3380	3400
6	---	---	3450	2400	2080	2350	2820	2790	2810	3440	3380	3400
7	3560	3360	3460	2410	2200	2350	2840	2780	2810	3410	3390	3400
8	3720	3450	3600	2420	2200	2350	2880	2820	2840	3410	3390	3400
9	3680	3300	3520	2430	2280	2360	2900	2850	2880	3420	3400	3410
10	3590	3480	3530	2430	2220	2360	2970	2890	2920	3430	3410	3420
11	3540	230	645	2450	2230	2370	2990	2920	2950	3440	3410	3420
12	1160	260	465	2460	1970	2370	3030	2950	2980	3410	3380	3390
13	1000	320	456	2470	2250	2390	3000	2980	2990	3400	3370	3380
14	780	320	492	2500	2250	2400	3020	2990	3000	3400	3370	3380
15	1510	810	1140	2530	2220	2470	3020	3000	3010	3450	3400	3420
16	1840	1520	1650	2530	2080	2430	3070	3010	3030	3480	3440	3460
17	2100	1720	1850	2540	2360	2450	3050	3020	3040	3510	3480	3490
18	2330	1720	2140	2550	2100	2380	3070	3040	3060	3520	3490	3510
19	2380	1990	2290	2580	2070	2410	3090	3050	3070	3560	3500	3520
20	2420	2360	2330	2560	2360	2500	3110	3090	3100	3550	3520	3530
21	2400	2230	2370	2610	2310	2550	3160	3070	3110	3550	3530	3540
22	2320	1720	2140	2630	2350	2530	3120	3070	3100	3620	3540	3570
23	2050	1640	1840	2660	2270	2580	3080	2820	2930	3650	3570	3590
24	2160	2060	2100	2650	2380	2560	3190	3020	3100	3660	3590	3610
25	2270	2050	2210	2660	2310	2560	3120	2890	2980	3660	3610	3630
26	2330	2150	2240	2710	2400	2570	3070	2850	2950	3650	3620	3640
27	2400	2240	2330	2690	2280	2550	3250	2880	3050	3710	3640	3660
28	2420	2320	2370	2740	2370	2660	3280	3250	3260	3690	3670	3680
29	2380	2010	2300	2720	2540	2660	3300	3280	3290	3750	3680	3700
30	2350	2110	2270	2760	2470	2660	3320	3300	3310	3720	3690	3700
31	2310	2070	2220	---	---	---	3370	3300	3330	3760	3700	3720
MONTH	3720	230	2340	2760	1970	2440	3370	2080	2980	3760	3320	3500

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3750	3710	3720	3840	3770	3790	3850	3370	3590	3580	3490	3530
2	3760	3730	3750	3870	3790	3820	3870	3080	3590	3490	3220	3370
3	3770	3740	3750	3900	3830	3860	3870	3470	3640	3220	3050	3140
4	3790	3760	3770	3920	3850	3880	3890	3310	3570	3420	3230	3340
5	3810	3790	3800	3900	3870	3880	3910	3350	3780	3480	3360	3410
6	3810	3790	3810	3900	3880	3890	3900	3370	3830	3460	510	1100
7	3820	3790	3810	3940	3870	3890	4030	3820	3920	1450	890	1160
8	3840	3810	3830	3950	3880	3910	4030	3960	3990	1810	1480	1660
9	3840	3820	3830	3970	3890	3920	4040	3960	3980	2230	1830	2080
10	3840	3830	3840	3970	3910	3930	4030	3950	3980	2380	2060	2310
11	3850	3800	3840	3980	3910	3920	4030	3950	3980	2470	2340	2400
12	3850	3810	3840	3980	3900	3930	4030	3890	3980	2620	2310	2510
13	3840	3810	3830	3960	3890	3920	4020	3760	3970	2660	2560	2610
14	3840	3810	3830	3970	3900	3920	4010	3930	3970	2790	2580	2680
15	3900	3830	3860	3970	3900	3930	3990	3920	3950	2840	2580	2740
16	3910	3840	3870	3970	3610	3780	3990	3920	3950	2870	2780	2820
17	3920	3840	3880	3940	3440	3670	3920	3840	3880	2900	2800	2850
18	3920	3860	3880	3960	3300	3720	3900	3810	3840	2980	2850	2900
19	3890	3840	3880	3960	3400	3720	3860	3690	3790	3050	2910	2970
20	3880	3730	3780	3920	3360	3680	3830	3740	3770	3110	3000	3040
21	3810	3680	3730	3870	3590	3750	3750	3700	3730	3140	2830	3030
22	3700	3600	3640	3900	3430	3750	3720	3690	3710	3170	2570	3010
23	3660	3580	3610	3920	3400	3680	3690	3630	3660	3210	2970	3050
24	3690	3580	3630	3930	3560	3760	3640	3560	3600	3240	3010	3140
25	3720	3640	3680	3910	3210	3650	3620	3550	3580	3250	2970	3160
26	3700	3660	3680	3900	3360	3660	3650	3580	3610	3280	2920	3210
27	3750	3670	3700	3960	3400	3810	3670	3600	3620	3290	2740	3200
28	3800	3740	3760	3920	3700	3890	3700	3610	3640	3280	3100	3180
29	---	---	---	3890	3830	3870	3680	3600	3630	3250	2870	3080
30	---	---	---	3900	3700	3850	3610	3560	3590	3210	3140	3170
31	---	---	---	3850	3410	3610	---	---	---	3290	3160	3240
MONTH	3920	3580	3780	3980	3210	3810	4040	3080	3780	3580	510	2810

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	3270	2990	3150	2380	2270	2330	1980	1780	1930	2400	2100	2330
2	3270	3140	2970	2330	2270	2300	1960	1910	1930	2390	2280	2340
3	3290	3020	3200	2310	2230	2270	1950	1730	1880	2390	2180	2300
4	3290	2920	3230	2260	2040	2210	2550	1880	2290	2370	2200	2270
5	3290	3070	3220	2190	2130	2160	2550	2500	2520	2350	2130	2260
6	3270	2900	3150	2160	2000	2110	2540	2490	2510	2350	2150	2320
7	3250	3080	3190	2110	1990	2080	2530	2460	2510	3260	2050	2310
8	3230	3130	3200	2100	1950	2060	2520	2470	2500	2330	2120	2280
9	3210	3000	3090	2090	1980	2050	2480	2210	2390	2350	2110	2230
10	3060	2980	3020	2080	2010	2040	2430	2260	2360	2350	2180	2290
11	3020	2940	2980	2060	2000	2040	2410	2210	2330	2350	2210	2300
12	2980	2530	2790	2050	1920	2020	2350	2020	2280	2350	2300	2330
13	2830	2700	2740	2040	1910	2000	2350	2180	2280	2330	2130	2260
14	2430	2250	2570	2040	1890	1970	2390	2240	2320	2330	2290	2310
15	2720	660	2150	2010	1910	1960	2420	2350	2390	2330	2100	2240
16	2770	2700	2740	2020	1910	1980	2430	2260	2380	3340	2260	2340
17	2760	2690	2730	2030	1970	2000	2430	2240	2350	2320	2250	2280
18	2750	2550	2660	2030	1970	2000	2450	2180	2330	2310	2250	2280
19	2690	2550	2620	2040	1980	2010	2440	2140	2360	2310	2260	2290
20	2560	2140	2450	2030	1850	1990	2420	2250	2340	2310	2170	2290
21	2060	920	1420	2040	1890	2010	2430	2200	2360	2310	2080	2220
22	2660	2100	2440	2050	1960	2020	2410	2170	2330	2300	2240	2260
23	3070	2700	2890	2020	1910	1990	2420	2130	2330	2290	2240	2260
24	3080	2680	2900	2010	1940	1970	2390	2150	2320	2290	2230	2250
25	2760	2410	2560	2020	1840	1950	2420	2220	2360	2290	1940	2250
26	2440	2360	2400	2000	1910	1970	2430	2130	2340	2300	2190	2250
27	2440	2390	2420	2010	1930	1980	2430	2220	2350	2300	2080	2220
28	2460	2410	2430	2010	1940	1980	2430	2170	2360	2300	2090	2220
29	2450	2370	2420	2000	1840	1950	4000	2090	2390	2300	1950	2240
30	2430	2350	2390	1980	1830	1940	2410	2090	2310	2290	2010	2240
31	---	---	---	1980	1810	1940	2400	2120	2310	---	---	---
MONTH	3290	660	2740	2380	1810	2040	4000	1730	2320	3340	1940	2280

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

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

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.0	11.0	11.5	16.0	13.0	14.0	21.5	19.0	20.5	21.5	20.0	21.0
2	12.0	10.5	11.0	17.0	14.5	15.5	23.0	21.5	22.5	22.0	20.5	21.5
3	11.0	9.5	10.0	18.0	16.0	16.5	23.0	21.5	22.0	22.0	21.0	21.5
4	10.5	8.5	9.0	19.5	17.0	18.0	22.0	21.0	21.0	22.0	21.0	21.5
5	9.0	6.5	8.0	19.5	16.5	18.0	22.0	20.5	21.0	22.5	21.5	22.0
6	6.5	5.5	6.0	16.5	14.5	15.0	21.5	19.5	20.5	22.0	17.5	19.0
7	6.5	5.0	5.5	15.0	12.5	13.5	20.0	19.0	19.5	22.0	19.5	20.5
8	8.5	5.5	6.5	14.0	12.0	13.0	21.0	19.5	20.0	22.0	20.0	21.0
9	9.5	8.0	8.5	15.0	13.5	14.0	21.5	20.5	21.5	22.0	20.5	21.0
10	10.0	8.5	9.0	17.5	15.0	16.0	22.0	20.5	21.0	23.0	20.0	21.5
11	9.5	8.0	8.5	19.5	17.0	18.0	21.0	19.0	20.0	23.5	22.0	23.0
12	11.0	9.0	9.5	21.0	19.0	19.5	20.5	19.5	20.0	24.5	22.5	22.5
13	12.0	10.5	11.0	22.0	20.5	21.0	22.5	20.5	21.0	24.5	20.0	23.0
14	12.5	11.0	11.5	21.0	20.5	20.5	23.5	22.5	23.0	23.5	21.5	22.5
15	14.0	11.5	12.5	21.5	20.0	20.5	24.5	23.0	23.5	24.5	21.5	23.0
16	15.5	13.0	14.0	22.0	20.5	21.0	25.0	24.0	24.5	24.5	17.0	23.0
17	16.5	14.5	15.5	22.5	21.0	22.0	25.5	21.0	23.5	25.0	20.0	23.5
18	17.0	15.5	16.0	23.0	21.5	22.0	23.0	20.5	22.0	25.5	23.0	24.5
19	17.0	15.5	16.0	23.0	22.0	22.5	23.5	21.0	22.5	25.5	24.0	24.0
20	16.0	15.0	15.5	23.5	22.0	22.5	24.0	20.5	22.0	26.0	24.0	25.0
21	16.5	14.5	15.5	22.0	21.5	22.0	20.5	18.0	19.0	26.5	24.5	25.5
22	18.5	15.5	16.5	22.0	19.0	20.0	18.0	15.0	16.5	26.0	21.0	25.0
23	19.0	17.0	18.0	19.0	18.0	18.5	15.0	14.0	14.5	26.0	23.0	24.5
24	19.5	17.5	18.0	18.5	17.0	18.0	15.5	13.5	14.5	26.0	24.0	25.0
25	17.5	14.5	16.0	19.5	18.0	19.0	18.0	15.5	16.5	26.5	22.5	25.0
26	14.5	12.0	12.5	19.5	17.0	18.0	20.5	18.5	19.5	26.5	20.0	24.5
27	12.5	10.0	11.0	17.0	16.0	16.5	21.5	20.0	21.0	27.0	21.0	25.5
28	14.0	11.0	12.0	17.0	14.5	15.5	21.5	20.5	21.0	27.0	22.0	25.5
29	---	---	---	15.5	14.5	15.0	22.0	21.0	21.5	27.5	26.5	27.0
30	---	---	---	17.0	15.0	16.0	22.0	21.0	21.5	28.5	25.5	27.5
31	---	---	---	19.0	17.5	18.0	---	---	---	29.0	24.0	28.0
MONTH	19.5	5.0	12.0	23.5	12.0	18.0	25.5	13.5	20.5	29.0	17.0	23.5

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	28.5	24.5	27.0	28.0	27.0	27.5	29.0	27.5	28.5	28.5	25.0	28.0
2	28.0	24.0	26.5	27.5	26.0	27.0	29.0	27.0	28.0	28.5	24.0	27.0
3	28.0	27.0	27.5	28.0	26.5	27.0	29.0	26.0	28.0	28.0	26.5	27.5
4	28.5	27.5	28.0	27.5	25.5	27.0	28.5	27.0	27.5	28.0	26.0	27.0
5	28.0	24.5	27.0	27.5	24.5	26.5	28.5	26.5	27.5	28.5	26.0	27.5
6	27.5	26.0	26.5	27.0	21.5	26.5	28.5	27.0	27.5	28.5	26.0	27.5
7	27.5	26.0	27.0	28.0	21.5	27.0	29.0	26.5	28.0	28.5	26.0	27.5
8	28.0	26.0	27.0	28.5	21.5	27.0	28.5	26.5	28.0	28.5	27.0	27.5
9	27.5	26.0	27.0	28.5	26.5	28.0	28.5	26.5	28.0	28.0	26.0	27.5
10	28.0	27.0	27.5	28.5	27.0	28.0	28.0	27.0	27.5	28.0	25.0	27.5
11	28.0	25.5	27.5	28.5	25.0	28.0	28.0	24.5	27.5	27.5	26.5	27.0
12	27.5	25.0	26.5	28.0	25.0	27.0	28.5	26.0	27.5	27.0	25.5	26.5
13	27.0	25.5	26.0	29.0	24.5	27.0	28.5	26.0	27.5	26.5	25.0	25.5
14	27.0	26.0	26.5	28.5	25.5	27.0	29.0	24.5	28.0	27.0	25.5	26.0
15	27.5	26.0	26.5	28.0	26.5	27.5	29.0	25.5	27.5	27.0	24.0	26.0
16	27.5	26.5	27.5	28.5	25.5	27.0	29.5	28.5	29.0	26.5	25.0	26.0
17	29.0	22.5	27.5	28.0	26.0	27.5	30.0	28.5	29.0	27.0	25.5	26.0
18	29.0	26.5	28.0	28.0	25.0	26.5	30.0	11.5	28.5	27.5	26.0	26.5
19	28.0	25.5	27.0	28.0	24.5	26.5	29.5	26.5	29.0	28.0	26.5	27.0
20	26.0	24.0	25.5	27.5	24.0	26.0	30.0	27.5	29.0	27.5	26.0	27.0
21	28.0	24.0	26.0	28.0	26.0	27.0	29.5	26.5	28.5	26.0	24.5	25.5
22	29.5	25.5	28.0	29.0	26.5	28.0	29.0	27.5	28.5	25.0	24.0	24.5
23	28.5	26.5	27.5	28.5	27.5	27.5	29.0	27.5	28.0	24.0	23.0	23.5
24	29.0	26.0	27.5	29.0	25.0	28.0	28.5	26.5	27.5	24.0	22.5	23.0
25	29.5	27.0	28.0	29.5	28.0	29.0	28.0	26.5	27.0	24.5	22.5	23.5
26	29.0	25.5	28.5	29.5	28.0	29.0	28.5	27.0	27.5	24.5	20.5	23.5
27	29.0	27.0	28.0	29.0	28.0	28.5	29.0	27.0	28.0	24.5	23.0	23.5
28	28.5	27.0	28.0	29.0	22.5	27.5	29.0	26.5	28.5	24.5	23.0	23.5
29	29.0	28.0	28.5	29.0	26.0	28.0	29.0	27.5	28.0	24.0	22.5	23.5
30	29.0	27.0	28.5	28.5	27.0	28.0	29.0	27.0	28.0	24.0	23.0	23.5
31	---	---	---	29.0	26.0	28.0	28.5	27.0	27.5	---	---	---
MONTH	29.5	22.5	27.5	29.5	21.5	27.5	30.0	11.5	28.0	28.5	20.5	26.0

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 east of Comstock, and 25.5 mi (16.1 km) upstream from mouth.

DRAINAGE AREA.--3,961 mi² (10,259 km²).

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1978 to current year.
WATER TEMPERATURES: February 1978 to current year.

INSTRUMENTATION.--Beginning October 1980, specific conductance and temperature are recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 501 micromhos Nov. 19, 1980; minimum daily, 150 micromhos Oct. 11, 1981.
WATER TEMPERATURES: Maximum daily, 32.5°C Aug. 24, 26, 1981; minimum daily, 3.5°C Jan. 11, 1982.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 475 micromhos Sept. 1; minimum daily, 150 micromhos Oct. 11.
WATER TEMPERATURES: Minimum, 3.5°C Jan. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT												
08...	0830	385	380	7.7	20.0	2.1	9.2	106	1.0	34	29	180
DEC												
01...	1110	432	380	7.8	14.0	.50	11.2	113	.3	K18	20	210
FEB												
02...	1145	402	385	7.8	13.0	1.3	11.0	108	1.5	K10	K10	200
APR												
06...	1125	330	410	7.7	18.5	--	10.8	120	.4	K13	K15	--
JUN												
08...	1116	346	364	7.7	24.5	2.0	10.4	128	1.0	23	30	180
AUG												
03...	1120	330	340	7.6	27.0	1.4	9.8	126	.7	26	35	180

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
08...	3	52	13	7.3	.3	1.3	180	7.0	16	1.0	15
DEC											
01...	16	61	13	7.5	.2	1.5	190	6.0	26	.3	15
FEB											
02...	8	58	13	8.4	.3	1.3	190	6.0	14	.4	14
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
JUN											
08...	8	50	13	8.1	.3	1.5	170	8.0	12	.3	15
AUG											
03...	6	49	13	8.2	.3	1.3	170	8.0	15	.3	16

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
08...	216	221	1.5	.140	.49	.010	.010	<.010	21	22	56
DEC											
01...	206	244	2.0	.080	.85	<.010	.030	.010	13	15	16
FEB											
02...	208	229	1.2	<.060	.65	<.010	<.010	.010	6	6.5	65
APR											
06...	--	--	1.7	<.060	.45	<.010	<.010	<.010	25	22	26
JUN											
08...	221	210	1.4	.060	.90	.050	.020	.020	11	10	77
AUG											
03...	213	201	1.3	.100	.90	.030	.010	.020	6	5.3	74

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 08...	0830	1	0	1	200	90	110	1	0	1	10
FEB 02...	1145	1	0	1	100	0	110	<1	--	<1	<10
JUN 08...	1116	1	0	1	100	0	110	<1	--	<1	30
AUG 03...	1120	1	0	1	100	0	110	<1	--	<1	<10

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)
OCT 08...	10	0	4	<3	6	6	0	120	110	14	1
FEB 02...	--	<10	<1	<3	7	6	1	70	60	10	2
JUN 08...	10	20	<1	<1	2	1	1	50	40	10	<1
AUG 03...	--	<10	<1	<1	1	0	3	70	60	12	3

DATE	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
OCT 08...	0	2	10	9	1	.2	.2	.0	5	5
FEB 02...	1	1	10	8	2	.1	--	<.1	2	0
JUN 08...	--	<1	10	--	<1	.1	--	<.1	2	--
AUG 03...	--	<1	10	9	1	.2	--	<.1	19	--

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 08...	0	0	0	0	0	0	0	70	7	63
FEB 02...	2	<1	--	<1	<1	--	<1	60	10	50
JUN 08...	<1	<1	--	<1	2	--	<1	120	0	160
AUG 03...	<1	<1	--	<1	<1	--	<1	120	80	40

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	81829	194	129	28400	9.0	1980	5.4	1190	110
NOV.	1981	14632	352	207	8160	15	574	9.1	359	180
DEC.	1981	13838	362	211	7870	15	553	9.3	348	180
JAN.	1982	13272	342	203	7260	14	510	8.9	319	170
FEB.	1982	11509	368	213	6610	15	465	9.4	293	180
MAR.	1982	11676	390	221	6950	16	490	9.9	311	190
APR.	1982	10069	392	221	6010	16	424	9.9	269	190
MAY	1982	12985	385	218	7660	15	540	9.8	342	180
JUNE	1982	13063	367	212	7490	15	527	9.4	332	180
JULY	1982	11406	369	213	6570	15	462	9.5	291	180
AUG.	1982	10162	357	209	5730	15	402	9.2	253	180
SEPT	1982	9062	366	212	5190	15	365	9.4	230	180
TOTAL		213503	**	**	104000	**	7290	**	4540	**
WTD. AVG.		585	301	180	**	13	**	7.9	**	150

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1			388			346	388	363	368	358	347	352
2			388			345	376	366	371	354	343	350
3			388			347	380	366	372	358	340	349
4			388			347	379	365	372	350	338	345
5			388			348	375	360	370	349	341	346
6			384			348	377	366	371	351	330	345
7			378			348	375	361	370	351	342	347
8			380			349	377	361	369	351	340	347
9			380			349	375	362	368	349	342	347
10			380			350	373	360	367	353	336	345
11			150			350	370	355	364	342	336	339
12			185			350	370	352	363	342	333	337
13			200			351	369	359	363	345	333	339
14			220			351	368	355	362	339	327	334
15			250			352	367	354	361	336	325	332
16			270			351	365	355	361	341	318	326
17			285			351	366	356	361	328	320	326
18			300			351	361	355	358	330	317	325
19			315			352	368	357	363	333	321	328
20			325			352	365	357	361	334	319	328
21			325			352	366	355	361	336	309	326
22			320			352	366	353	358	337	315	325
23			325			352	361	352	356	328	314	320
24			344			355	360	352	356	325	310	318
25			344			355	359	353	356	392	317	357
26			344			358	362	352	357	383	344	364
27			345			360	363	351	357	378	326	366
28			345			362	361	349	356	383	344	368
29			347			364	359	349	353	376	334	361
30			348			366	359	349	354	370	314	351
31			347				358	348	353	374	329	360
MONTH			325			352	388	348	362	392	309	342

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	376	324	362	388	372	379	444	390	410	414	355	380
2	390	328	358	382	370	377	446	379	401	404	352	372
3	366	358	362	384	370	378	435	380	404	416	356	376
4	369	361	366	389	369	378	436	386	412	413	355	377
5	371	364	367	389	372	380	440	384	404	407	347	376
6	371	366	369	383	371	378	438	362	403	434	342	397
7	372	367	370	388	377	383	426	367	398	348	280	325
8	374	365	370	388	378	384	428	370	398	374	316	341
9	377	362	370	406	372	386	422	377	407	377	343	361
10	373	366	369	417	379	394	418	373	401	443	375	398
11	373	367	370	420	382	403	419	378	399	457	394	419
12	377	359	370	414	381	396	419	372	394	466	315	405
13	373	360	368	414	375	389	421	362	394	411	324	350
14	373	362	369	408	370	388	438	371	411	414	363	382
15	372	360	367	398	373	384	421	375	402	443	380	406
16	376	356	366	412	372	390	418	362	387	432	380	404
17	373	359	365	408	375	385	398	357	378	441	375	401
18	374	360	366	411	375	388	395	361	372	450	375	405
19	376	364	371	422	372	389	402	361	374	437	372	399
20	375	349	356	413	375	392	399	363	377	428	370	397
21	372	356	365	400	370	386	414	368	389	438	370	400
22	376	360	368	417	381	392	417	360	382	429	366	398
23	375	361	369	430	384	396	413	365	385	443	376	397
24	378	355	371	427	378	399	425	368	392	433	370	393
25	373	354	363	427	373	396	428	361	387	434	371	398
26	382	371	376	418	383	394	420	365	386	467	358	392
27	386	372	378	430	387	406	420	361	381	416	330	367
28	384	371	378	425	392	405	399	357	378	407	330	370
29	---	---	---	429	386	401	425	358	382	415	368	388
30	---	---	---	443	387	405	409	358	371	443	368	394
31	---	---	---	445	391	404	---	---	---	423	359	390
MONTH	390	324	368	445	369	390	446	357	392	467	280	386

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	415	347	377	406	356	378	422	352	383	475	335	367
2	418	353	386	412	357	374	410	355	385	398	333	360
3	413	350	374	407	351	370	408	330	325	368	273	340
4	403	353	376	405	342	371	384	338	364	426	332	361
5	418	346	377	408	353	370	383	331	371	407	337	363
6	408	341	373	374	356	365	391	353	374	397	338	360
7	407	344	368	389	356	368	395	336	366	410	339	363
8	370	349	360	395	352	367	393	344	372	403	339	362
9	370	350	362	405	350	365	388	341	370	403	340	364
10	370	349	362	384	344	360	358	339	349	400	336	361
11	373	347	361	395	352	365	356	334	347	404	343	361
12	375	307	355	368	348	359	355	333	346	409	346	367
13	381	341	363	395	351	364	379	330	345	418	348	370
14	371	335	353	408	353	366	350	328	342	410	341	366
15	391	334	360	406	351	365	350	329	343	413	332	364
16	388	364	379	370	348	360	404	331	357	394	341	361
17	399	364	376	398	344	362	412	332	359	436	340	367
18	379	360	369	373	346	361	413	337	367	446	339	377
19	397	358	369	395	346	366	413	338	354	414	339	371
20	401	366	379	395	331	372	426	339	366	435	339	367
21	395	369	378	405	352	374	354	323	345	402	343	364
22	399	354	370	398	346	374	370	335	348	431	345	373
23	383	357	366	411	346	371	356	335	344	428	346	372
24	389	351	363	414	358	384	359	335	344	442	346	382
25	381	349	364	416	358	389	376	337	354	431	347	380
26	395	346	368	421	331	386	384	337	360	439	337	374
27	374	347	361	417	354	382	386	336	361	415	340	366
28	389	350	362	391	348	365	389	335	362	426	338	370
29	378	353	364	372	344	362	384	337	352	425	338	368
30	402	350	368	406	353	370	396	336	360	425	335	374
31	---	---	---	371	346	362	394	336	363	---	---	---
MONTH	418	307	368	421	331	369	426	323	357	475	273	367

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

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

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.5	10.0	12.0	19.0	13.0	16.0	24.0	19.5	21.5	23.5	19.0	21.0
2	12.5	10.0	11.5	18.0	13.5	16.0	27.5	20.0	22.5	24.0	20.0	21.5
3	13.5	8.0	10.5	22.5	15.0	18.5	22.5	17.0	19.5	22.5	19.5	21.0
4	10.5	8.0	9.0	23.0	17.0	19.5	26.0	16.5	20.5	23.5	20.0	21.5
5	9.5	6.0	8.0	19.0	12.0	16.5	24.0	19.0	21.5	21.5	20.0	21.0
6	7.5	4.5	6.0	14.5	9.5	12.0	21.0	17.0	18.5	22.0	15.5	19.5
7	11.5	5.5	8.5	16.0	10.5	13.0	21.0	15.5	18.0	21.0	14.0	17.0
8	13.5	7.0	10.0	16.0	10.0	13.0	25.5	19.5	22.0	22.0	16.0	19.0
9	12.5	9.0	11.0	18.5	12.5	15.5	23.0	18.5	20.5	21.0	18.5	19.5
10	10.0	7.5	9.0	21.0	15.5	18.0	22.5	16.5	19.0	23.0	19.5	20.5
11	12.5	8.5	10.5	23.5	17.0	20.0	21.0	15.5	18.0	24.0	21.0	22.5
12	15.0	11.5	13.0	23.5	18.0	20.5	24.0	15.5	20.0	25.5	21.0	22.5
13	15.5	11.0	13.0	21.5	20.0	20.5	25.5	19.5	22.5	24.5	19.0	21.5
14	15.0	10.5	13.0	24.5	19.0	21.5	24.5	20.5	22.5	27.5	18.5	22.5
15	18.5	13.0	15.5	23.5	19.5	21.0	28.5	20.5	23.5	28.0	21.5	24.0
16	19.0	13.5	16.5	25.5	19.5	22.0	27.0	22.5	24.5	25.5	21.0	23.5
17	19.5	13.5	16.5	23.5	20.5	22.0	24.0	20.0	21.5	26.0	21.0	23.5
18	19.5	14.5	16.5	23.5	21.0	22.0	22.0	18.5	20.0	28.5	21.5	24.5
19	16.5	15.0	15.5	25.5	20.5	22.5	29.0	21.0	24.0	27.0	22.0	24.0
20	17.0	15.5	16.5	22.5	20.5	21.0	24.0	16.5	20.0	27.0	22.5	24.5
21	22.0	15.5	18.5	22.5	18.5	20.5	16.5	15.0	15.5	27.0	23.5	24.5
22	21.0	16.5	18.5	18.0	16.0	17.0	15.0	13.5	14.0	27.0	21.0	24.0
23	20.5	15.5	18.0	21.0	16.0	17.5	16.0	13.5	14.5	26.0	22.0	23.5
24	20.0	16.5	18.0	23.5	17.0	19.5	19.0	14.5	16.0	28.5	22.0	25.5
25	16.0	11.5	14.0	20.5	17.0	18.5	25.5	16.0	20.0	27.0	22.5	24.5
26	12.0	9.5	11.0	16.5	14.0	15.5	24.5	18.0	21.0	28.0	23.5	25.5
27	17.0	9.5	13.0	20.0	14.0	16.0	21.0	18.5	20.0	26.0	24.0	24.5
28	17.5	12.0	14.5	16.5	14.0	15.0	24.0	18.5	21.0	31.5	22.5	26.5
29	---	---	---	15.0	12.5	14.0	22.0	19.0	20.5	30.5	24.0	27.0
30	---	---	---	22.5	15.0	18.5	21.0	19.5	20.5	30.0	24.5	27.0
31	---	---	---	22.0	18.0	19.5	---	---	---	30.5	25.5	27.5
MONTH	22.0	4.5	13.0	25.5	9.5	18.0	29.0	13.5	20.0	31.5	14.0	23.0

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	27.5	22.5	24.5	---	---	---	---	---	---	---	---	---
2	32.0	23.0	26.5	---	---	---	---	---	---	---	---	---
3	32.0	24.5	27.0	---	---	---	---	---	---	---	---	---
4	30.0	25.5	27.5	---	---	---	---	---	---	---	---	---
5	28.5	24.5	26.0	---	---	---	---	---	---	---	---	---
6	29.0	24.0	26.0	---	---	---	---	---	---	---	---	---
7	28.0	24.0	25.5	---	---	---	---	---	---	---	---	---
8	28.5	23.5	25.5	---	---	---	---	---	---	---	---	---
9	28.5	23.0	25.5	---	---	---	---	---	---	---	---	---
10	29.5	24.0	26.5	---	---	---	---	---	---	---	---	---
11	28.5	24.5	26.0	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	32.0	22.5	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 1982 are given in International Boundary and Water Commission Water Bulletins Nos. 51 and 52.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 21...	0722	218	1020	8.2	21.5	256	136	73	18
NOV 18...	0815	1870	1050	8.0	18.5	264	144	76	18
DEC 17...	0820	1750	1010	8.0	18.5	264	144	76	18
JAN 20...	0825	4410	1010	8.1	15.5	247	127	71	17
FEB 17...	0813	88	987	8.2	10.0	252	132	73	17
MAR 17...	0820	2550	985	8.1	16.0	255	135	74	17
APR 21...	0830	2150	988	8.1	18.0	255	125	74	17
MAY 19...	0720	4940	1020	7.9	20.5	257	127	75	17
JUN 18...	0710	3020	1040	8.0	25.0	252	132	73	17
JUL 21...	0715	1540	1040	8.0	26.0	251	141	71	18
AUG 18...	0725	48	1030	8.1	26.5	249	129	70	18
SEP 15...	0720	1620	1030	8.0	26.0	251	141	71	18

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 21...	110	3.1	4.9	120	220	110	17	625
NOV 18...	110	3.1	5.2	120	240	110	18	649
DEC 17...	110	3.1	4.9	120	220	110	18	629
JAN 20...	110	3.2	6.0	120	230	110	18	634
FEB 17...	110	3.1	5.2	120	220	110	17	624
MAR 17...	100	2.8	4.7	120	220	100	16	604
APR 21...	100	2.8	5.0	130	220	96	16	606
MAY 19...	110	3.1	5.1	130	210	120	16	631
JUN 18...	110	3.1	4.7	120	220	120	17	634
JUL 21...	110	3.1	5.0	110	220	120	17	627
AUG 18...	120	3.4	4.7	120	220	120	18	643
SEP 15...	110	3.1	5.0	110	210	120	17	617

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. Pesticide analyses: October 1978 to September 1979.

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 1982 are given in International Boundary and Water Commission Water Bulletins Nos. 51 and 52. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemcial constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,690 micromhos June 1, 1963; minimum daily, 214 micromhos Sept. 26, 1964.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,100 micromhos May 1, July 25; minimum daily, 600 micromhos Mar. 18.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 21...	1025	7660	1000	8.4	22.5	25	8.3	97	1.3	740	690
DEC 01...	1028	2840	927	8.3	18.5	5.0	8.8	95	1.7	K1500	1300
FEB 25...	1520	2250	967	8.3	19.5	22	8.3	90	2.0	K1400	2200
MAY 26...	0905	5680	895	8.1	25.5	100	7.0	86	1.0	580	720
AUG 18...	0855	1320	1010	8.2	29.0	42	6.4	83	1.9	K3600	1300
SEP 22...	0910	1900	989	8.2	26.0	.80	7.7	94	2.0	2000	K390

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 21...	260	140	75	17	100	2.9	4.6	120	220	100	.8
DEC 01...	260	130	76	17	92	2.6	3.9	130	200	96	.8
FEB 25...	270	160	77	19	100	2.8	4.0	110	230	100	.8
MAY 26...	240	120	70	16	93	2.8	5.1	120	180	97	.7
AUG 18...	260	150	71	19	110	3.2	4.7	109	230	110	.8
SEP 22...	270	150	76	19	110	3.1	4.5	120	220	120	.8

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, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 21...	17	631	607	.53	<.060	.55	.070	.030	91	1880	83
DEC 01...	14	600	578	.53	.090	.43	<.010	<.010	--	--	--
FEB 25...	14	624	611	.42	<.060	.51	.030	.010	68	413	97
MAY 26...	14	562	548	.44	.140	1.20	.250	.040	187	2870	92
AUG 18...	17	572	628	.20	.090	.80	.080	.040	66	235	96
SEP 22...	18	643	640	.28	.060	.90	.470	.020	44	226	96

08459000 RIO GRANDE AT LAREDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT										
21...	1025	4	0	4	300	200	92	<1	<1	<10
FEB										
25...	1520	3	0	4	100	10	88	<1	<1	10
MAY										
26...	0905	4	1	3	<100	--	86	<1	<1	<10
AUG										
18...	0855	4	0	4	<100	--	93	<1	<1	30

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)
OCT										
21...	<10	<1	<3	7	6	1	1400	--	<10	22
FEB										
25...	<10	1	<3	5	1	4	690	--	<10	7
MAY										
26...	<10	<1	<1	8	7	1	4100	4100	6	5
AUG										
18...	<10	<1	<1	3	2	1	1000	--	<3	6

DATE	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
OCT										
21...	19	3	50	--	<1	.1	.1	.0	2	--
FEB										
25...	--	<1	30	30	3	.1	--	<.1	2	0
MAY										
26...	4	1	120	--	<1	.1	--	<.1	4	3
AUG										
18...	--	<1	40	40	2	<.1	--	<.1	2	--

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, 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									
21...	<1	1	0	1	<1	<1	30	20	6
FEB									
25...	4	1	0	1	<1	<1	20	--	<3
MAY									
26...	1	1	0	1	<1	<1	40	--	<3
AUG									
18...	<1	1	0	1	<1	<1	10	0	10

08459000 RIO GRANDE AT LAREDO, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	203490	966	595	327000	100	56200	200	109400	270
NOV.	1981	75540	970	598	122000	100	20900	200	40800	270
DEC.	1981	69870	977	602	114000	100	19600	200	38100	270
JAN.	1982	107370	994	613	178000	110	30900	210	59800	270
FEB.	1982	108670	999	615	181000	110	31500	210	60900	270
MAR.	1982	91340	975	601	148000	100	25600	200	49700	270
APR.	1982	65210	1030	637	112000	110	19900	220	38200	280
MAY	1982	148480	955	588	236000	100	40400	200	78800	270
JUNE	1982	180870	1030	634	309000	110	54900	220	105400	280
JULY	1982	58430	1060	651	103000	120	18500	220	35300	280
AUG.	1982	88880	1060	653	157000	120	28200	220	53800	280
SEPT	1982	81420	991	610	134000	110	23300	210	45200	270
TOTAL		1279570	**	**	2120000	**	370000	**	716000	**
WTD. AVG.		3506	996	614	**	110	**	210	**	270

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	1030	961	1000	1000	986	1000	1100	1050	1060	1090	1010
2	1010	1040	969	987	991	1020	1030	1030	1040	1050	1090	1000
3	999	1010	975	958	1010	974	1030	1010	1040	1050	1080	1010
4	1040	988	976	946	999	965	1040	985	1040	1060	1080	1000
5	1050	976	976	972	1010	967	1020	992	1050	1070	1090	994
6	1060	965	978	986	997	949	1050	1040	903	1050	1090	995
7	958	961	998	999	997	986	1040	1050	1050	1050	1090	1010
8	793	957	978	999	1000	985	1020	1050	1050	1070	1090	1010
9	912	955	978	993	1000	985	1050	1050	1070	1060	1090	931
10	1010	952	970	986	999	958	1030	1020	1070	1050	1080	825
11	886	949	972	991	995	964	1030	965	1060	1040	1060	923
12	707	958	975	977	986	974	1040	992	1060	1010	1080	989
13	612	945	979	961	995	960	1040	1010	1040	1020	1070	996
14	788	937	984	994	1010	959	1040	1020	1020	1030	1070	1010
15	983	968	979	993	1000	965	1030	1000	1000	1030	1060	1000
16	995	949	979	994	1000	949	1020	1010	1040	1040	1040	983
17	1010	957	973	981	999	979	1030	888	1060	1050	1030	1020
18	1010	971	979	998	986	600	1030	782	1040	1050	1040	1020
19	1020	978	988	1000	989	976	1040	822	1030	1060	1010	1010
20	1010	968	983	999	992	986	1040	938	1040	1070	1050	1010
21	1010	979	968	998	1010	1000	1040	1010	1030	1070	1060	1010
22	1000	982	956	995	1010	1000	1050	991	708	1080	1060	1010
23	988	969	972	1000	1010	1010	1050	632	1010	1080	1060	921
24	989	952	968	1010	1040	1010	1040	795	1040	1090	1080	910
25	989	973	976	1000	1030	1020	1050	962	996	1100	1080	947
26	853	971	979	1010	981	1030	1040	965	1040	1080	1080	968
27	1020	957	976	1000	961	1030	1060	995	1050	1080	1060	986
28	1000	955	979	999	982	1020	1060	1030	1050	1090	1050	986
29	1010	962	990	1000	---	978	1030	1050	1050	1080	1050	983
30	1020	969	1000	998	---	1010	970	1050	1050	1080	1050	990
31	1030	---	991	1000	---	1010	---	1050	---	1090	1040	---
MEAN	960	969	978	991	999	974	1030	977	1030	1060	1070	982

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 and biochemical analyses: November 1976 to September 1982 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
OCT										
21...	0840	7660	1000	8.3	22.5	8.2	95	1.0	4900	65
DEC										
01...	1215	2840	938	8.3	19.0	9.1	98	1.4	5200	16

08461300 RIO GRANDE BELOW FALCON DAM, TX

LOCATION.--Lat 26°33'25", long 99°10'05", Starr County, Hydrologic Unit 13090001, U.S. Tailrace at Falcon Dam.

DRAINAGE AREA.--159,270 mi² (412,509 km²), United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECOD.--Chemical analyses: July 1955 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1982 are given in International Boundary and Water Commission Water Bulletins Nos. 51 and 52.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 19...	0930	1380	892	7.9	25.5	260	160	70	20
NOV 16...	1030	961	921	7.9	20.5	250	150	69	18
DEC 14...	1015	1570	934	7.8	20.0	250	150	70	19
JAN 19...	0900	9150	960	7.9	13.5	260	150	72	19
FEB 16...	1240	4700	985	8.0	13.5	260	150	71	19
MAR 22...	1430	473	1020	7.9	15.5	270	160	74	20
APR 19...	1000	848	1030	7.8	21.0	270	160	75	20
MAY 17...	1130	777	1040	7.7	22.0	270	160	75	21
JUN 14...	0940	777	1040	7.7	24.5	270	160	74	21
JUL 26...	1530	5970	1060	7.8	28.0	260	160	69	21
AUG 17...	1045	8050	1070	7.9	28.0	270	170	73	22
SEP 22...	0930	350	1090	7.8	26.5	280	180	74	22

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 19...	94	2.6	4.5	100	220	94	12	575
NOV 16...	89	2.6	4.7	100	210	93	12	556
DEC 14...	93	2.6	4.6	100	210	100	12	569
JAN 19...	96	2.7	5.5	110	220	100	12	591
FEB 16...	94	2.7	5.0	110	230	91	12	588
MAR 22...	110	3.0	4.5	110	240	110	12	637
APR 19...	110	3.0	4.9	110	260	110	12	658
MAY 17...	110	3.0	4.6	110	240	110	11	638
JUN 14...	110	3.0	4.5	110	240	110	10	636
JUL 26...	110	3.1	4.8	100	240	110	11	626
AUG 17...	120	3.3	4.8	100	260	120	12	672
SEP 22...	120	3.3	5.1	100	250	120	12	663

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 1982 are given in International Boundry and Water Commission Water Bulletins Nos. 51 and 52.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 19...	1320	4060	933	7.7	20.0	250	140	70	19
NOV 16...	1340	3020	967	7.6	22.0	260	150	71	19
DEC 15...	1045	3240	1010	7.7	16.0	270	160	75	20
JAN 21...	1230	7730	973	7.8	13.0	260	150	73	20
FEB 18...	1045	4620	1010	8.0	14.0	260	150	72	20
MAR 15...	1430	2930	1040	7.7	23.0	270	160	75	21
APR 19...	1420	8440	1030	7.8	23.5	280	170	76	21
MAY 17...	1435	2780	1080	7.7	25.5	270	160	75	21
JUN 14...	1230	2780	1100	7.6	22.0	270	160	75	21
JUL 19...	1130	4770	1070	7.6	22.0	270	160	73	21
AUG 16...	1210	7660	1080	7.6	31.0	280	180	74	22
SEP 13...	1330	2920	1160	7.9	28.5	280	170	77	22

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 19...	96	2.7	4.5	110	210	100	12	578
NOV 16...	96	2.7	4.8	110	210	110	11	588
DEC 15...	110	3.0	4.6	110	220	120	12	628
JAN 21...	97	2.7	5.5	110	220	100	12	594
FEB 18...	96	2.7	5.1	110	230	97	11	597
MAR 15...	110	3.0	4.5	110	260	110	11	658
APR 19...	110	3.0	4.8	110	260	110	11	659
MAY 17...	120	3.3	4.8	110	240	120	10	657
JUN 14...	110	3.0	4.4	110	250	110	10	647
JUL 19...	110	3.0	4.8	110	250	120	11	656
AUG 16...	120	3.3	4.8	100	250	120	12	663
SEP 13...	130	3.5	4.8	110	270	140	12	722

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 19...	1400	4910	984	7.7	20.5	260	150	72	20
NOV 16...	1415	2190	1030	7.8	23.5	270	160	74	20
DEC 15...	1130	1900	1060	7.7	16.0	280	170	76	21
JAN 21...	1315	9100	973	7.8	13.0	260	150	71	20
FEB 18...	1345	3700	1100	8.0	15.5	280	160	76	21
MAR 15...	1510	1870	1130	7.8	24.5	290	170	78	22
APR 19...	1500	8400	1050	7.8	24.0	280	170	76	21
MAY 17...	1520	3640	1150	7.4	26.0	290	170	80	22
JUN 14...	1330	2240	1480	7.5	23.5	320	210	90	24
JUL 19...	1230	3780	1110	7.6	23.5	280	170	76	22
AUG 16...	1315	7660	1100	7.6	30.5	280	170	75	22
SEP 16...	1030	2200	1180	7.8	26.5	290	180	79	23

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 19...	100	2.8	4.5	110	210	110	12	595
NOV 16...	110	3.0	4.7	110	230	130	12	647
DEC 15...	120	3.3	4.7	110	230	130	12	660
JAN 21...	98	2.7	5.7	110	230	110	12	613
FEB 18...	110	3.0	4.8	120	250	110	12	656
MAR 15...	120	3.2	4.8	120	260	130	12	699
APR 19...	110	3.0	4.9	110	270	110	11	669
MAY 17...	130	3.4	4.8	120	260	140	11	720
JUN 14...	180	4.5	5.2	110	290	230	11	896
JUL 19...	120	3.2	5.1	110	260	130	11	690
AUG 16...	120	3.2	4.8	110	260	130	12	690
SEP 16...	140	3.7	4.9	110	280	150	12	755

08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX

LOCATION.--Lat 26°08'00", long 98°20'05", Hidalgo County, Hydrologic Unit 13090002, at gaging station 0.5 mi (0.8 km) downstream from Anzalduas Dam, 12.2 mi (19.6 km) from Hidalgo, and 1,077.1 mi (1,733.1 km) downstream from the American Dam at El Paso.

DRAINAGE AREA.--176,112 mi² (456,130 km²), United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: March 1959 to current year. Pesticide analyses: October 1968 to September 1971.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1977 to current year.

REMARKS.--Records of and discharge for water year 1982 are given in International Boundary and Water Commission Water Bulletins Nos. 51 and 52. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,910 micromhos May 31, 1982; minimum daily, 517 micromhos Sept. 13, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,910 micromhos May 31; minimum daily, 766 micromhos May 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 13...	1430	4270	952	8.0	28.5	260	150	73	20
NOV 18...	0710	1800	1130	7.9	21.5	290	170	81	22
DEC 14...	1130	2860	1110	7.7	20.0	280	160	78	21
JAN 19...	1450	2560	1020	7.9	16.0	270	160	74	20
FEB 19...	1230	1400	1200	8.0	18.5	290	170	80	23
MAR 15...	0900	1200	1810	7.9	23.5	430	280	116	34
APR 21...	1000	2200	1140	7.9	20.0	290	180	78	22
MAY 17...	1330	1190	1350	7.7	26.5	320	200	86	25
JUN 14...	0805	2080	1480	7.6	28.0	320	200	87	25
JUL 19...	0930	2300	1150	7.6	29.0	290	170	77	23
AUG 19...	1320	1620	1110	7.8	29.5	270	170	72	22
SEP 21...	0800	1750	1390	7.8	26.0	320	200	87	26

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 13...	110	3.1	4.5	110	230	130	11	645
NOV 18...	120	3.3	4.9	120	240	140	12	692
DEC 14...	120	3.3	4.8	120	240	140	12	688
JAN 19...	100	2.8	5.4	110	230	110	12	618
FEB 19...	130	3.5	5.2	120	260	140	13	723
MAR 15...	220	4.9	5.6	150	360	290	11	1130
APR 21...	130	3.6	5.2	110	280	140	12	733
MAY 17...	170	4.4	5.0	120	290	180	12	840
JUN 14...	180	4.7	5.1	120	320	190	12	891
JUL 19...	130	3.6	4.8	120	270	140	11	728
AUG 19...	120	3.4	4.8	100	270	130	12	691
SEP 21...	170	4.4	5.3	120	310	190	14	874

08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX--Continued

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	156350	984	594	251000	120	49300	210	87400	240
NOV.	1981	56470	1140	691	105000	140	21800	240	36000	280
DEC.	1981	57210	1160	703	109000	150	22600	240	37100	280
JAN.	1982	75670	1040	630	129000	130	25800	220	44600	260
FEB.	1982	54493	1110	675	99300	140	20400	230	34100	270
MAR.	1982	31366	1480	906	76700	210	17700	300	25200	360
APR.	1982	77180	1160	706	147000	150	30600	240	50300	280
MAY	1982	69830	1420	870	164000	200	38300	280	53600	340
JUNE	1982	127310	1300	790	271000	170	59600	260	91000	310
JULY	1982	74370	1150	697	140000	140	29000	240	47900	280
AUG.	1982	57680	1130	687	107000	140	22100	240	36700	280
SEPT	1982	50081	1270	774	105000	170	22500	260	35300	310
TOTAL		888010	**	**	1704000	**	360000	**	579000	**
WTD. AVG.		2433	1170	711	**	150	**	240	**	290

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	971	948	1130	1170	1050	1410	1180	1200	2530	1140	1100	1290
2	1010	956	1140	1160	1040	1460	1190	1270	1780	1160	1090	1260
3	1030	967	1180	1150	1040	1530	1220	1330	1380	1110	1090	1270
4	990	1030	1170	1170	1050	1560	1350	1400	1290	1130	1090	1270
5	1000	1070	1180	1170	1070	1510	1340	1410	1260	1160	1090	1280
6	1030	1140	1130	1170	1060	1510	1160	1450	1250	1180	1090	1290
7	1010	1150	1150	1140	1060	1590	1140	1510	1230	1190	1100	1280
8	993	1180	1170	1130	1060	1650	1160	1560	1180	1210	1090	1320
9	1050	1230	1170	1060	1070	1750	1150	1610	1180	1240	1080	1310
10	1110	1280	1180	1090	1080	1840	1180	1620	1190	1180	1100	1290
11	1100	1390	1180	1030	1110	1800	1120	1690	1220	1150	1090	1270
12	1020	1480	1150	1000	1140	1810	1110	1840	1280	1140	1090	1310
13	972	1340	1160	989	1130	1800	1120	1950	1510	1160	1110	1360
14	957	1160	1160	992	1110	1780	1120	2020	1470	1170	1120	1340
15	942	1160	1120	997	1120	1930	1140	1730	1480	1180	1130	1430
16	928	1140	1110	962	1130	1710	1120	1420	1620	1180	1140	1390
17	923	1140	1160	1010	1130	1380	1110	1360	1370	1160	1140	1350
18	939	1150	1170	1000	1130	1260	1110	1440	1250	1130	1120	1340
19	1010	1160	1160	1010	1170	1280	1110	1340	1140	1120	1120	1260
20	990	1150	1160	1000	1210	1300	1110	1410	1190	1140	1120	1260
21	1020	1150	1170	993	1230	1330	1130	1430	1200	1160	1150	1380
22	1050	1150	1170	990	1240	1320	1130	1750	1160	1190	1180	1280
23	1160	1170	1150	1010	1200	1340	1130	1190	1170	1130	1160	1230
24	1090	1200	1170	1000	1220	1350	1140	1180	1190	1100	1140	1240
25	972	1170	1180	1010	1220	1300	1160	766	1190	1110	1150	1020
26	968	1190	1180	1000	1310	1310	1200	1040	1190	1120	1170	1010
27	964	1170	1160	1000	1330	1300	1190	1520	1190	1080	1200	1220
28	949	1210	1150	1020	1450	1320	1220	1810	1190	1100	1240	1260
29	938	1160	1150	1020	---	1400	1240	2280	1150	1100	1300	1250
30	933	1140	1160	1030	---	1340	1230	2600	1150	1150	1220	1240
31	943	---	1170	1040	---	1320	---	2910	---	1110	1270	---
MEAN	999	1160	1160	1050	1150	1500	1170	1580	1320	1150	1140	1280

08470200 NORTH FLOODWAY NEAR SEBASTIAN, TX

LOCATION.--Lat 26°18'51", long 97°46'36", Cameron County, Hydrologic Unit 12110208, at International Boundary and Water Commission gaging station on U.S. Highway 77 and approximately 2 mi (3 km) south of Sebastian.

PERIOD OF RECORD.--Sediment records: February 1966 to current year.

REMARKS.--Records of discharge for water year 1982 are given in International Boundary and Water Commission Water Bulletins Nos. 51 and 52.

MONTHLY AND ANNUAL SUMMARY OF WATER AND SUSPENDED-SEDIMENT DISCHARGE
WATER YEAR, OCTOBER 1981 TO SEPTEMBER 1982

DATE	DISCHARGE (CFS-DAYS)	MEAN WEIGHTED SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS)
OCT. 1981	7083	262	5020
NOV.....	5215	172	2420
DEC.....	5337	119	1720
JAN. 1982	6494	169	2960
FEB.....	10904	175	5150
MAR.....	7582	206	4220
APR.....	6640	180	3230
MAY.....	16092	350	15200
JUNE.....	8771	159	3770
JULY.....	7694	162	3370
AUG.....	4134	174	1940
SEP.....	4839	238	3110
TOTAL....	90785	213	52100

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 September 1982 (discontinued). Sediment records: February 1966 to current year.

REMARKS.--Records of discharge for water year 1982 are given in International Boundary and Water Commission Water Bulletins Nos. 51 and 52.

MONTHLY AND ANNUAL SUMMARY OF WATER AND SUSPENDED-SEDIMENT DISCHARGE
WATER YEAR, OCTOBER 1981 TO SEPTEMBER 1982

DATE	DISCHARGE (CFS-DAYS)	MEAN WEIGHTED SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS)
OCT. 1981	5109	130	1790
NOV.....	4299	133	1540
DEC.....	4556	176	2160
JAN. 1982	5182	126	1760
FEB.....	5314	140	2010
MAR.....	4766	226	2910
APR.....	4905	197	2610
MAY.....	13463	220	7980
JUNE.....	4806	159	2060
JULY.....	5254	120	1700
AUG.....	4682	117	1480
SEP.....	4343	117	1370
TOTAL....	66679	163	29400

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 September 1982 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (FTU)	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)
OCT 22...	1628	953	8.2	25.5	5	54	8.1	98	1.3	K250	220
DEC 02...	1006	1200	8.3	22.0	10	33	8.8	100	2.1	K24	250

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 22...	100	597	118	22	.14	.040	.65	.69	.070	4.3
DEC 02...	170	781	53	15	.16	--	--	.63	.030	5.8

08475000 RIO GRANDE NEAR BROWNSVILLE, TX
(National stream-quality accounting network)

LOCATION.--Lat 25°52'35", long 97°27'15", Cameron County, Hydrologic Unit 13090002, at International Boundary and Water Commission gaging station, 1,000 ft (300 m) downstream from El Jardin pumping plant, 6.8 mi (10.9 km) below International Bridge between Brownsville and Matamoros, Tamps., Mex., and 48.8 mi (78.5 km) above the Gulf of Mexico.

DRAINAGE AREA.--176,333 mi² (456,702 km²).

PERIOD OF RECORD.--Chemical analyses: October 1967 to January 1968. Chemical and biochemical analyses: October 1974 to current year. Pesticide analyses: October 1975 to September 1982 (discontinued). Sediment analyses: October 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1967 to current year.
WATER TEMPERATURES: October 1966 to current year.
SUSPENDED-SEDIMENT DISCHARGE: February 1966 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,130 micromhos May 29, 1972; minimum daily, 337 micromhos Sept. 3, 1967.
WATER TEMPERATURES (1966-69, 1970-75, 1977-82): Maximum daily, 35.0°C June 25, July 23, Aug. 12, 1982; minimum daily, 8.0°C Jan. 10, 1967.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,560 mg/L Sept. 16, 1971; minimum daily mean, 4 mg/L Apr. 26, 1970, Aug. 16, 18, 24, 27, 1977.
SEDIMENT LOADS: Maximum daily, 83,500 tons Sept. 16, 1971; minimum daily, 0.18 tons July 22, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,840 micromhos Mar. 25, 26; minimum daily, 775 micromhos May 28.
WATER TEMPERATURES: Maximum daily, 35.0°C June 25, July 23, Aug. 12; minimum daily, 10.0°C Feb. 6.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,110 mg/L May 26; minimum daily mean, 15 mg/L Feb. 8.
SEDIMENT LOADS: Maximum daily, 31,600 tons May 26; minimum daily, 0.67 tons Jan. 21, 26.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
22...	1055	1320	962	8.3	25.0	56	8.0	96	2.0	K100	740
DEC											
02...	1135	1200	1230	8.3	22.0	32	8.9	101	2.3	K44	K40
FEB											
24...	1520	618	1140	8.6	22.0	26	10.4	118	3.2	K48	K72
MAY											
26...	1710	5540	1050	7.7	27.0	860	5.5	69	2.7	K7600	K5900
27...	1330	5470	--	--	28.0	--	--	--	--	--	--
AUG											
19...	1316	124	1220	8.0	30.5	15	8.1	107	3.7	2900	1700
SEP											
22...	1630	406	1400	8.1	28.5	.50	8.2	104	3.3	K11000	320

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT											
22...	250	150	68	19	96	2.8	4.6	100	220	100	.5
DEC											
02...	330	200	89	25	130	3.4	5.2	130	250	170	.6
FEB											
24...	300	180	82	23	130	3.5	5.0	120	260	140	.6
MAY											
26...	230	130	64	16	130	4.0	4.7	95	190	160	.5
27...	--	--	--	--	--	--	--	--	--	--	--
AUG											
19...	330	200	90	26	140	3.6	5.3	128	290	150	.7
SEP											
22...	370	210	100	30	160	3.9	5.6	160	300	190	.7

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
22...	11	602	579	.12	<.060	.74	.080	.020	129	460	87
DEC											
02...	12	792	760	.21	<.070	.89	.040	<.010	69	224	73
FEB											
24...	12	739	725	<.10	.180	.60	.040	.010	60	100	84
MAY											
26...	10	642	632	.72	.160	2.50	.760	.010	2080	31100	86
27...	--	--	--	--	--	--	--	--	838	12400	97
AUG											
19...	14	725	793	<.10	.120	.80	.080	.100	38	13	92
SEP											
22...	16	911	898	<.10	<.060	.90	.050	.040	45	49	95

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT										
22...	1055	4	1	3	200	100	93	<1	<1	10
FEB										
24...	1520	3	0	3	100	0	110	<1	<1	10
MAY										
26...	1710	7	4	3	300	200	87	<1	<1	20
AUG										
19...	1316	3	0	3	<100	--	110	<1	<1	<10

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
OCT										
22...	0	10	<1	<3	80	78	2	3300	--	<10
FEB										
24...	0	10	2	<3	14	0	14	740	--	<10
MAY										
26...	10	10	9	<1	27	25	2	23000	23000	20
AUG										
19...	--	<10	1	<1	2	1	1	580	--	<3

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)
OCT										
22...	11	9	2	90	--	<1	.2	.2	.0	2
FEB										
24...	3	2	1	50	--	<1	.1	--	<.1	2
MAY										
26...	18	17	1	960	--	<1	.3	.2	.1	18
AUG										
19...	1	--	<1	80	70	9	<.1	--	<.1	2

DATE	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT									
22...	--	<1	<1	<1	<1	<1	40	30	6
FEB									
24...	0	4	1	<1	<1	<1	40	--	<3
MAY									
26...	17	1	1	<1	<1	<1	120	110	11
AUG									
19...	0	3	<1	<1	<1	<1	10	0	11

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 22...	1055	--	0	--	.0	--	.0	--	.0	--	.0
FEB 24...	1520	<.10	--	<.10	--	<.01	--	<.10	--	<.01	--
MAY 25...	1710	<.10	--	<.10	--	<.01	--	<.10	--	<.01	--

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)	ETHION, TOTAL (UG/L)
OCT 22...	--	.1	--	.0	--	--	.0	--	--	.0	--
FEB 24...	<.01	--	<.01	--	.01	<.01	--	<.01	<.01	--	.00
MAY 25...	.04	--	.08	--	<.01	<.01	--	<.01	<.01	--	<.01

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)
OCT 22...	--	.0	--	.0	--	.0	--	--	.0	--	--
FEB 24...	<.01	--	<.01	--	<.01	--	.00	<.01	--	.00	.00
MAY 25...	<.01	--	<.01	--	<.01	--	<.01	<.01	--	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	PERTHANE 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-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
OCT 22...	--	.0	--	--	--	.0	--	--	--	--	--
FEB 24...	<.01	--	.01	<.10	<1	--	.00	.00	.00	.00	.00
MAY 25...	<.01	--	.01	<.10	<1	--	<.01	<.01	<.01	<.01	<.01

08475000 RIO GRANDE NEAR BROWNSVILLE, TEXAS--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
OCT							
22...	1055	1320	25.0	129	460	--	--
DEC							
02...	1135	1200	22.0	69	224	--	--
FEB							
24...	1520	618	22.0	60	100	--	--
MAY							
26...	1710	5540	27.0	2080	31100	--	--
27...	1330	5470	28.0	838	12400	64	68
AUG							
19...	1316	124	30.5	38	13	--	--
SEP							
22...	1630	406	28.5	45	49	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM
OCT						
22...	--	--	--	87	--	--
DEC						
02...	--	--	--	73	--	--
FEB						
24...	--	--	--	84	--	--
MAY						
26...	--	--	--	86	--	--
27...	78	82	93	97	99	100
AUG						
19...	--	--	--	92	--	--
SEP						
22...	--	--	--	95	--	--

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

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-MHOS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1981	106121	959	593	170000	120	33800	200	56800	250
NOV.	1981	52839	1080	669	95400	140	19700	220	31500	280
DEC.	1981	33713	1200	744	67700	160	14300	240	22100	310
JAN.	1982	10611.8	1180	729	20900	150	4400	240	6830	310
FEB.	1982	16392	1120	695	30800	140	6400	230	10100	290
MAR.	1982	13155	1500	931	33100	210	7540	290	10400	380
APR.	1982	18868	1190	738	37600	160	7970	240	12300	310
MAY	1982	61216	1260	779	129000	170	27900	250	41600	330
JUNE	1982	68120	1320	817	150000	180	32800	260	48400	340
JULY	1982	9581	1270	784	20300	170	4370	250	6580	330
AUG.	1982	6103	1250	773	12700	170	2730	250	4140	320
SEPT	1982	5920	1370	851	13600	190	3000	270	4360	350
TOTAL		402639.8	**	**	781000	**	165000	**	255000	**
WTD. AVG.		1103	1160	718	**	150	**	230	**	300

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	908	930	1260	1200	1160	1290	1320	1060	1460	1400	1350	1350
2	909	950	1260	1220	1060	1250	1390	1160	1600	1430	1330	1310
3	940	970	1250	1150	1070	1240	1370	1220	1550	1370	1400	1300
4	1050	990	1170	1160	1060	1280	1410	1330	1550	1280	1390	1320
5	1040	1010	1200	1170	1070	1370	1410	1400	1560	1180	1370	1290
6	1020	1030	1200	1180	1090	1420	1400	1220	1320	1160	1360	1320
7	993	1040	1200	1230	1100	1480	1490	1290	1260	1160	1440	1410
8	1050	1050	1200	1190	1070	1440	1260	1360	1240	1160	1280	1440
9	1060	1050	1180	1210	1070	1470	1220	1400	1230	1180	1250	1390
10	1070	1090	1200	1260	1070	1490	1340	1360	1240	1170	1230	1490
11	1060	1110	1200	1200	1060	1530	1300	1420	1190	1160	1230	1380
12	1050	1140	1160	1160	1060	1580	1140	1440	1180	1200	1310	1470
13	950	1170	1200	1140	1090	1620	1140	1460	1180	1220	1180	1420
14	950	1230	1240	1120	1100	1530	1150	1280	1200	1270	1170	1380
15	950	1260	1230	1130	1120	1520	1130	1400	1230	1390	1170	1390
16	950	1400	1220	1130	1160	1550	1180	1430	1260	1340	1160	1470
17	950	1380	1190	1140	1140	1620	1140	1450	1280	1440	1230	1460
18	924	1280	1150	1180	1160	1720	1140	1420	1380	1320	1230	1410
19	920	1110	1160	1160	1130	1740	1140	1520	1390	1340	1280	1420
20	921	1180	1180	1240	1150	1750	1160	1830	1400	1400	1270	1440
21	940	1180	1210	1230	1140	1730	1140	1320	1360	1280	1260	1400
22	980	1180	1180	1190	1160	1750	1180	1370	1430	1280	1240	1380
23	1000	1180	1190	1160	1100	1740	1160	1230	1510	1330	1240	1310
24	1040	1200	1200	1150	1140	1790	1100	1230	1600	1290	1270	1320
25	1040	1200	1200	1170	1170	1840	1110	1570	1560	1300	1270	1310
26	929	1200	1200	1140	1200	1840	1120	1070	1690	1290	1290	1310
27	922	1190	1190	1180	1270	1730	1120	1270	1590	1260	1270	1320
28	925	1220	1200	1170	1280	1730	1110	775	1680	1240	1280	1410
29	923	1200	1200	1160	---	1410	1150	877	1430	1320	1280	1420
30	923	1200	1190	1160	---	1320	1170	1020	1410	1320	1230	1410
31	921	---	1190	1150	---	1360	---	1440	---	1370	1300	---
MEAN	974	1140	1200	1180	1120	1550	1220	1310	1400	1290	1280	1380

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	---	21.0	20.0	20.0	18.0	25.0	25.0	31.0	30.0	34.0	30.0
2	27.5	---	21.0	25.0	23.0	19.0	28.0	24.0	30.0	32.0	29.0	32.0
3	27.0	---	23.0	25.0	15.0	21.0	27.0	26.0	29.0	30.0	32.0	31.0
4	28.0	---	21.0	20.0	20.0	20.0	26.0	25.0	32.0	32.0	31.0	30.0
5	27.0	---	21.0	23.0	---	23.0	25.0	25.0	30.0	31.0	30.0	31.0
6	28.0	---	21.5	24.0	10.0	---	27.0	25.0	28.0	30.0	29.0	31.0
7	27.5	---	---	20.0	12.0	20.0	26.0	25.0	28.0	32.0	30.0	30.0
8	28.0	24.0	21.0	16.0	20.0	20.0	30.0	25.0	30.0	30.0	30.0	32.0
9	26.5	20.0	21.0	16.0	12.0	18.0	25.0	26.0	32.0	33.0	29.0	30.0
10	28.5	21.0	21.0	15.0	15.0	20.0	25.0	26.0	32.0	32.0	28.0	30.0
11	29.0	20.0	22.0	---	15.0	23.0	25.0	27.0	30.0	32.0	30.0	30.0
12	28.5	19.0	23.0	12.0	19.0	25.0	25.0	29.0	30.0	33.0	35.0	30.0
13	27.0	21.5	23.0	---	15.0	25.0	30.0	28.0	30.0	32.0	31.0	30.0
14	26.5	23.0	19.0	20.0	20.0	26.0	27.0	29.0	29.0	31.0	31.0	30.0
15	---	22.0	19.0	---	18.0	---	27.0	30.0	30.0	33.0	31.0	31.0
16	27.0	24.0	20.0	---	21.0	24.0	24.0	28.0	32.0	31.0	31.0	30.0
17	27.0	24.0	---	14.0	24.0	25.0	27.0	27.0	28.0	30.0	31.0	30.0
18	23.0	24.0	15.0	20.0	21.0	27.0	27.0	30.0	29.0	31.0	30.0	30.0
19	23.5	24.0	---	23.0	22.0	25.0	29.0	30.0	32.0	32.0	32.0	30.0
20	24.5	20.5	20.5	24.0	20.0	26.0	30.0	29.0	32.0	29.0	34.0	30.0
21	---	---	20.0	25.0	21.0	26.0	25.0	29.0	31.0	32.0	30.0	29.0
22	---	21.5	22.5	25.0	24.0	21.0	20.0	28.0	32.0	30.0	32.0	30.0
23	---	23.0	---	20.0	22.0	25.0	19.0	26.0	32.0	35.0	30.0	31.0
24	27.0	23.0	15.0	25.0	23.0	25.0	20.0	27.0	32.0	32.0	31.0	30.0
25	23.0	23.0	15.0	25.0	23.0	27.0	20.0	27.0	35.0	34.0	30.0	32.0
26	24.0	23.5	---	20.0	---	24.0	21.0	27.0	30.0	32.0	32.0	31.0
27	24.5	24.5	---	24.0	16.0	22.0	24.0	28.0	27.0	32.0	30.0	32.0
28	24.0	24.0	---	25.0	19.0	17.0	23.0	27.0	29.0	31.0	30.0	30.0
29	23.0	25.0	---	---	---	22.0	25.0	28.0	32.0	32.0	30.0	31.0
30	23.0	24.5	16.0	---	---	22.0	25.0	30.0	30.0	31.0	34.0	32.0
31	25.0	---	16.0	20.0	---	25.0	---	30.0	---	31.0	31.0	---
MEAN	26.0	22.5	20.0	21.0	19.0	23.0	25.0	27.5	30.5	31.5	31.0	30.5

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	3570	233	2250	6290	400	6790	1210	355	1160
2	3370	244	2220	5720	350	5410	1200	86	279
3	3740	381	3850	4770	295	3800	1050	88	249
4	4380	266	3150	3570	250	2410	840	82	186
5	4730	346	4420	2800	185	1400	657	77	137
6	4100	286	3170	2420	150	980	699	107	202
7	3010	197	1600	1920	125	648	1380	176	656
8	2480	69	462	1580	76	324	1600	158	683
9	2010	70	380	1290	82	286	1200	156	505
10	1470	82	325	780	74	156	957	81	209
11	1220	67	221	717	53	103	943	76	194
12	1380	102	380	999	201	542	851	67	154
13	2240	389	2350	1270	70	240	826	91	203
14	2560	454	3140	1360	101	371	833	90	202
15	2750	450	3340	1450	119	466	1090	134	394
16	3510	446	4230	1520	145	595	1640	160	708
17	4130	693	7730	1510	154	628	1520	125	513
18	4380	258	3050	1330	104	373	1080	68	198
19	3920	281	2970	1150	98	304	724	65	127
20	3040	289	2370	1070	133	384	706	64	122
21	2080	279	1570	1110	130	390	837	84	190
22	1320	250	891	1230	104	345	791	82	175
23	999	200	539	1340	86	311	816	75	165
24	932	519	1310	996	75	202	851	63	145
25	2390	399	2570	770	99	206	1110	64	192
26	4480	352	4260	770	99	206	1620	168	735
27	5900	379	6040	773	80	167	1870	125	631
28	6430	276	4790	770	143	297	1730	110	514
29	6530	368	6490	731	57	113	1380	85	317
30	6570	493	8750	833	178	400	957	58	150
31	6500	484	8490	---	---	---	745	30	60
TOTAL	106121	---	97308	52839	---	28847	33713	---	10355

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	689	34	63	204	49	27	763	137	282
2	675	47	86	431	41	48	597	45	73
3	717	48	93	466	43	54	554	174	260
4	678	66	121	406	31	34	629	41	70
5	516	65	91	306	35	29	636	32	55
6	346	66	62	388	39	41	643	45	78
7	417	116	131	731	54	107	611	56	92
8	653	78	138	1240	15	50	600	52	84
9	558	66	99	1070	86	248	572	52	80
10	448	86	104	837	64	145	413	60	67
11	622	80	134	770	65	135	335	44	40
12	516	75	104	530	34	49	352	40	38
13	399	54	58	431	34	40	374	38	38
14	516	34	47	341	27	25	434	62	73
15	318	33	28	388	50	52	441	71	85
16	277	32	24	586	41	65	317	62	53
17	448	37	45	675	48	87	643	68	118
18	279	42	32	731	48	95	487	59	78
19	104	49	14	579	31	48	494	69	92
20	101	40	11	431	40	47	498	56	75
21	9.2	27	.67	434	41	48	417	33	37
22	106	43	12	614	58	96	296	54	43
23	187	40	20	685	54	100	130	71	25
24	221	55	33	618	54	90	67	49	8.9
25	94	36	9.1	424	49	56	29	74	5.8
26	6.4	39	.67	554	42	63	143	95	37
27	117	51	16	696	45	85	273	94	69
28	208	26	15	826	72	161	244	70	46
29	182	25	12	---	---	---	319	79	68
30	134	24	8.7	---	---	---	374	76	77
31	71	20	3.8	---	---	---	470	68	86
TOTAL	10612.6	---	1615.94	16392	---	2125	13155	---	2333.7

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	438	102	121	1920	89	461	1550	110	460
2	256	86	59	2290	273	1690	2160	166	968
3	201	50	27	3060	457	3780	2860	708	5470
4	180	74	36	3130	398	3360	3960	523	5590
5	341	58	53	2810	227	1720	5230	622	8780
6	554	87	130	2200	190	1130	6070	850	13900
7	731	68	134	1690	116	529	6920	66	1230
8	618	48	80	1490	110	443	6920	115	2150
9	441	52	62	1300	88	309	6500	157	2760
10	494	59	79	1170	69	218	6070	139	2280
11	657	60	106	1070	45	130	5330	232	3340
12	946	94	240	699	34	64	4200	223	2530
13	901	75	182	523	55	78	3230	228	1990
14	692	64	120	558	47	71	2200	286	1700
15	537	90	130	470	34	43	1290	406	1410
16	406	55	60	417	36	41	614	52	86
17	459	64	79	487	58	76	357	76	73
18	484	70	91	685	55	102	238	26	17
19	583	80	126	837	64	145	205	36	20
20	625	84	142	1900	274	1410	272	42	31
21	456	43	53	1690	580	2650	351	22	21
22	236	61	39	1190	160	514	271	24	18
23	348	48	45	1110	603	1810	213	36	21
24	494	86	115	2970	715	5730	154	37	15
25	777	233	489	4660	1130	14200	146	76	30
26	1200	428	1390	5540	2110	31600	108	52	15
27	1550	214	896	5470	838	12400	93	56	14
28	1290	169	589	4030	812	8840	198	58	31
29	1080	89	260	2550	520	3580	245	53	35
30	893	79	190	1810	477	2330	165	62	28
31	---	---	---	1490	100	402	---	---	---
TOTAL	18868	---	6123	61216	---	99856	68120	---	55013

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	142	47	18	103	55	15	197	45	24
2	204	207	114	82	35	7.7	135	50	18
3	247	168	112	54	72	10	113	72	22
4	353	558	532	99	46	12	136	52	19
5	530	66	94	161	40	17	163	40	18
6	706	61	116	69	41	7.7	173	38	18
7	600	56	91	54	52	7.5	264	70	50
8	501	48	65	132	34	12	276	60	45
9	424	68	78	172	26	12	129	39	14
10	224	68	41	273	26	19	124	50	17
11	35	52	5.0	215	40	23	116	52	16
12	146	99	39	267	55	40	116	54	17
13	360	97	94	448	46	56	151	51	21
14	194	80	42	494	44	59	111	66	20
15	32	94	8.1	273	46	34	118	47	15
16	24	82	5.3	321	38	33	96	36	9.3
17	238	99	64	347	42	39	98	55	14
18	302	69	56	193	69	36	114	53	16
19	431	44	51	124	33	11	178	36	17
20	558	52	78	122	59	19	241	34	22
21	226	33	20	229	32	20	256	72	50
22	228	171	105	297	38	30	406	80	88
23	279	69	52	287	53	41	385	30	31
24	226	29	18	146	53	21	349	37	35
25	378	31	32	124	40	13	249	42	28
26	501	76	103	145	46	18	343	62	57
27	491	67	89	156	40	17	324	208	182
28	509	96	132	147	57	23	319	68	59
29	198	59	32	165	73	33	169	40	18
30	150	35	14	170	81	37	72	52	10
31	144	62	24	235	36	23	---	---	---
TOTAL	9581	---	2324.4	6104	---	745.9	5921	---	970.3
YEAR	402642.6		307617.24						

Because the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than continuous stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage of those events. The data collected for special reasons are called measurements at miscellaneous sites.

Streamflow data collected at partial-record stations where water-quality data other than observations of water temperature are not obtained are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations; the second is a table of annual maximum stage and (or) discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low and high flows are given in a third table. Discharge measurements and water-quality data collected at partial-record stations are presented in downstream order in the section of this report entitled "Gaging-station records."

Low-flow partial-record stations

Measurements of streamflow at low-flow partial-record stations that are not published in the gaging-station section are given in the following table. Most of the measurements of low flow were made during periods when streamflow was sustained primarily by groundwater discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will indicate the low-flow potential of the stream. The years listed in the column headed "Period of record" identifies the water years in which measurements were made at the same or at practically the same site.

Discharge measurements made at low-flow partial-record station during water year 1982

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Colorado River basin				
08129500	Dove Creek Spring near Knickerbocker, Tex.	Lat 31°11'06", long 100°43'51", Irion County, at headquarters ranchhouse, 500 ft upstream from Dove Creek, 1.8 mi upstream from Stilson Dam on Dove Creek, and 8.5 mi southwest of Knickerbocker.	(a)	1944-58‡, 1959-82	10-20-81 12- 2-81 1-19-82 3- 3-82 4-13-82 5-26-82 7-15-82 8-25-82 9-28-82	21.2 16.4 12.8 14.1 12.8 15.1 14.7 13.7 15.6
08131300	South Concho River above Pecan Creek near San Angelo, Tex.	Lat 31°20'13", long 100°28'46", Tom Green County, 1,000 ft upstream from Pecan Creek and about 9 mi south of San Angelo.	(a)	1963-82	10-21-81 12- 3-81 1-20-82 3- 2-82 4-13-82 5-26-82 7-15-82 8-25-82 9-27-82	3.15 3.38 3.54 3.82 4.02 3.93 3.04 2.80 2.16
08143900	Springs at Fort McKavett, Tex.	Lat 30°50'03", long 100°05'37", Menard County, at Fort McKavett.	(a)	1902, 1905, 1922, 1942, 1948-49, 1951-52, 1955-56, 1958-82	1- 8-82 9- 2-82	24.9 19.7
08146500	San Saba Springs, at San Saba, Tex.	Lat 31°11'44", long 98°42'42", San Saba County, 150 ft upstream from bridge on U.S. Highway 190 at San Saba and 0.8 mi east of courthouse.	(a)	1939, 1952, 1957, 1959-82	1- 5-82 8-31-82	7.06 5.13
08149400	South Llano River near Telegraph, Tex.	Lat 30°15'43", long 99°56'01", Edwards County, 3.7 mi upstream from Paint Creek, 5.7 mi south of Telegraph, and 18.7 mi southwest of Junction.	(a)	1939, 1952, 1956, 1959-82	1- 6-82 9- 1-82	33.8 28.2
08149500	Seven Hundred Springs near Telegraph, Tex.	Lat 30°16'12", long 99°55'22", Edwards County, about 3 mi upstream from Paint Creek, about 5 mi south of Telegraph, and about 18 mi southwest of Junction.	(a)	1939, 1952, 1955-56, 1959-82	1- 6-82 9- 1-82	24.3 17.7
08153050	Pedernales River near Stonewall, Tex.	Lat 30°14'35", long 98°39'25", Gillespie County, at downstream side of Ranch Road 1623 at Stonewall, 0.6 mi upstream from Salt Banch, and at mile 68.9.	-	1979-82	3-23-82 7-20-82	70.2 11.6
08155400	Barton Creek above Barton Springs at Austin, Tex.	Lat 30°15'48", long 97°46'19", Travis County, just upstream from upper dam of Barton Creek swimming pool in Zilker Park and upstream from all springs known as Barton Springs at Austin.	125	1919-82	7-14-82	.59

‡ Operated as a continuous-record station.
a Not applicable.

Discharge measurements made at low-flow partial-record stations during water year 1982--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Guadalupe River basin				
08168000	Hueco Srpings near New Braunfels, Tex.	Lat 29°45'33", long 98°08'23", Comal County, two springs located 400 and 500 ft west of the Guadalupe River, 600 ft downstream from the mouth of Elm Creek, and 4.2 mi north of New Braunfels.	(a)	1944-82	10-21-81 12- 4-81 1-13-82 2-23-82 4- 5-82 5-20-82 6-29-82 8- 9-82 9-20-82	35.0 34.0 18.0 15.0 12.0 77.0 26.0 13.0 9.60
08168600	Blieders Creek at New Braunfels, Tex.	Lat 29°43'14", long 98°07'23", Comal County, at Grove Avenue crossing in northwest New Braunfels and 0.25 mi upstream from mouth.	-	1962-82	1-11-82 6-28-82	0 0
08168700	Panther Canyon at New Braunfels, Tex.	Lat 29°42'47", long 98°08'14", Comal County, at Landa Park Drive crossing in Landa Park at New Braunfels.	-	1962-82	1-11-82 6-29-82	0 0
08168800	Dry Comal Creek at New Braunfels, Tex.	Lat 29°41'52", long 98°08'11", Comal County, at Floral Avenue crossing in New Braunfels, 0.6 mi upstream from Missouri Pacific Railroad Co. bridge, and 0.9 mi upstream from mouth.	-	1962-82	1-14-82 6-29-82	1.6 .85
		Nueces River basin				
08204000	Leona River spring flow near Uvalde, Tex.	Lat 29°09'15", long 99°44'35", Uvalde County, at old road crossing on White's Ranch, 2.0 mi downstream from Cooks Slough, and 4.7 mi southeast of Uvalde.	(a)	1935-65‡, 1966-82	10- 8-81 11-12-81 12-21-81 2- 3-82 3-24-82 4-29-82 6- 9-82 7-19-82 8-31-82	33.0 44.0 49.0 37.0 44.0 36.0 33.0 30.0 24.0
		Rio Grande basin				
08425500	Phantom Lake Spring near Toyahvale, Tex.	Lat 30°56'01", long 103°50'43", Jeff Davis County, 375 ft downstream from source of spring, 3.5 mi southwest of Toyahvale, and 7.0 mi southwest of Balmorhea.	(a)	1931-33‡, 1942-66‡, 1967-82	12- 3-81 1-20-82 3-10-82 4-28-82 6-30-82 8-25-82	6.60 4.21 3.18 2.53 2.25 1.95
08427000	Giffin Springs at Toyahvale, Tex.	Lat 30°56'51", long 103°47'19", Reeves County, 2,000 ft northwest of post office in Toyahvale.	(a)	1919, 1922-23, 1925, 1932-33‡, 1941-82	1-20-82 8-24-82	4.16 4.18
08427500	San Solomon Springs at Toyahvale, Tex.	Lat 30°56'34", long 103°47'16", Reeves County, on South Canal at Toyahvale, 540 ft downstream from headgate at pool of springs, and 4.0 mi southwest of Balmorhea.	(a)	1931-33‡, 1941-65‡, 1966-82	12- 3-81 1-20-82 3-10-82 4-28-82 6-30-82 8-25-82	34.4 30.6 30.8 28.3 27.7 26.4
08444500	Comanche Springs at Fort Stockton, Tex.	Lat 30°53'20", long 102°51'59", Pecos County, on outlet canal of Pecos County Water Improvement District No. 1 in Fort Stockton, 0.2 mi upstream from bridge on U.S. Highway 290, and 0.5 mi downstream from head of springs.	(a)	1899-1935, 1936-64‡, 1965-82	1-19-82 8-23-82	0 0
08456300 c/	Las Moras Springs at Brackettville, Tex.	Lat 29°18'33", long 100°25'13", Kinney County, in springflow pool at Brackettville, 160 ft south of U.S. Highway 90, and 1,550 ft upstream from bridge on Brackettville-Fort Clark Road.	(a)	1896, 1899-1900, 1902, 1904-6, 1910, 1912, 1925, 1928, 1951-82	10-21-81 11-10-81 12- 8-81 1-14-82 2- 9-82 3- 9-82 4-13-82 5-11-82 6- 8-82 7-13-82 8-10-82 9-14-82	37.0 33.0 41.0 38.0 29.0 36.0 27.0 24.0 36.0 29.0 21.0 14.0

‡ Operated as a continuous-record station.
a Not applicable.
c Records were furnished by the International Boundary and Water Commission.

Crest-stage partial-record stations

The following table contains annual maximum stage and (or) discharge at partial-record stations operated primarily for the purpose of defining the flooding characteristics of the streams. At stations where discharge is given, or is footnoted "to be determined", a stage-discharge relation has been, or will be, defined by discharge measurements obtained by current meter or by indirect procedures. Water-stage recorders are located at these flood-hydrograph stations to facilitate complete hydrograph definition. At stations where only the maximum stage is given (discharge column is dashed), data are generally collected for use in stage-frequency studies of flood-profile definition. Gages at these stations usually consist of a device that will register the peak stage occuring between inspections of the gage. The years used in the column "Period of record" identify the years in which the annual maximum has been determined.

Annual maximum stage and (or) discharge during water year 1982

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		Colorado River basin					
08142000	Hords Creek at Coleman, Tex.	Lat 31°50'50", long 99°25'25", Coleman County, on right bank in city park, 1,250 ft downstream from bridge on U.S. Highways 84 and 283 and State Highway 206, 1 mi north of courthouse in Coleman, 3.9 mi downstream from Bachelor Creek, 12 mi downstream from Hords Creek Dam, and at mile 14.3.	107	1941-70‡, 1971-82	6-19-82	6.40	1,790
08154950	Bee Creek at Westlake Drive, near Austin, Tex.	Lat 30°18'11", long 97°47'43", Travis County, on upstream side of bridge on Westlake Drive.	3.28	1976-82	5-13-82	8.52	960
08155550	West Bouldin Creek at Riverside Drive, Austin, Tex.	Lat 30°15'49", long 97°45'17", Travis County, on upstream side of eastbound bridge on Riverside Drive in Austin.	3.12	1975-82	5-13-82	4.09	675
08156650	Shoal Creek at Steck Avenue, Austin, Tex.	Lat 30°21'55", long 97°44'11", Travis County, on downstream side of bridge on Steck Avenue in Austin.	2.79	1975-82	5-13-82	5.30	1,240
08156750	Shoal Creek at White Rock Drive, Austin, Tex.	Lat 30°20'21", long 97°44'50", Travis County, on downstream side of bridge on White Rock Drive in Austin.	6.97	1975-82	5-13-82	11.50	2,860
08158100	Walnut Creek at Farm road 1325 near Austin, Tex.	Lat 30°24'35", long 97°42'41", Travis County, on downstream side of bridge on Farm Road 1325 and 9.5 mi north of the State Capitol Building in Austin.	12.6	1975-82	5-13-82	13.91	3,820
08158300	Ferguson Branch at Springdale Road, Austin, Tex.	Lat 30°19'53", long 97°39'12", Travis County, on downstream side of bridge on Springdale Road in Austin.	1.63	1975-82	5-13-82	4.88	133
08158400	Little Walnut Creek at Interstate Highway 35, Austin, Tex.	Lat 30°20'57", long 97°41'34", Travis County, on downstream frontage road bridge on Interstate Highway 35 in Austin.	5.57	1975-82	5-13-82	7.65	4,530
08158500	Little Walnut Creek at Manor Road, Austin, Tex.	Lat 30°18'34", long 97°40'04", Travis County, on downstream side of bridge on Manor Road in Austin.	12.1	1975-82	5-13-82	12.43	6,020
08158820	Bear Creek at Farm Road 1626 near Manchaca, Tex.	Lat 30°08'25", long 97°50'50", Travis County, on upstream side of culvert on Farm Road 1626 and 1.0 mi west of Manchaca.	24.0	1979-82	5-13-82	9.93	7,400
08158880	Boggy Creek (South) at Circle S Road, Austin, Tex.	Lat 30°10'50", long 97°46'55", Travis County, on downstream side of bridge on Circle S Road in Austin.	3.58	1976-82	5-13-82	7.45	1,360
08158930	Williamson Creek at Manchaca Road, Austin, Tex.	Lat 30°13'16", long 97°47'36", Travis County, on downstream side of bridge on Manchaca Road in Austin.	19.0	1975-82	5-13-82	10.33	3,900
08159180	Dogwood Creek near McDade, Tex.	Lat 30°14'29", long 97°17'03", Bastrop County, in Camp Swift and 4 mi southwest of McDade.	.53	1980-82	5-13-82	9.70	300
08159185	Dogwood Creek at Highway 95 near McDade, Tex.	Lat 30°13'49", long 97°19'03", Bastrop county, at bridge on State Highway 95 and 5.7 mi southwest of McDade.	5.03	1980-82	5-13-82	4.80	163
		Guadalupe River basin					
08169500	Guadalupe River at New Braunfels, Tex.	Lat 29°41'52", long 98°06'23", Comal County, Comal Mills in New Braunfels and 0.4 mi upstream from Interstate Highway 35.	1,652	1898-1902, 1915-27‡, 1974-82	10-31-81	12.52	6,020

‡ Operated as a continuous-record station.

Annual maximum stage and (or) discharge during water year 1982--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		Guadalupe River basin--Continued					
08173900	Guadalupe River at Gonzales, Tex.	Lat 29°29'49", long 97°27'17", Gonzales County, at Gonzales Hydro Station in Gonzales and 1.4 mi upstream from U.S. Highway 183.	-	1977-82	11- 2-81	28.22	28,400
08177820	Olmos Creek at Hildebrand Street, San Antonio, Tex.	Lat 29°27'56", long 98°28'01", Bexar County, at upstream side of bridge on Hildebrand Street, 0.8 mi downstream from Olmos dam in San Antonio.	34.8	1980-82	10- 7-81	8.79	1,380
08177900	San Antonio River at Navarro Street, San Antonio, Tex.	Lat 29°25'50", long 98°29'24", Bexar County, at bridge on Navarro Street in San Antonio.	-	1973-82	10- 8-81	637.39	-
			-	1980-82	10- 8-81	632.76	-
08177920	San Antonio River at Dolorosa Street, San Antonio, Tex.	Lat 29°25'24", long 98°29'32", Bexar County, just downstream from Dolorosa Street in San Antonio.					
			-	1973-82	10- 7-81	644.31	-
08178100	San Pedro Creek at Santa Rosa Street, San Antonio, Tex.	Lat 29°25'51", long 98°29'49", Bexar County, at bridge on Santa Rosa Street in San Antonio.					
			-	1973-82	10- 7-81	683.10	-
08178350	Martinez Creek at Fredericksburg Road, San Antonio, Tex.	Lat 29°27'22", long 98°31'04", Bexar County, at bridge on Fredericksburg Road in San Antonio.					
			-	1973-82	10- 7-81	639.71	-
08178400	Alazan Creek at West Martin Street, San Antonio, Tex.	Lat 29°25'51", long 98°30'51", Bexar County, at bridge on West Martin Street in San Antonio.					
			-	1973-82	10- 7-81	632.41	-
08178450	Apache Creek at South Zarzamora Street, San Antonio, Tex.	Lat 29°24'47", long 98°31'42", Bexar County, at bridge on South Zarzamora Street in San Antonio.					
			-	1973-82	10- 7-81	611.49	-
08178500	San Pedro Creek at Furnish Street, San Antonio, Tex.	Lat 29°24'22", long 98°30'38", Bexar County, at bridge on Furnish Street in San Antonio.					
			-	1973-82	10- 7-81	518.22	-
08178550	San Antonio River at Ashley Street (Berg's Mill), San Antonio, Tex.	Lat 29°20'04", long 98°27'20", Bexar County, at bridge on Ashley Street in San Antonio.					
08178620	Lorence Creek at Thousand Oaks Blvd, San Antonio, Tex.	Lat 29°35'24", long 98°27'47", Bexar County, on right bank 30 ft upstream from Thousand Oaks Blvd. and 4.2 mi upstream from mouth.	4.05	1981-82	10- 7-81 10-31-81 5- 6-82	4.01 2.35 5.90	(†) 262 (†)
08178640	West Elm Creek at San Antonio, Tex.	Lat 29°37'23", long 98°26'29", Bexar County, at mid-channel, 1.8 mi upstream from East Elm Creek, 2.1 mi upstream from Farm Road 1604, and 7.0 mi north of San Antonio International Airport.	2.45	1976-82	5- 6-82	6.79	-
08178645	East Elm Creek at San Antonio, Tex.	Lat 29°37'04", long 98°25'41", Bexar County, at mid-channel, 2.1 mi upstream from West Elm Creek, and 2.4 mi upstream from Farm Road 1604.	2.33	1975-82	5- 6-82	7.96	-
		Nueces River basin					
08207220	Rutledge Hollow at 7th Street, Poteet, Tex.	Lat 29°02'07", long 98°34'18", Atascosa County, in city of Poteet at 7th Street and 2.0 mi above Atascosa River.	9.74	1979-82	8- 4-82	418.83	-
08207300	Atascosa River at U.S. Highway 281, Pleasanton, Tex.	Lat 28°57'44", long 98°28'51", Atascosa County, at bridge on U.S. Highway 281 in Pleasanton.	-	1973-82	10-23-81	347.32	
		San Fernando Creek basin					
08212300	Tranquitas Creek at Kingsville, Tex.	Lat 27°31'33", long 97°52'02", Kleberg County, at bridge on U.S. Highway 77 Business Route in Kingsville, 4.9 mi above San Fernando Creek, and 5.9 mi downstream from Tranquitas Dam.	48.5	1965-82	1982	<1.74	-

† Not determined.
< Less than.

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 1982

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
Colorado River basin						
Colorado River	Gulf of Mexico	Lat 29°54'04", long 96°53'13", Fayette County, at upstream side of State Highway 71 bridge at La-Grange, 2,000 ft upstream from Buckners Creek, and at partial-record gaging station 08160400 (discontinued 9-30-82)	40,875	1980-82	1-18-80	c269
					5-15-80	c12,200
					9-26-80	c1,870
					4-24-81	c2,880
					6-13-81	c43,800
					7-17-81	c4,050
					10- 9-81	2,310
					2-12-82	2,110
					4-15-82	1,110
					5- 7-82	3,100
					6-18-82	3,260
					7-30-82	2,550
					9-10-82	2,640
Guadalupe River basin						
San Antonio Springs	San Antonio River	Lat 29°27'56", long 98°28'04", Bexar County, just below Hildebrandt Street in San Antonio, Tex.	-	1951-52, 1959-62, 1972, 1974-77, 1979-82	8- 4-82	0
					8-19-82	0
San Pedro Springs	San Pedro Creek	Lat 29°26'42", long 98°30'06", Bexar County, at San Pedro Park in San Antonio, Tex.	-	1933-35, 1951-52, 1958-61, 1966, 1971, 1974-77, 1979-82	8- 4-82	.12
					8-19-82	.10
Rio Grande basin						
Mud Springs 1/	Mud Creek	Lat 29°27'10", long 100°37'30", Kinney County, on Mays Ranch and about 16 mi northwest of Brackettville, Tex.	-	1939-41, 1952-53, 1962, 1965-82	10-21-81	21.0
					11-10-81	21.0
					12- 8-81	23.0
					1-14-82	24.0
					2- 9-82	28.0
					3- 9-82	27.0
					4-13-82	28.0
					5-11-82	29.0
					6- 8-82	30.0
					7-13-82	30.0
					8-10-82	28.0
					9-14-82	29.0
Pinto Springs 1/	Pinto Creek	Lat 29°24'10", long 100°27'15", Kinney County, on C. C. Belcher Ranch and 7.5 mi northwest of Brackettville, Tex.	-	1939-41, 1952-53, 1965-82	10-21-81	8.20
					11-10-81	14.0
					12- 8-81	13.0
					4-13-82	4.10
					5-11-82	3.80
					6- 8-82	4.20
					7-13-82	4.30
					8-10-82	1.90
					9-14-82	1.60

1/ Measurements by International Boundary and Water Commission.
c Not previously published.

INDEX

October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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