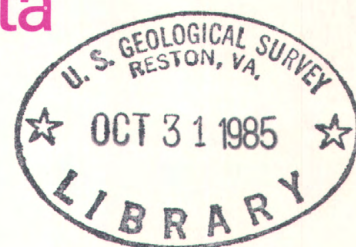


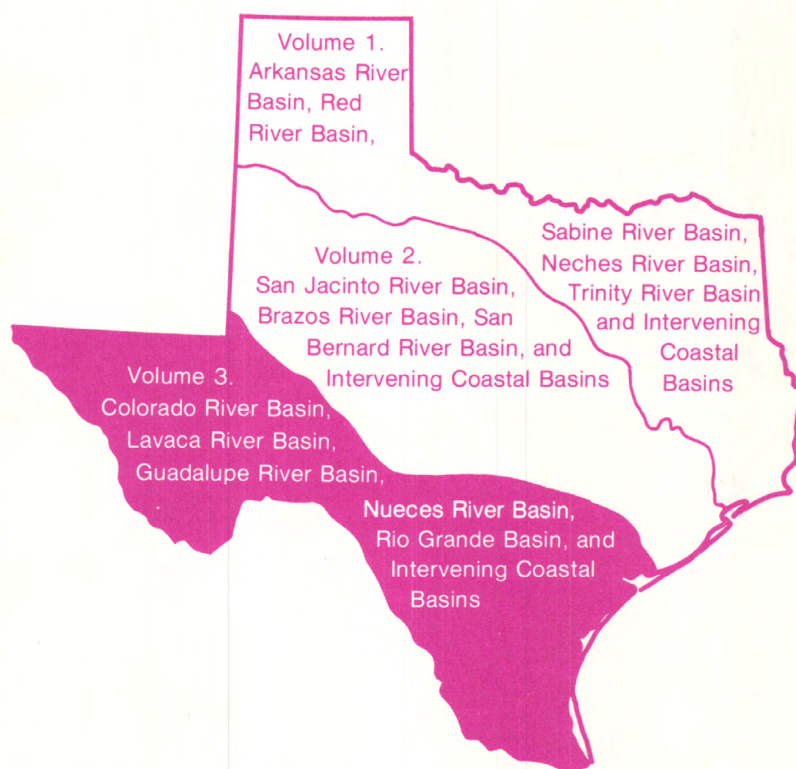
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Water Resources Data Texas Water Year 1984



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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-84-3
Prepared in cooperation with the State of Texas
and with other agencies

CALENDAR FOR WATER YEAR 1984

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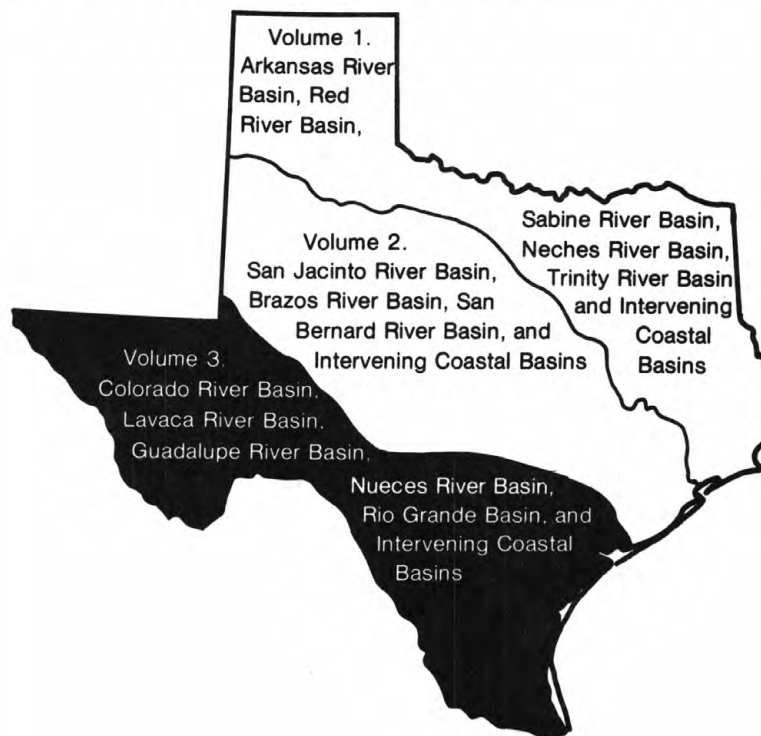
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Water Resources Data Texas Water Year 1984

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

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-84-3
Prepared in cooperation with the State of Texas
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

William P. Clark, 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

1985

Preface

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

- Volume 1. Arkansas River Basin, Red River Basin, Sabine River Basin, Neches River Basin, Trinity River Basin, and intervening and adjacent Coastal Basins
- Volume 2. San Jacinto River Basin, Brazos River Basin, San Bernard River Basin, and intervening Coastal Basins
- Volume 3. Colorado River Basin, Lavaca River Basin, Guadalupe River Basin, Nueces River Basin, Rio Grande Basin, and intervening Coastal Basins

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

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

REPORT DOCUMENTATION PAGE		1. REPORT NO. USGS/WRD/HD-85/251	2.	3. Recipient's Accession No.
4. Title and Subtitle Water Resources Data for Texas, Water Year 1984, Volume 3; Colorado River, Lavaca River, Guadalupe River, Nueces River, Rio Grande basins and Intervening Coastal basins			5. Report Date June 1985	
			6.	
7. Author(s)			8. Performing Organization Rept. No. USGS-WDR-TX-84-3	
9. Performing Organization Name and Address U. S. Geological Survey, Water Resources Division 300 East Eighth Street Austin, TX 78701			10. Project/Task/Work Unit No.	
			11. Contract(C) or Grant(G) No. (C) (G)	
			13. Type of Report & Period Covered Oct. 1, 1983, to Sept. 30, 1984	
12. Sponsoring Organization Name and Address U. S. Geological Survey, Water Resources Division 300 East Eighth Street Austin, TX 78701			14.	
15. Supplementary Notes Prepared in cooperation with the State of Texas and with other agencies.				
16. Abstract (Limit: 200 words) Surface-water data for the 1984 water year for Texas are presented in three volumes, appropriately identified as to content by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Also included are crest-stage and flood-hydrograph partial-record stations, reconnaissance partial-record stations, and low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. Records for a few pertinent stations in bordering States are also included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Texas.				
17. 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				
18. Availability Statement No restriction on distribution. This report may be purchased from: National Technical Information Service Springfield, VA 22161		19. Security Class (This Report) UNCLASSIFIED		21. No. of Pages 440
		20. Security Class (This Page) UNCLASSIFIED		22. Price

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WATER RESOURCES DATA, TEXAS, WATER YEAR 1984

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 1984 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-84-3." 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 1984 are:

Corps of Engineers, U.S. Army.

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

National Park Service.

U.S. Bureau of Reclamation.

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

Texas Department of Water Resources, H. D. Davis, Executive Director; the cities of Abilene, Alice, Arlington, Austin, Brady, Cleburne, Clyde, Corpus Christi, El Paso, Gainesville, Garland, Graham, Houston, Lubbock, Nacogdoches, San Angelo, San Antonio, and Wichita Falls; Athens Municipal Water Authority; Bexar, Medina, and Atascosa Counties Water Control and Improvement District No. 1; Bistone Municipal Water Supply District; Brazos River Authority; Brown County Water Improvement District No. 1; 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; 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 is perennial. In the western part of the State, streams generally flow through arroyos, and streamflow principally is ephemeral.

Major weather developments in Texas during the 1984 water year include Hurricane Tico, that affected parts of western Texas and the Texas Panhandle during October 1983, and a lingering drought, nurtured by one of the driest spring seasons in Texas history. Hurricane Tico originated in the eastern Pacific Ocean, crossed central Mexico, and entered Texas near the mouth of the Pecos River in mid-October, spreading substantial rainfall along its path through western and northwestern Texas. The extreme drought, that had plagued western Texas during the summer of 1983, spread eastward into south and central Texas by the late spring of 1984, and by late summer had expanded to include north-central and eastern Texas. Much of the southern one-half of Texas received little more than an inch of rain during the entire summer. Scores of communities enforced water rationing to preserve dwindling water supplies in the State's lakes and underground reservoirs. Even though drought conditions existed for much of the 1984 water year, cumulative precipitation was near normal across the State, except for the southern and western extremities, where yearly rainfall totals were actually greater than normal.

Conservation storage in 71 selected reservoirs throughout the State, with a combined conservation capacity of 31,987,890 acre-feet, decreased from 78 percent at the end of September 1983, to 66 percent at the end of September 1984. Records from these 71 reservoirs show that contents increased in only 4, decreased in 66, and remained the same in 1.

Dissolved-solids concentrations in most streams in the State are inversely related to water discharge. During years when precipitation and runoff are deficient, streamflow commonly is much more mineralized than years when precipitation and runoff are normal or excessive. However, for streams where discharge is controlled by reservoirs, the mineralization of the water may remain relatively constant, despite large fluctuations in precipitation and runoff.

The area for which water-resources data are presented in volume 3 cover the entire southwestern one-half of the State and extend from the western tip of the State near El Paso to the central Texas Gulf Coast near Bay City. Normal annual precipitation ranges from less than 8 inches at El Paso to more than 40 inches at Bay City. Average annual runoff ranges from less than 0.1 inch in parts of western Texas to more than 10 inches in some places along the central Gulf Coast. The location of selected streamflow and water-quality stations in the area of Texas covered by volume 3 are shown in figure 1.

Streamflow

For the first one-half of the 1984 water year, streamflow generally was in the normal range throughout the entire area with the exception of the upper northwestern Colorado and southeastern Pecos River basins, where precipitation from the remnants

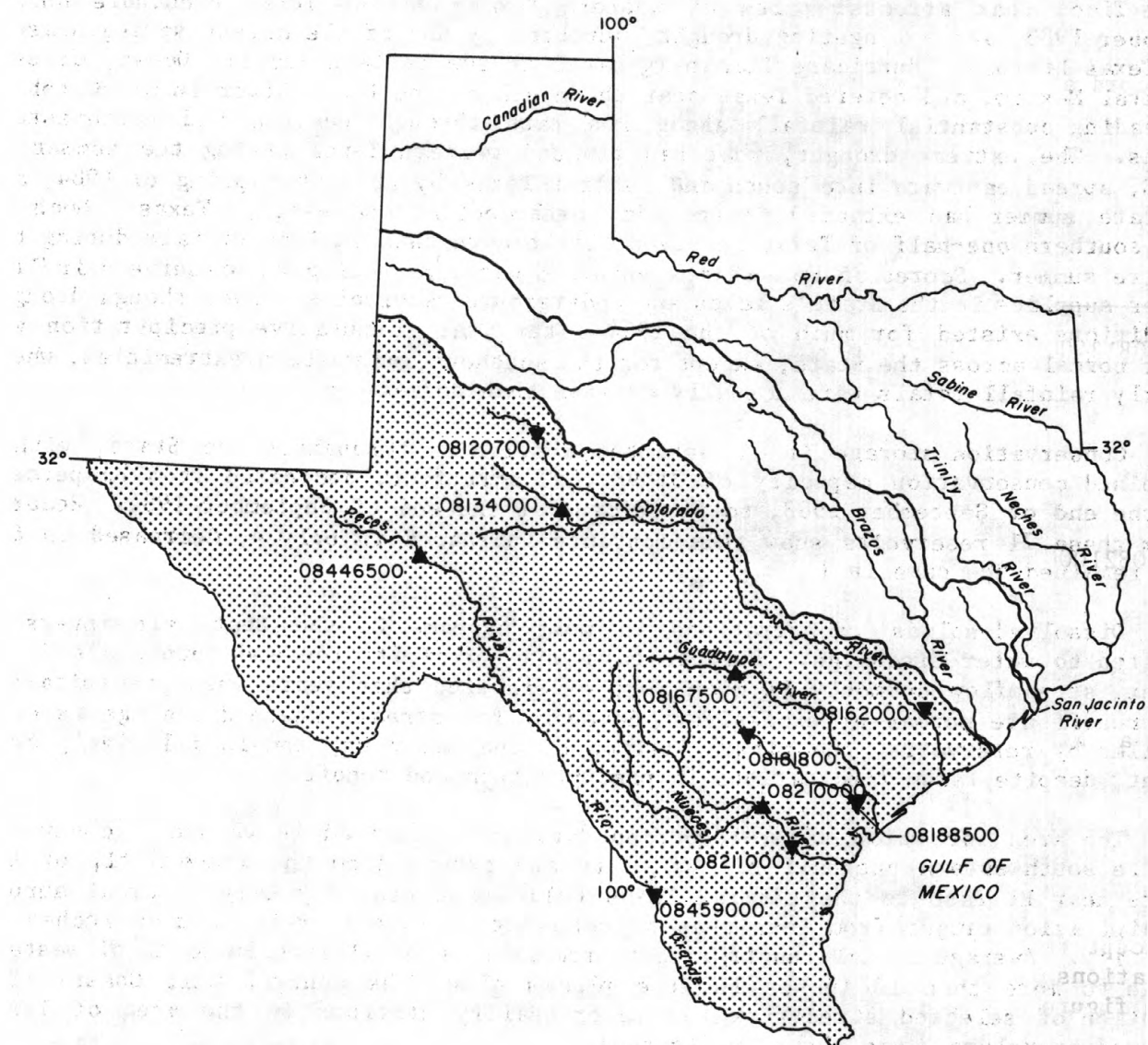


Figure 1.--Area of Texas covered by volume 3 and location of selected streamflow and water-quality stations in volume 3.

of Hurricane Tico caused greater than normal runoff in October. Southwestern Texas experienced one of the driest spring seasons in recent history, with streamflow generally deficient throughout the entire area through the last one-half of the 1984 water year.

Runoff for the index station "North Concho River near Carlsbad, Texas" was in excessive range (within the highest 25 percent of record) for the first 6 the months and in the deficient range (within the lowest 25 percent of record) for the remainder of the water year. Runoff for the index station "Guadalupe River near Spring Branch, Texas" was in the deficient range for the entire year. The following table shows a comparison of runoff data for the 1984 water year with runoff for the period of record at four selected stations (fig. 1) in volume 3:

Station Name	Discharge during 1984 water year (cubic feet per second)			Discharge during period of record (cubic feet per second)		
	Max.	Min.	Avg.	Max.	Min.	Avg.
*08134000 North Concho River near Carlsbad Tex.	2,920	0	4.44	94,600	0	33.4 (1925-84)
08167500 Guadalupe River near Spring Branch Tex.	3,300	1.1	72.4	160,000	0	307 (1923-84)
a08210000 Nueces River near Three Rivers Tex.	1,660	.55	82.3	141,000	0	837 (1916-84)
08446500 Pecos River near Girvin Tex.	220	4.5	16.2	20,000	1.9	82.6 (1940-84)

* Hydrologic index station.

a NASQAN site.

At the other two index stations in the State, runoff during the 1984 water year was excessive at Neches River near Rockland for the first 6 months, below normal for the next 3 months, and normal for the remainder of the year. Runoff was deficient at North Bosque River near Clifton for the entire water year except for March, which was normal. Monthly mean discharges for the four index stations in the State are plotted against the median of the long-term monthly means in figure 2.

Conservation storage from 19 selected reservoirs in this area (volume 3) of the State, with a total combined conservation capacity of 8,936,380 acre-feet, decreased from 59 percent at the end of September 1983, to 41 percent at the end of September 1984. Records from the 19 reservoirs show that contents increased in 1, and decreased in 18.

Water Quality

Records of discharge-weighted-average concentrations of dissolved solids for the 1984 water year are compared in the following table with those for the 1979-84 water years for selected long-term daily or continuous stations in the Colorado River, Guadalupe River, Nueces River, and Rio Grande basins:

Station identification	Mean discharge (cubic feet per second)		Discharge-weighted-average concentration of dissolved solids (milligrams per liter)	
	1984	1979-84	1984	1979-84
<u>Colorado River basin</u>				
08120700 Colorado River near Cuthbert Tex.	7.9	47	2,060	748
08162000 Colorado River at Wharton Tex.	884	1,865	312	246
<u>Guadalupe River basin</u>				
08181800 San Antonio River near Elmendorf Tex.	243	425	464	393
08188500 San Antonio River at Goliad Tex.	287	608	602	470
<u>Nueces River basin</u>				
08211000 Nueces River near Mathis Tex.	145	562	486	292
<u>Rio Grande basin</u>				
08459000 Rio Grande at Laredo Tex.	2,690	2,958	635	592

DEFINITION OF TERMS

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

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

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

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

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

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

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

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

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

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

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

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

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°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^3 (milligrams per square meter) to the mass of chlorophyll a, in mg/m^3 .

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

Cubic foot per second (FT³/S, ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second. This rate is equivalent to approximately 7.48 gallons per second, 448.8 gallons per minute, or 0.02832 cubic meters per second.

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

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

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

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

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

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

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

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

Milligrams per liter (MG/L, 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:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream, or is the quantity of sediment, as measured by dry weight or volume, that passes a section during a given time. It is computed by multiplying discharge (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 emerged or submersed solid surface, such as rock or tree, upon which an organism lived.

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

Suspended, recoverable refers to the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 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 measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables; monthly and yearly mean discharges are computed from the daily values. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors (based on individual discharge measurements and notes by the hydrologists or observers) are used in applying the gage heights to the rating tables.

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

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

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

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

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

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

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

The type of gage currently in use, the datum of the present gage referred to National Geodetic Vertical Datum, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITIONS OF TERMS" on page 11.

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 $1 \text{ ft}^3/\text{s}$; to tenths between 1.0 and $10 \text{ ft}^3/\text{s}$; to whole numbers between 10 and $1,000 \text{ ft}^3/\text{s}$; and to 3 significant figures above $1,000 \text{ ft}^3/\text{s}$. 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, 4171 N. Mesa, Building C Suite 310, El Paso, Texas 79902.

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

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

- 1-D1. *Water temperature-influential factors, field measurements, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 p.
- 3-A1. *General field and office procedures for indirect measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 p.
- 3-A2. *Measurement of peak discharge by the slope-area methods*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 p.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 p.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 p.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 p.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 p.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 p.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 p.
- 3-A9. *Measurement of time of travel and dispersion in streams by dye tracing*, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 p.
- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 p.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 p.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 p.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 p.

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

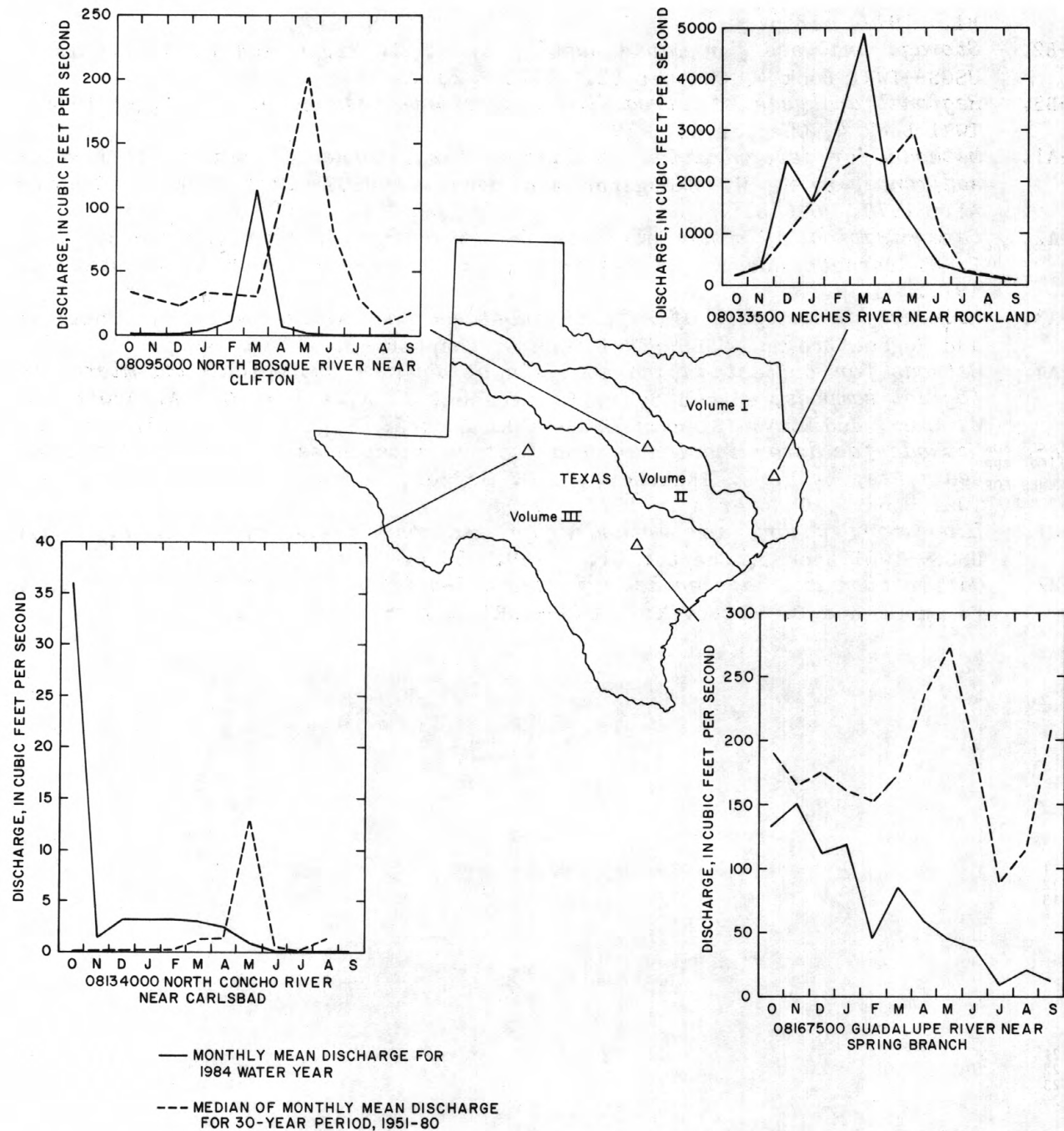


FIGURE 2.--COMPARISON OF MONTHLY MEAN DISCHARGE AT FOUR LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 1984 WATER YEAR WITH MEDIAN OF THE MONTHLY MEAN DISCHARGE FOR THE PERIOD 1951-80.

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 upstream from dam on Colorado River, 7.3 mi north of Vincent, 12.5 mi west of Ira, and at mile 841.0.

DRAINAGE AREA.--3,389 mi², of which 2,371 mi² probably is noncontributing. Drainage area includes 455 mi² above Bull Creek diversion dam, of which 38 mi² 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 downstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam, 14,500 ft 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 wide cut located at the left end of dam, and the second cut is 1,600 ft wide located at the right end of dam. These spillways are designed to discharge 161,000 ft³/s (elevation, 2,275.0 ft). An uncontrolled rectangular concrete drop inlet, 38.0 by 53.0 ft at the crest, discharges into two 10.0-foot concrete conduits. In addition, there is an outlet that can release water through a 24-inch gate into a 30-inch 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 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 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 Sept. 8, 1962 (elevation, 2,259.85 ft); minimum since first appreciable storage, 4,960 acre-ft May 28, 1971 (elevation, 2,206.43 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 39,270 acre-ft Nov. 7 (elevation, 2,225.03 ft); minimum, 19,690 acre-ft Sept. 25 (elevation, 2,216.70 ft).

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

2,216.0	18,340	2,223.0	33,870
2,220.0	26,640	2,226.0	41,990

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32670	38890	37670	36270	35180	33520	31610	29090	27470	25090	22810	21160
2	32620	38890	37670	36250	35120	33470	31560	29020	27400	24910	22720	21080
3	32560	38890	37620	36250	35070	33420	31460	28950	27310	24860	22640	21000
4	32460	38970	37560	36220	34990	33370	31410	28900	27240	24820	22600	20940
5	32460	39110	37510	36110	34970	33320	31310	28860	27150	24780	22510	20880
6	32310	39250	37480	36090	34910	33270	31260	28770	27100	24690	22470	20840
7	32210	39270	37430	36060	34890	33220	31220	28720	27010	24550	22360	20760
8	32110	39190	37350	36110	34810	33170	31140	28580	26920	24420	22260	20680
9	32060	39050	37320	36090	34760	33090	31070	28490	26780	24340	22220	20590
10	31960	39000	37240	36040	34730	33020	30970	28400	26690	24230	22140	20740
11	31860	38950	37210	36010	34680	32920	30880	28300	26600	24120	22080	20700
12	31810	38890	37160	35960	34600	32870	30830	28260	26510	24040	22080	20660
13	31760	38810	37100	35980	34570	32870	30780	28160	26420	23950	22020	20590
14	31610	38760	37020	35910	34500	32820	30690	28070	26370	23870	21930	20530
15	31410	38680	37020	35830	34440	32820	30590	27980	26280	23780	21850	20470
16	31360	38590	36970	35830	34390	32770	30440	27890	26200	23700	21770	20390
17	31310	38540	37080	35830	34290	32720	30350	27800	26150	23660	21690	20310
18	31260	38460	36810	35700	34290	32670	30300	27800	26020	23610	21650	20230
19	31220	38350	36810	35620	34180	32560	30160	27800	25930	23570	21570	20190
20	36830	38300	36830	35590	34080	32510	30160	27750	25890	23570	21490	20120
21	37020	38270	36810	35540	34000	32460	30060	27700	25820	23490	21450	20040
22	37210	38240	36810	35540	33970	32360	29990	27660	25750	23510	21330	19980
23	37290	38160	36810	35510	33920	32290	29910	27560	25660	23280	21240	19850
24	37510	38110	36810	35490	33840	32210	29820	27520	25530	23190	21200	19770
25	38210	38080	36810	35460	33770	32110	29670	27430	25490	23150	21200	19690
26	38860	37920	36830	35410	33720	32060	29620	27330	25400	23130	21120	19830
27	39030	37840	36750	35380	33620	32010	29530	27240	25310	23130	21450	20080
28	39030	37840	36720	35330	33570	31910	29480	27190	25220	23110	21490	20190
29	39000	37780	36720	35310	33570	31860	29380	27470	25170	23060	21450	20270
30	38950	37750	36720	35230	---	31760	29240	27560	25170	22980	21410	20270
31	38920	---	36430	35200	---	31660	---	27520	---	22890	21290	---
MAX	39030	39270	37670	36270	35180	33520	31610	29090	27470	25090	22810	21160
MIN	31220	37750	36430	35200	33570	31660	29240	27190	25170	22890	21120	19690
(†)	2224.90	2224.47	2223.98	2223.51	2222.88	2222.12	2221.12	2220.38	2219.34	2218.28	2217.50	2217.00
(‡)	+6150	-1170	-1320	-1230	-1630	-1910	-2420	-1720	-2350	-2280	-1600	-1020
CAL YR 1983	MAX	55180	MIN	31220	†	-18620						
WTR YR 1984	MAX	39270	MIN	19690	‡	-12500						

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

COLORADO RIVER BASIN

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1984 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
MAY 01...	1755	686	21.5	150	0	42	12	87

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
MAY 01...	3	6.1	180	68	62	.80	1.7	390

COLORADO RIVER BASIN

31

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 downstream from bridge on State Highway 350, 3.8 mi downstream from Bluff Creek, 4 mi upstream from Willow Creek, 4.5 mi southwest of Ira, and at mile 826.3.

DRAINAGE AREA.--3,483 mi², of which 2,371 mi² (corrected) probably is noncontributing.

PERIOD OF RECORD.--October 1947 to September 1952 (monthly records only 1950-52), October 1958 to current year.
Water-quality records: Chemical analyses: November 1958 to September 1970, November 1974 to September 1982.

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

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

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

AVERAGE DISCHARGE.--5 years (water years 1948-52) prior to completion of Colorado River Dam, 50.5 ft³/s (36,590 acre-ft/yr); 26 years (water years 1959-84) partially regulated, 9.78 ft³/s (7,090 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,500 ft³/s July 6, 1948 (gage height, 21.35 ft), from rating curve extended above 9,600 ft³/s by slope-conveyance method; maximum gage height, 22.84 ft 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), was the greatest since at least that date, from information by local resident. Flood in May 1947 reached a stage of 25.1 ft, from floodmark at site of former bridge 269 ft upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 567 ft³/s Aug. 26 at 0915 hours (gage height, 8.57 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.26	.11	.67	.22	.26	.22	.01	0	.00	.12	.65
2	.00	.22	.12	1.50	.25	.26	.29	.01	0	.00	.03	.36
3	.00	.19	.17	4.70	.23	.26	.27	.01	0	.00	.01	.23
4	.00	.34	.16	7.50	.25	.25	.26	.01	0	.00	.00	.09
5	.00	25.00	.15	6.80	.22	.22	.26	.01	0	.00	.00	.07
6	.00	24.00	.15	2.20	.22	.22	.27	.01	0	.00	.00	.06
7	.00	2.80	.15	.32	.20	.23	.34	.01	0	.00	.00	.02
8	.00	1.20	.15	1.40	.23	.22	.28	.00	0	.00	.00	.02
9	.00	.78	.17	.96	.22	.22	.29	.00	0	.00	.00	.01
10	.00	.55	.16	.92	.20	.22	.28	.00	0	.00	.00	.00
11	.00	.37	.14	.70	.22	.22	.30	.00	0	.00	.08	.00
12	.00	.26	.14	.57	.21	.22	.27	.00	0	.00	.03	.00
13	.00	.17	.14	.41	.21	.22	.25	.00	0	.00	.01	.00
14	.00	.13	.14	.37	.20	.22	.23	.00	0	.00	.00	.00
15	.00	.07	.14	.35	.20	.22	.19	.00	0	.00	.00	.00
16	.00	.07	.26	.31	.17	.22	.20	.00	0	.00	.00	.00
17	.00	.08	.26	.34	.19	.22	.19	.00	0	.00	.00	.00
18	.02	.08	.25	.34	.20	.22	.17	.00	0	.00	.00	.00
19	78.00	.07	.26	.31	.18	.17	.22	.00	0	.00	.00	.00
20	125.00	.06	.26	.31	.18	.17	.21	.00	0	.00	.00	.00
21	16.00	.06	.17	.31	.20	.18	.16	.00	0	.00	.00	.00
22	1.40	.14	.15	.41	.22	.19	.15	.00	0	.00	.00	.00
23	.76	.25	.14	1.10	.22	.18	.13	.00	0	.00	.00	.00
24	.54	.14	.11	1.40	.20	.16	.14	.00	0	.00	.00	.00
25	78.00	.12	.09	1.40	.22	.18	.09	.00	0	1.30	6.30	33.00
26	19.00	.13	.09	1.30	.29	.16	.07	.00	0	.12	314.00	194.00
27	3.70	.11	.15	1.10	.26	.18	.04	.00	0	24.00	27.00	26.00
28	1.20	.10	.25	.64	.25	.17	.01	.00	0	68.00	3.70	3.80
29	.48	.10	.33	.26	.26	.18	.01	.00	0	2.20	5.00	1.20
30	.36	.12	.36	.26	---	.18	.02	.00	0	.60	39.00	.62
31	.26	---	.41	.26	---	.22	---	.00	---	.25	1.50	---
TOTAL	324.72	57.97	5.73	39.42	6.32	6.44	5.81	.07	0	96.47	396.78	260.13
MEAN	10.5	1.93	.18	1.27	.22	.21	.19	.002	.000	3.11	12.8	8.67
MAX	125	25	.41	7.5	.29	.26	.34	.01	.00	68	314	194
MIN	.00	.06	.09	.26	.17	.16	.01	.00	.00	.00	.00	.00
AC-FT	644	115	11	78	13	13	12	.1	.00	191	787	516
CAL YR 1983	TOTAL	562.36	MEAN	1.54	MAX	125	MIN	.00	AC-FT	1120		
WTR YR 1984	TOTAL	1199.86	MEAN	3.28	MAX	314	MIN	.00	AC-FT	2380		

COLORADO RIVER BASIN

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 northwest of Dunn, 2.7 mi upstream from Sulphur Draw, and 9.6 mi upstream from mouth.

DRAINAGE AREA.--198 mi², of which 10 mi² 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 National Geodetic Vertical Datum of 1929. Prior to Apr. 21, 1955, nonrecording gage at same site and datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--31 years (water years 1954-84), 11.8 ft³/s (0.85 in/yr), 8,550 acre-ft/yr.

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 373 ft³/s Sept. 26 at 0600 hours (gage height, 6.13 ft), no peak above base of 850 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.7	1.6	3.9	.78	1.8	1.8	.15	.00	.00	.00	.00
2	.00	1.9	2.0	4.3	1.5	1.4	1.7	.14	.00	.00	.00	.00
3	.00	1.9	2.0	4.2	1.7	1.2	1.9	.15	.00	.00	.00	.00
4	.00	1.8	1.5	3.4	1.4	1.0	1.5	.15	.00	.00	.00	.00
5	.00	12	2.5	2.8	1.6	.86	.93	.07	.00	.00	.00	.00
6	.00	3.5	2.6	2.7	1.9	.63	.67	.07	.00	.00	.00	.00
7	.00	1.8	2.8	2.8	2.0	.86	1.3	.08	.00	.00	.00	.00
8	.00	1.7	3.4	3.2	2.0	.59	1.1	.07	.00	.00	.00	.00
9	.00	1.8	3.5	5.8	2.1	.43	1.1	.08	.00	.00	.00	.00
10	.00	1.7	3.4	3.2	2.1	1.1	.68	.08	.00	.00	.30	.00
11	.00	1.7	3.2	2.4	2.1	1.2	.56	.05	.00	.00	.01	.00
12	.00	1.7	2.9	2.3	2.0	1.3	.27	.03	.00	.00	.00	.00
13	.00	1.7	3.8	2.1	1.9	1.6	.25	.03	.00	.00	.00	.00
14	.00	1.6	3.0	2.0	1.9	1.2	.26	.03	.00	.00	.00	.00
15	.00	1.7	2.1	2.0	1.8	1.4	.23	.03	.00	.00	.00	.00
16	.00	1.6	2.9	2.0	1.8	1.1	.15	.03	.00	.00	.00	.00
17	.25	1.5	3.7	1.7	1.9	.86	.13	.03	.00	.00	.00	.00
18	.44	1.6	3.7	1.3	2.0	1.0	.08	.03	.00	.00	.00	.00
19	2.9	1.7	3.4	1.4	2.0	1.6	.08	.03	.00	.00	.00	.00
20	73	1.8	3.4	1.4	2.2	1.7	.08	1.9	.00	.00	.00	.00
21	5.5	1.9	3.4	1.6	2.2	2.0	.08	1.7	.00	.00	.00	.00
22	.74	1.9	3.6	2.0	2.0	1.5	.08	.08	.00	.00	.00	.00
23	.05	2.9	3.6	2.1	2.2	1.6	.08	.03	.00	.00	.00	.00
24	6.5	2.3	3.6	2.0	1.9	1.8	.08	.01	.00	.00	.00	.00
25	51	1.5	3.6	2.0	2.4	1.8	.12	.01	.00	.00	.00	.00
26	6.1	1.4	3.6	1.9	2.7	1.8	.13	.01	.00	.00	.00	180
27	3.0	1.4	3.6	.96	3.7	1.8	.15	.00	.00	.00	2.1	19
28	2.0	1.3	3.6	.21	2.0	1.4	.08	.00	.00	.00	.16	5.4
29	1.7	1.4	3.6	.15	1.6	.91	.11	.00	.00	.00	.02	4.1
30	1.7	1.6	3.8	.25	---	.60	.15	.00	.00	.00	.00	2.8
31	1.7	---	3.8	.44	---	1.6	---	.00	---	.00	.00	---
TOTAL	156.58	64.0	97.2	68.51	57.38	39.64	15.83	5.07	.00	.00	2.59	211.30
MEAN	5.05	2.13	3.14	2.21	1.98	1.28	.53	.16	.000	.000	.084	7.04
MAX	73	12	3.8	5.8	3.7	2.0	1.9	1.9	.00	.00	2.1	180
MIN	.00	1.3	1.5	.15	.78	.43	.08	.00	.00	.00	.00	.00
CFSM	.03	.01	.02	.01	.01	.007	.003	.001	.000	.000	.000	.04
IN.	.03	.01	.02	.01	.01	.01	.00	.00	.00	.00	.00	.04
AC-FT	311	127	193	136	114	79	31	10	.00	.00	5.1	419

CAL YR 1983 TOTAL 957.40 MEAN 2.62 MAX 73 MIN .00 CFSM .01 IN .19 AC-FT 1900
WTR YR 1984 TOTAL 718.10 MEAN 1.96 MAX 180 MIN .00 CFSM .01 IN .14 AC-FT 1420

COLORADO RIVER BASIN

33

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 downstream from Deep Creek, 4.8 mi east of Cuthbert, 8.0 mi northwest of Colorado City, and at mile 810.0.

DRAINAGE AREA.--3,912 mi², of which 2,381 mi² 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 National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--19 years (water years 1966-84), 35.6 ft³/s (25,790 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s Aug. 14, 1972 (gage height, 25.99 ft); maximum gage height, 27.18 ft Sept. 29, 1980; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,010 ft³/s Aug. 12 at 1400 hours (gage height, 9.68 ft); no flow for many days.

STATION NUMBER 08120700 COLORADO RIVER NR CUTHBERT, TEX. STREAM SOURCE AGENCY USGS

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	4.5	3.1	4.1	2.9	5.2	2.80	.66	0	.00	.06	4.10
2	.0	3.9	3.4	4.4	3.3	5.2	3.50	.53	0	.00	.00	1.60
3	.0	3.4	4.0	4.8	3.6	5.2	3.50	.78	0	.00	.00	.86
4	.0	3.6	4.6	5.2	4.0	5.0	3.40	.73	0	.00	.00	.46
5	.0	3.8	4.2	5.6	4.1	4.2	3.30	.56	0	.00	.00	.28
6	.0	39.0	3.6	5.5	3.9	3.8	2.30	.50	0	.00	.00	.19
7	.0	36.0	3.7	5.3	3.6	3.6	2.50	.44	0	.00	.00	.15
8	.0	17.0	3.8	6.0	3.9	3.6	3.80	.34	0	.00	.00	.09
9	.0	10.0	3.9	9.8	4.2	3.6	3.10	.28	0	.00	.00	.07
10	.0	6.9	3.9	14.0	4.3	3.4	2.90	.24	0	.00	.00	.05
11	.0	5.7	4.0	8.5	4.5	3.6	2.70	.18	0	.00	.00	.03
12	.0	5.0	4.0	7.3	4.9	5.0	2.40	.15	0	.00	506.00	.02
13	.0	4.2	4.0	6.4	5.0	5.0	2.20	.10	0	.00	87.00	.01
14	.0	3.8	3.9	5.9	4.8	5.0	1.90	.07	0	.00	7.00	.00
15	.0	3.4	3.8	5.6	4.7	5.0	1.80	.07	0	.00	1.90	.00
16	.0	3.1	3.6	5.5	4.5	4.7	1.60	.05	0	.00	.77	.00
17	.0	2.7	3.6	5.5	4.2	4.7	1.50	.04	0	.00	.39	.00
18	.0	2.5	3.6	5.1	4.2	4.0	1.50	.03	0	.00	.24	.00
19	2.8	2.5	3.6	3.2	4.2	3.8	1.40	.03	0	.00	.15	.00
20	77.0	2.5	3.6	3.4	4.0	3.1	1.30	.03	0	.00	.11	.00
21	97.0	2.7	3.7	3.6	3.8	2.9	1.30	.01	0	.00	.08	.00
22	62.0	2.9	3.6	4.4	3.8	3.1	1.40	.18	0	.00	.04	.00
23	44.0	4.3	3.6	4.9	4.0	3.4	1.20	.68	0	.00	.03	.00
24	30.0	6.4	3.4	5.2	4.0	2.7	1.10	.44	0	.00	.02	.00
25	68.0	4.5	2.9	5.5	4.0	2.8	1.00	.28	0	.00	.02	3.70
26	94.0	4.0	3.1	5.5	5.0	3.0	.84	.16	0	.00	2.70	266.00
27	51.0	3.8	3.8	5.3	6.0	3.6	.74	.08	0	.00	252.00	233.00
28	25.0	3.4	4.6	4.5	7.5	3.8	.66	.03	0	.00	35.00	44.00
29	14.0	3.1	4.6	3.9	6.3	3.5	.66	.01	0	.08	8.00	16.00
30	8.4	3.1	4.0	3.4	---	3.2	.70	.00	0	1.70	4.40	10.00
31	5.5	---	4.0	3.0	---	2.8	---	.00	---	.32	25.00	---
TOTAL	578.7	201.7	117.2	170.3	127.2	121.5	59.00	7.68	0	2.10	930.91	580.61
MEAN	18.7	6.72	3.78	5.49	4.39	3.92	1.97	.25	.000	.068	30.0	19.4
MAX	97	39	4.6	14	7.5	5.2	3.8	.78	.00	1.7	506	266
MIN	.00	2.5	2.9	3.0	2.9	2.7	.66	.00	.00	.00	.00	.00
AC-FT	1150	400	232	338	252	241	117	15	.00	4.2	1850	1150

CAL YR 1983 TOTAL 2788.73 MEAN 7.64 MAX 97 MIN .00 AC-FT 5530
WTR YR 1984 TOTAL 2896.90 MEAN 7.92 MAX 506 MIN .00 AC-FT 5750

COLORADO RIVER BASIN

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 May 1980, April to September 1983.

INSTRUMENTATION.--Since March 1965, specific conductance is recorded continuously at this station. Since April 1983, water temperature 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 (1965-84): Maximum daily, 30.0°C Aug. 29, 1984; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 18,100 micromhos July 31; minimum daily, 400 micromhos Oct. 25, Aug. 12.

WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 29; minimum daily, 0.5°C on several days during December.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 02...	0905	3.8	2930	18.5	450	350	120	36	420
FEB 15...	0805	4.6	5160	9.0	1100	860	260	120	740
MAR 28...	1305	3.7	5440	14.0	980	710	210	110	850
MAY 02...	1345	.49	6570	20.0	1400	1100	310	140	970
JUL 31...	1030	.29	18100	23.5	1900	1800	480	160	3400
SEP 11...	1255	.02	10100	26.3	990	860	250	88	1800

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 02...	9	6.7	100	300	710	.30	5.8	1700
FEB 15...	10	8.3	280	880	1100	1.0	5.0	3300
MAR 28...	12	7.8	270	950	1200	1.2	7.2	3500
MAY 02...	12	9.3	290	1100	1600	1.2	11	4300
JUL 31...	36	17	79	1400	5800	.50	4.9	11000
SEP 11...	26	11	130	650	3000	.40	7.8	5900

COLORADO RIVER BASIN

35

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	578.70	3210	2000	3120	700	1100	490	764	600
NOV. 1983	201.7	3450	2150	1170	750	407	530	289	650
DEC. 1983	117.2	3820	2380	752	840	267	580	182	710
JAN. 1984	170.3	4940	3070	1410	1100	518	720	330	890
FEB. 1984	127.2	5160	3210	1100	1200	407	740	256	920
MAR. 1984	121.5	5450	3380	1110	1300	414	780	255	970
APR. 1984	59.00	5880	3650	581	1400	220	820	131	1000
MAY 1984	7.68	5910	3660	76	1400	29	820	17	1000
JUNE 1984	0.00	*	*	0.00	*	0.00	*	0.00	*
JULY 1984	2.10	16000	9730	55	5000	28	1300	7.2	*
AUG. 1984	930.91	2230	1390	3490	470	1180	350	890	430
SEPT 1984	580.61	3360	2090	3280	730	1150	510	805	630
TOTAL	2896.90	**	**	16100	**	5720	**	3930	**
WTD.AVG.	7.9	3320	2060	**	730	**	500	**	610

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	2800	2600	2690	3100	3000	3010	5500	5400	5420
2	---	---	---	2800	2700	2760	3100	3000	3060	5400	5300	5360
3	---	---	---	2930	2700	2780	3200	2900	3060	5400	5200	5360
4	---	---	---	2800	2700	2770	3200	3000	3100	5400	5300	5350
5	---	---	---	2900	1500	2480	3200	3000	3120	5400	5300	5340
6	---	---	---	3800	1400	3040	3200	3000	3100	5400	5200	5260
7	---	---	---	3900	3700	3800	3100	3000	3050	5300	4700	4850
8	---	---	---	3900	3700	3840	3100	3000	3080	4700	4600	4650
9	---	---	---	4000	3800	3910	3200	3100	3110	---	---	4510
10	---	---	---	4000	3900	3930	3200	3000	3100	---	---	4030
11	---	---	---	3900	3800	3840	3300	3100	3190	5100	4500	4770
12	---	---	---	3900	3800	3870	3300	3100	3210	---	---	4820
13	---	---	---	3900	3700	3830	3300	3100	3200	---	---	4900
14	---	---	---	3800	3700	3800	3200	3100	3200	---	---	4940
15	---	---	---	3900	3700	3790	3300	3100	3200	---	---	4990
16	---	---	---	3800	3700	3700	3300	3200	3230	---	---	5040
17	---	---	---	3700	3600	3680	3300	3200	3240	---	---	5100
18	---	---	---	3700	3500	3630	3400	3200	3300	---	---	5130
19	---	---	8300	3600	3500	3580	3700	3400	3560	---	---	5210
20	8300	2800	5560	3600	3500	3570	3700	3600	3690	---	---	5190
21	5700	1300	3660	3500	3400	3460	3800	3700	3700	---	---	5160
22	4400	4000	4180	---	---	3450	3900	3600	3740	---	---	5100
23	3900	3700	3800	3500	3300	3390	4200	3800	4010	---	---	4990
24	3700	3500	3600	3400	3200	3320	5000	4200	4550	---	---	4970
25	3500	400	1290	3400	3200	3290	5400	5000	5230	---	---	4920
26	2200	1300	1740	3300	3100	3200	5700	5500	5610	---	---	4950
27	2600	2200	2460	3300	3100	3210	5700	5600	5660	---	---	5010
28	2700	2600	2650	3200	3000	3100	5700	5400	5570	---	---	5080
29	2800	2600	2700	3100	2900	3000	5600	5400	5500	---	---	5120
30	2800	2700	2740	3000	2900	2960	5500	5400	5480	---	---	5170
31	2700	2600	2660	---	---	---	5500	5400	5430	---	---	5210
MONTH	8300	400	3490	4000	1400	3390	5700	2900	3820	5500	4500	5030

COLORADO RIVER BASIN
08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	5240	5400	5000	5180	5800	5700	5750	6700	6500	6600
2	---	---	5190	5300	5000	5130	5800	5600	5700	6700	5400	6150
3	---	---	5130	5200	5000	5140	5900	5600	5750	5700	5600	5650
4	---	---	5060	5200	5000	5150	6000	5700	5840	5700	5500	5610
5	---	---	5030	5400	5200	5280	5900	5700	5850	5600	5400	5530
6	---	---	5050	5400	5100	5250	5900	5600	5850	5600	5400	5530
7	---	---	5070	5400	5100	5220	5700	5600	5640	5600	5200	5330
8	---	---	5040	5400	5200	5280	5900	5500	5670	5700	5300	5450
9	---	---	5000	5400	5200	5300	5900	5600	5690	5700	5500	5590
10	---	---	4990	5500	5200	5390	5900	5500	5630	5800	5500	5610
11	---	---	4960	5500	5400	5430	5700	5600	5660	5700	5600	5630
12	---	---	4940	5500	5300	5430	5900	5700	5730	5800	5600	5670
13	---	---	4920	5600	5300	5480	6000	5600	5760	5800	5600	5700
14	---	---	5000	5800	5400	5530	5900	5700	5870	5800	5700	5740
15	5200	4900	5060	5600	5500	5530	6100	6000	6040	5800	5700	5780
16	5400	5100	5280	5700	5500	5610	6200	6000	6060	5800	5700	5740
17	5400	5000	5240	5700	5600	5670	6200	6000	6100	5800	5700	5710
18	5400	5100	5280	5700	5500	5550	6200	6100	6160	5800	5600	5700
19	5500	5300	5370	5900	5500	5670	6200	6100	6180	5800	5700	5730
20	5500	5300	5370	5800	5400	5610	6300	6100	6200	5900	5700	5830
21	5500	5200	5360	5700	5500	5590	6200	6000	6140	5900	5700	5830
22	5500	5200	5330	5600	5500	5570	6200	6000	6130	6400	5800	5950
23	5400	5200	5300	5700	5400	5590	6200	6000	6090	6500	6400	6480
24	5400	5200	5300	5800	5500	5640	6200	6000	6100	6600	6400	6470
25	5400	5100	5300	5700	5500	5610	6300	6100	6150	6600	6400	6500
26	5400	5100	5270	5800	5500	5600	6500	6200	6330	6800	6400	6500
27	5400	5100	5270	5600	5500	5550	6500	6400	6500	6700	6500	6560
28	5400	5000	5230	5700	5400	5560	6600	6500	6560	6800	6200	6640
29	5400	5100	5230	5800	5600	5670	6600	6400	6560	6900	6700	6830
30	---	---	---	5800	5600	5710	6700	6500	6580	---	---	---
31	---	---	---	5800	5600	5730	---	---	---	---	---	---
MONTH	5500	4900	5170	5900	5000	5470	6700	5500	6010	6900	5200	5930

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	---	---	---	---	17900	17500	17700	---	---	3930
2	---	---	---	---	---	---	---	---	---	---	---	4380
3	---	---	---	---	---	---	---	---	---	---	---	4930
4	---	---	---	---	---	---	---	---	---	---	---	5460
5	---	---	---	---	---	---	---	---	---	---	---	6000
6	---	---	---	---	---	---	---	---	---	---	---	6540
7	---	---	---	---	---	---	---	---	---	---	---	7260
8	---	---	---	---	---	---	---	---	---	---	---	7880
9	---	---	---	---	---	---	---	---	---	---	---	8520
10	---	---	---	---	---	---	---	---	---	---	---	9260
11	---	---	---	---	---	---	---	---	---	---	---	9780
12	---	---	---	---	---	---	7200	400	1410	9900	9700	9800
13	---	---	---	---	---	---	2700	1400	2230	10200	9700	9870
14	---	---	---	---	---	---	3000	2700	2810	---	---	---
15	---	---	---	---	---	---	3100	2900	3020	---	---	---
16	---	---	---	---	---	---	3300	3100	3180	---	---	---
17	---	---	---	---	---	---	3500	3200	3350	---	---	---
18	---	---	---	---	---	---	3700	3400	3560	---	---	---
19	---	---	---	---	---	---	3900	3700	3770	---	---	---
20	---	---	---	---	---	---	4000	3800	3900	---	---	---
21	---	---	---	---	---	---	4100	3900	4000	---	---	---
22	---	---	---	---	---	---	4200	4000	4120	---	---	---
23	---	---	---	---	---	---	4200	4100	4170	---	---	---
24	---	---	---	---	---	---	4300	4100	4200	---	---	---
25	---	---	---	---	---	---	4300	4100	4210	---	---	7490
26	---	---	---	---	---	---	4300	4200	4210	9700	500	4420
27	---	---	---	---	---	---	---	---	3420	2800	1300	2280
28	---	---	---	---	---	---	3800	3700	3750	2400	2300	2350
29	---	---	---	---	---	---	3700	3500	3620	---	---	2840
30	---	---	---	16400	15400	15700	3600	3400	3450	---	---	3250
31	---	---	---	18100	16300	17200	3400	3300	3330	---	---	---
MONTH	---	---	---	18100	15400	16800	17900	400	4160	10200	500	6120

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	18.0	17.0	17.5	7.5	7.0	7.0	2.0	1.0	1.5
2	---	---	---	18.5	17.0	18.0	9.0	7.5	8.0	3.0	1.5	2.0
3	---	---	---	18.0	17.0	17.5	17.0	9.0	10.5	3.5	2.0	3.0
4	---	---	---	19.0	18.0	18.0	17.0	8.5	12.0	6.0	3.0	4.5
5	---	---	---	18.5	15.5	17.0	12.0	9.5	11.0	6.0	3.5	5.0
6	---	---	---	17.5	15.0	16.0	11.0	8.0	9.0	7.0	5.0	6.5
7	---	---	---	17.0	15.0	16.0	9.0	6.5	8.0	---	---	---
8	---	---	---	18.5	16.0	17.0	9.0	6.5	8.0	---	---	---
9	---	---	---	17.5	14.0	15.5	9.5	7.5	8.5	---	---	---
10	---	---	---	14.0	11.0	12.0	9.5	7.5	8.5	---	---	---
11	---	---	---	12.5	10.0	11.5	10.0	8.5	9.5	12.5	4.0	6.5
12	---	---	---	13.5	11.0	12.5	10.5	8.0	9.5	12.5	2.5	7.0
13	---	---	---	14.0	12.0	13.0	9.5	8.5	9.0	12.0	5.0	10.0
14	---	---	---	14.0	12.0	13.0	10.0	8.0	9.0	10.5	1.5	6.5
15	---	---	---	13.0	11.0	12.0	9.5	6.5	7.5	10.0	1.0	5.5
16	---	---	---	11.5	9.5	10.5	6.5	5.0	5.5	9.0	1.0	6.5
17	---	---	---	12.5	10.5	11.5	6.0	4.5	5.5	9.5	6.0	8.5
18	---	---	---	12.5	11.0	12.0	6.0	5.0	5.5	8.0	5.5	7.5
19	21.5	19.5	20.5	12.5	10.0	11.5	4.5	1.5	3.0	7.5	4.0	5.5
20	19.5	16.5	17.5	10.0	7.5	8.5	2.5	1.5	2.0	8.0	3.5	7.0
21	18.0	16.0	17.0	11.0	9.0	10.0	7.0	1.5	5.0	---	---	---
22	18.5	15.0	16.5	12.0	11.0	11.5	7.5	3.0	5.5	---	---	---
23	19.0	16.0	17.0	11.5	9.0	10.0	5.0	3.5	4.5	11.5	1.0	5.5
24	19.5	16.5	18.0	9.5	7.0	8.5	6.0	4.5	5.0	12.0	1.5	6.0
25	19.5	15.0	16.5	9.0	6.0	7.5	6.0	.5	1.5	13.0	2.5	7.5
26	16.5	14.0	15.0	9.0	8.0	8.5	1.5	.5	.5	13.0	2.5	7.0
27	17.0	14.0	15.5	7.5	4.5	5.5	1.5	.5	1.0	13.0	4.0	7.5
28	17.5	15.0	16.0	5.5	3.5	4.5	2.5	.5	1.5	13.5	4.0	8.5
29	18.0	15.5	16.5	9.0	3.5	5.5	2.5	.5	1.5	14.0	4.5	8.5
30	18.0	16.0	17.0	8.0	7.5	8.0	2.0	.5	.5	15.5	5.5	10.0
31	18.0	16.5	17.5	---	---	---	1.5	.5	1.0	15.0	4.5	10.5
MONTH	21.5	14.0	17.0	19.0	3.5	12.0	17.0	.5	6.0	15.5	1.0	6.5

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

COLORADO RIVER BASIN

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1				---	---	---	25.0	21.5	23.0	27.5	24.5	26.0
2				---	---	---	---	---	---	26.5	24.0	25.5
3				---	---	---	---	---	---	26.5	24.0	25.0
4				---	---	---	---	---	---	25.5	20.5	23.0
5				---	---	---	---	---	---	25.0	20.0	22.5
6				---	---	---	---	---	---	24.0	20.0	22.0
7				---	---	---	---	---	---	24.0	20.0	22.0
8				---	---	---	---	---	---	26.0	22.0	23.5
9				---	---	---	---	---	---	26.5	23.5	25.0
10				---	---	---	---	---	---	26.5	23.0	24.5
11				---	---	---	---	---	---	27.0	23.0	24.5
12				---	---	---	21.5	19.0	20.5	27.0	22.5	24.5
13				---	---	---	26.5	21.0	23.5	26.5	21.5	23.5
14				---	---	---	27.5	23.0	25.0	---	---	---
15				---	---	---	26.5	24.0	25.0	---	---	---
16				---	---	---	27.0	23.0	25.0	---	---	---
17				---	---	---	27.0	22.5	24.5	---	---	---
18				---	---	---	28.0	23.0	25.0	---	---	---
19				---	---	---	29.0	24.0	26.5	---	---	---
20				---	---	---	29.5	24.5	26.5	---	---	---
21				---	---	---	28.5	24.5	26.5	---	---	---
22				---	---	---	29.0	24.5	26.5	---	---	---
23				---	---	---	28.5	25.0	27.0	---	---	---
24				---	---	---	27.5	24.5	26.0	---	---	---
25				---	---	---	28.0	24.0	26.0	23.5	11.0	18.5
26				---	---	---	28.5	24.5	26.0	17.0	12.0	14.5
27				---	---	---	28.5	24.5	26.0	13.0	11.5	12.5
28				---	---	---	29.5	24.5	26.5	16.0	12.5	14.5
29				28.0	20.5	24.5	30.0	25.5	27.5	17.5	11.5	15.0
30				28.0	24.0	25.5	29.0	25.0	26.5	17.5	11.5	15.5
31				24.5	22.0	23.0	28.5	24.5	26.5	---	---	---
MONTH				28.0	20.5	24.5	30.0	19.0	25.5	27.5	11.0	21.0

COLORADO RIVER BASIN

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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 upstream from bridge on State Highway 377, 4,100 ft upstream from the Texas and Pacific Railroad Co. bridge, 1.3 mi downstream from bridge on Interstate Highway 20 and U.S. Highway 80, 1.6 mi upstream from Lone Wolf Creek, and at mile 796.3.

DRAINAGE AREA.--3,966 mi², of which 2,381 mi² 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 National Geodetic Vertical Datum of 1929. Nov. 28, 1923, to Aug. 31, 1925, nonrecording gage at site 1.4 mi downstream at different datum. May 9 to Aug. 5, 1946, nonrecording gage at site 185 ft 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 ft³/s (61,870 acre-ft/yr); 32 years (water years 1953-84) regulated, 37.9 ft³/s (27,460 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft³/s July 6, 1948 (gage height, 22.37 ft, from floodmark); maximum gage height, 27.81 ft 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 June 20, 1939, present site and datum, based on floodmarks 1,000 ft upstream and 3,740 ft downstream from gage; discharge, 66,000 ft³/s, by slope-area measurement of peak flow at site 2.5 mi upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 698 ft³/s Aug. 12 at 0130 hours (gage height, 7.48 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	7.90	.24	.38	6.80	.23	.25	.10	.01	0	.00	.08
2	.15	7.10	.42	.32	7.40	.24	.22	.09	.01	0	.00	.05
3	.20	6.70	.54	.31	6.80	.24	.27	.08	.02	0	.00	.04
4	.24	8.10	.39	.40	7.00	.25	.25	.08	.02	0	.00	.00
5	.20	1.70	.36	.29	7.50	.24	.31	.05	.02	0	.00	.00
6	.17	3.40	.24	.30	7.30	.15	.41	.07	.02	0	.00	.02
7	.17	1.20	.31	.24	7.20	.09	.29	.08	.01	0	.00	.03
8	.15	26.00	.41	.71	6.30	.12	.24	.05	.00	0	.00	.08
9	.14	16.00	.41	.97	.88	.12	.22	.05	.00	0	.00	.05
10	.15	7.80	.36	.37	.37	.15	.19	.07	.00	0	.00	.04
11	.14	.89	.45	.24	.40	.15	.17	.06	.00	0	.00	.02
12	.11	.46	.43	.24	.27	.21	.23	.05	.00	0	98.00	.01
13	.10	.41	.29	.24	.24	.19	.24	.05	.00	0	293.00	.00
14	.16	.42	.41	.24	.24	.15	.22	.04	.00	0	3.30	.00
15	.15	.41	.41	.24	.30	.17	.09	.03	.00	0	.35	.00
16	.15	.48	.43	.24	.24	.20	.09	.03	.00	0	.15	.00
17	.19	.62	.52	.24	.26	.23	.10	.04	.00	0	.12	.00
18	.24	.53	.51	.25	.35	.24	.15	.04	.00	0	.09	.00
19	9.80	.45	.41	.28	.24	.19	.14	.11	.00	0	.09	.00
20	79.00	.36	.45	6.90	.24	.10	.11	.07	.00	0	.08	.00
21	111.00	.41	.44	8.00	.24	.15	.10	.03	.00	0	.08	.00
22	1.70	.55	.34	8.00	.24	.14	.08	.03	.00	0	.10	.19
23	.48	1.20	.24	8.30	.24	.21	.09	.02	.00	0	.03	2.00
24	.33	.55	.40	8.40	.24	.15	.10	.02	.00	0	.03	2.40
25	120.00	.41	.24	8.90	.24	.15	.06	.02	.00	0	.03	48.00
26	73.00	.41	.31	9.00	.48	.15	.04	.02	.00	0	.04	70.00
27	13.00	.41	.72	9.00	.60	.17	.04	.02	.00	0	96.00	365.00
28	28.00	.41	.45	9.10	.24	.20	.09	.01	.00	0	25.00	102.00
29	15.00	.33	.24	8.50	.19	.15	.05	.01	.00	0	.38	18.00
30	12.00	.24	.24	7.60	---	.15	.05	.01	.00	0	.13	.79
31	9.10	---	.24	7.20	---	.20	---	.02	---	0	.09	---
TOTAL	475.39	95.85	11.85	105.40	63.04	5.48	4.89	1.45	.11	0	517.09	608.80
MEAN	15.3	3.20	.38	3.40	2.17	.18	.16	.047	.004	.000	16.7	20.3
MAX	120	26	.72	9.1	7.5	.25	.41	.11	.02	.00	293	365
MIN	.10	.24	.24	.24	.19	.09	.04	.01	.00	.00	.00	.00
AC-FT	943	190	24	209	125	11	9.7	2.9	.2	.00	1030	1210

CAL YR 1983 TOTAL 2197.51 MEAN 6.02 MAX 130 MIN .00 AC-FT 4360
WTR YR 1984 TOTAL 1889.35 MEAN 5.16 MAX 365 MIN .00 AC-FT 3750

COLORADO RIVER BASIN

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, 36,500 micromhos June 7; minimum daily, 1,400 micromhos Sept. 27.

WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 20, 24-27; minimum daily, 0.0°C Dec. 19-23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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 30...	0930	.20	9260	7.0	960	740	220	100	1600
JAN 11...	1655	.26	19300	10.5	1900	1600	430	190	4200
MAR 28...	1610	.22	20500	19.5	1800	1700	390	210	4100
MAY 02...	1610	.09	28500	25.0	2300	2100	490	250	5900
SEP 12...	0730	.00	11600	24.0	1100	990	220	130	2300

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 30...	23	8.1	220	1200	2500	.60	1.5	5800
JAN 11...	44	12	210	1900	6100	.60	4.1	13000
MAR 28...	43	13	150	2300	6100	.80	1.0	13000
MAY 02...	56	19	110	2700	9000	.60	1.9	18000
SEP 12...	31	13	100	1200	3400	.60	3.7	7300

COLORADO RIVER BASIN

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08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	475.39	4210	2720	3490	1200	1490	530	684	510
NOV. 1983	95.85	4060	2610	675	1100	277	550	143	530
DEC. 1983	11.85	14000	9070	290	4100	130	1600	51	*
JAN. 1984	105.40	10300	6670	1900	2900	825	1300	358	*
FEB. 1984	63.04	8690	5600	954	2400	407	1100	188	1100
MAR. 1984	5.48	15900	10300	152	4700	70	1700	26	*
APR. 1984	4.89	23900	15500	204	7500	99	2200	29	*
MAY 1984	1.45	30200	19700	77	10000	39	2300	9.0	*
JUNE 1984	0.11	36000	23500	7.0	12500	3.7	2300	0.7	*
JULY 1984	0.00	*	*	0.00	*	0.00	*	0.00	*
AUG. 1984	517.09	3700	2380	3330	980	1360	510	707	480
SEPT 1984	608.80	2330	1500	2460	610	998	320	533	310
TOTAL	1889.35	**	**	13500	**	5700	**	2730	**
WTD.AVG.	5.2	4120	2650	**	1100	**	530	**	510

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19200	4020	9900	17800	8620	10700	20900	28200	36100	---	---	7970
2	19800	4480	10500	18200	8610	10800	21600	28500	36400	---	---	8550
3	19400	4840	10300	18300	8640	11100	21800	28900	36000	---	---	9360
4	19000	5290	10400	15900	8550	11500	21900	29100	35700	---	---	---
5	19600	5340	11100	18100	8670	12000	22000	29600	35900	---	---	---
6	22300	3990	11500	18300	8740	12300	23000	29100	36000	---	---	10900
7	24500	7320	11800	19400	8330	12500	23400	28800	36500	---	---	10700
8	26000	2950	12200	17900	9110	13000	23200	29300	---	---	---	11000
9	28200	2840	12400	17000	8740	13900	23400	29500	---	---	---	11100
10	28000	3590	12700	18900	8460	14500	23700	29000	---	---	---	11400
11	28700	5360	13100	19200	8370	14800	24000	29400	---	---	---	11900
12	29100	4930	13300	19800	8360	15700	23900	29700	---	---	3820	11800
13	29300	4290	14000	20600	8450	15600	24100	29900	---	---	2450	---
14	28800	5540	13800	20100	8550	15500	25000	30100	---	---	4790	---
15	29100	4620	14100	19500	8780	15800	25200	30200	---	---	6730	---
16	31400	5260	13900	18600	8730	16100	25300	30300	---	---	11300	---
17	30600	5940	14100	21200	8780	16800	25500	29700	---	---	12000	---
18	30200	6340	14600	20100	8910	17800	25300	29800	---	---	12300	---
19	28500	6890	15400	18900	8950	17300	24900	28400	---	---	13700	---
20	8000	8080	15800	13500	9130	17500	25600	32600	---	---	14400	---
21	2150	7170	15400	11700	9080	17700	27000	34400	---	---	15600	---
22	2980	7800	16600	10600	9100	18000	27500	35300	---	---	15800	10500
23	3560	7600	17500	9700	9160	18300	27000	36100	---	---	15400	9350
24	4570	7410	16900	9800	9340	18600	26000	36200	---	---	15600	8990
25	3100	8600	17300	9000	9450	19000	27000	35900	---	---	16500	6500
26	2000	8450	17000	8900	9710	19300	28400	35700	---	---	17400	2250
27	2580	8330	15100	9700	9720	20200	28300	35600	---	---	6900	1400
28	3060	8830	16000	9400	10100	20100	27200	35800	---	---	5070	2930
29	3550	9000	17200	9000	10400	20600	27500	36100	---	---	6180	4800
30	3720	9370	17600	8600	---	21400	27900	36200	---	---	6540	6200
31	3740	---	18100	8300	---	20700	---	35900	---	---	7230	---
MEAN	17200	6150	14200	15400	8950	16100	24900	31700	36100	---	10500	8290

COLORADO RIVER BASIN

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984												
DAY	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	21.5	9.0	---	14.0	18.0	22.0	---			---	31.0
2	---	16.0	11.0	---	11.0	19.0	20.0	---			---	30.0
3	---	19.0	10.0	12.0	19.0	---	27.0	---			---	26.0
4	---	21.0	10.0	13.0	17.0	19.0	21.0	---			---	---
5	---	22.0	12.5	10.0	16.0	8.0	24.0	---			---	---
6	---	18.0	11.0	11.0	19.0	15.0	22.0	---			---	27.0
7	---	20.0	10.5	7.0	14.0	17.0	20.0	---			---	26.5
8	---	18.5	10.5	7.0	16.0	18.0	18.0	---			---	27.0
9	---	15.0	12.0	8.0	21.0	16.0	29.0	---			---	29.0
10	---	18.0	12.0	8.0	23.0	14.0	29.0	---			---	29.0
11	---	10.0	12.0	10.0	21.0	18.0	32.0	---			---	27.0
12	---	19.0	14.0	3.0	19.0	13.0	33.0	---			30.0	29.0
13	---	19.0	12.0	5.0	20.0	19.0	---	---			26.0	---
14	30.0	21.0	10.0	3.0	19.0	22.0	31.0	---			30.0	---
15	31.0	17.0	8.0	3.0	16.0	16.0	32.0	---			26.0	---
16	32.0	19.0	6.0	5.0	19.0	18.0	33.0	---			32.0	---
17	29.0	22.5	5.0	4.0	19.0	17.0	---	---			23.0	---
18	27.0	18.0	---	3.0	18.0	17.5	---	---			28.0	---
19	22.0	18.5	.0	4.0	14.0	19.5	---	27.0			30.0	---
20	16.0	12.0	.0	---	14.5	21.0	---	28.0			35.0	---
21	16.0	18.0	.0	5.0	19.5	24.0	25.5	29.0			32.0	---
22	18.0	10.0	.0	4.0	21.0	---	---	33.0			30.0	---
23	20.0	13.0	.0	17.0	18.0	---	25.0	32.0			33.0	---
24	24.0	18.0	---	15.0	18.5	23.0	---	31.0			35.0	---
25	---	13.0	---	9.0	17.0	23.0	---	31.0			35.0	---
26	---	15.0	---	9.0	4.0	21.0	---	---			35.0	23.0
27	---	10.0	---	9.0	9.5	24.0	---	---			35.0	20.0
28	16.0	9.0	---	13.0	17.5	21.0	17.0	---			33.0	18.0
29	18.0	12.0	---	12.0	18.0	21.0	---	---			24.5	21.0
30	---	9.5	---	19.0	---	25.0	---	---			30.0	24.0
31	19.0	---	---	19.0	---	22.0	---	---			32.0	---
MEAN	23.0	16.5	8.0	9.0	17.0	19.0	25.5	30.0			30.5	26.0

08123000 LAKE COLORADO CITY NEAR COLORADO CITY, TX

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

DRAINAGE AREA.--344.7 mi², of which 42.7 mi² 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, non-recording gages at or near powerplant about 0.7 mi downstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 4,800 ft 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 wide located 600 ft upstream and to the left of left end of dam. The spillway is designed to discharge 150,000 ft³/s at the maximum design flood elevation. The service spillway is an uncontrolled rectangular drop inlet located 100 ft upstream from dam with two uncontrolled openings of 10.0 by 12.0 ft. The spillway is designed for a maximum discharge of 5,000 ft³/s. A service outlet is provided for small releases downstream through a 30-inch valve-controlled concrete pipe. Records furnished by the Texas Electric Service Co. will show pumpage from Champion Creek Reservoir (station 08123600) into Lake Colorado City. 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 Sept. 7, 1962 (elevation, 2,075.10 ft); minimum since first appreciable storage, 5,800 acre-ft Apr. 11-13, 1950 (elevation, 2,045.72 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 20,270 acre-ft Oct. 25 at 0100 hours (elevation, 2,061.97 ft); minimum, 16,880 acre-ft Sept 16 (elevation, 2,059.00 ft).

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

2,059.0	16,880	2,061.0	19,120
2,060.0	17,980	2,062.0	20,310

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19190	20130	19560	19050	18720	18100	17470	17690	17600	17530	17210	17090
2	19210	20120	19560	19050	18690	18090	17480	17690	17630	17530	17190	17080
3	19240	20140	19540	19050	18680	18070	17480	17700	17640	17490	17190	17070
4	19230	20150	19520	19050	18660	18040	17500	17700	17650	17480	17210	17050
5	19230	20150	19510	19060	18640	18000	17510	17720	17670	17500	17190	17040
6	19230	20140	19500	18980	18620	17980	17540	17720	17640	17470	17190	17030
7	19240	20130	19490	18980	18590	17950	17550	17680	17650	17450	17180	17000
8	19250	20100	19470	19030	18580	17920	17570	17690	17630	17440	17170	16990
9	19260	20060	19460	19040	18570	17910	17590	17670	17630	17420	17160	16970
10	19280	20030	19450	19030	18540	17890	17590	17680	17640	17390	17170	16950
11	19260	20010	19430	19000	18530	17890	17610	17670	17620	17380	17180	16930
12	19250	19980	19410	18980	18510	17850	17610	17680	17620	17380	17220	16920
13	19250	19960	19380	18970	18470	17840	17620	17670	17610	17340	17240	16920
14	19230	19910	19360	18960	18460	17830	17620	17630	17610	17320	17220	16910
15	19230	19900	19330	18950	18430	17820	17620	17640	17600	17320	17210	16890
16	19250	19880	19330	18920	18410	17820	17620	17650	17600	17310	17240	16890
17	19310	19850	19310	18920	18410	17800	17620	17650	17610	17290	17210	16890
18	19310	19820	19280	18890	18370	17750	17630	17750	17600	17290	17210	16890
19	19640	19780	19270	18880	18340	17700	17680	17710	17600	17300	17220	16890
20	20010	19760	19260	18850	18320	17670	17670	17700	17610	17280	17210	16900
21	20100	19720	19210	18840	18290	17650	17670	17650	17590	17270	17190	16900
22	20160	19760	19200	18820	18270	17610	17680	17670	17590	17260	17180	16910
23	20200	19730	19180	18820	18260	17580	17680	17680	17580	17240	17180	16890
24	20260	19710	19140	18810	18240	17540	17700	17700	17570	17260	17180	16890
25	20240	19690	19140	18800	18210	17530	17690	17690	17570	17250	17160	17030
26	20220	19660	19130	18790	18230	17490	17680	17700	17530	17250	17150	17100
27	20200	19640	19120	18770	18160	17440	17640	17680	17550	17260	17140	17400
28	20180	19600	19070	18760	18130	17400	17690	17650	17550	17250	17130	17480
29	20150	19590	19060	18740	18120	17420	17670	17640	17540	17240	17130	17490
30	20130	19570	19060	18730	---	17430	17650	17640	17530	17240	17100	17510
31	20140	---	19050	18730	---	17440	---	17620	---	17240	17100	---
MAX	20260	20150	19560	19060	18720	18100	17700	17750	17670	17530	17240	17510
MIN	19190	19570	19050	18730	18120	17400	17470	17620	17530	17240	17100	16890
(†)	2061.86	2061.38	2060.94	2060.66	2060.13	2059.52	2059.71	2059.68	2059.60	2059.33	2059.21	2059.58
(‡)	+950	-570	-520	-320	-610	-680	+210	-30	-90	-290	-140	+410
CAL YR 1983	MAX	24710	MIN	19050	‡	-5580						
WTR YR 1984	MAX	20260	MIN	16890	‡	-1680						

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

COLORADO RIVER BASIN

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

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984.

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
MAY 02...	1715	2170	20.0	560	380	120	64	260

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 02...	5	17	180	530	320	.80	4.4	1400

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 upstream from mouth, 4.8 mi downstream from State Highway 208, and 7.2 mi south of Colorado City.

DRAINAGE AREA.--206.8 mi², of which 20.8 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1959 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 Sept. 29, 1959, non-recording gages at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam about 6,800 ft 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, 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 pipeline to Lake Colorado City (station 08123000) for municipal use and for cooling operations of a steam generating powerplant. There are two spillways. The uncontrolled emergency spillway, 450 ft wide and 800 ft long, is located at the right end of dam. The controlled service spillway, is a cut channel 50 ft wide, about 1,800 ft long, and 8 ft deep, and cut into the emergency spillway at the extreme right end. There is a controlled drop-inlet structure, 4.0 by 5.0 ft, with a side opening of 1.5 by 3.0 ft. 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.....	2,104.0	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 may be obtained from Texas Electric Service Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 47,060 acre-ft June 29, 1982 (elevation, 2,085.79 ft); minimum 1,600 acre-ft Oct. 1, 1959 (elevation, 1,025.90 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 34,430 acre-ft Nov. 5-7 (elevation 2,077.34 ft); minimum, 22,020 acre-ft Sept. 30 (elevation 2,066.26 ft).

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

2,066.0	21,780	2,075.0	31,440
2,071.0	26,830	2,078.0	35,300

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32540	34350	34030	33800	33920	33830	33370	31370	29480	27470	25440	23550
2	32480	34350	34050	33810	33930	33830	33300	31290	29420	27440	25380	23520
3	32420	34390	34060	33810	33930	33830	33240	31250	29350	27400	25300	23360
4	32350	34420	34050	33830	33930	33830	33170	31170	29280	27330	25260	23380
5	32280	34430	34060	33830	33930	33810	33100	31110	29210	27270	25220	23320
6	32220	34430	34030	33840	33920	33800	33050	31050	29150	27200	25150	23240
7	32140	34430	34010	33840	33920	33790	33000	31030	29070	27130	25070	23160
8	32080	34420	34010	33890	33920	33790	32940	30930	29010	27050	25010	23100
9	32020	34390	34020	33950	33920	33770	32870	30860	28940	26970	24950	23040
10	31940	34350	34020	33940	33920	33760	32810	30760	28880	26900	24880	22970
11	31890	34320	34010	33930	33920	33760	32740	30690	28800	26820	24810	22900
12	31780	34320	33990	33940	33920	33760	32670	30640	28720	26760	24780	22850
13	31690	34310	33990	33940	33920	33770	32620	30610	28650	26710	24730	22790
14	31600	34310	33970	33930	33920	33770	32530	30570	28590	26640	24670	22730
15	31550	34270	33980	33930	33920	33790	32470	30500	28520	26570	24610	22650
16	31500	34240	33950	33920	33900	33790	32390	30420	28440	26500	24560	22580
17	31490	34230	33940	33920	33890	33800	32330	30360	28370	26330	24500	22520
18	31490	34220	33920	33920	33900	33800	32270	30330	28310	26370	24430	22470
19	31600	34190	33900	33900	33900	33790	32220	30340	28250	26320	24370	22420
20	33450	34160	33890	33900	33880	33760	32150	30330	28170	26240	24310	22360
21	33520	34150	33890	33900	33880	33750	32080	30310	28100	26160	24240	22320
22	33490	34160	33880	33890	33860	33730	31990	30250	28030	26090	24180	22250
23	33460	34160	33860	33900	33860	33720	31930	30180	27960	26020	24120	22190
24	33490	34150	33840	33900	33850	33700	31870	30110	27890	25960	24060	22140
25	34380	34140	33830	33920	33850	33680	31790	30050	27820	25900	24000	22130
26	34380	34140	33810	33920	33860	33670	31720	30000	27750	25850	23930	22130
27	34380	34100	33830	33920	33860	33660	31640	29900	27730	25780	23860	22120
28	34380	34090	33830	33930	33850	33620	31590	29820	27680	25720	23790	22110
29	34380	34070	33800	33930	33840	33550	31500	29730	27610	25650	23730	22080
30	34380	34060	33800	33940	---	33490	31430	29650	27530	25580	23670	22020
31	34360	---	33800	33930	---	33440	---	29550	---	25510	23600	---
MAX	34380	34430	34060	33950	33930	33830	33370	31370	29480	27470	25440	23550
MIN	31490	34060	33800	33800	33840	33440	31430	29550	27530	25510	23600	22020
(†)	2077.29	2077.06	2076.86	2076.96	2076.89	2076.58	2074.99	2073.42	2071.64	2069.76	2067.90	2066.26
(‡)	-1760	-300	-260	+130	-90	-400	-2010	-1880	-2020	-2020	-1910	-1580

CAL YR 1983 MAX 40270 MIN 31490 † -5860
WTR YR 1984 MAX 34430 MIN 22020 ‡ -10580

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

COLORADO RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
MAY 03...	0740	877	16.5	310	170	74	30	61
DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
MAY 03...	2	8.0	140	200	69	.50	.1	530

COLORADO RIVER BASIN

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08123720 BEALS CREEK NEAR COAHOMA, TX

LOCATION.--Lat 32°14'56", long 101°21'42", Howard County, Hydrologic Unit 12080007, on left bank near left end of county road bridge, 1.9 mi south of Interstate Highway 20, at Midway, on Moss Creek Lake Road, and 4.7 mi southwest of Coahoma.

DRAINAGE AREA.--1,569 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1983 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,323 ft, from topographic map.

REMARKS.--Water-discharge records good. Low flow is affected at times by diversions upstream from station.

EXTREMES FOR PERIOD JULY TO SEPTEMBER 1983.--Maximum discharge, 222 ft³/s Sept. 16 at 1530 hours (gage height, 3.67 ft); minimum daily, 0.82 ft³/s Sept. 7.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 532 ft³/s Sept. 25 at 2115 hours (gage height, 5.56 ft); minimum daily, 1.5 ft³/s Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										3.0	3.5	3.3
2										3.0	17	4.3
3										3.0	4.5	3.6
4										2.7	3.9	3.4
5										2.9	3.9	3.3
6										3.1	3.7	3.4
7										3.0	3.6	.82
8										3.1	3.7	2.2
9										3.2	6.0	3.0
10										3.2	10	3.2
11										3.2	13	3.2
12										3.2	4.8	3.1
13										3.4	3.7	4.1
14										3.3	3.4	19
15										3.5	3.7	19
16										3.7	4.4	102
17										3.5	3.4	16
18										3.5	3.2	8.0
19										3.5	3.6	6.2
20										3.5	3.7	5.7
21										3.5	5.7	5.3
22										3.0	3.8	5.3
23										3.0	2.2	5.4
24										3.0	3.0	5.8
25										3.0	3.0	6.1
26										3.0	2.9	6.4
27										3.0	2.8	7.3
28										3.0	2.8	8.0
29										3.0	2.7	6.8
30										3.0	2.7	4.5
31										3.0	3.0	---
TOTAL										98.0	141.3	277.72
MEAN										3.16	4.56	9.26
MAX										3.7	17	102
MIN										2.7	2.2	.82
AC-FT										194	280	551

WTR YR 1983 TOTAL - MEAN - MAX - MIN - AC-FT -

COLORADO RIVER BASIN

08123720 BEALS CREEK NEAR COAHOMA, TX--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	6.0	5.1	5.0	5.2	4.3	4.7	3.8	5.0	3.5	2.5	3.3
2	4.6	5.6	5.2	5.0	5.4	3.7	4.3	4.1	11.0	3.3	2.2	2.9
3	4.5	5.6	6.1	5.1	5.8	4.8	4.1	4.2	11.0	3.9	2.3	2.8
4	4.0	6.1	6.2	5.2	5.0	4.8	3.8	4.5	10.0	4.4	2.2	2.0
5	4.3	8.3	5.6	5.1	5.0	4.4	3.8	4.2	8.3	4.3	2.1	1.6
6	4.3	9.6	5.6	4.7	5.0	4.6	3.7	6.6	9.6	4.2	1.7	1.9
7	4.0	6.4	5.6	4.5	5.7	5.4	4.1	6.2	6.8	5.0	1.8	2.1
8	3.7	6.6	5.4	4.3	5.2	5.7	4.1	5.1	4.9	3.9	2.8	2.4
9	3.7	8.3	5.6	11.0	5.1	5.8	3.8	3.7	4.4	4.7	3.5	2.6
10	3.8	8.9	5.2	7.8	5.1	6.0	4.0	3.6	4.0	3.7	5.5	2.0
11	3.9	8.4	5.3	6.5	5.0	6.1	4.3	3.1	4.0	4.7	6.3	2.0
12	3.6	8.4	5.2	6.3	4.9	6.7	4.6	2.8	4.4	4.5	7.0	2.0
13	3.6	7.9	5.3	5.8	4.9	6.6	4.5	2.8	3.7	4.7	2.3	2.2
14	3.8	8.1	5.3	5.8	5.0	5.9	4.1	3.0	3.0	7.7	1.9	2.5
15	3.7	7.5	5.4	5.8	6.0	5.7	4.2	3.0	3.0	6.4	2.1	2.5
16	3.6	7.5	5.4	5.8	6.9	5.6	4.3	2.9	2.9	3.5	2.4	2.5
17	3.6	7.0	5.8	6.1	6.8	5.6	4.3	3.2	2.7	3.1	2.7	2.7
18	4.0	7.1	5.5	6.2	6.7	5.7	4.2	6.5	2.9	14.0	2.3	1.9
19	7.0	7.0	4.8	7.4	6.6	5.2	4.1	8.6	3.1	3.0	2.4	2.0
20	162.0	6.9	5.1	5.7	6.2	5.2	4.2	5.7	3.2	3.0	1.9	2.2
21	52.0	6.5	5.4	5.6	6.3	5.3	4.0	3.9	3.6	2.9	2.3	2.5
22	17.0	6.4	6.9	5.9	6.3	5.1	3.9	4.1	3.3	2.7	2.3	2.5
23	9.8	13.0	8.6	6.0	7.2	4.3	3.5	4.4	3.3	2.8	1.7	2.4
24	6.5	7.5	8.1	6.0	6.8	4.4	3.4	4.0	3.6	2.6	1.5	2.4
25	5.5	6.0	7.0	5.8	6.5	4.5	3.3	3.4	3.7	2.6	32.0	80.0
26	5.0	5.5	6.9	5.9	6.9	4.3	3.2	3.2	3.7	2.6	20.0	272.0
27	5.0	5.5	8.5	5.4	8.9	4.2	3.1	3.3	3.6	3.2	2.3	47.0
28	5.5	5.2	11.0	5.4	7.1	4.0	3.5	3.8	3.3	4.0	2.1	16.0
29	5.5	5.1	8.8	5.4	14.0	4.4	3.4	4.0	3.5	3.2	2.1	12.0
30	6.0	5.0	14.0	5.2	---	4.0	3.3	4.0	3.5	2.3	2.7	6.9
31	6.0	---	9.6	5.1	---	4.2	---	4.3	---	2.4	3.4	---
TOTAL	364.4	212.9	203.5	180.8	181.5	156.5	117.8	130.0	143.0	126.8	130.3	489.8
MEAN	11.8	7.10	6.56	5.83	6.26	5.05	3.93	4.19	4.77	4.09	4.20	16.3
MAX	162	13	14	11	14	6.7	4.7	8.6	11	14	32	272
MIN	3.6	5.0	4.8	4.3	4.9	3.7	3.1	2.8	2.7	2.3	1.5	1.6
AC-FT	723	422	404	359	360	310	234	258	284	252	258	972
WTR YR 1984	TOTAL	2437.3	MEAN 6.66	MAX 272	MIN 1.5	AC-FT 4830						

COLORADO RIVER BASIN

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08123720 BEALS CREEK NEAR COAHOMA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: June 1983 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1983 to September 1984.

WATER TEMPERATURES: June 1983 to September 1984.

INSTRUMENTATION.--Beginning June 1983, 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 CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 15,900 micromhos May 18; minimum daily, 600 micromhos Sept. 25.

WATER TEMPERATURES: Maximum daily, 33.0°C on several days during June and July; minimum daily, 0.0°C on several days during December and January.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
07...	1220	4.2	7280	25.0	1600	1400	260	220	1100
20...	1215	285	2430	22.0	530	430	100	67	310
NOV									
28...	1425	5.3	10900	9.0	2100	1900	320	320	1500
MAY									
16...	1020	3.2	8600	20.0	2000	1700	330	280	1300
JUL									
30...	1325	2.5	7680	28.0	1600	1300	260	220	1100
DATE		SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
OCT									
07...	12	33	190	1200	1700	.80	8.0	4600	
20...	6	16	100	360	510	.30	7.7	1400	
NOV									
28...	14	42	210	2000	2200	.70	13	6500	
MAY									
16...	13	34	260	1400	2200	.90	15	5700	
JUL									
30...	12	40	220	1200	2000	.90	13	5000	

COLORADO RIVER BASIN

08123720 BEALS CREEK NEAR COAHOMA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	364.4	5040	3310	3260	1300	1240	820	809	1200
NOV. 1983	212.9	9550	6070	3490	2200	1270	1700	963	2000
DEC. 1983	203.5	10700	6700	3680	2400	1320	1900	1050	*
JAN. 1984	180.8	11200	7000	3420	2500	1220	2000	992	*
FEB. 1984	181.5	10700	6730	3300	2400	1180	1900	944	*
MAR. 1984	156.5	10700	6740	2850	2400	1020	1900	816	*
APR. 1984	117.8	10600	6650	2120	2400	761	1900	603	*
MAY 1984	130.0	9070	5790	2030	2100	743	1600	555	1900
JUNE 1984	143.0	8190	5270	2040	2000	753	1400	541	1800
JULY 1984	126.8	6470	4250	1450	1600	551	1100	362	1500
AUG. 1984	130.3	6710	4390	1540	1700	583	1100	389	1500
SEPT 1984	489.8	3240	2170	2870	840	1110	500	667	770
TOTAL	2437.3	**	**	32000	**	11800	**	8690	**
WTD.AVG.	6.7	7620	4870	**	1800	**	1300	**	1600

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	7130	10200	9300	9460	10800	10300	10600	10500	9900	10200
2	---	---	7160	9700	9400	9540	10500	9500	10100	10600	10300	10400
3	---	---	7180	9700	9500	9600	10500	9400	9880	10900	10600	10700
4	---	---	7220	10200	9600	9910	11600	10300	11000	12700	10700	11100
5	---	---	7160	11900	10200	10600	10300	10100	10200	12600	10700	11600
6	---	---	7200	11700	9500	10000	---	---	10100	10700	10200	10500
7	---	---	7280	9800	9200	9480	---	---	10300	10900	10500	10700
8	---	---	7340	10200	9700	9920	10800	10300	10500	11000	10500	10700
9	---	---	7400	10200	9600	9910	10500	10100	10300	12700	9400	11500
10	---	---	7390	9900	9500	9660	10600	10300	10400	12100	11500	11800
11	---	---	7370	9800	9400	9520	10300	9800	10000	11600	11400	11500
12	---	---	7420	9900	9500	9660	10000	9800	9900	11700	11500	11600
13	---	---	7460	9800	9700	9750	10200	9900	10000	11700	11500	11700
14	---	---	7450	9900	9500	9700	10400	10000	10200	11700	11600	11700
15	---	---	7470	9700	9500	9570	10600	10400	10500	11600	11400	11500
16	---	---	7500	9800	9300	9560	10500	9900	10200	11400	11200	11300
17	---	---	7520	10000	9300	9550	11600	10500	11100	11500	11200	11400
18	---	---	7430	9500	9200	9390	11600	11000	11300	11700	11400	11700
19	---	---	6550	9500	9200	9340	11200	10700	10900	11800	11500	11700
20	---	---	2430	9300	9000	9200	10700	10500	10600	12000	11500	11800
21	---	---	5060	9700	9000	9230	11000	10400	10800	11900	11300	11600
22	---	---	6660	9600	8700	9030	11900	11000	11500	11300	10900	11100
23	8700	5700	8070	---	---	7850	12600	11400	12000	11300	10900	11100
24	8900	8700	8820	---	---	8460	11800	11300	11500	11100	11000	11100
25	9700	8700	9030	---	---	9070	11400	10800	11100	11400	11100	11300
26	9900	9200	9580	---	---	9680	11100	10400	10700	11300	10000	10900
27	9400	9100	9200	---	---	10300	12400	10400	11700	11100	9800	10800
28	9500	9200	9340	---	---	10900	11600	10300	10800	11000	9800	10700
29	9600	9100	9310	10400	10000	10100	10800	10500	10600	11100	9800	10700
30	9800	9300	9460	10500	10000	10300	10700	10000	10300	10900	10500	10700
31	9800	9200	9500	---	---	---	10700	9900	10200	10900	9800	10400
MONTH	9900	5700	7580	11900	8700	9610	12600	9400	10600	12700	9400	11100

COLORADO RIVER BASIN

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08123720 BEALS CREEK NEAR COAHOMA, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	10800	9800	10500	---	---	11400	10300	9800	10000	---	---	8930
2	11000	10600	10800	---	---	11900	10800	10000	10500	---	---	8760
3	11300	10900	11100	13400	10500	12200	10700	10000	10300	---	---	8720
4	11100	9900	10700	13300	10800	11700	10300	9900	10100	---	---	8650
5	11100	10600	10900	11200	10600	10900	10400	9900	10100	---	---	8680
6	10800	10500	10600	12400	11100	11700	10500	10100	10200	---	---	8340
7	10800	9800	10700	11300	10600	10900	10900	10200	10600	---	---	8270
8	10700	10200	10500	10600	10300	10500	11100	10400	10800	---	---	8330
9	10700	10200	10400	10700	9900	10300	10800	10400	10600	---	---	8350
10	10700	10200	10400	10900	10200	10500	10900	10300	10700	---	---	8360
11	10700	10300	10500	10800	10400	10600	11700	10500	11000	---	---	8400
12	11000	10500	10800	11200	10600	11000	12000	10900	11300	---	---	8450
13	10800	10100	11000	11500	10700	11100	12000	10300	11200	---	---	8480
14	10900	10100	10400	11300	10200	10800	10900	10500	10700	---	---	8370
15	10600	10100	10300	11100	10400	10700	10700	10400	10500	---	---	8400
16	13400	10200	11300	11000	10200	10600	10800	10500	10700	8700	7900	8430
17	10400	9800	10200	11000	10300	10600	10900	10600	10800	8900	8000	8380
18	10500	10000	10200	10900	10500	10700	11000	10700	10900	15900	9000	12600
19	10900	9900	10200	11400	10200	10800	11200	10900	11000	14300	11700	12800
20	10700	9900	10200	12400	10400	11300	11400	11000	11200	11600	9800	10400
21	10600	9900	10200	10900	10200	10500	11400	10400	11200	9900	9100	9670
22	10500	10100	10300	10700	10100	10400	11100	10700	11000	9300	8700	8940
23	12800	10100	11200	10500	9900	10200	11200	10800	11000	8800	8300	8550
24	12000	9700	10400	11400	10000	10600	---	---	10600	8500	6100	8070
25	10000	9600	9870	10600	9900	10200	---	---	10400	8300	6000	7290
26	10400	10000	10200	---	---	10100	---	---	10500	8200	5800	7820
27	14800	10500	12800	---	---	10300	---	---	10200	8200	6000	7510
28	13400	10900	11600	10400	9600	9970	---	---	9750	11100	6600	8780
29	11700	10100	11000	11100	9600	10200	---	---	9300	10800	8800	9820
30	---	---	---	10100	9700	9890	---	---	9090	8900	8100	8650
31	---	---	---	10400	9700	9980	---	---	---	8500	8000	8210
MONTH	14800	9600	10700	13400	9600	10700	12000	9800	10500	15900	5800	8820

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8300	7800	8020	6500	6100	6270	7300	6900	7130	8200	8000	8090
2	8100	2800	7150	6400	6100	6240	7100	6800	6980	8100	8000	8040
3	12600	5400	10300	6400	6000	6190	7200	6800	6990	8000	7900	8000
4	12300	9800	10900	6500	6100	6330	7100	6700	6890	8000	7900	7930
5	10800	9300	9930	6500	6000	6190	7800	6600	6850	7900	7800	7880
6	10900	8700	9720	6400	6100	6140	6900	6500	6650	7900	7800	7820
7	9500	8700	9180	6500	6000	6220	6500	6100	6370	7800	7700	7790
8	9300	8700	9080	6600	6100	6300	---	---	6590	7900	7700	7790
9	8700	8200	8540	6500	6100	6240	---	---	6830	7800	7700	7750
10	8200	7700	8010	6500	6000	6210	---	---	7040	7800	7100	7670
11	8000	7600	7820	6700	6100	6340	8400	6300	7230	7600	7200	7400
12	7800	7600	7650	---	---	6420	8400	6700	7240	7300	7100	7200
13	7900	7300	7620	---	---	6400	---	---	7410	7300	7100	7140
14	7700	7300	7530	---	---	6280	---	---	7520	7300	7000	7100
15	7800	7400	7680	---	---	6300	---	---	7500	7200	7000	7090
16	8000	7300	7760	---	---	6420	---	---	7470	7000	6600	6740
17	8100	7300	7800	---	---	5510	---	---	7400	6800	6600	6660
18	7700	7000	7330	---	---	6190	---	---	7490	7300	6800	7070
19	7100	6700	6980	---	---	5270	---	---	7480	7400	6700	7130
20	7100	6700	6960	---	---	6430	---	---	7610	6800	6600	6680
21	7200	7000	7060	---	---	6560	---	---	7580	6700	6500	6600
22	7100	6700	6970	---	---	6680	---	---	7600	7200	6600	6970
23	6700	6600	6960	---	---	6650	---	---	7830	7200	6800	7030
24	6700	6400	6550	---	---	6770	---	---	7990	7600	6800	6940
25	6700	6400	6450	---	---	6890	---	---	5500	7200	600	5460
26	6500	6300	6330	---	---	7050	---	---	6250	3700	1100	1890
27	6500	6200	6310	---	---	7230	7600	7300	7400	2600	1400	2220
28	6700	6200	6380	---	---	7120	7800	7500	7660	3400	2600	2980
29	6600	6300	6390	---	---	7460	8200	7900	8080	3800	3500	3680
30	6500	6200	6340	---	---	7680	8200	8100	8110	4300	3700	3990
31	---	---	---	7400	7000	7290	8200	8100	8100	---	---	---
MONTH	12600	2800	7720	7400	6000	6560	8400	6100	7250	8200	600	6560

COLORADO RIVER BASIN

08123720 BEALS CREEK NEAR COAHOMA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	26.5	21.0	23.0	20.0	16.0	17.5	7.5	5.0	6.5	4.5	1.0	2.5
2	28.0	21.0	24.0	20.0	16.0	17.5	10.0	7.0	8.5	4.5	2.5	3.5
3	---	---	---	18.5	16.0	17.0	12.5	9.0	10.0	6.5	4.0	5.5
4	---	---	---	20.5	17.0	18.5	12.5	8.5	10.0	9.0	5.5	6.5
5	---	---	---	18.0	17.0	17.5	12.5	7.0	9.5	8.0	5.5	6.0
6	28.5	23.5	25.0	19.0	15.0	17.0	8.5	4.0	6.0	10.5	5.5	8.0
7	---	---	25.0	19.0	15.0	16.5	8.0	3.0	5.5	9.0	7.0	7.5
8	26.5	21.5	24.0	20.0	15.0	17.0	10.5	5.0	7.5	8.0	5.5	7.0
9	26.0	21.0	22.5	17.0	12.5	15.0	10.5	7.0	8.5	9.5	7.0	8.0
10	27.0	21.0	23.0	14.0	10.0	11.5	11.5	7.0	9.0	7.5	4.5	6.0
11	25.5	20.0	22.0	14.5	9.5	11.0	12.0	7.0	9.0	7.0	3.5	5.0
12	23.5	16.5	19.5	15.0	10.5	12.5	11.0	6.5	8.5	8.0	4.0	5.5
13	21.5	15.5	17.5	15.5	11.0	13.0	10.5	7.0	8.0	5.5	2.5	4.0
14	21.5	15.0	17.5	15.5	12.0	13.5	10.0	6.0	7.5	4.5	2.0	2.5
15	---	---	---	15.0	10.0	12.0	8.5	4.0	5.5	4.5	2.0	3.0
16	---	---	---	14.0	9.5	11.0	6.0	3.0	4.0	3.0	1.5	2.5
17	---	---	---	14.5	9.5	11.5	7.0	3.0	4.5	3.5	2.0	3.0
18	---	---	---	14.5	10.0	12.0	4.5	.5	2.5	2.0	.0	1.0
19	---	---	---	12.5	9.0	11.0	1.0	.0	.5	1.0	.0	.0
20	18.0	15.0	16.5	11.5	7.0	9.0	1.5	.0	.5	.5	.0	.0
21	19.0	14.5	16.5	14.0	7.5	10.0	1.5	.0	.5	4.0	.0	1.5
22	19.5	15.0	17.0	15.0	10.0	12.0	.0	.0	.0	6.0	1.5	3.0
23	19.0	15.0	17.0	11.5	9.0	10.0	.0	.0	.0	7.5	3.5	5.0
24	20.5	17.0	18.5	10.0	7.0	8.0	.0	.0	.0	8.0	3.5	5.0
25	19.5	14.5	17.0	10.5	6.5	8.0	.0	.0	.0	9.0	4.0	5.5
26	17.5	13.5	15.5	10.5	7.5	9.5	.0	.0	.0	9.5	4.5	6.5
27	19.0	14.5	16.0	7.5	4.5	6.0	.5	.0	.0	10.5	5.0	7.5
28	19.0	14.5	16.5	8.0	3.5	5.0	.5	.0	.0	11.0	5.0	7.5
29	19.0	15.0	17.0	10.0	4.5	6.5	.0	.0	.0	11.0	6.0	7.5
30	19.0	15.0	17.0	9.5	6.5	7.5	.0	.0	.0	10.0	6.5	7.5
31	20.0	16.0	17.5	---	---	---	2.0	.0	.5	8.0	5.0	6.0
MONTH	28.5	13.5	19.5	20.5	3.5	12.0	12.5	.0	4.5	11.0	.0	5.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	11.0	5.0	7.5	14.5	4.0	8.0	16.0	11.5	13.0	17.5	12.0	13.5
2	11.0	7.0	8.5	15.5	5.5	10.0	18.5	11.5	14.5	---	---	---
3	10.0	5.5	7.5	18.0	10.5	13.5	19.0	11.0	14.5	---	---	---
4	11.0	5.0	7.5	17.0	10.0	13.0	19.5	10.5	14.0	---	---	---
5	11.5	6.0	8.0	10.5	6.5	8.5	20.0	10.5	14.5	---	---	---
6	11.5	5.5	8.0	12.5	4.0	7.5	17.5	12.0	15.0	---	---	---
7	11.5	5.5	8.0	14.5	5.5	9.5	20.5	15.0	16.5	---	---	---
8	12.5	7.5	9.0	14.5	7.5	10.0	21.0	13.5	16.5	---	---	---
9	13.5	7.5	9.5	15.0	7.0	10.0	22.5	14.0	17.5	---	---	---
10	12.5	7.5	10.0	10.5	8.5	10.0	20.0	13.0	16.0	---	---	---
11	15.0	10.0	11.5	10.0	8.0	9.0	22.0	12.5	16.5	---	---	---
12	13.0	7.0	10.0	17.0	9.5	12.5	23.0	14.0	17.5	---	---	---
13	13.0	6.5	9.0	17.5	11.5	14.0	23.0	13.5	17.5	---	---	---
14	14.5	6.0	10.0	21.0	12.0	16.5	21.5	14.0	16.5	---	---	---
15	13.0	8.5	10.5	21.0	15.5	18.0	20.5	11.0	15.0	---	---	---
16	13.5	7.0	9.5	18.0	14.0	15.5	21.5	12.5	16.0	22.0	20.0	21.0
17	16.5	8.0	11.5	19.0	13.0	15.5	22.0	12.0	16.5	24.5	19.0	20.5
18	15.0	9.5	11.5	19.0	11.5	15.5	20.0	14.0	16.5	23.0	19.5	21.0
19	11.0	7.5	8.5	15.5	9.5	12.0	24.0	14.0	18.0	25.0	20.5	22.0
20	10.0	6.5	8.0	18.0	9.0	12.5	23.0	15.5	18.5	27.5	19.5	22.5
21	12.0	5.0	7.5	19.5	10.5	14.0	21.0	13.0	16.5	30.0	19.5	24.0
22	14.0	6.5	9.0	19.5	12.0	15.0	22.0	12.0	16.5	30.5	20.5	25.0
23	14.0	8.0	10.0	18.5	11.5	14.5	24.0	12.5	17.5	30.0	22.0	25.5
24	14.5	8.0	10.5	18.0	9.5	13.0	20.0	13.5	16.0	31.0	22.0	26.0
25	14.5	8.5	11.0	17.5	11.0	13.5	21.0	14.5	17.5	31.0	22.0	25.5
26	12.0	6.5	9.5	17.0	11.0	13.0	22.5	14.0	17.5	31.0	22.0	26.0
27	9.0	4.5	6.5	15.5	10.5	13.0	22.5	12.0	16.5	32.0	22.0	26.0
28	11.0	5.5	7.5	16.5	8.5	12.0	19.0	13.0	15.5	27.5	20.5	23.0
29	8.0	1.5	5.5	17.5	8.5	12.5	17.5	11.0	14.5	27.0	17.5	21.5
30	---	---	---	18.5	10.0	13.5	21.0	10.0	15.0	27.5	17.5	21.5
31	---	---	---	20.0	11.0	14.5	---	---	---	28.5	17.5	22.0
MONTH	16.5	1.5	9.0	21.0	4.0	12.5	24.0	10.0	16.0	32.0	12.0	22.5

COLORADO RIVER BASIN

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08123720 BEALS CREEK NEAR COAHOMA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	29.5	18.0	22.5	32.0	23.5	27.0	28.5	21.5	24.5	27.0	24.0	25.0
2	27.0	21.0	23.0	29.0	24.0	26.0	29.5	23.0	25.5	27.5	24.0	25.0
3	24.0	21.0	22.0	30.0	22.5	26.0	26.0	23.5	24.5	27.0	22.5	24.5
4	25.5	19.5	22.0	31.0	22.5	26.0	30.0	22.5	25.5	28.0	21.0	23.5
5	29.5	20.0	24.0	33.0	24.0	27.0	31.5	23.5	26.5	29.0	20.0	23.5
6	27.5	22.0	24.5	33.0	24.0	27.5	32.0	23.0	26.5	27.0	20.0	22.5
7	28.0	23.0	25.5	33.0	23.5	27.5	32.0	23.5	26.5	26.5	20.0	22.5
8	32.0	22.5	26.5	32.0	22.5	27.0	29.0	24.0	26.0	28.5	21.0	24.0
9	33.0	23.5	27.0	32.0	22.5	26.5	29.5	23.5	25.5	29.5	22.0	25.0
10	31.0	24.0	26.5	32.5	22.5	27.0	28.0	24.0	25.5	30.0	22.5	25.0
11	31.0	23.5	26.0	32.5	24.5	27.5	26.5	23.5	24.5	28.5	22.5	24.5
12	31.0	22.5	26.0	33.0	24.5	27.0	28.0	23.0	25.0	29.0	23.0	25.0
13	31.0	22.5	26.0	31.0	23.5	27.0	31.5	24.0	27.0	29.0	22.5	25.0
14	27.0	23.5	25.0	32.0	23.5	27.0	31.0	23.5	26.5	28.5	22.0	24.5
15	30.5	22.0	26.0	33.0	22.5	27.0	29.0	22.5	24.5	26.0	20.5	22.5
16	30.5	23.5	26.5	33.0	23.5	27.5	28.5	22.0	24.5	24.5	20.5	21.5
17	28.5	23.5	25.5	32.0	24.0	27.5	29.5	22.0	25.0	25.5	19.5	21.5
18	30.5	22.0	28.0	32.5	21.0	26.0	31.5	22.5	26.0	27.5	20.5	22.5
19	28.0	23.5	25.5	32.5	23.5	27.0	32.5	23.5	27.0	26.5	19.5	22.5
20	28.5	23.0	24.5	33.0	24.0	27.5	32.0	23.0	26.5	25.5	19.5	22.0
21	30.5	22.5	26.0	32.5	24.5	27.5	31.5	23.5	26.5	25.0	20.0	22.0
22	32.0	23.5	27.0	30.5	24.0	26.5	32.0	23.5	27.0	26.5	20.5	23.0
23	32.5	22.5	27.0	32.0	22.5	27.0	31.0	24.0	27.0	26.0	21.0	23.0
24	33.0	23.5	27.5	29.5	24.0	25.5	30.0	22.0	26.0	28.0	22.0	24.5
25	32.0	25.0	28.0	29.5	22.5	25.5	30.5	22.0	26.0	26.0	10.0	20.0
26	33.0	24.0	28.0	31.0	22.5	26.0	27.0	22.0	24.5	12.5	10.5	11.5
27	31.0	25.0	27.0	30.5	23.5	26.0	30.0	25.5	27.5	17.0	12.0	14.0
28	32.0	23.5	27.0	29.5	23.0	26.0	30.0	24.5	26.5	16.5	12.5	14.0
29	32.5	23.5	27.5	30.0	24.0	26.0	30.0	25.0	27.0	12.5	11.0	12.0
30	33.0	24.5	28.0	30.0	22.5	25.5	28.0	24.5	25.5	16.5	11.5	14.0
31	---	---	---	26.0	22.0	23.5	27.0	24.0	25.0	---	---	---
MONTH	33.0	18.0	26.0	33.0	21.0	26.5	32.5	21.5	26.0	30.0	10.0	21.5

COLORADO RIVER BASIN

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 downstream from Hackberry Creek, 10.8 mi south of Westbrook, 15.7 mi southwest of Colorado City, and 19.1 mi upstream from mouth.

DRAINAGE AREA.--9,802 mi², of which 7,814 mi² 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 National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--26 years, 23.6 ft³/s (17,100 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,010 ft³/s Oct. 20 at 2000 hours (gage height, 9.56 ft), no other peak above base of 900 ft³/s; minimum daily, 0.02 ft³/s Sept. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.50	4.7	4.1	5.0	4.4	4.7	3.9	1.6	1.50	.67	1.60	3.20
2	1.80	4.6	4.2	5.8	4.3	6.5	3.6	2.1	1.20	.81	1.10	3.70
3	1.50	4.4	4.6	6.5	4.0	4.9	3.4	1.8	14.00	1.40	.61	3.90
4	2.00	5.2	4.3	6.1	4.1	2.9	3.5	2.0	6.10	1.20	1.30	3.70
5	2.00	18.0	4.3	6.0	4.2	2.3	3.3	1.9	4.50	.82	.76	3.40
6	1.80	28.0	4.7	6.1	4.1	3.1	2.8	1.6	4.30	.57	.47	2.90
7	1.10	8.3	4.4	6.0	4.0	3.1	3.1	1.7	3.10	.48	1.10	1.70
8	.87	6.8	4.3	6.0	3.9	2.9	3.2	1.5	2.50	.52	1.00	1.70
9	1.30	4.8	4.4	6.4	4.1	3.2	3.3	2.4	4.00	.46	3.40	.67
10	1.40	4.3	4.3	5.9	3.7	3.8	3.1	2.4	2.40	.29	5.20	.19
11	1.40	4.1	4.4	8.8	3.6	3.2	2.7	2.5	1.50	.18	5.00	.10
12	1.40	3.9	4.3	6.6	3.5	4.0	2.7	1.5	1.10	.18	5.30	.34
13	1.30	3.8	3.9	5.5	3.4	4.2	2.5	1.1	.79	.20	5.30	.34
14	1.30	3.8	3.9	5.4	3.5	4.2	2.4	1.1	.86	.14	6.00	.29
15	1.10	3.8	4.1	5.4	3.2	4.2	2.2	1.1	.86	.22	4.30	.17
16	.78	3.8	4.5	5.5	3.3	4.2	2.0	1.3	1.00	.69	3.00	.08
17	1.20	3.5	4.6	5.6	3.5	4.2	1.6	1.6	1.10	1.00	3.50	.04
18	1.70	3.5	4.5	5.6	3.7	4.1	1.7	1.8	1.30	1.10	2.10	.02
19	13.00	3.4	4.8	5.7	3.6	3.7	2.2	36.0	.95	14.00	1.60	.02
20	522.00	3.4	4.9	4.8	3.5	3.8	1.6	5.4	1.00	5.80	1.60	.62
21	307.00	3.5	4.8	5.0	3.4	3.9	2.0	4.1	.91	3.60	1.30	.89
22	57.00	3.6	4.7	5.1	3.3	3.6	2.0	3.7	1.00	1.60	1.20	.62
23	25.00	4.7	3.5	5.7	3.4	3.8	1.8	2.6	.94	1.10	1.10	.70
24	15.00	3.9	3.5	5.5	3.5	3.7	2.0	1.9	1.00	.94	.53	1.20
25	128.00	6.0	3.4	5.4	3.7	3.6	1.9	1.5	.94	.88	.50	16.00
26	20.00	5.4	3.3	5.3	4.1	3.4	1.6	1.4	.94	.82	.71	230.00
27	7.70	4.3	4.0	5.0	4.0	3.5	1.5	1.1	.80	.75	2.90	160.00
28	5.60	4.1	4.7	4.9	3.9	3.6	1.8	1.3	1.00	1.40	10.00	80.00
29	5.30	4.4	4.7	4.8	4.7	3.6	1.5	1.2	1.10	.80	4.90	31.00
30	5.10	4.3	4.9	4.5	---	3.5	1.6	1.0	1.00	.69	3.10	18.00
31	4.90	---	4.8	4.5	---	3.5	---	1.4	---	1.50	2.50	---
TOTAL	1141.05	170.3	133.8	174.4	109.6	116.9	72.5	93.6	63.69	44.81	82.98	565.49
MEAN	36.8	5.68	4.32	5.63	3.78	3.77	2.42	3.02	2.12	1.45	2.68	18.8
MAX	522	28	4.9	8.8	4.7	6.5	3.9	36	14	14	10	230
MIN	.78	3.4	3.3	4.5	3.2	2.3	1.5	1.0	.79	.14	.47	.02
AC-FT	2260	338	265	346	217	232	144	186	126	89	165	1120
CAL YR 1983	TOTAL	2619.13	MEAN	7.18	MAX	522	MIN	.01	AC-FT	5200		
WTR YR 1984	TOTAL	2769.12	MEAN	7.57	MAX	522	MIN	.02	AC-FT	5490		

COLORADO RIVER BASIN

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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 on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 19,900 micromhos July 7; minimum daily, 420 micromhos Oct. 25. WATER TEMPERATURES: Maximum daily, 32.0°C Nov. 2, June 24, 27; minimum, 0.0°C on many days during December and January.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 05...	1125	2.0	6700	20.0	1400	1300	240	200	970
NOV 01...	1310	4.7	3160	19.0	780	690	130	110	400
FEB 13...	0945	3.5	11300	8.5	2600	2400	340	420	1900
MAY 01...	1020	1.4	13060	18.5	3000	2900	410	480	2000
JUN 18...	1050	1.5	4210	25.5	790	600	160	96	590
JUL 30...	1040	.63	2900	25.5	480	380	75	72	410

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 05...	11	31	130	1000	1600	.80	1.6	4100
NOV 01...	6	11	89	450	770	.50	4.5	1900
FEB 13...	17	39	180	2000	3300	.80	7.1	8100
MAY 01...	16	45	150	2100	3500	.70	1.8	8600
JUN 18...	9	12	200	410	1100	.80	1.5	2500
JUL 30...	8	20	100	390	640	.80	1.8	1700

COLORADO RIVER BASIN

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	1141.05	1610	1000	3090	380	1180	240	745	350
NOV. 1983	170.3	7570	4970	2280	2000	909	1200	555	1700
DEC. 1983	133.8	11100	7440	2690	3000	1090	1800	654	*
JAN. 1984	174.4	10600	7080	3330	2800	1340	1700	811	*
FEB. 1984	109.6	11100	7430	2200	3000	887	1800	535	*
MAR. 1984	116.9	10700	7140	2250	2900	908	1700	548	*
APR. 1984	72.5	12200	8230	1610	3300	655	2000	393	*
MAY 1984	93.6	8200	5440	1370	2200	550	1300	334	1800
JUNE 1984	63.69	7850	5190	893	2100	357	1300	217	1700
JULY 1984	44.81	8980	6090	736	2500	300	1500	179	2000
AUG. 1984	82.98	7130	4630	1040	1800	409	1100	251	1600
SEPT 1984	565.49	2250	1410	2150	540	822	340	518	490
TOTAL	2769.12	**	**	23600	**	9400	**	5740	**
WTD.AVG.	7.6	4820	3160	**	1300	**	770	**	1100

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	5480	5320	5400	3900	2620	3120	10100	9940	10000	11900	10300	11300
2	5720	5440	5600	7940	4040	6130	9960	9800	9900	10500	9680	10200
3	6060	5780	5930	8780	8040	8510	9980	9820	9880	9580	9120	9220
4	6440	6040	6230	8900	8640	8790	10700	9980	10200	10200	9160	9690
5	6860	6420	6670	9340	7220	8720	11500	10800	11300	10200	10100	10100
6	7280	6860	7060	9060	4960	6570	11300	10400	10800	10100	9460	9700
7	7600	7260	7440	6680	1140	4220	10400	10000	10200	9660	9360	9560
8	7800	7540	7670	1520	960	1110	10600	10000	10300	9340	8700	9050
9	8100	7800	7940	2800	1600	2370	11000	10600	10800	8900	8460	8610
10	8740	8140	8470	2900	2800	2840	11100	11000	11100	9120	8840	8950
11	9160	8720	8970	2960	2820	2920	11100	10900	11000	10300	9160	9750
12	9220	9080	9170	3720	2760	3040	11000	10900	11000	10800	10300	10500
13	9200	9060	9150	7000	3840	5220	11200	11000	11100	10900	10800	10800
14	9120	8900	9020	9360	7160	8510	11300	11200	11300	11600	10900	11200
15	8900	8760	8850	10300	9400	9920	11300	10700	11000	11700	10600	11100
16	8800	8620	8740	11100	10300	10700	11000	10600	10700	10600	10400	10500
17	8640	8320	8490	11800	11200	11600	11600	11000	11400	10700	10500	10600
18	8420	8240	8350	11700	10900	11300	11500	11100	11200	11000	10700	10900
19	8280	5280	7900	10900	10400	10600	11300	11100	11200	12400	11100	11600
20	2660	540	979	10400	10300	10300	11400	11200	11300	13000	12400	12800
21	2840	700	1660	10600	10300	10500	11200	11100	11200	12500	11500	12100
22	2460	2020	2280	10600	10300	10600	11600	11300	11500	11500	10700	11200
23	3340	2480	2850	10400	9100	10100	11800	11500	11700	11400	11100	11300
24	4300	3360	3920	10000	9100	9780	11800	11500	11600	11500	11400	11500
25	4320	420	1490	10400	9740	10100	11800	11500	11600	11500	11300	11400
26	1220	760	986	10400	10200	10300	11800	11500	11700	11300	11100	11200
27	1620	1240	1430	10200	9840	10000	11700	11100	11500	11200	11100	11200
28	1860	1620	1750	10400	10200	10300	11800	11100	11200	11400	11100	11200
29	1940	1880	1920	10200	10100	10200	12600	11900	12500	11500	11400	11500
30	2140	1960	2040	10100	9980	10000	12600	11700	12100	11400	11200	11300
31	2580	2140	2280	---	---	---	12100	11800	12000	11400	11200	11300
MONTH	9220	420	5500	11800	960	7950	12600	9800	11100	13000	8460	10700

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	11500	11100	11300	11000	10400	10600	12600	12500	12500	13300	12700	13000
2	11100	10900	10900	10400	10300	10400	12600	12500	12500	13300	13100	13200
3	11100	10900	11000	10300	10100	10200	12600	12500	12600	13600	13100	13300
4	11200	11100	11200	10100	10000	10100	12900	12600	12700	13700	13300	13500
5	11400	11200	11300	10100	9980	10000	12900	12600	12800	14000	13500	13700
6	11500	11400	11400	10300	9960	10100	12600	12300	12500	13900	13600	13700
7	11400	11200	11300	10900	10400	10700	12300	12100	12200	13700	13400	13500
8	11200	11200	11200	10700	10100	10400	12200	12000	12100	13400	13200	13300
9	11200	11100	11200	10100	9780	9910	12300	12000	12100	13300	13100	13200
10	11200	11100	11100	9880	9720	9830	12200	11900	12100	13500	13200	13300
11	11100	11000	11100	9960	9820	9870	11900	11500	11700	13500	13300	13400
12	11100	10900	11000	12100	10000	10900	11500	11300	11400	13700	13300	13500
13	11200	10900	11100	12300	11400	11900	11500	11300	11400	13600	13300	13500
14	11400	11200	11300	11400	11000	11200	11700	11400	11600	13500	13200	13400
15	11600	11400	11500	11100	10400	10600	11900	11400	11700	13400	13200	13300
16	11600	11400	11500	11100	10300	10600	11800	11700	11800	13300	13100	13200
17	11400	11100	11300	11800	11100	11600	11900	11500	11700	13100	12800	13000
18	11200	11100	11100	11800	11200	11500	11800	11600	11700	13000	12900	13000
19	11100	11000	11100	11200	10800	10900	11900	11700	11800	12100	3260	5750
20	11100	11000	11100	10800	10500	10700	12100	11700	11900	4280	3580	3900
21	11100	10900	11000	10500	10000	10300	12200	11900	12100	4900	4280	4530
22	10900	10800	10900	9960	9520	9750	12500	12200	12400	5120	4780	4900
23	10900	10800	10900	9500	9280	9370	12400	12100	12300	6620	5160	5950
24	10900	10900	10900	9320	9180	9270	12300	11800	12100	7040	6640	6890
25	10900	10900	10900	9300	9220	9260	12500	12100	12300	6960	6800	6870
26	10900	10700	10800	9600	9240	9410	12600	12200	12300	6880	6720	6800
27	10800	10700	10700	12600	9580	11200	12700	12400	12500	7020	6800	6900
28	10700	10500	10600	12700	12600	12600	12600	12300	12500	7180	7000	7090
29	11200	10500	10900	12700	12500	12600	12800	12500	12700	7180	7080	7140
30	---	---	---	12600	12500	12500	12900	12600	12800	7040	6680	6840
31	---	---	---	12600	12500	12500	---	---	---	6660	6080	6380
MONTH	11600	10500	11100	12700	9180	10700	12900	11300	12200	14000	3260	10300

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	6040	5540	5790	---	---	20700	3380	2740	3010	8540	8420	8490
2	5500	5100	5290	---	---	20800	4160	3420	3820	8440	8260	8340
3	9600	4800	6550	---	---	20200	4640	4160	4410	8220	7860	8010
4	9560	8860	9180	---	---	20100	5020	4640	4870	7840	7280	7630
5	8840	8380	8600	---	---	20300	5140	4960	5040	7240	5520	6310
6	8340	7940	8120	---	---	20000	5240	5020	5120	5460	4580	5000
7	7920	7400	7690	19900	19300	19700	5300	5120	5190	4560	4240	4380
8	7360	6380	6880	19300	18600	19000	5440	5200	5320	4240	4160	4190
9	6300	4920	5470	18500	17800	18200	6560	5480	6140	4200	4100	4140
10	4900	4460	4690	17700	16800	17200	7300	6560	7000	4640	4100	4390
11	4440	4100	4240	16700	16000	16400	8220	6600	7030	---	---	4640
12	4100	3960	4030	15900	15100	15500	8320	7420	7930	---	---	4600
13	3920	3820	3870	15100	14400	14700	7420	6560	7070	---	---	4650
14	3880	3780	3800	14300	13800	14000	8100	6600	7470	---	---	4810
15	3840	3740	3790	13700	13100	13400	8180	8040	8110	---	---	4990
16	3920	3800	3860	13100	12400	12800	8100	7820	8010	---	---	5160
17	4100	3920	4000	12300	11400	11900	7800	6520	7310	---	---	6240
18	4640	4060	4450	11300	10300	10800	6440	5520	5930	---	---	7130
19	5220	4660	4910	10200	7520	9030	5480	5040	5260	---	---	8000
20	6620	5280	5810	7480	5300	6460	4980	4200	4730	---	---	7450
21	8900	6680	7830	5220	3500	4280	4140	3780	3860	---	---	7030
22	11200	8980	10200	3440	3060	3220	4340	3840	4040	---	---	7200
23	13100	11200	12300	3540	3120	3320	5260	4380	4850	---	---	7110
24	14200	13200	13800	3520	3120	3270	5740	5280	5540	---	---	6880
25	14800	14200	14500	3520	3380	3440	6060	5660	5840	---	---	5320
26	15600	14800	15200	3680	3480	3550	6520	6040	6300	---	---	1750
27	16900	15600	16200	3540	3200	3410	7220	6480	6730	---	---	1910
28	19400	16900	18200	3360	2980	3210	9860	7140	8810	---	---	2030
29	---	---	20100	3320	2720	3070	9480	8960	9170	---	---	2200
30	---	---	20400	2860	2620	2770	8920	8480	8670	---	---	2320
31	---	---	---	2760	2600	2680	8600	8460	8520	---	---	---
MONTH	19400	3740	8660	19900	2600	11500	9860	2740	6160	8540	4100	5410

COLORADO RIVER BASIN

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	25.0	19.5	22.0	---	---	---	7.5	6.0	7.0	2.0	.0	.5
2	25.0	20.0	22.0	32.0	27.5	30.0	9.5	7.5	8.5	2.5	.0	1.5
3	26.0	20.5	23.0	31.5	28.0	30.0	12.5	9.0	10.5	4.5	2.0	3.5
4	25.5	20.5	22.5	31.5	29.0	30.5	13.0	8.5	10.5	8.0	4.0	6.0
5	---	---	22.0	29.5	28.0	28.5	12.5	9.5	11.0	7.5	4.5	6.0
6	---	---	---	30.0	26.0	28.0	10.0	7.0	8.5	9.5	6.0	7.5
7	---	---	---	29.5	26.0	27.5	9.0	6.0	7.5	9.0	6.5	7.5
8	---	---	---	29.5	24.0	27.0	10.0	6.5	8.5	8.0	7.0	7.5
9	---	---	---	27.5	22.0	25.0	11.0	8.0	9.0	9.0	6.5	8.0
10	---	---	---	23.0	18.5	20.5	11.5	8.0	9.5	7.5	4.5	6.0
11	---	---	---	22.5	17.5	20.0	11.5	8.0	9.5	7.0	3.5	5.0
12	---	---	---	23.0	17.5	20.0	11.0	7.5	9.0	7.5	4.0	5.5
13	---	---	---	24.0	18.5	21.0	10.5	7.5	9.0	6.0	4.0	5.0
14	---	---	---	24.5	20.5	22.0	10.0	7.5	8.5	4.0	2.5	3.5
15	---	---	---	22.5	18.5	20.0	8.0	5.5	6.5	4.0	2.5	3.0
16	---	---	---	21.5	16.0	18.5	6.0	4.0	5.0	3.0	2.0	2.5
17	---	---	---	21.5	16.0	18.5	7.0	3.5	5.5	3.0	2.0	3.0
18	---	---	---	21.5	17.5	19.5	5.5	.5	2.5	2.0	.0	.5
19	---	---	---	19.5	14.5	17.5	1.0	.0	.5	2.0	.0	.5
20	---	---	---	17.5	13.0	15.0	1.5	.0	.5	.5	.0	.0
21	---	---	---	18.5	13.0	15.5	1.5	.0	.5	3.0	.0	1.0
22	---	---	---	19.5	16.0	17.0	.5	.0	.0	5.5	.5	3.0
23	---	---	---	16.0	13.5	14.5	.5	.0	.0	7.0	2.5	4.5
24	---	---	---	15.0	11.5	13.0	.5	.0	.0	7.5	3.0	5.5
25	---	---	---	14.5	10.0	12.5	.5	.0	.0	8.0	4.0	6.0
26	---	---	---	14.5	11.5	13.5	1.0	.0	.0	9.0	4.5	6.5
27	---	---	---	11.5	8.0	9.5	1.0	.0	.0	9.5	5.5	7.5
28	---	---	---	9.0	6.5	7.5	.0	.0	.0	10.0	6.0	8.0
29	---	---	---	10.0	5.0	7.5	.5	.0	.0	11.0	6.0	8.5
30	---	---	---	9.5	7.0	8.0	.5	.0	.0	9.5	7.0	8.0
31	---	---	---	---	---	---	1.0	.0	.5	9.5	5.5	7.5
MONTH	26.0	19.5	22.5	32.0	5.0	19.0	13.0	.0	5.0	11.0	.0	5.0

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

COLORADO RIVER BASIN

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08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

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

COLORADO RIVER BASIN

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 downstream from a Pan American Oil Co. bridge, 4.7 mi west of Silver, and at mile 756.0.

DRAINAGE AREA.--14,910 mi², of which 10,260 mi² 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 National Geodetic Vertical Datum of 1929. Prior to Oct. 4, 1972, water-stage recorder at site 0.5 mi downstream at same datum.

REMARKS.--Water-discharge records good. Low flow is affected by upstream diversions, see stations 08121000 and 0812372. Some regulation by Lake J. B. Thomas, Lake Colorado City, and Champion Creek Reservoir (see stations 08118000, 08123000, and 08123600).

AVERAGE DISCHARGE.--17 years, 74.0 ft³/s (53,610 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,450 ft³/s Oct. 20 at 0900 hours (gage height, 10.81 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	24.0	9.4	11.0	19.0	8.8	4.40	1.10	.03	0	.00	.0
2	.02	20.0	9.4	11.0	18.0	9.4	3.80	.57	.00	0	.00	.0
3	.02	18.0	9.4	11.0	17.0	9.6	3.70	.39	.00	0	.00	.0
4	.01	23.0	10.0	11.0	17.0	10.0	3.70	.35	.00	0	.00	.0
5	.01	24.0	10.0	11.0	16.0	11.0	3.90	.31	.00	0	.00	.0
6	.00	28.0	10.0	11.0	17.0	9.5	4.30	.20	.00	0	.00	.0
7	.00	42.0	10.0	11.0	18.0	7.3	4.80	.08	.03	0	.00	.0
8	.00	21.0	10.0	12.0	19.0	6.1	4.60	.02	2.30	0	.00	.0
9	.00	16.0	11.0	18.0	18.0	5.9	4.30	.02	1.80	0	.00	.0
10	.00	16.0	9.9	16.0	18.0	6.2	2.70	.01	1.20	0	.00	.0
11	.00	22.0	8.0	13.0	17.0	6.4	3.70	.00	.81	0	.00	.0
12	.00	19.0	8.2	13.0	14.0	6.9	2.70	.00	.43	0	.00	.0
13	.00	15.0	7.3	11.0	11.0	7.5	2.90	.00	.16	0	.00	.0
14	.00	11.0	7.1	11.0	10.0	7.5	2.20	.00	.05	0	.00	.0
15	.00	9.4	7.1	10.0	7.8	7.6	1.70	.00	.03	0	.00	.0
16	.00	8.6	7.1	9.4	8.2	7.9	1.80	.00	.01	0	.00	.0
17	.00	7.7	7.1	9.4	9.0	9.3	2.20	.00	.00	0	.00	.0
18	.00	6.9	7.1	8.4	8.8	8.1	2.00	.00	.00	0	.00	.0
19	.01	6.6	7.1	8.2	8.8	5.3	2.40	.00	.00	0	.00	.0
20	1810.00	6.1	7.1	8.2	8.5	5.6	2.40	8.00	.00	0	.05	.0
21	811.00	6.5	7.1	8.8	8.2	6.2	1.70	22.00	.00	0	.14	.0
22	307.00	6.9	7.0	8.8	8.2	5.8	2.10	9.80	.00	0	.05	.0
23	140.00	9.9	6.5	9.7	8.2	5.3	2.40	5.70	.00	0	.02	.0
24	69.00	10.0	6.5	13.0	8.2	5.3	2.50	4.10	.00	0	.02	.0
25	1550.00	10.0	7.0	16.0	8.5	5.7	2.40	2.60	.00	0	.02	9.9
26	440.00	10.0	7.2	17.0	6.6	5.8	1.40	1.90	.00	0	.02	173.0
27	111.00	10.0	7.5	18.0	5.9	5.6	.88	1.40	.00	0	.00	229.0
28	56.00	11.0	8.0	18.0	7.3	4.5	1.00	.37	.00	0	.00	198.0
29	32.00	10.0	8.1	19.0	8.1	3.5	1.20	.20	.00	0	.00	150.0
30	31.00	9.4	11.0	19.0	---	3.8	1.30	.11	.00	0	.00	61.0
31	28.00	---	10.0	19.0	---	3.7	---	.06	---	0	.00	---
TOTAL	5385.11	438.0	258.2	390.9	349.3	211.1	81.08	59.29	6.85	0	.32	820.9
MEAN	174	14.6	8.33	12.6	12.0	6.81	2.70	1.91	.23	.000	.010	27.4
MAX	1810	42	11	19	19	11	4.8	22	2.3	.00	.14	229
MIN	.00	6.1	6.5	8.2	5.9	3.5	.88	.00	.00	.00	.00	.00
AC-FT	10680	869	512	775	693	419	161	118	14	.00	.6	1630
CAL YR 1983	TOTAL	9848.03	MEAN	27.0	MAX	1810	MIN	.00	AC-FT	19530		
WTR YR 1984	TOTAL	8001.05	MEAN	21.9	MAX	1810	MIN	.00	AC-FT	15870		

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Minimum daily, 0.0°C on several days during December and January.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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 CAC03)
DEC 13...	0930	7.7	7670	8.0	9.0	7.4	12.1	113	6.1	58	120	1800
FEB 22...	1100	9.4	8830	7.4	9.0	4.5	11.1	106	9.1	40	K12	2100
APR 17...	0900	2.4	10800	7.9	14.5	19	11.2	122	6.6	56	100	2600
JUN 13...	1115	.04	16700	8.5	24.5	7.9	9.4	127	12	K4	K20	4400
AUG 21...	1130	.88	3680	8.2	29.5	11	7.5	107	5.6	29	26	870
SEP 26...	1050	201	340	--	12.0	--	--	--	--	--	--	130

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 13...	1700	360	230	1100	11	22	130	1400	2000	.60	1.2
FEB 22...	2000	400	260	1300	13	19	97	1500	2200	.60	1.0
APR 17...	2400	480	330	1600	14	29	120	2300	2700	.70	9.9
JUN 13...	4300	860	540	2600	18	19	54	3700	4600	.70	2.6
AUG 21...	830	220	77	470	7	12	46	720	830	.40	5.0
SEP 26...	49	44	5.9	15	.6	4.6	85	48	23	.10	6.4

[illegible]

COLORADO RIVER BASIN

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
FEB 22...	1100	2	<100	<10	<1	<1	<1	<1	50	<1
JUN 13...	1115	2	300	<10	<1	<1	<1	3	170	<1
AUG 21...	1130	2	200	<10	2	<1	<1	2	40	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB 22...	180	160	<.1	27	<1	<1	<1	5600	66	50
JUN 13...	380	150	<.1	24	4	<1	<1	16000	88	70
AUG 21...	50	40	<.1	8	7	<1	1	3700	17	<10

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	5385.11	1330	799	11600	290	4170	210	3110	270
NOV. 1983	438.0	3910	2460	2910	900	1060	670	788	840
DEC. 1983	258.2	7300	4780	3330	1800	1230	1300	912	1600
JAN. 1984	390.9	7820	5150	5430	1900	2010	1400	1490	1700
FEB. 1984	349.3	9230	6200	5850	2300	2180	1700	1610	2100
MAR. 1984	211.1	9540	6420	3660	2400	1370	1800	1010	2200
APR. 1984	81.08	10200	6950	1520	2600	570	1900	420	*
MAY 1984	59.29	12800	9040	1450	3400	547	2500	403	*
JUNE 1984	6.85	14700	10700	197	4100	75	3000	55	*
JULY 1984	0.00	*	*	0.00	*	0.00	*	0.00	*
AUG. 1984	0.32	8780	5850	5.1	2200	1.9	1600	1.4	2000
SEPT 1984	820.90	2900	1800	3980	650	1450	490	1080	610
TOTAL	8001.05	**	**	40000	**	14700	**	10900	**
WTD.AVG.	22	2890	1850	**	680	**	500	**	630

COLORADO RIVER BASIN
08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	9500	9040	9230	2380	1960	2100	5000	4940	4990	---	---	7920
2	9280	9040	9110	1960	1880	1930	4940	4740	4850	---	---	7950
3	9700	9120	9320	2240	1860	2060	5000	4700	4800	---	---	7970
4	9700	9220	9450	2260	1180	2030	5600	5000	5370	---	---	8000
5	9700	8490	9520	2260	1660	2100	6100	5620	5840	---	---	8010
6	---	---	---	2660	2280	2460	6980	6140	6600	---	---	7990
7	---	---	---	3000	2700	2810	7680	7120	7440	---	---	8030
8	---	---	---	3240	3020	3150	7720	7560	7660	---	---	7970
9	---	---	---	3180	2900	3000	7600	7420	7510	---	---	7490
10	---	---	---	6020	3120	4330	7520	7440	7490	---	---	7450
11	---	---	---	6960	6140	6710	7660	7520	7600	---	---	7670
12	---	---	---	6740	6600	6680	7660	7520	7600	---	---	7880
13	---	---	---	6840	6560	6740	7600	7540	7570	8520	8440	8480
14	---	---	---	6520	5880	6230	7660	7560	7610	8560	8480	8520
15	---	---	---	5860	5400	5620	7800	7660	7720	8480	8180	8340
16	---	---	---	5400	5240	5310	7800	7640	7700	8180	7880	8050
17	---	---	---	5260	5140	5200	7640	7500	7570	7860	7520	7700
18	---	---	---	5200	5140	5170	7820	7540	7680	7540	7300	7410
19	9600	7660	9090	5220	5140	5180	7940	7820	7900	7600	7160	7370
20	6800	400	1610	5220	5140	5170	8020	7740	7910	7780	7300	7590
21	1000	360	714	5140	5100	5130	7760	7620	7700	8180	7820	7970
22	2340	1020	1530	5220	4820	5080	8100	7700	7870	8100	7780	7940
23	2620	2300	2390	4900	4780	4850	8400	8160	8280	7800	7620	7700
24	3880	2460	3050	5040	4860	4970	8620	8340	8480	7720	7460	7620
25	4320	240	1140	4920	4700	4830	---	---	8410	7640	7380	7490
26	1640	400	829	4660	4220	4460	---	---	8380	8120	7660	7920
27	1440	840	1050	4220	3940	4050	---	---	8340	8420	8160	8330
28	2100	1460	1820	4260	3940	4070	---	---	8220	8260	7640	7930
29	3760	2180	3050	4720	4280	4520	---	---	8200	7700	7600	7650
30	4640	3440	4000	5000	4760	4890	---	---	7970	7600	7360	7460
31	3700	2180	2840	---	---	---	---	---	7950	7380	7280	7340
MONTH	9700	240	4430	6960	1180	4360	8620	4700	7390	8560	7160	7840

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7280	7140	7230	9680	9520	9630	9560	9340	9380	11500	11100	11300
2	7880	7300	7530	9680	9440	9620	9480	9340	9410	11600	11200	11400
3	11000	7940	9330	9780	9640	9710	9580	9440	9520	13600	11300	11800
4	12100	11100	11800	9780	9520	9670	9720	9580	9620	11900	11500	11800
5	11700	10900	11300	9840	9620	9720	9680	9580	9620	12000	11600	11900
6	10900	10400	10600	9860	9720	9790	9800	9580	9650	12000	11700	11900
7	10400	10000	10200	9860	9760	9810	9740	9600	9670	12000	11700	11900
8	10000	9620	9840	9860	9800	9820	9920	9700	9820	12200	11700	12000
9	9620	9280	9450	9900	9820	9870	10300	9880	10100	12100	11800	12000
10	9280	9080	9190	9840	9720	9770	10500	10200	10400	12300	11800	12100
11	9080	8800	8970	9700	9480	9610	10600	10400	10500	---	---	---
12	8940	8800	8890	9460	9320	9380	10700	10600	10600	---	---	---
13	8960	8780	8870	9540	9340	9430	10600	10400	10500	---	---	---
14	8860	8740	8800	9800	9360	9600	10500	10400	10500	---	---	---
15	8860	8600	8680	10000	9660	9840	10600	10400	10500	---	---	---
16	8680	8520	8610	9980	9860	9900	10600	10400	10500	---	---	---
17	8540	8420	8500	9900	9580	9710	10800	10500	10700	---	---	---
18	8460	8340	8410	9540	9240	9350	10800	10600	10700	---	---	---
19	8380	8260	8320	9360	9160	9230	10800	10600	10700	---	---	---
20	8600	8280	8450	9180	8920	9110	10900	10700	10800	12700	9460	10700
21	8660	8540	8610	9180	8940	9080	11000	10800	10900	14000	9020	12700
22	8890	8560	8650	9180	8960	9120	10900	10700	10800	13900	13200	13400
23	9000	8720	8870	9320	9040	9160	10800	10600	10800	14100	13700	13800
24	9140	8820	9020	9300	9060	9200	11000	10700	10800	14000	13500	13900
25	9260	9040	9190	9240	9140	9200	11100	10900	11000	14300	13900	14000
26	9380	9180	9280	9300	8980	9180	11200	10800	11000	14300	14000	14200
27	9480	9240	9360	9460	9220	9340	11300	11000	11100	14500	14200	14300
28	9580	9400	9490	9420	9180	9360	11100	10900	11100	14500	14300	14400
29	9660	9460	9570	9570	9260	9370	11100	10900	11000	14600	14200	14400
30	---	---	---	9460	9340	9400	11400	10900	11200	14600	14300	14500
31	---	---	---	9500	9340	9400	---	---	---	15000	14400	14600
MONTH	12100	7140	9140	10000	8920	9500	11400	9340	10400	15000	9020	12900

COLORADO RIVER BASIN

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	15000	14600	14800						---	---	---	---
2	---	---	---						---	---	---	---
3	---	---	---						---	---	---	---
4	---	---	---						---	---	---	---
5	---	---	---						---	---	---	---
6	---	---	---						---	---	---	---
7	15400	14300	15100						---	---	---	---
8	13900	12000	12800						---	---	---	---
9	15600	13600	14600						---	---	---	---
10	---	---	15900						---	---	---	---
11	---	---	16900						---	---	---	---
12	---	---	17100						---	---	---	---
13	---	---	17300						---	---	---	---
14	---	---	16900						---	---	---	---
15	---	---	17000						---	---	---	---
16	---	---	17100						---	---	---	---
17	---	---	---						---	---	---	---
18	---	---	---						---	---	---	---
19	---	---	---						---	---	---	---
20	---	---	---						8990	---	---	---
21	---	---	---						8640	---	---	---
22	---	---	---						8700	---	---	---
23	---	---	---						8810	---	---	---
24	---	---	---						8900	---	---	---
25	---	---	---						9020	---	---	---
26	---	---	---						9090	3880	260	1520
27	---	---	---						---	5800	620	3690
28	---	---	---						---	2160	1100	1460
29	---	---	---						---	6700	2640	5120
30	---	---	---						---	5240	2580	3520
31	---	---	---						---	---	---	---
MONTH	15600	12000	16000						8880	6700	260	3060

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	25.0	21.5	23.0	21.5	16.0	18.5	8.5	6.5	8.0	---	---	---
2	26.0	21.5	23.5	21.5	18.5	19.5	10.5	7.5	9.0	---	---	---
3	27.0	23.0	25.0	21.0	18.5	20.0	13.5	9.5	11.0	---	---	---
4	26.0	23.0	24.5	22.0	19.5	20.5	15.0	8.5	11.5	---	---	---
5	26.5	21.0	24.0	20.5	18.5	19.5	14.0	10.0	12.0	---	---	---
6	---	---	---	22.5	13.5	18.5	12.0	7.0	9.5	---	---	---
7	---	---	---	21.5	16.5	19.0	11.5	6.0	9.0	---	---	---
8	---	---	---	21.5	16.0	18.5	12.5	6.5	9.5	---	---	---
9	---	---	---	18.5	14.0	16.5	12.5	8.0	10.5	---	---	---
10	---	---	---	17.0	12.0	14.0	13.0	7.0	10.0	---	---	---
11	---	---	---	17.0	12.0	14.0	13.0	8.0	10.5	---	---	---
12	---	---	---	17.5	12.0	14.5	11.5	7.5	10.0	9.0	5.0	7.5
13	---	---	---	18.5	14.0	16.0	11.0	7.0	9.0	7.5	4.0	5.5
14	---	---	---	18.5	14.5	16.0	11.5	7.0	9.0	5.5	3.0	4.0
15	---	---	---	18.0	12.5	14.5	9.5	5.5	7.5	5.0	3.0	3.5
16	---	---	---	16.5	11.0	13.5	7.0	4.0	5.5	4.0	2.0	3.0
17	---	---	---	17.0	10.5	13.5	8.5	3.5	6.0	3.5	2.5	3.0
18	---	---	---	17.5	12.0	15.0	6.5	.0	2.5	2.5	.0	1.0
19	22.0	19.0	21.0	15.0	11.0	13.0	1.5	.0	.5	2.5	.0	1.0
20	21.5	14.0	18.0	14.5	9.0	11.5	1.5	.0	.5	1.5	.0	.5
21	18.5	17.0	17.5	16.0	10.0	13.0	2.0	.0	.5	4.0	.0	1.5
22	19.5	14.5	17.5	18.0	13.5	15.5	.5	.0	.0	6.0	.5	3.0
23	21.5	16.5	19.0	14.0	11.0	12.5	.5	.0	.0	9.5	2.0	5.0
24	22.5	17.0	20.0	13.5	8.5	11.0	.0	.0	.0	10.5	4.0	6.5
25	21.0	10.5	14.5	13.5	8.0	11.0	---	---	---	11.0	5.0	7.0
26	18.0	14.5	16.0	12.0	9.5	11.0	---	---	---	11.5	5.5	8.0
27	19.5	15.0	17.0	9.0	5.5	7.5	---	---	---	12.0	6.5	9.0
28	19.5	15.5	17.5	10.5	5.0	7.5	---	---	---	13.0	7.0	9.5
29	20.5	16.0	18.0	12.5	5.0	8.5	---	---	---	13.5	7.0	9.5
30	18.5	16.5	17.5	10.5	8.0	9.0	---	---	---	11.0	7.5	9.0
31	21.0	15.5	17.5	---	---	---	---	---	---	10.5	6.5	8.0
MONTH	27.0	10.5	19.5	22.5	5.0	14.5	15.0	.0	6.5	13.5	.0	5.5

COLORADO RIVER BASIN
08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										---	---	---
8										---	---	---
9										---	---	---
10										---	---	---
11										---	---	---
12										---	---	---
13										---	---	---
14										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										---	---	---
21										---	---	---
22										---	---	---
23										---	---	---
24										---	---	---
25										---	---	---
26										14.0	11.5	13.0
27										16.0	12.5	14.5
28										15.0	13.0	14.0
29										13.5	12.0	13.0
30										18.0	12.0	15.0
31										---	---	---
MONTH										18.0	11.5	14.0

COLORADO RIVER BASIN

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 west of Robert Lee, and at mile 712.4.

DRAINAGE AREA.--15,278 mi², approximately, of which 10,260 mi² 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 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 annually for municipal, mining, and industrial uses. Inflow to reservoir is partially 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, and discharges through a 28.0-foot-diameter concrete conduit. The uncontrolled emergency spillway is a 3,200-foot-wide 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 may be obtained from the city of San Angelo and the Colorado River Municipal Water District.

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 267,000 acre-ft Nov. 9 at 0600 hours (elevation, 1,878.45 ft); minimum, 204,600 acre-ft Sept. 23, 24 (elevation, 1,871.02 ft).

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

1,871.0	204,400	1,877.0	253,900
1,874.0	227,900	1,879.0	272,000

 CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
 INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	255400	266000	262600	258600	257100	254000	249000	242100	234000	226700	217400	210200
2	255300	265900	262700	258600	257100	253800	248700	241800	233700	226400	217100	210000
3	255300	265900	262700	258600	256900	253600	248500	241800	233400	226000	216800	209700
4	254900	266200	262800	258600	256800	253500	248300	241700	233300	225600	216700	209400
5	254400	266500	262900	258500	256600	253200	248200	241400	233000	225100	216500	209100
6	254300	266500	262500	258400	256500	253000	248100	241300	232900	224900	216100	208900
7	254200	266300	262500	258300	256300	252800	248200	240300	232800	224500	215900	208600
8	253800	266300	262900	259300	256300	252600	247800	240300	232500	224100	215700	208300
9	253500	266100	262300	259900	256200	252500	247400	240000	232300	223800	215500	208100
10	253300	265600	262700	259300	256200	252200	247400	239800	231800	223500	215100	207800
11	253200	265200	262200	259000	256300	252100	247500	239500	231700	223300	214900	207600
12	252600	265200	262700	259000	256000	252100	247100	239100	231300	222900	214800	207400
13	252500	265200	261700	258900	255900	252000	246800	238800	231000	222600	214700	207200
14	251700	264800	261600	258800	255800	251900	246300	238200	231000	221200	214500	207100
15	251700	264700	261600	258700	255600	251800	246100	237800	230700	221900	214100	206400
16	251400	264800	261200	258600	255400	251800	245800	237600	230500	221700	214000	206200
17	251300	264700	261200	258600	255700	251700	245700	237500	230300	221300	213700	206100
18	251200	264500	261000	258400	255300	251600	245500	237400	230000	220900	213700	206000
19	251400	264200	260600	258100	255000	251300	245400	237500	229800	220700	213700	205500
20	260600	264200	260400	258100	254900	251100	245100	237300	229500	220500	213200	205300
21	261700	263800	260500	257900	254700	250900	244600	237200	229200	219900	212900	204900
22	262100	264300	260000	257900	254500	250900	244500	236900	229100	219700	212800	205000
23	262300	264000	259900	257900	254400	250800	244400	236700	228900	219500	212500	204600
24	262500	263800	259800	257800	254400	250500	244000	236500	228500	219300	212300	204600
25	265200	263600	259300	257600	254400	250500	243700	236400	228200	219100	211900	205100
26	266400	264200	259300	257800	254400	250300	243500	235800	227900	218900	211800	205600
27	266400	263400	259700	257500	254300	250000	243100	235700	227600	218600	211500	205800
28	266300	263000	259300	257400	254200	249800	242800	235200	227400	218500	211300	206200
29	266300	263100	259000	257700	254100	249500	242700	234800	227300	218100	211100	206300
30	266100	262800	258900	257200	---	249300	242300	234500	227000	217800	210600	206200
31	266000	---	258800	257100	---	249100	---	234200	---	217600	210400	---
MAX	266400	266500	262900	259900	257100	254000	249000	242100	234000	226700	217400	210200
MIN	251200	262800	258800	257100	254100	249100	242300	234200	227000	217600	210400	204600
(†)	1878.34	1877.99	1877.54	1877.02	1876.47	1876.47	1875.71	1874.79	1873.89	1872.71	1871.80	1871.24
(‡)	+10400	-3200	-4000	-1700	-3000	-5000	-6800	-8100	-7200	-9400	-7200	-4200

CAL YR 1983 MAX 306700 MIN 251200 † -46900
 WTR YR 1984 MAX 266500 MIN 204600 ‡ -49400

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

COLORADO RIVER BASIN

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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 AK

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
23...	1150	1.00	2830	8.3	5.0	10.0	84
23...	1152	10.0	2830	8.4	4.5	10.0	83
23...	1154	20.0	2830	8.4	4.5	10.0	83
23...	1156	30.0	2830	8.3	4.5	10.0	83
23...	1158	40.0	2840	8.3	4.5	10.0	83
23...	1200	50.0	2840	8.3	4.5	10.0	83
23...	1202	55.0	2840	8.3	4.5	10.0	83
MAY							
08...	1128	1.00	2890	8.4	21.0	6.4	76
08...	1130	10.0	2890	8.3	20.5	6.4	76
08...	1132	20.0	2870	8.3	20.0	6.4	75
08...	1134	30.0	2870	8.3	19.0	6.0	69
08...	1136	40.0	2870	8.2	18.0	5.4	61
08...	1138	53.0	2870	8.1	18.0	5.1	57
AUG							
06...	1202	1.00	3110	8.1	26.5	6.3	84
06...	1204	10.0	3110	8.1	26.5	6.3	84
06...	1206	20.0	3110	8.0	26.0	6.0	80
06...	1208	30.0	3110	7.9	26.0	5.1	68
06...	1210	40.0	3090	7.6	25.0	.6	8
06...	1212	45.0	3060	7.6	24.5	.2	3

315335100312401 E. V. SPENCE RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
23...	1110	1.00	2810	8.3	5.0	2.00	10.0	84	590
23...	1112	10.0	2810	8.3	4.5	--	10.0	83	--
23...	1114	20.0	2810	8.3	4.5	--	10.0	83	--
23...	1116	30.0	2810	8.3	4.5	--	10.0	83	--
23...	1118	40.0	2810	8.3	4.5	--	10.0	83	--
23...	1120	50.0	2810	8.3	4.5	--	10.0	83	--
23...	1122	60.0	2810	8.3	4.5	--	10.0	83	--
23...	1124	70.0	2810	8.3	4.5	--	10.0	83	--
23...	1126	80.0	2810	8.3	4.0	--	10.0	82	--
23...	1128	90.0	2810	8.3	4.0	--	10.0	82	560
MAY									
08...	1035	1.00	2820	8.3	20.5	1.40	6.7	79	600
08...	1037	10.0	2820	8.3	20.5	--	6.7	79	--
08...	1039	20.0	2800	8.3	20.0	--	6.3	74	--
08...	1041	30.0	2800	8.2	18.5	--	5.7	65	--
08...	1043	40.0	2800	8.2	17.5	--	5.5	61	--
08...	1045	50.0	2800	8.2	17.5	--	5.3	59	--
08...	1047	60.0	2800	8.1	17.5	--	5.1	57	--
08...	1049	73.0	2800	8.0	17.0	--	4.3	47	600
AUG									
06...	1124	1.00	3010	8.0	27.0	2.00	6.3	85	640
06...	1126	10.0	3010	8.0	26.5	--	6.3	84	--
06...	1128	20.0	3010	8.0	26.5	--	6.0	80	--
06...	1130	30.0	3010	7.9	26.0	--	6.0	80	--
06...	1132	40.0	3020	7.4	24.5	--	.2	3	--
06...	1134	50.0	2940	7.4	22.0	--	.2	2	--
06...	1136	60.0	2900	7.4	20.5	--	.2	2	--
06...	1138	70.0	2900	7.4	19.5	--	.2	2	--
06...	1140	82.0	2900	7.4	19.5	--	.2	2	630

COLORADO RIVER BASIN

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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)
JAN									
23...	470	130	65	390	7	11	120	470	610
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	440	120	64	370	7	11	120	430	620
MAY									
08...	480	130	67	380	7	13	120	450	660
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	470	130	67	380	7	13	130	440	640
AUG									
06...	520	140	71	420	7	13	120	460	710
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	470	140	67	390	7	13	160	420	630
DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	
JAN									
23...	.40	5.2	1800	<.10	.60	<.010	70	<10	
23...	--	--	--	--	--	--	--	--	
23...	--	--	--	--	--	--	--	--	
23...	--	--	--	--	--	--	--	--	
23...	--	--	--	<.10	.70	<.010	30	<10	
23...	--	--	--	--	--	--	--	--	
23...	--	--	--	--	--	--	--	--	
23...	--	--	--	--	--	--	--	--	
23...	--	5.2	1700	<.10	.50	.010	50	<10	
MAY									
08...	.40	5.1	1800	<.10	.50	.020	30	20	
08...	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	
08...	--	--	--	<.10	.60	.010	50	20	
08...	--	--	--	--	--	--	--	--	
08...	--	5.6	1800	<.10	1.1	.040	20	50	
AUG									
06...	.40	4.8	1900	<.10	.50	.020	20	20	
06...	--	--	--	--	--	--	--	--	
06...	--	--	--	--	--	--	--	--	
06...	--	--	--	<.10	.60	.020	10	10	
06...	--	--	--	<.10	1.1	.020	30	140	
06...	--	--	--	--	--	--	--	--	
06...	--	--	--	--	--	--	--	--	
06...	--	7.0	1800	<.10	1.7	.120	90	760	

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

315413100312501 E. V. SPENCE RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
23...	1040	1.00	2850	8.3	4.0	10.1	83
23...	1042	10.0	2850	8.3	4.0	10.1	83
23...	1044	20.0	2850	8.2	4.0	10.1	83
23...	1046	30.0	2850	8.2	4.0	10.0	82
23...	1048	40.0	2850	8.2	4.0	10.0	82
23...	1050	47.0	2850	8.2	4.0	10.0	82
MAY							
08...	1010	1.00	2820	8.3	20.5	6.7	79
08...	1012	10.0	2820	8.3	20.0	6.7	78
08...	1014	20.0	2820	8.3	19.5	6.5	75
08...	1016	30.0	2820	8.3	19.0	6.0	69
08...	1018	40.0	2820	8.1	17.5	5.4	60
08...	1020	46.0	2820	8.1	17.5	5.3	59
AUG							
06...	1046	1.00	3130	8.1	27.0	7.1	96
06...	1048	10.0	3130	8.1	27.0	7.0	95
06...	1050	20.0	3130	8.0	26.5	6.4	86
06...	1052	30.0	3100	8.0	26.0	4.8	64
06...	1054	43.0	2960	7.4	24.0	.2	3

315558100342601 E. V. SPENCE RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN								
23...	1222	1.00	2800	8.4	4.0	1.70	10.3	85
23...	1224	10.0	2800	8.4	4.0	--	10.3	85
23...	1226	20.0	2800	8.4	4.0	--	10.2	84
23...	1228	30.0	2800	8.4	4.0	--	10.1	83
23...	1230	40.0	2800	8.4	4.0	--	10.1	83
23...	1232	51.0	2800	8.3	4.0	--	10.1	83
MAY								
08...	1158	1.00	2900	8.4	19.5	.90	6.3	73
08...	1200	10.0	2900	8.3	18.5	--	6.1	69
08...	1202	20.0	2870	8.3	18.5	--	5.9	67
08...	1204	30.0	2870	8.3	18.0	--	5.9	66
08...	1206	40.0	2850	8.3	18.0	--	5.8	65
08...	1208	47.0	2850	8.2	18.0	--	5.5	62
AUG								
06...	1230	1.00	3130	8.2	28.0	1.00	7.1	98
06...	1232	10.0	3130	8.2	27.5	--	7.0	96
06...	1234	20.0	3130	8.1	27.5	--	6.7	91
06...	1236	30.0	3170	8.0	27.0	--	4.9	66
06...	1238	40.0	3150	7.5	26.0	--	.3	4
06...	1240	46.0	3070	7.5	24.0	--	.2	3

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
23...	540	420	120	58	380	7	11	120	420
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	550	440	120	62	390	7	11	120	430
MAY									
08...	600	470	130	67	380	7	12	130	460
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	600	470	130	67	370	7	13	130	450
AUG									
06...	650	530	140	73	430	8	13	120	480
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	630	480	140	69	410	7	14	150	440

COLORADO RIVER BASIN

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L SI02)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN								
23...	600	5.1	1700	<.10	.40	.010	50	<10
23...	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--
23...	--	--	--	<.10	.50	<.010	20	10
23...	--	--	--	--	--	--	--	--
23...	600	5.2	1700	<.10	.50	.010	20	<10
MAY								
08...	650	5.1	1800	<.10	.70	.010	40	<10
08...	--	--	--	--	--	--	--	--
08...	--	--	--	<.10	.80	.010	40	<10
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	640	5.2	1800	<.10	.80	.030	20	10
AUG								
06...	720	6.6	1900	<.10	.70	.020	70	40
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	--	--	--	<.10	.60	.020	80	80
06...	--	--	--	<.10	.60	.020	50	150
06...	680	6.9	1900	<.10	1.1	.050	260	1700

315619100335601 E. V. SPENCE RESERVOIR SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
23...	1250	1.00	2820	8.4	5.0	10.2	86
23...	1252	10.0	2820	8.4	4.0	10.3	85
23...	1254	20.0	2820	8.4	4.0	10.2	84
23...	1256	30.0	2850	8.4	4.0	10.1	83
23...	1258	35.0	2850	8.4	4.0	10.1	83
MAY							
08...	1226	1.00	2900	8.4	19.5	6.3	73
08...	1228	10.0	2900	8.3	19.0	6.2	71
08...	1230	20.0	2880	8.3	18.5	5.8	66
08...	1232	30.0	2880	8.2	18.5	5.7	65
AUG							
06...	1256	1.00	3220	8.2	28.0	7.2	99
06...	1258	10.0	3190	8.2	28.0	7.2	99
06...	1300	20.0	3190	8.2	27.5	6.9	94
06...	1302	30.0	3190	8.1	27.5	6.4	87
06...	1304	37.0	3270	7.6	27.5	3.0	41

315712100352001 E. V. SPENCE RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
23...	1310	1.00	2820	8.3	4.5	10.3	86
23...	1312	10.0	2820	8.4	3.5	10.3	84
23...	1314	20.0	2820	8.4	3.5	10.3	84
23...	1316	30.0	2820	8.4	3.5	10.3	84
23...	1318	38.0	2820	8.4	3.5	10.3	84
MAY							
08...	1245	1.00	2950	8.3	19.5	6.0	69
08...	1247	10.0	2940	8.3	19.0	5.7	65
08...	1249	20.0	2920	8.2	18.5	5.5	62
08...	1251	34.0	2910	8.2	18.5	5.5	62
AUG							
06...	1316	1.00	3230	8.2	28.5	7.4	103
06...	1318	10.0	3230	8.2	28.0	6.8	94
06...	1320	20.0	3230	8.1	27.5	6.4	87
06...	1322	30.0	3320	7.9	27.5	3.7	51
06...	1324	34.0	3320	7.7	27.5	3.4	46

COLORADO RIVER BASIN

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

315810100364901 E. V. SPENCE RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN									
23...	1336	1.00	2670	8.3	3.0	1.30	10.4		83
23...	1338	10.0	2670	8.3	3.0	--	10.4		83
23...	1340	20.0	2690	8.2	3.0	--	10.1		81
23...	1342	26.0	3940	8.1	4.0	--	6.6		54
MAY									
08...	1310	1.00	3200	8.3	22.0	.50	6.1		74
08...	1312	10.0	3240	8.3	20.5	--	5.8		69
08...	1314	22.0	3650	7.7	19.5	--	2.3		27
AUG									
06...	1342	1.00	3330	8.2	27.5	.60	7.3		100
06...	1344	10.0	3400	7.8	27.0	--	3.0		41
06...	1346	20.0	3320	7.8	26.5	--	2.7		36

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
23...	540	420	120	59	360	7	11	120	380
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	890	750	190	100	590	9	12	140	590
MAY									
08...	680	550	150	75	440	8	12	130	500
08...	--	--	--	--	--	--	--	--	--
08...	770	620	170	84	470	8	13	150	620
AUG									
06...	660	550	140	75	450	8	14	110	500
06...	--	--	--	--	--	--	--	--	--
06...	670	550	140	77	450	8	14	120	510

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN								
23...	560	4.9	1600	<.10	.40	<.010	20	10
23...	--	--	--	--	--	--	--	--
23...	--	--	--	<.10	.40	<.010	30	50
23...	960	3.4	2500	<.10	1.2	.090	40	150
MAY								
08...	720	4.6	2000	<.10	.70	.030	40	20
08...	--	--	--	<.10	.60	.010	110	70
08...	850	5.0	2300	<.10	1.7	.090	60	300
AUG								
06...	750	5.0	2000	<.10	.70	.040	100	60
06...	--	--	--	<.10	.80	.060	80	70
06...	740	5.6	2000	<.10	1.3	.110	550	260

COLORADO RIVER BASIN

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 upstream from bridge on State Highway 208 in Robert Lee, 0.4 mi upstream from Mountain Creek, 2.7 mi downstream from Messbox Creek, 3.7 mi downstream from Robert Lee Dam, and at mile 712.4.

DRAINAGE AREA.--15,307 mi², of which 10,260 mi² 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 National Geodetic Vertical Datum of 1929. Prior to Dec. 31, 1927, nonrecording gage at site 9 mi 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 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 (150,000 acre-ft/yr); 16 years (water years 1969-84) regulated, 3.68 ft³/s (2,670 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 980 ft³/s July 20 at 2400 hours (gage height, 7.07 ft); no flow May 11, June 17 to July 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	.11	.20	.16	.07	.11	.08	.02	.01	.00	.14	.01
2	.37	.10	.16	.16	.07	.09	.09	.02	.01	.00	.11	.01
3	.53	.10	.16	.13	.06	.11	.08	.02	.01	13.00	.11	.01
4	.69	.11	.24	.13	.06	.08	.07	.02	.01	184.00	.10	.01
5	.90	.12	.26	.13	.06	.09	.07	.02	.01	191.00	.10	.01
6	1.00	.10	.36	.12	.06	.09	.07	.01	.01	3.70	.11	.01
7	1.30	.09	.36	.12	.06	.08	.06	.01	.02	75.00	.10	.01
8	1.40	.09	.23	.33	.07	.08	.05	.01	.02	.38	.09	.01
9	1.60	.10	.17	.39	.08	.07	.05	.01	.02	.16	.12	.01
10	1.60	.10	.17	.12	.07	.04	.04	.01	.02	.12	.12	.01
11	1.50	.10	.25	.09	.07	.05	.04	.00	.02	70.00	.11	.01
12	1.80	.10	.46	.07	.06	.05	.04	38.00	.01	64.00	.12	.01
13	1.80	.10	.62	.07	.07	.05	.04	160.00	.01	94.00	.12	.01
14	1.70	.10	.83	.06	.07	.05	.04	137.00	.01	99.00	.10	.01
15	1.90	.11	.94	.07	.06	.04	.04	1.80	.01	1.50	.10	.01
16	2.10	.11	.74	.07	.06	.04	.04	.09	.01	.16	149.00	.01
17	2.10	.12	.48	.07	.07	.05	.04	.05	.00	.09	26.00	.01
18	2.10	.13	.36	.07	.07	.06	.04	.06	.00	.05	.13	.01
19	2.40	.13	.34	.08	.07	.07	.05	.05	.00	.03	.05	.01
20	66.00	.16	.28	.07	.07	.11	.04	.04	.00	81.00	.03	.01
21	3.40	.17	.19	.07	.08	.11	.03	.04	.00	79.00	.02	.01
22	.29	.22	.24	.07	.08	.11	.03	.04	.00	.25	.02	.01
23	.09	.30	.16	.07	.07	.12	.04	.04	.00	.02	.01	.01
24	.07	.13	.17	.08	.07	.11	.03	.04	.00	.01	.01	.01
25	.09	.12	.16	.07	.07	.10	.02	.03	.00	.01	.01	.02
26	.07	.10	.18	.07	.06	.06	.02	.03	.00	33.00	.01	.49
27	.06	.10	.16	.06	.08	.07	.02	.03	.00	133.00	.01	.13
28	.05	.12	.16	.07	.09	.06	.02	.02	.00	4.40	.01	.05
29	.06	.16	.22	.07	.11	.08	.02	.01	.00	.19	.01	.05
30	.06	.16	.25	.07	---	.08	.02	.01	.00	.02	.01	.04
31	.06	---	.16	.07	---	.07	---	.01	---	.05	.01	---
TOTAL	97.36	3.76	9.66	3.28	2.04	2.38	1.32	337.54	.21	1127.14	176.99	1.02
MEAN	3.14	.13	.31	.11	.070	.077	.044	10.9	.007	36.4	5.71	.034
MAX	66	.30	.94	.39	.11	.12	.09	160	.02	191	149	.49
MIN	.05	.09	.16	.06	.06	.04	.02	.00	.00	.00	.01	.01
AC-FT	193	7.5	19	6.5	4.0	4.7	2.6	670	.4	2240	351	2.0
CAL YR 1983	TOTAL	1073.65	MEAN 2.94	MAX 187	MIN .00	AC-FT 2130						
WTR YR 1984	TOTAL	1762.70	MEAN 4.82	MAX 191	MIN .00	AC-FT 3500						

COLORADO RIVER BASIN

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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 upstream from Rocky Creek, 5.0 mi northwest of Ballinger, and at mile 665.8.

DRAINAGE AREA.--16,358 mi², approximately, of which 10,260 mi² 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 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 downstream. Nov. 29, 1930, to May 1, 1975, water-stage recorder at site 6.2 mi downstream and May 1, 1975, to Sept. 30, 1979, water-stage recorder at site 5.4 mi downstream, both at datum 12.77 ft lower.

REMARKS.--Water-discharge records good. Diversions above station for irrigation, municipal supplies, and oilfield operation. Flow is affected by E. V. Spence and Oak Creek Reservoirs (see stations 08123950 and 08125500) and at times by discharge from 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 (243,400 acre-ft/yr); 16 years (water years 1969-84) partially regulated, 46.9 ft³/s (33,980 acre-ft/yr).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 36 ft 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, at former site and datum, from floodmarks (backwater from Elm Creek).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,560 ft³/s Sept. 29 at 0330 hours (gage height, 10.78 ft); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.43	3.0	2.70	2.7	2.30	2.00	1.50	.36	.19	0	0	.00
2	.39	2.7	2.70	2.7	2.40	1.20	1.50	.34	.11	0	0	.00
3	.50	2.6	2.70	2.7	2.30	1.60	1.10	.05	.00	0	0	.00
4	.45	356.0	2.60	2.8	2.40	2.10	1.00	.19	.00	0	0	7.80
5	.40	239.0	2.50	2.7	2.20	1.30	1.30	.08	.00	0	0	20.00
6	.51	131.0	2.20	2.5	2.10	1.20	1.30	.11	112.00	0	0	20.00
7	.52	38.0	2.50	2.4	2.20	1.00	2.20	.16	11.00	0	0	21.00
8	.51	15.0	2.50	4.9	2.00	1.50	2.10	.09	1.80	0	0	20.00
9	.51	7.8	1.40	91.0	2.00	1.10	1.50	.24	.95	0	0	15.00
10	.21	4.7	.98	41.0	1.80	.92	2.00	.50	.63	0	0	1.80
11	.50	3.5	.93	37.0	1.60	1.00	1.30	.54	.47	0	0	.06
12	.55	2.9	1.80	23.0	1.60	1.20	.48	.55	.33	0	0	.09
13	.53	2.7	1.40	14.0	1.40	1.10	.28	.47	.29	0	0	.08
14	.57	2.7	1.20	10.0	1.10	1.10	.39	.24	.22	0	0	.04
15	.62	2.5	2.40	8.3	.88	2.50	.27	.36	.33	0	0	.10
16	.63	2.5	2.60	7.1	.74	2.70	.25	.60	.30	0	0	.05
17	.78	2.4	2.70	6.4	.82	1.50	.27	.90	.38	0	0	.04
18	.80	2.4	2.80	5.5	.85	1.30	.21	26.00	.41	0	0	.02
19	.71	2.5	2.60	5.2	.72	1.30	.27	9.90	.46	0	0	.00
20	29.00	1.9	2.50	4.5	.93	1.20	.34	2.50	.47	0	0	.00
21	379.00	2.2	2.70	4.2	.78	1.00	.21	.83	.35	0	0	.00
22	119.00	2.4	2.70	3.8	.84	1.20	.38	.36	.00	0	0	.02
23	65.00	2.6	2.50	3.7	1.40	3.30	.33	.20	.00	0	0	.03
24	29.00	2.6	2.50	3.6	1.00	4.00	.44	.35	.00	0	0	.04
25	59.00	2.7	2.40	6.4	1.00	1.40	.45	.41	.00	0	0	.10
26	35.00	6.3	2.40	5.5	1.20	.87	.20	.33	.00	0	0	5.80
27	12.00	4.4	2.50	5.2	1.20	2.30	.08	.33	.00	0	0	14.00
28	6.20	3.0	2.70	4.5	1.80	4.00	.26	.33	.00	0	0	15.00
29	6.20	2.8	2.70	4.2	2.50	2.70	.48	.27	.04	0	0	160.00
30	5.10	2.7	2.70	3.8	---	2.90	.15	.16	.02	0	0	13.00
31	3.80	---	2.70	3.7	---	2.00	---	.19	---	0	0	---
TOTAL	758.42	857.5	72.21	325.0	44.06	54.49	22.54	47.94	130.75	0	0	314.07
MEAN	24.5	28.6	2.33	10.5	1.52	1.76	.75	1.55	4.36	.000	.000	10.5
MAX	379	356	2.8	91	2.5	4.0	2.2	26	112	.00	.00	160
MIN	.21	1.9	.93	2.4	.72	.87	.08	.05	.00	.00	.00	.00
AC-FT	1500	1700	143	645	87	108	45	95	259	.00	.00	623
CAL YR 1983	TOTAL	3859.34	MEAN	10.6	MAX	379	MIN	.00	AC-FT	7650		
WTR YR 1984	TOTAL	2626.98	MEAN	7.18	MAX	379	MIN	.00	AC-FT	5210		

COLORADO RIVER BASIN

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 (1978-81): Maximum daily mean, 3,740 mg/L Sept. 9 1980; minimum daily mean, 4 mg/L Feb. 2, 1980.

SEDIMENT LOADS (1978-81): 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, 5,160 micromhos May 5; minimum daily, 350 micromhos Oct. 21, Nov. 4.

WATER TEMPERATURES: Maximum daily, 35.0°C June 29; minimum daily, 1.0°C Dec. 19, Jan. 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 19...	1215	.70	4790	23.0	2200	2100	550	210	360
FEB 23...	1335	1.8	3700	14.0	1700	1500	430	150	250
MAR 28...	1130	3.5	3670	15.5	1500	1400	370	150	300
MAY 02...	1355	.48	4890	22.0	2400	2200	600	220	390
JUN 13...	1130	.26	2790	30.0	1200	1000	320	100	170
SEP 11...	1045	.10	4240	27.0	1700	1500	440	140	390
DATE		SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 19...	3	6.3	190	1900	670	.50	9.9	3800	
FEB 23...	3	5.8	190	1300	450	.50	4.5	2700	
MAR 28...	3	7.6	150	1400	510	.40	3.8	2800	
MAY 02...	4	6.9	210	2000	690	.50	8.8	4000	
JUN 13...	2	6.1	180	920	330	.50	13	2000	
SEP 11...	4	9.1	160	1300	730	.60	15	3100	

COLORADO RIVER BASIN

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08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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.	1983	758.42	661	415	851	100	204	140	295	210
NOV.	1983	857.5	524	299	693	82	189	82	189	140
DEC.	1983	72.21	1970	1270	248	290	57	470	91	660
JAN.	1984	325.0	2190	1430	1260	320	285	540	472	740
FEB.	1984	44.06	3230	2320	276	460	55	1000	121	1300
MAR.	1984	54.49	4000	3030	446	560	82	1400	212	1800
APR.	1984	22.54	4260	3290	200	590	36	1600	98	1900
MAY	1984	47.94	4450	3490	452	610	79	1700	224	2100
JUNE	1984	130.75	587	349	123	90	32	110	37	170
JULY	1984	0.00	*	*	0.00	*	0.00	*	0.00	*
AUG.	1984	0.00	*	*	0.00	*	0.00	*	0.00	*
SEPT	1984	314.07	2520	1830	1560	360	304	820	697	1000
TOTAL		2626.98	**	**	6100	**	1320	**	2440	**
WTD.AVG.		7.2	1270	860	**	190	**	340	**	460

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984											
EQUIVALENT MEAN											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	SEP
1	4870	1370	1980	2700	2630	3920	3920	4900	4600		---
2	4900	1410	2040	2640	2650	3650	3940	4970	4680		---
3	4940	1500	2130	2720	2660	3680	3970	4900	---		---
4	4930	350	1750	2660	2670	3720	3980	4950	---		5090
5	4920	400	1450	2720	2740	3740	4100	5160	---		4590
6	4910	520	1640	2830	2750	3790	4210	5120	400		4540
7	4900	650	1600	2850	2800	3820	4050	5060	1050		4430
8	4810	720	2040	2720	2860	3850	4100	5070	1380		4340
9	4860	780	2700	2040	2930	3890	4140	5110	1850		4210
10	4810	930	2830	2180	3010	3910	4250	5100	2260		4140
11	4900	1040	2900	2250	3080	3920	4590	5130	2550		4370
12	4880	1190	1810	2490	3120	3940	4540	5110	2760		4490
13	4890	1170	2380	2520	3160	4010	4700	5140	3110		4570
14	4860	1390	2580	2560	3340	4030	4640	5150	3000		4670
15	4880	1500	2640	2010	3430	4150	4630	5140	3060		4680
16	4870	1780	1630	1600	3540	4280	4660	5150	3240		4740
17	4840	2020	1870	1500	3570	4400	4640	5140	3400		4760
18	4800	2050	2230	1590	3600	4440	4660	4500	3540		4770
19	4810	2030	2770	1670	3610	4510	4620	3990	3660		---
20	3990	2210	1860	1780	3610	4540	4640	4200	3650		---
21	350	2220	1380	1850	3600	4600	4690	4380	3810		---
22	360	2280	1460	1990	3660	4560	4600	4420	---		4820
23	400	2320	1540	2020	3700	3870	4670	4470	---		4840
24	740	2460	1670	2050	3830	3900	4650	4510	---		4790
25	790	2540	1750	2070	3940	4150	4690	4540	---		4770
26	820	1750	1860	2150	3990	4320	4740	4530	---		4130
27	1010	1580	1470	2330	4060	4170	4790	4580	---		3340
28	1140	1560	1310	2320	4180	3670	4810	4590	---		3040
29	1180	1650	2040	2410	4270	4010	4840	4580	4500		1150
30	1250	1770	2850	2530	---	3830	4880	4630	4650		1200
31	1310	---	2710	2620	---	3890	---	4650	---		---
MEAN	3420	1500	2030	2270	3340	4040	4480	4800	3060		4190

COLORADO RIVER BASIN

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984												
DAY	OCT	NOV	DEC	JAN	FEB	ONCE-DAILY MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	21.0	---	5.0	12.5	---	23.0	22.0	29.0			---
2	27.5	---	9.5	4.5	12.0	15.5	18.5	25.0	27.0			---
3	28.5	---	8.0	6.0	13.0	16.0	20.0	27.0	---			---
4	28.0	19.0	---	8.5	13.0	15.5	20.0	27.0	---			28.0
5	27.0	18.0	9.5	10.0	12.0	12.0	---	29.5	---			27.5
6	27.0	19.0	10.0	11.5	13.0	15.0	---	30.0	25.5			27.0
7	27.5	---	11.0	---	13.0	18.0	---	22.0	---			28.0
8	25.0	19.0	12.0	---	13.0	16.0	23.0	21.5	29.0			31.0
9	22.5	17.0	12.0	9.0	14.5	16.0	25.0	25.0	---			---
10	24.0	14.5	11.0	8.0	16.0	14.0	24.0	26.5	30.0			31.0
11	22.5	15.0	---	8.5	18.5	16.0	24.0	26.0	29.0			31.0
12	20.0	17.0	11.0	8.0	17.0	21.0	---	26.0	29.0			31.5
13	21.5	19.0	11.0	5.0	17.0	20.0	---	30.0	29.0			31.5
14	22.0	16.0	10.5	4.5	16.0	20.0	21.0	29.0	29.0			31.0
15	17.5	15.5	9.5	---	16.0	21.0	21.0	25.0	29.0			28.0
16	22.0	15.0	7.0	3.0	16.0	18.0	21.0	24.0	29.5			24.0
17	23.0	15.0	7.0	3.0	15.0	18.0	23.0	25.0	29.5			28.0
18	22.0	---	---	3.0	15.0	---	25.0	25.0	---			---
19	22.0	13.5	1.0	2.0	14.5	---	26.0	27.5	31.0			---
20	19.5	14.0	---	1.5	14.5	---	23.0	28.5	31.5			---
21	23.5	14.0	---	1.0	15.0	---	---	28.0	---			---
22	22.0	13.0	---	4.5	---	---	---	30.0	---			27.5
23	22.0	12.5	---	10.0	---	20.0	23.0	29.0	---			27.5
24	15.0	11.0	---	10.0	15.0	---	27.5	27.0	---			25.5
25	17.5	11.0	---	10.5	14.5	---	28.0	28.0	---			---
26	20.0	---	4.0	12.5	---	---	28.0	28.0	---			18.0
27	18.5	9.5	4.0	12.5	---	---	28.0	28.0	---			20.5
28	19.0	9.0	2.0	14.0	11.0	16.0	27.0	28.0	---			17.0
29	20.0	8.5	2.0	14.0	12.5	18.0	27.0	28.5	35.0			16.0
30	20.0	8.0	4.0	10.0	---	18.0	24.0	28.5	31.5			18.0
31	20.0	---	4.0	11.0	---	21.0	---	28.5	---			---
MEAN	22.5	14.5	7.5	7.5	14.5	17.5	24.0	27.0	29.5			26.0

COLORADO RIVER BASIN

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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 upstream from storage dam at Ballinger and 1.9 mi upstream from mouth.

DRAINAGE AREA.--450 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those below 100 ft³/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 at elevation 1,790 ft). Prior to June 1982, capacity was 3,060 acre-ft.

AVERAGE DISCHARGE.--52 years (water years 1933-84), 45.9 ft³/s (1.39 in/yr), 33,250 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s Oct. 13, 1957 (gage height, 14.20 ft, from floodmark); no flow at times.

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 469 ft³/s Sept. 26 at 0630 hours (gage height, 4.44 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.16	.90	.97	1.1	.46	.00	.00	.00	.00	.00
2	.00	.00	.20	1.0	1.1	1.2	.53	.00	.00	.00	.00	.00
3	.00	.00	.31	1.2	1.0	1.1	.46	.00	.00	.00	.00	.00
4	.00	.00	.33	1.4	1.0	1.2	.43	.00	.00	.00	.00	.00
5	.00	.00	.39	1.4	1.0	1.2	.41	.00	.00	.00	.00	.00
6	.00	.00	.35	1.5	.84	1.0	.44	.00	23	.00	.00	.00
7	.00	.00	.33	1.6	.77	1.0	.58	.00	6.5	.00	.00	.00
8	.00	.00	.33	2.6	.72	.89	.69	.00	1.2	.00	.00	.00
9	.00	.02	.39	11	.81	.74	.63	.00	.52	.00	.00	.00
10	.00	.01	.43	6.7	.84	.69	.52	.00	.34	.00	.00	.00
11	.00	.00	.44	5.0	.91	.80	.35	.00	.26	.00	.00	.00
12	.00	.01	.43	2.6	.80	1.2	.26	.00	.16	.00	.00	.00
13	.00	.02	.50	1.7	.74	.96	.19	.00	.06	.00	.00	.00
14	.00	.03	.41	1.5	.72	.98	.14	.00	.02	.00	.00	.00
15	.00	.02	.43	1.4	.67	1.2	.09	.00	.00	.00	.00	.00
16	.00	.02	.53	1.4	.49	1.1	.05	.00	.00	.00	.00	.00
17	.00	.02	.57	1.4	.53	1.0	.03	.00	.00	.00	.00	.00
18	.00	.03	.64	1.3	.65	.93	.01	.00	.00	.00	.00	.00
19	.00	.04	.62	1.2	.61	.59	.00	.00	.00	.00	.00	.00
20	.00	.03	.68	1.2	.85	.41	.00	.00	.00	.00	.00	.00
21	.00	.03	.81	1.1	.92	.43	.00	.00	.00	.00	.00	.00
22	.00	.04	.86	1.2	.88	.41	.00	.00	.00	.00	.00	.00
23	.00	.08	.94	1.2	.95	1.1	.00	.00	.00	.00	.00	.00
24	.00	.09	.86	1.4	.95	2.9	.00	.00	.00	.00	.00	.00
25	.00	.09	.84	1.4	.95	5.2	.00	.00	.00	.00	.00	.00
26	.00	.12	.93	1.4	1.3	2.6	.00	.00	.00	.00	.00	145
27	.00	.12	1.1	1.4	.86	1.2	.00	.00	.00	.00	.00	20
28	.00	.11	1.0	1.4	.89	.34	.00	.00	.00	.00	.00	3.6
29	.00	.12	.93	1.4	1.0	.39	.00	.00	.00	.00	.00	1.2
30	.00	.15	.85	1.1	---	.46	.00	.00	.00	.00	.00	.47
31	.00	---	.80	.95	---	.51	---	.00	---	.00	.00	---
TOTAL	.00	1.20	18.39	61.95	24.72	34.83	6.27	.00	32.06	.00	.00	170.27
MEAN	.000	.040	.59	2.00	.85	1.12	.21	.000	1.07	.000	.000	5.68
MAX	.00	.15	1.1	11	1.3	5.2	.69	.00	23	.00	.00	145
MIN	.00	.00	.16	.90	.49	.34	.00	.00	.00	.00	.00	.00
CFSM	.000	.000	.001	.004	.002	.002	.000	.000	.002	.000	.000	.01
IN.	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.01
AC-FT	.00	2.4	36	123	49	69	12	.00	64	.00	.00	338

CAL YR 1983 TOTAL 1628.82 MEAN 4.46 MAX 124 MIN .00 CFSM .01 IN .13 AC-FT 3230
WTR YR 1984 TOTAL 349.69 MEAN .96 MAX 145 MIN .00 CFSM .002 IN .03 AC-FT 694

COLORADO RIVER BASIN

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, 3,470 micromhos Apr. 16, 18; minimum daily, 730 micromhos Sept. 30.

WATER TEMPERATURES: Maximum daily, 29.0°C June 8, 10; minimum daily, 1.0°C Dec. 23, 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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 23...	1150	1.2	2980	6.0	930	750	160	130	270
MAR 08...	0950	.37	3250	15.5	1100	890	180	150	310
JUN 13...	1225	.05	3360	30.0	1000	900	170	150	320

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JAN 23...	4	6.3	190	530	590	.70	8.5	1800
MAR 08...	4	5.7	180	590	670	.40	3.7	2000
JUN 13...	4	6.9	140	600	710	.80	3.7	2000

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	0.00	*	*	0.00	*	0.00	*	0.00	*
NOV. 1983	1.20	2920	1740	5.7	620	2.0	420	1.4	880
DEC. 1983	18.39	2960	1780	88	630	31	430	21	890
JAN. 1984	61.95	2850	1700	285	600	101	410	68	860
FEB. 1984	24.72	3010	1810	121	650	43	440	29	910
MAR. 1984	34.83	3140	1890	177	680	64	460	44	950
APR. 1984	6.27	3370	2040	35	750	13	510	8.6	1000
MAY 1984	0.00	*	*	0.00	*	0.00	*	0.00	*
JUNE 1984	32.06	3110	1870	162	670	58	460	40	940
JULY 1984	0.00	*	*	0.00	*	0.00	*	0.00	*
AUG. 1984	0.00	*	*	0.00	*	0.00	*	0.00	*
SEPT 1984	170.27	1120	640	294	190	90	130	60	320
TOTAL	349.69	**	**	1200	**	402	**	272	**
WTD.AVG.	0.96	2090	1240	**	430	**	290	**	620

08127000 ELM CREEK AT BALLINGER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984 EQUIVALENT MEAN											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	SEP
1		---	3000	2860	3050	3030	3300		---		---
2		---	3020	2830	3030	3070	3310		---		---
3		---	3060	2800	3010	2810	3350		---		---
4		---	3010	2950	3000	3080	3360		---		---
5		---	3040	2960	3020	3090	3370		---		---
6		---	3050	2970	3030	3100	3380		3030		---
7		---	2950	2960	3020	3110	3360		3310		---
8		---	3040	2950	3040	3100	3370		3320		---
9		2960	3030	2500	3030	3100	3380		3320		---
10		2990	3050	2750	3020	3070	3400		3310		---
11		---	3060	2910	2980	2840	3390		3320		---
12		2960	3050	2930	3010	3070	3400		3330		---
13		2930	3070	3010	3030	3120	3420		3360		---
14		2910	3090	3000	3050	3130	3440		3340		---
15		2940	3070	2980	3060	3140	3450		---		---
16		2910	3060	2960	3080	3120	3470		---		---
17		2890	3070	2950	3070	3110	3460		---		---
18		2860	3080	2940	3050	3130	3470		---		---
19		2840	3090	2930	3060	3090	---		---		---
20		2880	2590	2950	3040	3160	---		---		---
21		2900	1920	2960	3060	3190	---		---		---
22		2910	1800	2970	3050	3180	---		---		---
23		2920	2760	2980	3080	3140	---		---		---
24		2930	3060	2990	2840	3080	---		---		---
25		2940	3220	3000	2810	3260	---		---		---
26		2920	3210	3030	2820	3280	---		---		1130
27		2950	3170	3040	3080	3270	---		---		1120
28		2870	3190	3020	3060	3280	---		---		950
29		2950	3200	3000	3080	3250	---		---		890
30		2910	3190	3010	---	3270	---		---		730
31		---	3180	3020	---	3280	---		---		---
MEAN		2920	2980	2940	3020	3130	3390		3290		964

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984 ONCE-DAILY											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	SEP
1		---	12.0	5.0	11.0	11.0	11.0		---		---
2		---	13.0	6.0	10.0	11.0	---		---		---
3		---	15.0	5.0	11.0	11.0	18.0		---		---
4		---	13.0	8.0	10.0	11.0	17.0		---		---
5		---	13.0	9.0	10.0	13.0	20.0		---		---
6		---	12.0	8.0	9.0	12.0	16.0		---		---
7		---	10.0	8.0	10.0	13.0	19.0		28.0		---
8		---	12.0	8.0	10.0	13.0	18.0		29.0		---
9		---	13.0	7.0	11.0	11.0	20.0		27.0		---
10		---	13.0	7.0	11.0	11.0	17.0		29.0		---
11		---	14.0	9.0	10.0	15.0	19.0		27.0		---
12		---	15.0	7.0	11.0	14.0	17.0		27.0		---
13		---	13.0	8.0	11.0	15.0	20.0		27.0		---
14		---	14.0	9.0	10.0	16.0	19.0		26.0		---
15		---	13.0	8.0	10.0	16.0	20.0		---		---
16		---	8.0	7.0	10.0	12.0	19.0		---		---
17		---	5.0	8.0	10.0	15.0	19.0		---		---
18		---	3.0	5.0	11.0	16.0	21.0		---		---
19		---	4.0	5.0	11.0	11.0	---		---		---
20		16.0	3.0	6.0	11.0	12.0	---		---		---
21		17.0	2.0	6.0	---	12.0	---		---		---
22		16.0	2.0	9.0	10.0	---	---		---		---
23		14.0	1.0	8.0	---	15.0	---		---		---
24		12.0	1.0	10.0	10.0	14.0	---		---		---
25		13.0	3.0	10.0	11.0	15.0	---		---		---
26		14.0	3.0	10.0	10.0	14.0	---		---		16.0
27		14.0	3.0	10.0	10.0	15.0	---		---		16.0
28		16.0	4.0	10.0	11.0	15.0	---		---		17.0
29		12.0	4.0	10.0	---	14.0	---		---		15.0
30		14.0	4.0	9.0	---	16.0	---		---		15.0
31		---	3.0	10.0	---	16.0	---		---		---
MEAN		14.5	8.0	8.0	10.5	13.5	18.0		27.5		16.0

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 downstream from U.S. Highway 277 bridge, 9.5 mi upstream from Twin Buttes Dam, and 24.7 mi upstream from mouth.

DRAINAGE AREA.--412.6 mi², of which 58.6 mi² 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 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 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 upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--54 years, 32.3 ft³/s (23,400 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9.7 ft³/s Nov. 17 at 0030 hours (gage height, 1.91 ft), no peak above base of 160 ft³/s; minimum daily, 2.3 ft³/s June 12-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	4.3	8.3	8.3	6.9	8.3	8.2	5.7	2.6	2.7	3.6	4.0
2	5.1	3.6	8.3	8.3	6.9	8.3	6.9	5.5	2.3	2.7	3.6	4.0
3	5.1	3.6	8.3	8.3	6.9	7.6	6.9	5.1	2.3	2.7	3.8	3.6
4	5.1	4.0	8.3	8.3	6.9	6.9	8.0	5.1	3.1	2.7	4.6	3.6
5	5.1	5.4	8.3	8.3	6.9	8.3	8.3	4.8	3.6	2.7	4.6	3.6
6	5.1	5.9	8.3	8.1	6.9	8.3	8.3	4.5	3.6	2.7	4.1	3.6
7	5.1	5.1	8.3	7.6	6.9	7.6	7.9	4.0	3.6	2.7	3.6	3.6
8	5.1	5.1	8.3	8.2	6.9	7.6	5.3	3.6	3.2	2.7	3.6	3.5
9	5.7	5.1	8.3	9.0	6.9	7.6	5.1	3.6	3.1	2.7	3.6	3.1
10	5.7	5.1	8.3	6.9	6.9	7.6	4.5	3.6	3.1	2.7	3.6	3.1
11	5.7	5.1	8.3	6.9	6.9	7.6	4.0	3.1	2.4	2.7	3.6	3.1
12	5.7	5.1	8.3	6.9	6.9	7.6	4.0	3.1	2.3	2.7	3.6	3.1
13	5.1	5.1	8.3	6.9	6.9	7.6	5.1	3.6	2.3	2.7	3.6	3.1
14	5.1	5.1	8.3	6.9	6.9	7.6	5.1	4.0	2.3	2.8	3.6	3.1
15	5.1	5.5	8.3	6.9	6.9	6.9	5.1	4.0	2.3	2.8	4.1	3.1
16	5.7	7.7	8.3	6.9	6.9	6.9	5.1	4.0	2.3	2.8	5.3	3.1
17	5.7	9.6	8.3	6.9	6.9	6.9	5.1	4.0	2.3	2.9	4.1	3.1
18	5.4	7.2	8.3	6.9	6.9	6.9	5.1	4.0	2.3	2.9	3.6	3.1
19	4.6	6.9	8.3	6.9	6.9	5.7	5.1	4.0	2.3	2.9	3.6	3.1
20	6.2	6.9	8.3	6.9	6.9	5.7	5.1	4.0	2.3	2.9	3.6	3.1
21	5.1	6.9	8.3	6.9	6.9	5.1	5.1	4.0	2.3	3.0	3.6	2.7
22	5.1	7.0	8.3	6.9	6.9	6.9	5.1	4.0	2.3	3.0	3.6	2.7
23	5.1	8.3	8.3	6.9	6.9	7.6	5.1	4.0	2.7	3.1	3.6	2.7
24	5.1	8.3	8.3	6.9	6.9	6.9	5.1	4.0	2.7	3.1	3.6	2.7
25	5.1	7.9	8.3	6.9	6.9	6.9	5.1	3.8	2.7	3.1	3.6	2.7
26	5.1	7.6	8.3	6.9	8.3	6.9	5.1	3.1	2.7	3.1	3.6	2.7
27	5.1	7.6	8.3	6.9	7.6	6.2	5.1	3.1	2.7	3.8	4.0	2.7
28	4.6	8.0	8.3	6.9	7.6	5.6	5.1	5.3	2.7	4.0	4.0	3.0
29	4.6	8.3	8.3	6.9	7.6	6.1	5.1	4.7	2.7	4.0	4.0	3.6
30	4.6	8.3	8.3	6.9	---	7.6	5.4	4.0	2.7	4.0	4.0	3.6
31	4.6	---	8.3	6.9	---	8.3	---	3.5	---	4.0	4.0	---
TOTAL	160.1	189.6	257.3	226.2	203.6	221.6	169.5	126.8	79.8	93.3	119.0	95.8
MEAN	5.16	6.32	8.30	7.30	7.02	7.15	5.65	4.09	2.66	3.01	3.84	3.19
MAX	6.2	9.6	8.3	9.0	8.3	8.3	8.3	5.7	3.6	4.0	5.3	4.0
MIN	4.6	3.6	8.3	6.9	6.9	5.1	4.0	3.1	2.3	2.7	3.6	2.7
AC-FT	318	376	510	449	404	440	336	252	158	185	236	190
CAL YR 1983	TOTAL	3455.5	MEAN 9.47	MAX	129	MIN 2.2	AC-FT 6850					
WTR YR 1984	TOTAL	1942.6	MEAN 5.31	MAX	9.6	MIN 2.3	AC-FT 3850					

COLORADO RIVER BASIN

81

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 upstream from East Rocky Creek, 0.5 mi southwest of Tullos Ranch Headquarters, 6.7 mi northwest of Tankersley, and 20.9 mi upstream from mouth.

DRAINAGE AREA.--2,084 mi², of which 968 mi² 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years, 14.9 ft³/s (10,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft³/s Sept. 21, 1974 (gage height, 24.98 ft); no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	1830	*2,760	13.39
Sept. 26	0600	2,010	12.21

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	15.0	1.2	1.9	1.9	2.1	1.70	.36	0	.0	0	.00
2	.00	15.0	1.2	2.1	1.9	2.1	1.70	.39	0	.0	0	.00
3	.00	15.0	1.3	2.5	1.9	2.1	1.60	.54	0	.0	0	.00
4	.00	26.0	1.6	2.6	1.9	2.1	1.30	.54	0	.0	0	.00
5	.00	37.0	1.7	2.8	1.9	2.2	1.20	.52	0	.0	0	.00
6	.00	51.0	1.9	3.0	1.9	2.2	1.20	.56	0	.0	0	.00
7	.00	25.0	2.1	3.0	1.9	2.2	1.30	.52	0	.0	0	.00
8	.00	18.0	2.1	3.9	1.9	2.2	1.50	.51	0	.0	0	.00
9	134.00	14.0	2.3	6.2	1.9	2.2	1.30	.44	0	.0	0	.00
10	10.00	9.2	2.5	6.7	1.9	2.2	1.20	.36	0	.0	0	.00
11	3.80	7.4	2.5	5.8	2.0	2.3	1.00	.32	0	.0	0	.00
12	1.50	6.8	2.8	4.2	2.1	2.3	1.00	.31	0	.0	0	.00
13	.65	7.5	2.8	3.4	1.9	2.3	.90	.28	0	.0	0	.00
14	.33	9.9	2.8	3.2	1.8	2.3	.90	.27	0	.0	0	.00
15	.14	9.3	3.0	3.3	2.0	2.3	.82	.20	0	.0	0	.00
16	.04	8.2	3.2	3.0	2.1	2.3	.81	.18	0	.0	0	.00
17	.09	6.8	3.0	3.0	2.1	2.4	.74	.24	0	.0	0	.00
18	39.00	5.7	3.1	3.0	2.0	2.4	.62	.28	0	.0	0	.00
19	7.10	5.3	2.8	3.0	2.1	2.4	.52	.28	0	.0	0	.00
20	1210.00	4.6	2.5	2.8	2.0	2.4	.48	.24	0	.0	0	.00
21	378.00	3.9	2.0	2.8	1.3	2.4	.33	.25	0	.0	0	.00
22	74.00	4.1	1.9	2.6	1.3	2.4	.32	.27	0	.0	0	.00
23	37.00	4.2	1.8	2.6	1.3	2.4	.28	.21	0	.0	0	.00
24	26.00	3.5	1.8	2.6	1.2	2.5	.28	.22	0	.0	0	.00
25	84.00	3.0	1.9	2.7	1.2	2.5	.24	.17	0	.0	0	.00
26	56.00	2.8	1.7	2.9	2.2	2.5	.23	.12	0	.0	0	431.00
27	29.00	2.4	1.7	2.4	2.5	2.5	.18	.06	0	.0	0	3.50
28	22.00	1.9	1.9	2.2	2.1	2.5	.18	.02	0	6.2	0	1.00
29	19.00	1.5	1.7	2.2	2.1	1.9	.18	.03	0	.0	0	1.30
30	17.00	1.2	1.8	2.2	---	1.9	.38	.00	0	.0	0	.48
31	16.00	---	1.9	1.9	---	1.9	---	.00	---	.0	0	---
TOTAL	2164.65	325.2	66.5	96.5	54.3	70.4	24.39	8.69	0	6.2	0	437.28
MEAN	69.8	10.8	2.15	3.11	1.87	2.27	.81	.28	.000	.20	.000	14.6
MAX	1210	51	3.2	6.7	2.5	2.5	1.7	.56	.00	6.2	.00	431
MIN	.00	1.2	1.2	1.9	1.2	1.9	.18	.00	.00	.00	.00	.00
AC-FT	4290	645	132	191	108	140	48	17	.00	12	.00	867
CAL YR 1983	TOTAL	2900.13	MEAN	7.95	MAX	1210	MIN	.00	AC-FT	5750		
WTR YR 1984	TOTAL	3254.11	MEAN	8.89	MAX	1210	MIN	.00	AC-FT	6450		

COLORADO RIVER BASIN

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 south of Tankersley, 2.5 mi upstream from Dove Creek, and 10.4 mi upstream from mouth.

DRAINAGE AREA.--424.7 mi², of which 19.7 mi² 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 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.--24 years, 13.4 ft³/s (9,710 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,400 ft³/s Aug. 12, 1971 (gage height, 16.57 ft); 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, from floodmarks. At former gage near Tankersley 8 mi downstream, the flood of Oct. 3, 1959, had a discharge of 82,100 ft³/s and was found to be about 3 ft lower than the 1882 flood, the greatest at that location since at least 1853.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 97 ft³/s Oct. 20 at 0900 hours (gage height, 4.64 ft), no peak above base of 400 ft³/s; no flow Oct 1-16, Aug. 9 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	7.4	4.0	8.4	8.5	5.50	1.10	.42	.37	.25	.04	0
2	.00	7.4	4.3	7.9	7.4	5.70	4.10	.42	.30	.23	.03	0
3	.00	7.9	4.4	7.9	6.6	5.80	1.50	.40	.31	.23	.05	0
4	.00	9.0	3.8	6.9	5.4	5.50	1.20	.30	.35	.19	.07	0
5	.00	9.6	3.6	5.2	6.5	5.60	.70	.26	.37	.17	.05	0
6	.00	7.4	2.4	3.8	8.7	5.00	.95	.26	.48	.17	.04	0
7	.00	6.0	1.9	2.8	9.3	5.30	3.40	.26	3.00	.16	.03	0
8	.00	6.0	1.8	7.4	8.8	4.50	2.50	.23	1.50	.16	.02	0
9	.00	4.1	1.4	19.0	7.5	4.50	5.10	.21	1.00	.14	.00	0
10	.00	4.8	1.9	12.0	6.4	4.40	5.30	.17	.59	.13	.00	0
11	.00	5.5	2.4	12.0	6.4	4.80	2.40	.19	.43	.13	.00	0
12	.00	6.9	3.8	10.0	7.3	5.00	2.00	.21	.31	.13	.00	0
13	.00	6.0	4.1	10.0	6.3	5.00	1.40	.21	.25	.13	.00	0
14	.00	6.0	4.0	11.0	4.2	5.00	1.20	.21	.28	.12	.00	0
15	.00	5.2	4.5	11.0	4.8	4.60	.98	.18	.31	.12	.00	0
16	.00	5.5	4.2	11.0	2.5	4.50	.86	.17	.32	.11	.00	0
17	.80	5.5	4.8	13.0	4.0	5.20	.76	.18	.28	.11	.00	0
18	.70	6.0	4.8	12.0	4.1	8.40	.85	.21	.27	.10	.00	0
19	.15	6.0	5.2	12.0	5.7	8.40	.86	.23	.28	.11	.00	0
20	30.00	5.5	6.0	12.0	4.1	7.50	.70	.34	.26	.12	.00	0
21	2.20	6.0	6.4	9.6	3.7	6.00	.75	2.80	.23	.11	.00	0
22	2.40	6.4	6.4	9.6	5.3	5.80	.67	2.50	.23	.09	.00	0
23	3.00	5.2	6.9	9.6	5.5	4.40	.54	2.50	.21	.09	.00	0
24	4.10	3.2	6.9	9.4	4.7	1.80	.51	5.10	.21	.10	.00	0
25	9.00	2.4	7.4	9.6	7.4	1.40	.50	3.90	.20	.10	.00	0
26	8.40	3.3	7.4	9.9	10.0	3.40	.48	1.60	.20	.09	.00	0
27	6.90	2.5	10.0	10.0	5.2	4.40	.46	1.10	.22	.09	.00	0
28	6.00	3.1	9.6	10.0	6.2	1.10	.40	1.10	.34	.08	.00	0
29	6.00	4.3	9.6	11.0	6.3	.67	1.20	1.10	.38	.07	.00	0
30	6.40	4.1	9.0	9.1	---	.50	.75	.81	.30	.07	.00	0
31	6.90	---	7.9	9.7	---	.66	---	.66	---	.05	.00	---
TOTAL	92.95	168.2	160.8	302.8	178.8	140.33	44.12	28.23	13.78	3.95	.33	0
MEAN	3.00	5.61	5.19	9.77	6.17	4.53	1.47	.91	.46	.13	.011	.000
MAX	30	9.6	10	19	10	8.4	5.3	5.1	3.0	.25	.07	.00
MIN	.00	2.4	1.4	2.8	2.5	.50	.40	.17	.20	.05	.00	.00
AC-FT	184	334	319	601	355	278	88	56	27	7.8	.7	.00
CAL YR 1983	TOTAL	1848.02	MEAN 5.06	MAX 86	MIN .00	AC-FT 3670						
WTR YR 1984	TOTAL	1134.29	MEAN 3.10	MAX 30	MIN .00	AC-FT 2250						

COLORADO RIVER BASIN

83

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 west of Knickerbocker, and 5.7 mi upstream from mouth.

DRAINAGE AREA.--226.43 mi², of which 8.43 mi² 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 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.--24 years, 17.2 ft³/s (12,460 acre-ft/yr).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, 30.4 ft 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, 84 ft³/s Oct. 20 at 0930 hours (gage height, 4.64 ft), no peak above base of 100 ft³/s; minimum daily, 0.02 ft³/s July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	4.3	11.0	7.5	7.4	11.0	10.0	5.9	3.4	5.60	3.2	4.1
2	3.2	4.3	10.0	8.2	7.1	10.0	8.6	6.0	3.4	5.90	3.1	3.6
3	3.3	5.0	11.0	9.1	7.2	6.4	5.2	5.7	3.4	6.30	3.1	3.4
4	3.6	5.9	11.0	9.4	7.3	5.3	4.2	4.8	3.2	5.50	3.2	5.0
5	3.6	6.3	11.0	9.4	7.7	5.4	6.4	4.4	3.2	4.80	4.4	4.7
6	3.9	6.2	8.7	7.5	7.2	4.9	7.1	5.6	3.0	4.50	3.6	4.5
7	4.2	5.4	9.1	7.0	7.2	4.8	4.7	5.7	3.0	5.10	3.0	3.1
8	4.7	5.3	9.6	9.5	7.5	6.0	5.3	5.7	2.8	5.10	3.0	3.4
9	5.7	5.3	9.5	16.0	6.4	8.4	7.8	5.3	3.0	5.60	2.8	3.0
10	6.5	5.7	9.1	12.0	6.0	6.6	6.4	4.5	3.2	5.70	2.7	3.7
11	5.7	6.0	6.6	10.0	6.3	4.0	4.6	5.3	3.2	5.60	2.8	3.9
12	7.1	5.9	6.0	9.5	6.3	7.8	5.2	6.2	3.3	6.20	2.7	3.1
13	7.2	5.8	6.2	9.7	6.6	7.5	5.0	6.2	3.6	5.30	2.8	2.6
14	5.8	5.8	6.3	9.7	7.7	3.7	5.3	6.2	2.6	4.50	4.0	2.2
15	5.0	5.8	5.0	9.7	7.9	1.6	7.5	6.2	1.3	4.40	3.6	2.2
16	5.3	5.8	5.2	9.7	7.7	1.9	7.2	5.9	1.3	4.10	2.7	2.2
17	5.8	5.9	6.0	9.7	8.7	2.1	6.1	5.4	1.2	3.70	3.6	2.0
18	6.2	6.3	6.2	9.5	11.0	8.0	7.9	5.3	1.6	3.20	3.8	2.0
19	6.5	6.4	6.4	9.7	10.0	6.1	11.0	5.1	2.2	2.30	3.7	2.0
20	24.0	7.0	6.6	9.7	11.0	4.1	11.0	4.8	2.6	2.10	3.4	2.0
21	4.8	8.9	6.8	10.0	11.0	2.9	8.8	5.5	2.4	1.10	3.5	2.0
22	2.7	9.1	6.6	10.0	11.0	6.3	9.3	5.4	2.3	.92	3.4	2.0
23	2.6	9.7	6.8	10.0	11.0	9.4	8.7	5.1	2.2	.92	3.2	2.0
24	2.6	9.4	6.8	10.0	11.0	9.4	7.5	4.8	2.1	.02	3.1	1.9
25	3.2	9.7	6.6	9.6	10.0	9.3	7.9	4.7	3.7	.04	3.4	1.9
26	3.8	10.0	6.8	9.3	11.0	9.7	7.2	4.3	3.5	.34	4.6	1.9
27	3.3	10.0	7.1	8.6	11.0	8.2	6.6	3.8	3.1	1.30	3.5	1.9
28	3.3	10.0	7.5	8.4	10.0	10.0	6.9	3.4	7.3	1.90	4.4	1.9
29	3.4	11.0	7.3	8.0	11.0	9.5	7.2	3.4	8.5	2.40	4.3	1.9
30	3.7	11.0	6.9	7.7	---	10.0	6.2	3.4	6.0	2.60	3.6	1.9
31	3.8	---	7.2	7.3	---	12.0	---	3.4	---	2.90	4.6	---
TOTAL	157.6	213.2	236.9	291.4	251.2	212.3	212.8	157.4	95.6	109.94	106.8	82.0
MEAN	5.08	7.11	7.64	9.40	8.66	6.85	7.09	5.08	3.19	3.55	3.45	2.73
MAX	24	11	11	16	11	12	11	6.2	8.5	6.3	4.6	5.0
MIN	2.6	4.3	5.0	7.0	6.0	1.6	4.2	3.4	1.2	.02	2.7	1.9
AC-FT	313	423	470	578	498	421	422	312	190	218	212	163
CAL YR 1983	TOTAL	3563.10	MEAN	9.76	MAX	1060	MIN	.00	AC-FT	7070		
WTR YR 1984	TOTAL	2127.14	MEAN	5.81	MAX	24	MIN	.02	AC-FT	4220		

COLORADO RIVER BASIN

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 upstream from Lake Nasworthy Dam, 8.1 mi southwest of San Angelo, and 75.0 mi upstream from mouth.

DRAINAGE AREA.--3,868 mi², of which 1,055 mi² 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 long, including a 200-foot-wide uncontrolled off-channel concrete gravity spillway with ogee weir section. Outlet works consist of three 15.5-foot concrete conduits, each controlled by a 12.0- by 15.0-foot fixed-wheel gate and a 12.0- by 15.0-foot radial gate, located in the Middle Concho-Spring Creek pool. Low-flow releases are made through 2.0- by 2.0-foot 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 equalizing channel. At an elevation of 1,926.5 ft, the two pools join to form one lake. Below elevation 1,926.5 ft, daily contents are obtained from capacity tables for South Concho and Middle Concho-Spring Creek pools and summed to obtain combined daily contents. Lake level elevations below 1,926.5 ft 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. Bureau of Reclamation.

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

EXTREMES FOR CURRENT YEAR.--Maximum combined daily contents, 43,570 acre-ft Nov. 8; minimum, 18,670 acre-ft Sept. 25.

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40250	43120	42300	41720	43460	42860	41610	37500	32680	28950	24880	20660
2	40100	43140	42330	41730	43450	42770	41510	37360	32630	28890	24710	20530
3	40010	43210	42350	41760	43480	42770	41350	37240	32550	28800	24590	20410
4	39890	43300	42360	41780	43460	42750	41260	37070	32490	28720	24460	20310
5	39760	43420	42340	41800	43440	42750	41150	36920	32390	28620	24290	20160
6	39660	43470	42350	41790	43430	42750	41060	36790	32340	28540	24120	20040
7	39530	43520	42340	41790	43400	42750	40950	36510	32220	28400	23960	19890
8	39420	43570	42350	42060	43390	42700	40800	36410	32140	28250	23840	19750
9	39320	43500	42350	42360	43370	42700	40670	36260	32020	28100	23650	19570
10	39280	43400	42330	42480	43360	42680	40460	36080	31930	27960	23520	19430
11	39110	43320	42290	42590	43340	42680	40320	35880	31790	27790	23390	19280
12	39000	43250	42310	42620	43310	42560	40180	35730	31620	27620	23270	19140
13	38900	43210	42240	42620	43290	42530	40030	35580	31450	27430	23160	19010
14	38710	43090	42200	42650	43270	42530	39860	35420	31260	27230	23050	18880
15	38660	43080	42110	42670	43200	42520	39740	35230	31090	27050	22920	18840
16	38410	42990	42090	42730	43140	42500	39610	35060	30910	26840	22830	18810
17	34190	42900	42040	42800	43160	42470	39470	34930	30720	26640	22680	18790
18	34170	42850	42020	42830	43100	42420	39240	34790	30520	26460	22570	18780
19	34190	42720	41960	42860	43050	42350	39110	34720	30350	26290	22470	18750
20	36600	42630	41930	42880	43070	42330	38960	34570	30170	26150	22360	18750
21	37810	42540	41900	42970	43070	42260	38800	34460	30000	26000	22110	18740
22	37950	42540	41910	43030	43050	42220	38680	34300	29850	25870	21970	18740
23	37990	42580	41820	43080	43000	42200	38570	34150	29690	25730	21870	18710
24	38040	42540	41810	43120	42990	42160	38430	33960	29530	25660	21740	18690
25	42950	42500	41770	43170	43010	42120	38310	33800	29360	25630	21610	18670
26	43100	42480	41780	43210	42990	42070	38190	33610	29170	25610	21500	18940
27	43110	42450	41750	43260	42970	41960	38050	33410	29010	25530	21370	18980
28	43110	42340	41720	43310	42950	41870	37940	33260	29010	25420	21250	19020
29	43120	42340	41730	43320	42770	41800	37830	33080	29120	25310	21110	19050
30	43110	42290	41730	43340	---	41740	37640	32940	29040	25170	20960	19040
31	43120	---	41720	43380	---	41620	---	32800	---	25030	20810	---
MAX	43120	43570	42360	43380	43480	42860	41610	37500	32680	28950	24880	20660
MIN	34170	42290	41720	41720	42770	41620	37640	32800	29010	25030	20810	18670
(†)	1911.22	1910.78	1910.45	1911.20	1910.94	1910.47	1908.72	1906.38	1904.28	1901.90	1899.12	1897.96
(‡)	+2760	-830	-570	+1660	-610	-1150	-3980	-4840	-3760	-4010	-4220	-1770
CAL YR 1983	MAX	70220	MIN	34170	†	-25370						
WTR YR 1984	MAX	43570	MIN	18670	†	-21320						

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

COLORADO RIVER BASIN

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1984 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
APR 30...	1400	1190	21.0	310	140	61	38	110

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)
APR 30...	3	5.0	170	90	220	.50	11	640

COLORADO RIVER BASIN

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 upstream from U.S. Highway 277, 3.7 mi upstream from mouth, and 10.5 mi south of San Angelo.

DRAINAGE AREA.--81.1 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Apr. 30, 1968, at site 1.2 mi downstream at datum 20.21 ft lower.

REMARKS.--Records good except those below 5 ft³/s, which are fair. No known diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years, 2.19 ft³/s (0.37 in/yr), 1,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,600 ft³/s Sept. 8, 1980 (gage height, 10.63 ft); maximum gage height, 11.15 ft 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, former site and datum, Sept. 15, 1936 (discharge, 30,500 ft³/s, by slope-area measurement).

EXTREMES FOR CURRENT YEAR.--No flow for entire year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
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	.00
30	.00	.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	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
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
CFSM	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
IN.	.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 1983 TOTAL 127.76 MEAN .35 MAX 12 MIN .00 CFSM .004 IN .06 AC-FT 253
WTR YR 1984 TOTAL 0.00 MEAN .0000 MAX .00 MIN .00 CFSM .0000 IN .00 AC-FT .00

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 upstream from Nasworthy Dam on South Concho River, 3.8 mi downstream from Twin Buttes Dam, 6.0 mi southwest of San Angelo, and 68.9 mi upstream from mouth.

DRAINAGE AREA.--3,975 mi², of which 3,868 mi² is above Twin Buttes Reservoir and 1,055 mi² 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 National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a 6,090-foot dam with a 5,590-foot earthen section that has an earthen spillway 300 ft long, a concrete spillway 475 ft long with a bank of fifteen 25.0- by 18.0-foot tainter gates, and a 25.0- by 3.0-foot 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 of silt was deposited from March 1930 to December 1938 and an additional 1,023 acre-ft was deposited from December 1938 to May 1953, totaling 2,214 acre-ft. Water is used for part of San Angelo municipal supply and for irrigation east of San Angelo. 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 Sept. 15, 1936 (gage height, 38.36 ft); minimum, 209 acre-ft Aug. 22, 1964 (gage height, 13.21 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 11,060 acre-ft Jan. 11 (gage height, 31.37 ft); minimum, 9,700 acre-ft Sept. 25 (gage height, 30.44 ft).

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

30.4	9,650
32.0	12,070

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10470	10400	10520	10500	10400	10470	10290	10440	10580	10660	10340	10370
2	10470	10360	10520	10520	10340	10460	10300	10430	10520	10660	10340	10400
3	10470	10400	10500	10570	10340	10470	10270	10410	10410	10610	10430	10440
4	10460	10390	10500	10570	10340	10430	10290	10410	10460	10580	10470	10430
5	10440	10440	10470	10570	10330	10440	10320	10400	10550	10530	10500	10440
6	10440	10410	10470	10570	10340	10430	10330	10400	10600	10500	10530	10440
7	10440	10390	10460	10570	10340	10410	10410	10320	10600	10470	10550	10440
8	10410	10330	10440	10810	10340	10370	10460	10360	10570	10430	10550	10460
9	10430	10300	10410	10920	10360	10390	10520	10330	10550	10390	10520	10440
10	10430	10320	10410	10920	10370	10400	10530	10320	10490	10340	10520	10440
11	10390	10340	10370	11060	10390	10430	10570	10270	10460	10340	10520	10430
12	10390	10340	10400	10870	10360	10580	10580	10270	10440	10390	10500	10440
13	10400	10390	10360	10840	10340	10600	10580	10260	10460	10400	10500	10490
14	10370	10390	10390	10840	10370	10600	10550	10260	10490	10410	10490	10490
15	10370	10410	10360	10820	10360	10610	10520	10230	10530	10430	10470	10390
16	10390	10440	10370	10810	10370	10610	10500	10260	10570	10440	10490	10330
17	10530	10470	10360	10790	10410	10600	10520	10360	10600	10460	10470	10260
18	10520	10500	10370	10770	10390	10600	10610	10490	10610	10500	10460	10190
19	10470	10500	10370	10760	10360	10530	10610	10630	10600	10570	10440	10120
20	10770	10580	10400	10730	10390	10500	10610	10680	10570	10580	10440	10040
21	10710	10550	10370	10710	10390	10470	10570	10730	10570	10580	10400	9950
22	10660	10650	10400	10690	10390	10430	10570	10690	10580	10580	10390	9910
23	10630	10630	10390	10680	10370	10430	10550	10690	10580	10600	10370	9840
24	10580	10610	10400	10660	10370	10410	10530	10710	10550	10580	10370	9780
25	10660	10650	10410	10650	10390	10410	10520	10710	10550	10500	10360	9700
26	10630	10600	10430	10600	10370	10390	10460	10660	10520	10410	10360	9830
27	10600	10570	10460	10570	10340	10330	10430	10660	10530	10390	10360	9780
28	10530	10550	10460	10530	10330	10290	10440	10650	10810	10370	10340	9850
29	10500	10530	10460	10490	10490	10270	10410	10680	10820	10360	10340	9840
30	10470	10520	10470	10460	---	10290	10410	10710	10760	10360	10360	9830
31	10430	---	10490	10410	---	10270	---	10680	---	10340	10360	---
MAX	10770	10650	10520	11060	10490	10610	10610	10730	10820	10660	10550	10490
MIN	10370	10300	10360	10410	10330	10270	10270	10230	10410	10340	10340	9700
(+)	30.97	31.03	31.01	30.96	31.01	30.86	30.96	31.13	31.18	30.91	30.92	30.54
(+)	-40	+90	-30	-80	+80	-220	+140	+270	+80	-420	+20	-530
CAL YR 1983	MAX	11060	MIN	8870	±	+1180						
WTR YR 1984	MAX	11060	MIN	9700	±	-640						

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

COLORADO RIVER BASIN

08132000 LAKE NASWORTHY NEAR SAN ANGELO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1984 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
APR 30...	1430	1380	21.0	330	150	62	42	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)
APR 30...	4	5.6	180	110	270	.60	16	760

COLORADO RIVER BASIN

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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 upstream from bridge on State Highway 163, 0.5 mi south of Sterling City, 4.0 mi upstream from Sterling Creek, 5.1 mi downstream from Lacy Creek, and at mile 57.2.

DRAINAGE AREA.--588 mi², of which 19.6 mi² 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 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.--45 years, 7.97 ft³/s (5,770 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 338 ft³/s Oct. 20 at 0430 hours (gage height, 7.82 ft) - other peak above base of 300 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	0	0	.00	0	0	0	.00	0	0	0	0
2	.00	0	0	.00	0	0	0	.00	0	0	0	0
3	.00	0	0	.00	0	0	0	.00	0	0	0	0
4	.00	0	0	.00	0	0	0	.00	0	0	0	0
5	.00	0	0	.00	0	0	0	.00	0	0	0	0
6	.00	0	0	.00	0	0	0	.00	0	0	0	0
7	.00	0	0	.00	0	0	0	.00	0	0	0	0
8	.00	0	0	.01	0	0	0	.00	0	0	0	0
9	.00	0	0	.00	0	0	0	.00	0	0	0	0
10	.00	0	0	.00	0	0	0	.00	0	0	0	0
11	.00	0	0	.00	0	0	0	.00	0	0	0	0
12	.00	0	0	.00	0	0	0	.00	0	0	0	0
13	.00	0	0	.00	0	0	0	.00	0	0	0	0
14	.00	0	0	.00	0	0	0	.00	0	0	0	0
15	.00	0	0	.00	0	0	0	.00	0	0	0	0
16	.00	0	0	.00	0	0	0	.00	0	0	0	0
17	.00	0	0	.00	0	0	0	.00	0	0	0	0
18	.00	0	0	.00	0	0	0	.00	0	0	0	0
19	.00	0	0	.00	0	0	0	1.30	0	0	0	0
20	98.00	0	0	.00	0	0	0	2.80	0	0	0	0
21	15.00	0	0	.00	0	0	0	.04	0	0	0	0
22	.39	0	0	.00	0	0	0	.00	0	0	0	0
23	.00	0	0	.00	0	0	0	.00	0	0	0	0
24	.00	0	0	.00	0	0	0	.00	0	0	0	0
25	.00	0	0	.00	0	0	0	.00	0	0	0	0
26	.00	0	0	.00	0	0	0	.00	0	0	0	0
27	.00	0	0	.00	0	0	0	.00	0	0	0	0
28	.00	0	0	.00	0	0	0	.00	0	0	0	0
29	.00	0	0	.00	0	0	0	.00	0	0	0	0
30	.00	0	0	.00	---	0	0	.00	0	0	0	0
31	.00	---	0	.00	---	0	---	.00	---	0	0	---
TOTAL	113.39	0	0	.01	0	0	0	4.14	0	0	0	0
MEAN	3.66	.000	.000	.000	.000	.000	.000	.13	.000	.000	.000	.000
MAX	98	.00	.00	.01	.00	.00	.00	2.8	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	225	.00	.00	.02	.00	.00	.00	8.2	.00	.00	.00	.00
CAL YR 1983	TOTAL 310.97		MEAN .85	MAX 98	MIN .00	AC-FT 617						
WTR YR 1984	TOTAL 117.54		MEAN .32	MAX 98	MIN .00	AC-FT 233						

COLORADO RIVER BASIN

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 southeast of Carlsbad, 1.5 mi upstream from Mule Creek, 2.5 mi upstream from Grape Creek, 16.2 mi upstream from O. C. Fisher Dam, and 21.3 mi upstream from mouth.

DRAINAGE AREA.--1,266 mi², of which 75.1 mi² probably is noncontributing.

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

Water-quality records: Chemical and biochemical analyses: October 1980 to September 1982.

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 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 upstream at datum 32.76 ft higher.

REMARKS.--Records good. Diversions by pumping above station.

AVERAGE DISCHARGE.--60 years, 33.4 ft³/s (24,200 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,920 ft³/s Oct. 20 at 1900 hours (gage height, 11.51 ft), no other peak above base of 1,500 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.64	1.70	2.4	2.6	2.9	.55	2.60	0	0	0	0
2	.0	.54	1.70	2.9	3.2	3.2	3.20	2.40	0	0	0	0
3	.0	.45	2.60	2.9	3.2	3.5	2.90	2.90	0	0	0	0
4	.0	.75	3.20	3.2	3.2	3.5	2.60	2.40	0	0	0	0
5	.0	1.90	3.20	3.2	3.2	3.5	2.60	1.90	0	0	0	0
6	.0	3.20	3.20	3.5	3.2	3.2	2.90	1.70	0	0	0	0
7	.0	3.20	3.20	3.8	3.2	2.9	3.20	1.70	0	0	0	0
8	.0	1.90	3.50	4.5	3.2	2.9	2.90	1.50	0	0	0	0
9	.0	1.00	3.20	7.2	3.5	2.9	2.60	1.30	0	0	0	0
10	.0	1.50	3.50	4.1	3.5	2.9	2.60	1.50	0	0	0	0
11	.0	2.10	3.80	2.6	3.2	2.6	2.40	1.50	0	0	0	0
12	.0	1.70	4.10	2.4	3.5	2.6	2.10	1.00	0	0	0	0
13	.0	1.90	3.50	2.4	3.5	2.4	2.10	.64	0	0	0	0
14	.0	1.50	4.10	2.1	3.8	2.4	1.70	.45	0	0	0	0
15	.0	1.20	4.10	2.4	3.5	2.6	1.70	.24	0	0	0	0
16	.0	.87	4.10	2.4	4.1	2.9	1.70	.14	0	0	0	0
17	.0	.75	4.10	2.9	3.8	3.2	1.70	.10	0	0	0	0
18	.0	1.00	4.10	2.9	3.5	3.3	1.70	.06	0	0	0	0
19	.0	1.00	4.10	2.6	2.9	3.1	2.40	.06	0	0	0	0
20	811.0	.75	4.10	2.6	2.1	2.1	2.60	.03	0	0	0	0
21	187.0	.64	3.50	2.6	1.9	2.4	2.90	.03	0	0	0	0
22	26.0	.45	2.90	2.9	2.1	2.9	2.10	.03	0	0	0	0
23	12.0	.87	2.90	3.2	2.4	5.9	2.60	.01	0	0	0	0
24	6.4	1.30	2.60	3.2	2.9	3.8	2.60	.01	0	0	0	0
25	28.0	1.20	2.60	3.2	2.9	3.2	2.60	.01	0	0	0	0
26	24.0	1.20	2.60	3.2	3.5	2.9	2.90	.00	0	0	0	0
27	7.6	1.20	3.20	2.9	3.8	2.9	2.90	.00	0	0	0	0
28	4.1	1.20	3.50	3.2	3.5	2.9	2.90	.00	0	0	0	0
29	2.6	1.90	2.10	3.5	3.2	2.6	2.60	.00	0	0	0	0
30	1.9	2.40	.75	2.9	---	2.6	2.90	.00	0	0	0	0
31	1.2	---	1.00	2.6	---	1.3	---	.00	---	0	0	---
TOTAL	1111.8	40.21	96.75	96.4	92.1	92.0	73.15	24.21	0	0	0	0
MEAN	35.9	1.34	3.12	3.11	3.18	2.97	2.44	.78	.000	.000	.000	.000
MAX	811	3.2	4.1	7.2	4.1	5.9	3.2	2.9	.00	.00	.00	.00
MIN	.00	.45	.75	2.1	1.9	1.3	.55	.00	.00	.00	.00	.00
AC-FT	2210	80	192	191	183	182	145	48	.00	.00	.00	.00

CAL YR 1983 TOTAL 2036.76 MEAN 5.58 MAX 811 MIN .00 AC-FT 4040
WTR YR 1984 TOTAL 1626.62 MEAN 4.44 MAX 811 MIN .00 AC-FT 3230

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 northwest of San Angelo, and 6.6 mi upstream from mouth.

DRAINAGE AREA.--1,488 mi², of which 105 mi² probably is noncontributing.

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 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 wide located to the right and upstream from the right end of dam. The spillway is designed to discharge 356,000 ft³/s at maximum design flood level. The control outlet works consist of six gate-controlled outlets, 7.5 by 14.5 ft, opening into two 18.0-foot-diameter concrete conduits, and two 2.5-foot 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 Oct. 14, 1957 (elevation, 1,916.47 ft); minimum since first appreciable storage, lake dry July 16, 1970, to Apr. 15, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 25,810 acre-ft Nov. 5 at 2400 hours (elevation, 1,881.17 ft); minimum daily, 14,570 acre-ft Sept. 25 (elevation, 1,874.01 ft).

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

1,874.0	14,560	1,878.0	20,080	1,881.0	25,480
1,876.0	17,160	1,880.0	23,560	1,882.0	27,480

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23690	25590	25120	24620	25100	24870	24430	23410	22070	20020	18070	16170
2	23640	25590	25120	24640	25100	24870	24430	23340	22040	19960	18030	16110
3	23470	25710	25120	24640	25100	24870	24390	23340	21980	19860	18040	16050
4	23340	25710	25100	24660	25080	24870	24350	23270	21960	19830	17980	15980
5	23280	25810	25080	24660	25080	24850	24330	23230	21950	19770	17940	15920
6	23270	25790	25080	24660	25060	24830	24330	23210	21930	19690	17900	15840
7	23230	25790	25040	24660	25040	24830	24370	23160	21860	19650	17860	15760
8	23210	25790	25040	24950	25040	24790	24330	23080	21840	19570	17770	15680
9	23190	25750	25010	25140	25040	24790	24310	23030	21770	19490	17680	15600
10	23160	25710	25010	25120	25040	24790	24260	22970	21700	19420	17630	15520
11	23100	25690	24990	25120	25020	24610	24240	22920	21650	19370	17590	15450
12	23040	25650	24950	25120	25020	24810	24200	22860	21540	19280	17540	15370
13	22990	25610	24930	25100	25020	24810	24160	22810	21440	19200	17480	15310
14	22940	25570	24890	25100	25020	25810	24120	22770	21330	19140	17450	15260
15	22880	25550	24870	25120	24990	24810	24070	22720	21230	19100	17370	15200
16	22860	25510	24850	25120	24970	24830	24010	22740	21160	19050	17300	15120
17	22860	25490	24850	25140	24990	24810	23970	22720	21100	18950	17220	15050
18	22840	25470	24910	25120	24970	24830	23940	22740	21040	18860	17150	14990
19	22830	25420	24890	25120	24970	24830	23940	22740	20960	18810	17090	14920
20	24030	25340	24890	25100	24970	24760	23900	22680	20890	18770	17020	14850
21	24930	25320	24760	25080	24950	24740	23860	22660	20830	18680	16940	14800
22	25010	25320	24740	25100	24950	24700	23790	22610	20810	18620	16860	14750
23	25020	25320	24740	25100	24930	24740	23790	22570	20730	18530	16780	14680
24	25020	25340	24700	25100	24930	24720	23750	22540	20650	18500	16700	14630
25	25610	25320	24680	25100	24950	24720	23690	22500	20470	18460	16640	14570
26	25650	25300	24660	25100	25060	24700	23660	22460	20300	18420	16580	14720
27	25670	25240	24680	25080	24950	24660	23580	22430	20260	18390	16510	14690
28	25670	25200	24660	25100	24910	24560	23520	22340	20210	18330	16430	14780
29	25650	25180	24660	25100	24890	24540	23470	22270	20160	18270	16360	14750
30	25630	25160	24640	25100	---	24500	23410	22200	20120	18230	16310	14730
31	25610	---	24620	25100	---	24490	---	22160	---	18130	16230	---
MAX	25670	25810	25120	25140	25100	25810	24430	23410	22070	20020	18070	16170
MIN	22830	25160	24620	24620	24890	24490	23410	22160	20120	18130	16230	14570
(†)	1881.07	1880.84	1880.55	1880.81	1880.70	1880.49	1978.92	1879.23	1878.02	1876.70	1875.31	1874.14
(‡)	+1880	-400	-540	+480	-210	-400	-1080	-1250	-2040	-1990	-1900	-1500

CAL YR 1983 MAX 30620 MIN 22830 † -5570

WTR YR 1984 MAX 25810 MIN 14570 ‡ -9000

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

COLORADO RIVER BASIN

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1984 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
MAY 04...	1015	943	19.5	290	120	55	36	66

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 04...	2	18	170	64	160	.40	7.7	510

COLORADO RIVER BASIN

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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 upstream from confluence with South Concho River, and 3.4 mi downstream from O. C. Fisher Dam.

DRAINAGE AREA.--1,525 mi², of which 75.1 mi² probably is noncontributing.

PERIOD OF RECORD.--October 1915 to June 1928, February 1929 to September 1931, July 1947 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 568: 1916, 1918-22. WSP 1512: 1916(M), 1917-13, 1919-21(M). WRD TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,813.42 ft 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 downstream at datum 11.02 ft lower. Feb. 12, 1929, to Sept. 30, 1931, water-stage recorder at site 1.6 mi downstream at datum 13.02 ft lower.

REMARKS.--Records poor. 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 (39,490 acre-ft/yr); 33 years (water years 1952-84) regulated, 7.93 ft³/s (5,750 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 47,000 ft³/s June 13, 1930 (gage height, 22.52 ft, 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, from floodmarks (discharge, 184,000 ft³/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, 553 ft³/s June 6 at 0030 hours (gage height, 2.97 ft); maximum gage height, 5.50 ft Oct. 3 at 2100 hours; no flow Oct. 1, 2, 7-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.2	1.20	1.00	1.00	1.10	.92	.73	.20	9.4	20.0	19.0
2	.00	1.3	1.30	1.10	1.10	1.00	1.00	.81	3.10	10.0	9.4	16.0
3	19.00	1.4	1.30	1.10	1.00	1.30	.93	.67	6.80	8.2	21.0	15.0
4	69.00	8.9	1.30	1.00	1.00	1.20	.88	.64	7.00	8.0	8.9	16.0
5	2.20	5.6	1.30	.93	1.00	1.30	.89	.59	16.00	8.4	6.0	17.0
6	.03	1.7	1.20	.89	1.10	1.20	.87	.57	36.00	9.1	6.2	17.0
7	.00	1.4	1.20	2.20	.94	1.20	1.40	.56	2.00	12.0	5.4	17.0
8	.00	1.3	1.30	2.30	.98	1.30	1.50	.45	1.50	11.0	12.0	18.0
9	.00	1.2	1.30	1.40	1.10	1.30	1.10	.41	1.30	8.9	22.0	20.0
10	.00	1.2	1.30	1.20	.96	1.10	.98	.41	1.00	9.2	21.0	20.0
11	.00	1.5	1.40	1.20	.99	1.20	.92	.42	.84	14.0	9.1	19.0
12	.00	1.3	2.00	1.10	1.10	1.40	.90	.53	19.00	17.0	7.9	18.0
13	.00	1.2	1.40	1.20	1.00	1.10	.89	.44	40.00	6.9	7.4	18.0
14	.00	1.2	1.20	1.40	1.00	.99	.84	.38	26.00	6.1	6.5	16.0
15	.00	1.1	1.20	1.60	.98	1.00	.81	.37	21.00	6.4	13.0	15.0
16	.19	1.6	1.10	1.60	1.00	1.10	.80	.50	14.00	6.1	20.0	15.0
17	1.30	3.7	1.20	1.60	1.00	1.30	.79	.70	12.00	16.0	20.0	17.0
18	2.10	4.0	1.20	1.50	1.00	1.40	.75	.77	10.00	25.0	17.0	16.0
19	1.40	3.8	1.20	1.40	.96	1.20	.72	4.30	9.10	9.4	17.0	17.0
20	40.00	3.1	1.20	1.40	2.70	1.20	.81	1.10	9.00	11.0	20.0	17.0
21	2.60	1.4	1.20	1.40	1.50	1.20	.74	.95	8.00	8.6	20.0	17.0
22	1.80	3.7	1.20	1.50	1.10	1.10	.72	.81	7.70	10.0	21.0	16.0
23	1.50	2.8	1.20	1.70	1.00	12.00	.77	.50	11.00	12.0	21.0	14.0
24	1.40	1.3	1.20	1.40	1.10	1.60	.72	.36	12.00	18.0	20.0	15.0
25	66.00	1.3	1.30	1.50	1.10	1.10	.75	.27	49.00	9.8	19.0	15.0
26	2.90	1.4	1.20	1.50	5.70	1.00	.76	.20	65.00	7.9	18.0	58.0
27	1.50	1.4	1.20	1.20	1.70	1.00	.68	.17	17.00	7.3	18.0	8.2
28	1.40	1.3	1.20	1.10	1.10	.85	.65	.18	14.00	7.7	20.0	8.1
29	1.20	1.4	.94	1.10	1.00	.83	.69	.23	10.00	6.3	20.0	25.0
30	1.30	1.3	.89	1.10	---	.89	.63	.26	10.00	6.9	20.0	7.0
31	1.20	---	.94	.97	---	.94	---	.25	---	14.0	19.0	---
TOTAL	218.02	65.0	38.27	41.59	37.21	46.40	25.81	19.53	439.54	320.6	485.8	526.3
MEAN	7.03	2.17	1.23	1.34	1.28	1.50	.86	.63	14.7	10.3	15.7	17.5
MAX	69	8.9	2.0	2.3	5.7	12	1.5	4.3	65	25	22	58
MIN	.00	1.1	.89	.89	.94	.83	.63	.17	.20	6.1	5.4	7.0
AC-FT	432	129	76	82	74	92	51	39	872	636	964	1040
CAL YR 1983	TOTAL	1149.55	MEAN 3.15	MAX 69	MIN .00	AC-FT 2280						
WTR YR 1984	TOTAL	2264.07	MEAN 6.19	MAX 69	MIN .00	AC-FT 4490						

COLORADO RIVER BASIN

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 downstream from confluence of North and South Concho Rivers, 1.8 mi southeast of Tom Green County Courthouse, and 61.9 mi upstream from mouth.

DRAINAGE AREA.--5,542 mi², of which 1,131 mi² 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 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 (114,500 acre-ft/yr); 22 years (water years 1963-84) regulated, 22.2 ft³/s (16,080 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft³/s Sept. 17, 1936 (gage height, 46.6 ft, from floodmarks), from rating curve extended above 105,000 ft³/s on basis of slope-area measurements of 167,000 and 230,000 ft³/s; no flow at times in 1921, 1952-53, 1965, and 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1853, 47.5 ft Aug. 6, 1906 (discharge, about 246,000 ft³/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, 740 ft³/s Sept. 26 at 0600 hours (gage height, 3.89 ft); minimum daily, 0.02 ft³/s Apr. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.19	17.00	.08	.11	.07	4.50	4.80	.05	.31	.43	.30	.13
2	.22	17.00	.08	.08	.13	3.50	3.50	.09	.19	.44	5.00	.13
3	.12	10.00	.11	.08	.14	4.10	.13	.07	.19	59.00	40.00	.17
4	.11	.13	.14	.10	.10	4.50	.08	.05	.34	21.00	36.00	2.20
5	.11	.09	.08	.22	.71	1.10	.06	.04	.24	5.60	11.00	12.00
6	.09	.06	.08	.10	.89	.11	.06	.04	242.00	.29	9.00	3.60
7	.09	.05	.07	.07	.09	.38	.07	.04	66.00	.31	3.50	2.40
8	.10	.04	.06	45.00	.09	4.50	.07	.04	31.00	.31	.19	.21
9	.16	.04	.05	162.00	.35	4.10	.05	.05	23.00	.29	.19	.33
10	.21	.04	.05	22.00	.05	4.80	.09	.08	22.00	.33	8.30	1.70
11	.12	.04	.04	9.00	.05	3.00	.06	.09	21.00	.33	16.00	8.10
12	.09	.07	.04	6.10	.05	1.00	.04	.09	19.00	20.00	9.70	.21
13	.09	.43	.10	5.20	.05	.80	.03	.08	18.00	18.00	.22	.17
14	.12	3.00	.06	5.20	.05	.40	.03	.09	8.00	6.00	.11	.11
15	.15	.80	.05	5.60	.05	.30	.03	.08	5.50	8.10	.12	.11
16	.22	.08	.05	.89	.05	.20	.09	.14	1.90	.71	12.00	.11
17	.18	.08	.05	.08	.05	.10	.06	.16	1.60	.37	9.00	.11
18	.16	.08	.05	.05	.10	.10	.06	.16	.29	2.30	7.30	.09
19	.17	.14	.05	.04	.06	.05	.05	6.10	.28	5.80	11.00	.09
20	166.00	.20	.05	.04	.06	.05	.03	4.90	.26	.08	8.10	.09
21	30.00	.09	.06	.04	.06	.05	.03	1.60	2.40	.07	4.70	.09
22	7.30	.09	.12	.05	.06	.05	.03	.16	.21	.05	4.70	.10
23	7.00	2.10	.13	.08	.09	2.00	.03	.13	.19	.05	2.00	.11
24	4.20	7.50	1.20	.06	.22	1.50	.02	.17	.19	.61	1.60	.11
25	214.00	4.10	1.60	.06	.13	.20	.02	.13	.21	14.00	4.60	.12
26	25.00	3.50	.11	.06	21.00	.20	.04	.11	55.00	5.40	.54	355.00
27	20.00	3.20	.25	.05	7.50	.18	.06	.19	3.30	3.40	.22	190.00
28	20.00	.71	.08	.05	4.80	.16	.09	.25	13.00	7.50	.22	105.00
29	20.00	.08	.05	.04	4.50	.15	.06	4.10	8.40	9.90	.20	78.00
30	19.00	.08	.04	.04	---	.12	.05	1.80	.51	3.90	.13	63.00
31	18.00	---	.05	.05	---	2.00	---	.24	---	.17	.13	---
TOTAL	553.20	70.82	5.03	262.54	41.55	44.20	9.82	21.32	544.51	194.74	206.07	823.59
MEAN	17.8	2.36	.16	8.47	1.43	1.43	.33	.69	18.2	6.28	6.65	27.5
MAX	214	17	1.6	162	21	4.8	4.8	6.1	242	59	40	355
MIN	.09	.04	.04	.04	.05	.05	.02	.04	.19	.05	.11	.09
AC-FT	1100	140	10.0	521	82	88	19	42	1080	386	409	1630
CAL YR 1983	TOTAL	2968.72	MEAN 8.13	MAX 214	MIN .04	AC-FT 5890						
WTR YR 1984	TOTAL	2777.39	MEAN 7.59	MAX 355	MIN .02	AC-FT 5510						

COLORADO RIVER BASIN

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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 north of Concho County Courthouse in Paint Rock, 2.7 mi downstream from Kikapoo Creek, and 20.0 mi upstream from mouth.

DRAINAGE AREA.--6,574 mi², of which 1,131 mi² 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 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 is the 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 a combined detention capacity of 2,690 acre-ft. These structures control runoff from 16.5 mi² in the Willow Creek drainage basin.

AVERAGE DISCHARGE.--47 years (water years 1916-62) prior to construction of Twin Buttes Dam, 210 ft³/s (152,100 acre-ft/yr); 22 years (water years 1963-84) regulated, 57.2 ft³/s (41,440 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 301,000 ft³/s Sept. 17, 1936 (gage height, 43.4 ft, from flood-marks), from rating curve extended above 98,000 ft³/s on basis of slope-area measurements of 144,000 and 301,000 ft³/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, and flood in August 1906 reached a stage of 39.5 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 331 ft³/s Oct. 26 at 1700 hours (gage height, 13.44 ft); minimum daily, 0.03 ft³/s for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	55	27	24	40	28.0	6.60	.44	.03	.03	.10	.20
2	9.5	55	27	25	27	27.0	6.80	.40	.03	.03	.08	2.20
3	8.1	55	27	27	24	26.0	5.90	.05	.03	.05	.06	74.00
4	8.4	83	25	33	23	19.0	4.50	.04	.03	1.70	.03	23.00
5	8.1	84	23	31	21	14.0	4.20	.04	.03	.60	.03	12.00
6	12.0	50	22	24	22	20.0	3.80	.05	.03	1.80	.03	8.40
7	13.0	41	19	20	22	21.0	5.80	.04	.03	.30	.03	6.20
8	10.0	33	20	20	22	18.0	8.70	.03	.03	.04	.03	5.00
9	13.0	29	23	36	23	16.0	6.00	.03	.03	.03	.03	2.20
10	16.0	24	24	48	23	16.0	4.00	.03	.03	.07	.03	2.20
11	17.0	24	24	131	23	18.0	5.10	.03	.03	.04	.03	.97
12	16.0	24	25	55	22	21.0	4.20	.03	.03	.05	.03	1.40
13	14.0	25	22	38	21	22.0	3.90	.03	.03	.04	13.00	.00
14	13.0	26	24	31	21	21.0	2.10	.03	.03	.04	13.00	.03
15	11.0	25	24	29	20	18.0	1.20	.03	.03	.04	14.00	.00
16	11.0	25	22	27	17	15.0	1.30	.03	.03	.04	13.00	.00
17	16.0	26	18	25	17	12.0	1.60	.03	.03	.04	9.60	.00
18	17.0	29	19	25	17	8.9	2.10	.03	.03	.09	7.20	.00
19	20.0	28	18	24	15	5.2	2.50	.03	.03	.05	2.20	.00
20	24.0	25	21	24	15	5.3	2.00	.03	.03	.05	1.20	.00
21	47.0	24	22	24	19	5.0	.64	.03	.03	.03	.76	.00
22	135.0	25	22	24	22	4.9	.67	.03	.03	.03	1.20	.00
23	59.0	24	22	24	18	20.0	1.20	.03	.03	.03	.76	.00
24	40.0	24	22	24	17	15.0	2.10	.03	.03	.10	.76	.00
25	57.0	22	22	25	17	12.0	1.70	.03	.03	.10	.39	.00
26	149.0	23	22	26	18	20.0	1.30	.03	.03	.10	.39	.00
27	143.0	29	22	25	21	25.0	.38	.03	.03	.05	.20	6.80
28	66.0	27	24	25	20	14.0	.63	.03	.03	.40	.20	68.00
29	49.0	27	24	25	25	11.0	.82	.03	.03	.40	.20	27.00
30	54.0	27	24	25	---	11.0	.22	.03	.03	.20	.20	58.00
31	55.0	---	24	24	---	8.8	---	.03	---	.10	.20	---
TOTAL	1121.1	1018	704	968	612	498.1	91.96	1.78	.90	6.67	78.97	297.60
MEAN	36.2	33.9	22.7	31.2	21.1	16.1	3.07	.057	.030	.22	2.55	9.92
MAX	149	84	27	131	40	28	8.7	.44	.03	1.8	14	74
MIN	8.1	22	18	20	15	4.9	.22	.03	.03	.03	.03	.00
AC-FT	2220	2020	1400	1920	1210	988	182	3.5	1.8	13	157	590
CAL YR 1983	TOTAL	9898.10	MEAN	27.1	MAX	185	MIN	.02	AC-FT	19630		
WTR YR 1984	TOTAL	5399.08	MEAN	14.8	MAX	149	MIN	.00	AC-FT	10710		

COLORADO RIVER BASIN

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, 3,690 micromhos June 28, Aug. 12, 1984; minimum daily, 268 micromhos Sept. 9, 1980.

WATER TEMPERATURES (1967-73, 1975-84): Maximum daily, 35.0°C on several days during summer months; minimum daily, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATIONS (1978-81): Maximum daily mean, 4,190 mg/L Sept. 9, 1980; minimum daily mean, 3 mg/L Feb. 2, 1979.

SEDIMENT LOADS (1978-81): 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, 3,690 micromhos June 28, Aug. 12; minimum daily, 1,470 micromhos Nov. 5, 9.

WATER TEMPERATURES: Maximum daily, 32.0°C July 14; minimum daily, 4.0°C Dec. 22, 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
OCT 19...	1600	14	2910	8.1	22.5	5	20	9.5	116	2.8	940
DEC 15...	0940	24	2480	7.7	9.5	<1	15	12.1	111	1.1	770
JAN 23...	1020	24	2670	--	5.0	--	--	--	--	--	750
FEB 23...	1730	19	2550	7.7	14.5	<1	8.8	10.3	108	2.3	740
APR 17...	1830	1.2	2620	8.1	22.0	40	20	8.3	102	2.7	770
JUN 14...	0845	.03	3180	7.7	26.0	7	27	7.2	94	5.1	930
AUG 22...	1510	6.2	2360	8.0	30.5	40	16	9.1	129	3.6	740

DATE	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 19...	820	180	120	270	4	5.8	120	530	640	.70	24
DEC 15...	560	170	85	240	4	4.7	220	310	530	.70	17
JAN 23...	540	170	80	250	4	4.9	210	290	560	.60	17
FEB 23...	550	160	83	240	4	4.8	190	340	520	.70	13
APR 17...	610	160	90	240	4	5.3	160	370	550	.70	10
JUN 14...	790	190	110	310	5	6.1	140	450	710	.70	23
AUG 22...	650	150	89	210	3	6.5	92	360	510	.50	30

COLORADO RIVER BASIN

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08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 19...	1800	21	1	.38	.020	.40	.040	1.2	1.2	.160	6.2
DEC 15...	1500	62	--	9.3	.050	9.3	.010	1.2	1.2	.010	3.0
JAN 23...	1500	--	--	--	--	--	--	--	--	--	--
FEB 23...	1500	24	<2	--	<.010	.40	.290	.41	.70	.020	3.7
APR 17...	1500	23	5	3.2	.050	3.2	.150	.95	1.1	.040	4.9
JUN 14...	1900	--	--	--	.090	<.10	.090	1.1	1.2	.060	6.3
AUG 22...	1400	33	19	--	.030	<.10	.060	1.1	1.2	.070	11

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
DEC 15...	0940	2	200	<1	<10	5	80
JUN 14...	0845	4	200	3	<10	2	40

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 15...	1	10	<.1	4	<1	10
JUN 14...	<1	30	<.1	1	<1	<10

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	1121.1	2640	1550	4690	570	1720	340	1040	800
NOV. 1983	1018	1890	1090	2980	380	1050	210	578	560
DEC. 1983	704	2400	1390	2650	500	958	300	563	720
JAN. 1984	968	2600	1520	3980	560	1450	330	874	790
FEB. 1984	612	2430	1420	2340	510	846	300	499	730
MAR. 1984	498.1	2570	1500	2020	550	738	330	443	780
APR. 1984	91.96	2630	1540	383	560	140	340	85	800
MAY 1984	1.78	2740	1620	7.8	590	2.9	360	1.8	840
JUNE 1984	0.90	3270	1960	4.8	740	1.8	480	1.2	1000
JULY 1984	6.67	3420	2060	37	790	14	520	9.3	1100
AUG. 1984	78.97	2690	1580	338	580	124	360	76	820
SEPT 1984	297.60	2290	1330	1070	480	383	280	222	690
TOTAL	5399.08	**	**	20500	**	7430	**	4390	**
WTD.AVG.	15	2410	1410	**	510	**	300	**	730

COLORADO RIVER BASIN

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

DAY	SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984											
	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2830	2450	2200	2660	2420	2590	2620	2550	3100	3560	3550	2630
2	2780	2460	2220	2640	2450	2590	2660	2740	3120	3600	3620	2560
3	2790	2450	2210	2600	2390	2510	2650	2770	3110	3580	3550	2210
4	2770	1820	2190	2610	2350	2580	2650	2800	3090	3450	3450	2160
5	2760	1470	2250	2620	2400	2530	2660	2770	3140	3420	3340	2250
6	2800	1660	2190	2590	2340	2550	2680	2660	3160	3610	3420	2340
7	2790	1720	2290	2690	2320	2570	2630	2720	3120	3540	3480	2220
8	2800	1810	2160	2710	2360	2600	2620	2850	3460	3550	3380	2170
9	2810	1470	2140	2630	2380	2510	2610	2860	3130	3580	3630	2200
10	2840	2160	2330	2590	2360	2590	2640	2870	3320	3530	3650	2220
11	2810	1920	2400	2380	2370	2580	2610	2890	3300	3560	3670	2290
12	2860	1980	2380	2690	2400	2600	2620	2910	3200	3530	3690	2160
13	2890	1580	2460	2620	2440	2590	2610	2920	3390	3350	2450	2220
14	2910	1550	2490	2670	2430	2560	2600	2910	3150	3550	2390	2160
15	2820	1600	2510	2610	2470	2590	2590	2900	3000	3530	2550	2170
16	2930	1680	2400	2650	2490	2570	2640	2890	3090	3540	3280	2190
17	2880	1630	2290	2680	2470	2600	2600	2910	3150	3530	2930	2180
18	2870	1740	2170	2710	2510	2630	2630	2920	3210	3360	2460	2190
19	2960	1920	2560	2670	2480	2650	2660	2940	3030	3550	2850	2220
20	2920	2010	2100	2610	2450	2640	2640	2960	3160	3540	3200	2180
21	2930	2000	2280	2600	2510	2630	2650	2720	3280	3560	3610	2200
22	2810	1780	2410	2610	2400	2660	2660	2670	3430	3590	2410	2210
23	2430	1750	2550	2700	2460	2450	2630	2630	3440	3620	2390	2190
24	2840	1990	2620	2640	2500	2540	2610	3010	3450	3360	2550	2220
25	2940	1560	2650	2710	2510	2590	2670	2900	3460	3380	2480	2550
26	2430	2080	2620	2650	2500	2510	2680	2910	3420	3390	2400	2890
27	2250	1860	2590	2600	2430	2610	2700	2890	3340	3440	2450	2790
28	2510	2000	2540	2540	2470	2620	2680	2880	3690	2700	2430	2250
29	2710	2160	2690	2560	2580	2550	2630	2870	3600	2950	2400	2620
30	2350	2180	2760	2550	---	2610	2730	2600	3520	3340	2410	2300
31	2680	---	2670	2570	---	2640	---	3000	---	3540	2390	---
MEAN	2760	1880	2400	2620	2440	2580	2640	2830	3270	3460	2980	2300

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	23.0	17.0	7.0	12.0	15.0	21.0	22.0	27.0	---	29.0	30.0
2	---	24.0	20.0	---	11.0	14.0	20.0	23.0	27.0	29.0	---	---
3	26.0	23.0	19.0	8.0	12.0	13.0	21.0	23.0	---	27.0	29.0	29.0
4	25.0	22.0	18.0	8.0	13.0	14.0	19.0	---	25.0	29.0	29.0	30.0
5	24.0	23.0	19.0	8.0	12.0	15.0	21.0	26.0	27.0	27.0	28.0	29.0
6	25.0	24.0	19.0	7.0	13.0	14.0	22.0	26.0	26.0	29.0	29.0	28.0
7	25.0	22.0	18.0	8.0	13.0	15.0	23.0	25.0	27.0	31.0	30.0	26.0
8	26.0	23.0	17.0	---	14.0	15.0	24.0	23.0	26.0	30.0	29.0	27.0
9	25.0	20.0	15.0	9.0	13.0	16.0	25.0	25.0	28.0	31.0	29.0	29.0
10	24.0	21.0	18.0	8.0	14.0	16.0	22.0	25.0	25.0	30.0	30.0	30.0
11	22.0	22.0	17.0	7.0	15.0	16.0	20.0	26.0	27.0	31.0	31.0	28.0
12	23.0	20.0	16.0	9.0	13.0	16.0	20.0	26.0	27.0	30.0	29.0	30.0
13	22.0	21.0	18.0	9.0	14.0	17.0	22.0	---	25.0	31.0	30.0	29.0
14	20.0	---	17.0	8.0	15.0	20.0	21.0	26.0	25.0	32.0	29.0	28.0
15	24.0	22.0	16.0	7.0	15.0	---	22.0	26.0	29.0	30.0	28.0	29.0
16	25.0	20.0	18.0	6.0	15.0	22.0	20.0	25.0	---	31.0	28.0	---
17	24.0	21.0	16.0	6.0	16.0	21.0	21.0	23.0	28.0	30.0	30.0	22.0
18	24.0	20.0	7.0	7.0	17.0	---	25.0	25.0	27.0	29.0	31.0	24.0
19	24.0	21.0	6.0	6.0	16.0	19.0	24.0	23.0	28.0	30.0	---	25.0
20	24.0	20.0	7.0	5.0	17.0	19.0	25.0	22.0	28.0	31.0	29.0	27.0
21	25.0	20.0	5.0	---	13.0	23.0	26.0	24.0	29.0	---	29.0	25.0
22	24.0	19.0	4.0	7.0	15.0	21.0	---	27.0	27.0	---	30.0	---
23	25.0	19.0	7.0	9.0	15.0	22.0	27.0	27.0	---	29.0	30.0	28.0
24	26.0	20.0	5.0	8.0	16.0	20.0	26.0	26.0	28.0	28.0	31.0	26.0
25	22.0	21.0	4.0	9.0	17.0	21.0	27.0	25.0	27.0	29.0	---	27.0
26	22.0	20.0	6.0	9.0	14.0	21.0	27.0	---	30.0	30.0	30.0	26.0
27	20.0	18.0	6.0	---	13.0	20.0	25.0	23.0	28.0	29.0	31.0	---
28	22.0	19.0	5.0	10.0	15.0	19.0	23.0	23.0	29.0	---	---	24.0
29	21.0	20.0	5.0	---	15.0	20.0	22.0	24.0	---	---	29.0	---
30	22.0	18.0	5.0	10.0	---	21.0	20.0	27.0	27.0	29.0	---	23.0
31	23.0	---	6.0	10.0	---	18.0	---	28.0	---	28.0	29.0	---
MEAN	23.5	21.0	12.0	8.0	14.0	18.0	23.0	25.0	27.0	29.5	29.5	27.0

COLORADO RIVER BASIN

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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 upstream from Bois d'Arc Creek, 1.8 mi northeast of Stacy, 24 mi downstream from Concho River, and at mile 604.8.

DRAINAGE AREA.--24,193 mi², approximately, of which 11,391 mi² 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 National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bridge plans).

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

AVERAGE DISCHARGE.--16 years (water years 1969-84), 206 ft³/s (149,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft³/s Sept. 10, 1980 (gage height, 28.00 ft); no flow at times in 1974, 1980, 1983, and 1984.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,440 ft³/s Sept. 3 at 1100 hours (gage height, 9.78 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	45	28	35	31	31.0	21.00	.01	0	0	.00	.00
2	0	44	29	35	30	29.0	11.00	.00	0	0	.00	.00
3	0	43	31	35	31	30.0	8.90	.00	0	0	.00	1400.00
4	0	43	32	35	42	31.0	8.40	.00	0	0	.00	254.00
5	0	85	31	35	36	32.0	8.40	.00	0	0	.00	105.00
6	0	344	30	34	31	31.0	8.00	.00	0	0	.00	53.00
7	0	189	28	34	29	26.0	7.20	.00	0	0	.00	25.00
8	0	127	26	34	29	22.0	7.20	.00	0	0	.00	14.00
9	0	81	26	40	29	19.0	8.00	.00	0	0	.00	8.90
10	0	55	27	39	29	19.0	6.10	.00	0	0	.00	6.50
11	0	45	28	71	27	20.0	5.80	.00	0	0	.00	5.00
12	0	39	28	171	26	20.0	5.20	.00	0	0	69.00	3.80
13	0	32	28	98	26	19.0	4.90	.00	0	0	187.00	3.10
14	0	29	29	76	26	18.0	4.60	.00	0	0	34.00	2.20
15	0	28	29	63	22	18.0	3.60	.00	0	0	12.00	1.20
16	0	27	30	54	21	20.0	3.10	.00	0	0	6.90	.70
17	0	26	30	50	23	22.0	2.90	.00	0	0	4.60	.37
18	0	24	30	46	26	19.0	2.90	.00	0	0	3.40	.23
19	0	20	30	45	24	13.0	2.90	.00	0	0	2.90	.17
20	0	20	29	43	22	12.0	2.00	.00	0	0	2.70	.15
21	0	19	27	41	22	11.0	1.20	.00	0	0	1.70	.13
22	0	20	22	40	21	8.4	1.00	.00	0	0	.42	.10
23	108	20	24	38	19	312.0	.85	.00	0	0	.29	.08
24	141	19	24	37	18	106.0	.63	.00	0	0	.15	.07
25	94	18	30	36	20	40.0	.37	.00	0	0	.07	.05
26	79	18	30	35	24	27.0	.33	.00	0	0	.03	.01
27	105	18	30	34	22	16.0	.17	.00	0	0	.01	.01
28	185	19	31	34	23	11.0	.15	.00	0	0	.00	.00
29	108	20	28	33	31	11.0	.07	.00	0	0	.00	.01
30	70	24	33	32	---	18.0	.03	.00	0	0	.00	27.00
31	51	---	34	32	---	24.0	---	.00	---	0	.00	---
TOTAL	941	1541	892	1465	760	1035.4	136.90	.01	0	0	325.17	1910.78
MEAN	30.4	51.4	28.8	47.3	26.2	33.4	4.56	.000	.000	.000	10.5	63.7
MAX	185	344	34	171	42	312	21	.01	.00	.00	187	1400
MIN	.00	18	22	32	18	8.4	.03	.00	.00	.00	.00	.00
AC-FT	1870	3060	1770	2910	1510	2050	272	.02	.00	.00	645	3790
CAL YR 1983	TOTAL	14650.86	MEAN	40.1	MAX	344	MIN	.00	AC-FT	29060		
WTR YR 1984	TOTAL	9007.26	MEAN	24.6	MAX	1400	MIN	.00	AC-FT	17870		

COLORADO RIVER BASIN

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, 4,030 micromhos Oct. 29, 1983; minimum daily, 188 micromhos July 29, 1971.

WATER TEMPERATURES (1968-83): 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, 4,030 micromhos Oct. 29; minimum daily, 240 micromhos Sept. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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...	1550	27	1690	17.5	480	370	110	50	160
JAN 05...	0950	31	850	4.5	220	160	53	22	64
FEB 02...	1000	30	2440	10.5	780	610	180	80	220
APR 16...	1035	2.9	2330	17.5	720	600	160	77	220
AUG 22...	1400	.40	1390	34.5	510	430	130	44	120
DATE		SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 16...	3	5.6	110	280	330	.40	10	1000	
JAN 05...	2	2.0	60	110	140	.20	3.7	430	
FEB 02...	4	4.8	170	440	450	.50	8.8	1500	
APR 16...	4	5.1	120	430	450	.50	4.3	1400	
AUG 22...	2	6.6	72	370	200	.40	17	930	

COLORADO RIVER BASIN

08136700 COLORADO RIVER NEAR STACY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	941.00	3300	2110	5360	710	1800	680	1740	1100
NOV. 1983	1541	2010	1200	4990	380	1600	330	1360	610
DEC. 1983	892	1750	1020	2460	320	778	260	634	520
JAN. 1984	1465	2090	1250	4930	400	1580	340	1340	640
FEB. 1984	760	2470	1500	3080	490	1000	430	884	770
MAR. 1984	1035.4	1510	896	2500	290	798	240	672	460
APR. 1984	136.90	2130	1270	470	410	151	350	129	650
MAY 1984	0.01	2320	1400	0.04	450	0.01	390	0.01	720
JUNE 1984	0.00	*	*	0.00	*	0.00	*	0.00	*
JULY 1984	0.00	*	*	0.00	*	0.00	*	0.00	*
AUG. 1984	325.17	776	434	381	130	116	95	83	220
SEPT 1984	1910.78	312	170	875	50	260	33	169	86
TOTAL	9007.26	**	**	25100	**	8070	**	7010	**
WTD.AVG.	25	1710	1030	**	330	**	290	**	530

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	3180	1650	2160	2380	2560	1750	2320		---	---	---
2	---	3010	1460	2270	2430	2540	1900	---		---	---	---
3	---	2890	1730	2150	2400	2490	1990	---		---	---	240
4	---	2770	1760	2010	2410	2460	2090	---		---	---	450
5	---	2630	1820	1590	2390	2430	2120	---		---	---	535
6	---	2140	1800	2040	2420	2400	2220	---		---	---	620
7	---	2050	1790	2090	2410	2390	2260	---		---	---	610
8	---	1810	1780	2070	2430	2370	2300	---		---	---	600
9	---	1550	1710	2040	2440	2380	2280	---		---	---	620
10	---	1560	1690	2010	2440	2390	2310	---		---	---	630
11	---	1600	1670	1910	2460	2470	2300	---		---	---	620
12	---	1560	1660	1720	2450	2400	2280	---		---	1100	630
13	---	1690	1650	2170	2470	2410	2290	---		---	540	650
14	---	1710	1640	2250	2480	2420	2320	---		---	1020	680
15	---	1670	1650	2230	2480	2440	2300	---		---	1100	700
16	---	1630	1630	2220	2510	2470	2270	---		---	1140	715
17	---	1610	1640	2200	2480	2410	2280	---		---	1220	700
18	---	1570	1670	2160	2450	2460	2260	---		---	1210	710
19	---	1580	1720	2130	2490	2490	2280	---		---	1200	720
20	---	1560	1550	2140	2510	2490	2270	---		---	1220	725
21	---	1580	1720	2130	2520	2500	2260	---		---	1220	733
22	---	1590	1810	2150	2530	2510	2250	---		---	1230	740
23	2250	1600	1800	2140	2560	650	2260	---		---	1240	721
24	2040	1620	1890	2110	2600	500	2270	---		---	1260	700
25	2770	1610	1780	2120	2550	750	2270	---		---	1250	720
26	3730	1620	1860	2150	2500	800	2280	---		---	1270	770
27	4020	1630	1930	2180	2610	1000	2330	---		---	1260	740
28	3830	1640	1650	2210	2600	1140	2310	---		---	---	---
29	4030	1640	1920	2300	2590	1290	2320	---		---	---	760
30	3850	1660	2000	2380	---	1300	2330	---		---	---	450
31	3660	---	2050	2420	---	1500	---	---		---	---	---
MEAN	3350	1870	1740	2120	2480	2030	2230	2320			1160	648

COLORADO RIVER BASIN

08136700 COLORADO RIVER NEAR STACY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984												
DAY	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	11.0	---	11.0	13.0	---	21.0			---	---
2	---	---	10.0	11.0	13.0	15.0	19.0	---			---	---
3	---	---	12.0	3.0	12.0	15.0	19.0	---			---	---
4	---	---	---	2.0	13.0	---	19.0	---			---	25.0
5	---	---	14.0	5.0	12.0	13.0	19.0	---			---	27.0
6	---	---	13.0	10.0	12.0	14.0	20.0	---			---	28.0
7	---	---	12.0	9.0	---	14.0	20.0	---			---	28.0
8	---	---	13.0	---	11.0	15.0	---	---			---	29.0
9	---	20.0	13.0	10.0	13.0	13.0	23.0	---			---	---
10	---	19.0	14.0	8.0	14.0	14.0	23.0	---			---	30.0
11	---	---	---	9.0	15.0	20.0	24.0	---			---	30.0
12	---	17.0	14.0	8.0	---	16.0	22.0	---			25.0	30.0
13	---	---	13.0	8.0	15.0	17.0	24.0	---			---	31.0
14	---	19.0	12.0	6.0	15.0	20.0	21.0	---			27.0	31.0
15	---	18.0	11.0	---	15.0	21.0	---	---			---	27.0
16	---	18.0	---	1.0	15.0	21.0	21.0	---			30.0	---
17	---	17.0	8.0	1.0	15.0	---	21.0	---			31.0	27.0
18	---	17.0	---	5.0	16.0	---	20.0	---			30.0	26.0
19	---	16.0	6.0	4.0	---	18.0	22.0	---			---	26.0
20	---	---	4.0	4.0	---	19.0	23.0	---			33.0	26.0
21	---	17.0	4.0	3.0	15.0	19.0	21.0	---			32.0	29.0
22	---	18.0	1.0	---	14.0	20.0	---	---			31.0	26.0
23	---	16.0	1.0	---	15.0	19.0	24.0	---			32.0	---
24	21.0	---	1.0	7.0	15.0	15.0	25.0	---			31.0	26.0
25	21.0	13.0	---	6.0	---	---	25.0	---			33.0	28.0
26	19.0	15.0	---	9.0	---	19.0	25.0	---			---	22.0
27	21.0	---	2.0	---	12.0	18.0	23.0	---			32.0	22.0
28	19.0	12.0	1.0	10.0	12.0	17.0	23.0	---			---	---
29	21.0	13.0	---	---	11.0	18.0	---	---			---	15.0
30	---	11.0	---	10.0	---	16.0	21.0	---			---	---
31	23.0	---	5.0	10.0	---	18.0	---	---			---	---
MEAN	20.5	16.0	8.5	6.5	13.5	17.0	22.0	21.0			30.5	27.0

COLORADO RIVER BASIN

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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 south of Winchell, 5.9 mi downstream from Home Creek, and at mile 560.7.

DRAINAGE AREA.--25,179 mi², approximately, of which 11,391 mi² 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 National Geodetic Vertical Datum of 1929. November 1923 to September 1934, nonrecording gage at site 4.2 mi downstream at datum 10.14 ft lower. Jan. 13, 1939, to Mar. 24, 1940, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Many diversions above station for irrigation, municipal supply, and oilfield operation. Flow is affected by reservoirs upstream (see stations 08126380 and 08136000) and at times by discharge from the flood-detention pools of 89 floodwater-retarding structures with a combined detention capacity of 105,100 acre-ft. These structures control runoff from 512 mi².

AVERAGE DISCHARGE.--39 years (water years 1925-34, 1940-68) prior to completion of Robert Lee Dam, 628 ft³/s (455,000 acre-ft/yr); 16 years (water years 1969-84) partially regulated, 250 ft³/s (181,100 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,780 ft³/s Sept. 4 at 0300 hours (gage height, 8.79 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	65	20	25	31	26	16.00	0	0	0	.00	.19
2	.00	53	21	27	31	25	15.00	0	0	0	.00	.13
3	.00	47	29	29	31	30	19.00	0	0	0	.00	339.00
4	.00	47	30	30	30	30	20.00	0	0	0	.00	1520.00
5	.00	70	31	30	29	28	19.00	0	0	0	.00	444.00
6	.00	82	31	31	36	30	15.00	0	0	0	.00	234.00
7	.00	313	32	31	38	32	12.00	0	0	0	.00	135.00
8	.00	193	32	31	33	32	11.00	0	0	0	.00	80.00
9	.00	138	32	35	32	27	9.20	0	0	0	.00	53.00
10	.00	97	31	37	31	26	7.90	0	0	0	.00	35.00
11	.00	70	28	37	30	24	7.00	0	0	0	.00	24.00
12	.00	56	26	38	29	80	6.70	0	0	0	127.00	17.00
13	.00	47	25	153	29	98	6.00	0	0	0	185.00	10.00
14	.00	40	23	133	28	49	4.60	0	0	0	249.00	7.00
15	.00	33	21	95	27	34	4.00	0	0	0	92.00	4.60
16	.00	31	21	77	25	27	3.00	0	0	0	65.00	3.10
17	.00	28	23	64	25	23	2.60	0	0	0	41.00	2.80
18	.00	26	23	55	28	24	2.40	0	0	0	20.00	2.40
19	.00	24	23	49	27	24	2.40	0	0	0	14.00	2.00
20	.00	22	23	45	26	23	2.00	0	0	0	9.30	1.70
21	.00	22	24	43	28	21	1.40	0	0	0	5.90	3.60
22	.00	21	24	41	28	20	1.10	0	0	0	3.20	4.30
23	.00	21	24	41	26	1150	.73	0	0	0	2.50	2.00
24	.00	21	21	40	24	654	.46	0	0	0	2.40	1.70
25	.00	20	18	39	23	199	.26	0	0	0	2.00	1.40
26	.00	20	18	37	61	101	.09	0	0	0	1.70	1.10
27	.02	20	19	35	128	56	.03	0	0	0	1.10	1.40
28	84.00	19	22	34	54	36	.01	0	0	0	.73	1.70
29	164.00	20	24	34	34	29	.00	0	0	0	.59	3.00
30	126.00	20	25	32	---	25	.00	0	0	0	.46	2.40
31	87.00	---	25	31	---	19	---	0	---	0	.35	---
TOTAL	461.02	1686	769	1459	1002	3002	188.88	0	0	0	823.23	2937.52
MEAN	14.9	56.2	24.8	47.1	34.6	96.8	6.30	.000	.000	.000	26.6	97.9
MAX	164	313	32	153	128	1150	20	.00	.00	.00	249	1520
MIN	.00	19	18	25	23	19	.00	.00	.00	.00	.00	.13
AC-FT	914	3340	1530	2890	1990	5950	375	.00	.00	.00	1630	5830

CAL YR 1983	TOTAL	17329.22	MEAN	47.5	MAX	1130	MIN	.00	AC-FT	34370
WTR YR 1984	TOTAL	12328.65	MEAN	33.7	MAX	1520	MIN	.00	AC-FT	24450

COLORADO RIVER BASIN

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 1983 TO SEPTEMBER 1984

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 15...	1605	33	2540	16.5	690	570	140	82	270
DEC 28...	1240	23	1850	3.0	500	360	110	54	180
FEB 01...	1150	31	2200	10.0	700	540	160	72	190
MAR 14...	0840	53	1500	16.5	420	320	98	42	150
APR 16...	1640	2.6	1640	21.0	490	370	120	47	140
AUG 22...	0840	2.9	1010	28.5	250	160	65	21	94

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LILITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 15...	5	5.4	120	400	550	.60	16	1500
DEC 28...	4	5.4	140	270	360	.50	8.6	1100
FEB 01...	3	4.7	160	350	430	.10	9.7	1300
MAR 14...	3	5.2	98	240	280	.10	3.1	880
APR 16...	3	6.1	120	250	300	.40	5.2	940
AUG 22...	3	6.3	90	100	200	.30	10	550

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 west of dam on North Prong Pecan Bayou, 2.1 mi downstream from bridge on Farm Road 604, and 7.0 mi southeast of Clyde.

DRAINAGE AREA.--36.9 mi².

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 long. Appreciable storage began in April 1970, and the dam was completed in May 1970. The uncontrolled emergency spillways are two 200-foot-wide cut channels through natural ground located at left end of dam. The service spillway is an uncontrolled 3.5- by 10.5-foot reinforced concrete drop inlet connected to a 42-inch concrete outlet pipe. A 14-inch controlled drain pipe is connected to the drop inlet. There are four 4.83- by 3.50-foot rectangular slots, two on each side, divided by a 10-inch concrete web. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,888.9	16,530
Crest of spillway.....	1,881.4	10,840
Crest of spillway (invert of drop inlet).....	1,872.0	5,720
Lowest gated outlet (invert).....	1,842.2	60

COOPERATION.--Record of lake elevations 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 Oct. 14, 1971 (elevation, 1,881.0 ft); minimum, 917 acre-ft Sept. 27-30, 1984 (elevation, 1,855.5 ft).

EXTREMES (AT 0800) FOR CURRENT YEAR.--Maximum contents observed, 2,510 acre-ft Oct. 1-4 (elevation, 1,863.2 ft); minimum observed, 917 acre-ft Sept. 27-30 (elevation, 1,855.5 ft).

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

1,855.0	851	1,861.0	1,940
1,858.0	1,310	1,864.0	2,740

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2510	2430	2320	2210	2160	2060	1990	1850	1630	1390	1170	1080
2	2510	2430	2320	2210	2160	2060	1990	1850	1630	1390	1170	1080
3	2510	2430	2320	2210	2160	2060	1990	1830	1630	1370	1170	1080
4	2510	2430	2320	2210	2160	2060	1990	1830	1610	1370	1170	1060
5	2480	2430	2320	2210	2160	2060	1970	1830	1610	1350	1160	1050
6	2480	2430	2320	2210	2160	2040	1970	1830	1590	1350	1160	1030
7	2480	2430	2320	2210	2160	2040	1970	1830	1590	1330	1160	1030
8	2480	2430	2320	2210	2160	2040	1970	1800	1590	1330	1160	1030
9	2480	2430	2290	2210	2160	2040	1970	1800	1590	1310	1160	1020
10	2450	2430	2290	2210	2140	2060	1940	1780	1570	1310	1140	1020
11	2450	2430	2290	2210	2140	2060	1940	1780	1570	1310	1140	1020
12	2430	2400	2290	2210	2140	2060	1940	1780	1540	1290	1140	1000
13	2430	2400	2290	2210	2140	2060	1940	1760	1540	1290	1140	987
14	2430	2400	2290	2210	2140	2060	1920	1760	1540	1290	1140	987
15	2430	2400	2290	2210	2110	2060	1920	1760	1540	1280	1140	987
16	2400	2400	2290	2210	2110	2040	1920	1760	1520	1280	1140	973
17	2400	2370	2270	2210	2110	2040	1900	1740	1520	1280	1140	973
18	2400	2370	2270	2210	2110	2040	1900	1740	1520	1260	1120	973
19	2370	2370	2270	2210	2110	2040	1900	1740	1500	1240	1120	959
20	2430	2370	2270	2210	2110	2040	1900	1740	1500	1240	1120	959
21	2450	2370	2270	2210	2110	2040	1900	1710	1480	1220	1120	945
22	2450	2370	2270	2210	2090	2040	1900	1710	1460	1220	1120	945
23	2450	2370	2270	2210	2090	2040	1900	1710	1440	1210	1110	945
24	2480	2370	2270	2190	2090	2040	1900	1690	1440	1220	1110	931
25	2450	2370	2240	2190	2090	2040	1870	1690	1420	1220	1110	931
26	2450	2340	2240	2190	2090	2010	1870	1690	1420	1210	1110	931
27	2450	2340	2240	2190	2060	2010	1870	1690	1400	1210	1110	917
28	2450	2340	2240	2190	2060	2010	1850	1670	1400	1210	1090	917
29	2450	2340	2240	2190	2060	2010	1850	1670	1400	1190	1090	917
30	2450	2320	2240	2190	---	2010	1850	1650	1400	1190	1090	917
31	2450	---	2240	2190	---	2010	---	1650	---	1190	1080	---
MAX	2510	2430	2320	2210	2160	2060	1990	1850	1630	1390	1170	1080
MIN	2370	2320	2240	2190	2060	2010	1850	1650	1400	1190	1080	917
(+)	1862.9	1862.4	1862.1	1861.9	1861.4	1861.2	1860.4	1859.5	1858.2	1857.3	1856.6	1855.5
(+)	-60	-130	-80	-50	-130	-50	-160	-200	-250	-210	-110	-163

CAL YR 1983 MAX 4050 MIN 2240 † -1810
WTR YR 1984 MAX 2510 MIN 917 † -1590

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

COLORADO RIVER BASIN

08140600 LAKE CLYDE NEAR CLYDE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1974 to September 1984 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
APR 12...	1510	689	18.0	170	50	50	11	64

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
APR 12...	2	7.6	120	44	110	.40	2.1	360

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 north of Valera, and 8.8 mi west of Coleman.

DRAINAGE AREA.--48 mi², approximately.

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 long, including spillway. 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 wide, located about 600 ft from the right end of dam. The spillway consists of three concrete conduits; two controlled by 5.0- by 6.0-foot slide gates, and a third uncontrolled ogee spillway 4.0 ft wide and 19.5 ft 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 one floodwater-retarding structure with a detention capacity of 1,370 acre-ft. This structure controls runoff from 6.82 mi² 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 May 1, 1956 (elevation, 1,906.86 ft); minimum since first appreciable storage in June 1951, 1,550 acre-ft Sept. 2, 1984 (elevation, 1,878.01 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 2,580 acre-ft Oct. 1 at 0015 hours (elevation, 1,883.77 ft); minimum daily, 1,550 acre-ft Sept. 2 (elevation, 1,878.01 ft).

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

1,878.0	1,550	1,882.0	2,240
1,880.0	1,880	1,884.0	2,630

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2580	2460	2370	2290	2250	2180	2120	1990	1840	1740	1610	1550
2	2570	2460	2370	2280	2240	2170	2120	1980	1830	1740	1610	1570
3	2570	2460	2370	2280	2240	2170	2120	1980	1830	1730	1610	1580
4	2560	2450	2370	2280	2240	2160	2120	1970	1820	1730	1600	1580
5	2560	2460	2370	2280	2240	2160	2110	1970	1830	1720	1600	1580
6	2560	2460	2360	2280	2230	2160	2100	1960	1850	1710	1590	1570
7	2550	2460	2360	2270	2230	2160	2110	1960	1850	1710	1590	1570
8	2540	2460	2360	2280	2230	2160	2100	1960	1840	1700	1590	1570
9	2540	2450	2360	2280	2230	2160	2100	1960	1840	1700	1580	1560
10	2540	2450	2350	2280	2230	2150	2100	1950	1830	1690	1580	1560
11	2530	2440	2350	2280	2220	2170	2090	1940	1830	1680	1580	1560
12	2520	2440	2340	2280	2220	2170	2080	1930	1820	1670	1610	1560
13	2520	2430	2340	2280	2220	2170	2080	1920	1820	1670	1610	1560
14	2510	2430	2340	2280	2210	2160	2070	1920	1810	1660	1610	1550
15	2510	2430	2340	2280	2210	2160	2070	1910	1800	1650	1610	1550
16	2510	2420	2340	2270	2210	2160	2060	1900	1800	1650	1610	1550
17	2500	2420	2340	2270	2210	2160	2060	1910	1790	1640	1600	1550
18	2500	2420	2330	2270	2200	2160	2050	1910	1790	1650	1600	1550
19	2500	2410	2330	2270	2200	2150	2050	1910	1780	1640	1590	1550
20	2510	2410	2330	2270	2200	2150	2040	1900	1780	1640	1590	1550
21	2510	2400	2330	2260	2200	2150	2040	1900	1770	1630	1580	1570
22	2500	2400	2330	2260	2190	2150	2040	1900	1760	1630	1580	1570
23	2500	2400	2330	2260	2190	2160	2030	1900	1750	1620	1570	1570
24	2500	2400	2330	2260	2190	2150	2030	1890	1750	1630	1580	1560
25	2490	2400	2320	2260	2180	2150	2020	1880	1740	1630	1570	1560
26	2490	2390	2320	2260	2180	2150	2010	1880	1730	1630	1570	1560
27	2490	2390	2320	2260	2180	2140	2010	1870	1740	1630	1560	1570
28	2480	2390	2310	2250	2180	2140	2000	1870	1750	1620	1560	1570
29	2480	2380	2300	2250	2180	2130	2000	1860	1750	1620	1560	1570
30	2480	2370	2300	2250	---	2130	1990	1860	1750	1610	1560	1570
31	2480	---	2290	2250	---	2120	---	1850	---	1610	1560	---
MAX	2580	2460	2370	2290	2250	2180	2120	1990	1850	1740	1610	1580
MIN	2480	2370	2290	2250	2180	2120	1990	1650	1730	1610	1560	1550
(†)	1833.24	1882.72	1882.29	1882.06	1881.69	1881.38	1880.68	1879.83	1879.21	1878.36	1878.03	1978.10
(‡)	-100	-110	-80	-40	-70	-60	-130	-140	-100	-140	-50	+10

CAL YR 1983 MAX 3570 MIN 2290 ± -1280

WTR YR 1984 MAX 2580 MIN 1550 ± -1010

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

COLORADO RIVER BASIN

08141500 HORDS CREEK NEAR VALERA, TX

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

DRAINAGE AREA.--54.2 mi², approximately, of which 49.3 mi² is above Hords Creek.

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

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

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

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

REMARKS.--Records good except those above 10 ft³/s, which are fair. Flow is regulated by Hords Creek Lake (station 08141000).

AVERAGE DISCHARGE.--37 years, 1.51 ft³/s (1,090 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,860 ft³/s Apr. 30, 1956 (gage height, 14.73 ft), at site 0.5 mi downstream at datum 6.84 ft lower, from rating curve extended above 1,900 ft³/s; no flow at times each year.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16 ft³/s Nov. 1 at 1530 hours (gage height, 1.44 ft); no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	2.50	0	.00	.01	.04	.04	0	0	0	0	0
2	0	.40	0	.01	.01	.04	.06	0	0	0	0	0
3	0	.04	0	.01	.01	.04	.07	0	0	0	0	0
4	0	.03	0	.01	.01	.04	.07	0	0	0	0	0
5	0	.04	0	.01	.01	.04	.08	0	0	0	0	0
6	0	.03	0	.01	.01	.04	.08	0	0	0	0	0
7	0	.03	0	.01	.01	.04	.09	0	0	0	0	0
8	0	.03	0	.01	.01	.04	.10	0	0	0	0	0
9	0	.03	0	.01	.01	.04	.10	0	0	0	0	0
10	0	.03	0	.01	.01	.04	.10	0	0	0	0	0
11	0	.03	0	.01	.01	.04	.08	0	0	0	0	0
12	0	.03	0	.01	.01	.02	.07	0	0	0	0	0
13	0	.03	0	.01	.01	.02	.06	0	0	0	0	0
14	0	.03	0	.01	.01	.02	.01	0	0	0	0	0
15	0	.01	0	.01	.01	.02	.01	0	0	0	0	0
16	0	.01	0	.01	.01	.02	.01	0	0	0	0	0
17	0	.01	0	.01	.02	.02	.01	0	0	0	0	0
18	0	.01	0	.01	.02	.02	.01	0	0	0	0	0
19	0	.00	0	.01	.02	.03	.01	0	0	0	0	0
20	0	.00	0	.01	.02	.02	.01	0	0	0	0	0
21	0	.00	0	.01	.02	.02	.01	0	0	0	0	0
22	0	.00	0	.01	.02	.02	.01	0	0	0	0	0
23	0	.00	0	.01	.03	.02	.01	0	0	0	0	0
24	0	.00	0	.01	.03	.02	.01	0	0	0	0	0
25	0	.00	0	.01	.03	.02	.01	0	0	0	0	0
26	0	.00	0	.01	.04	.02	.01	0	0	0	0	0
27	0	.00	0	.01	.04	.03	.00	0	0	0	0	0
28	0	.00	0	.01	.04	.03	.00	0	0	0	0	0
29	0	.00	0	.01	.04	.03	.00	0	0	0	0	0
30	0	.00	0	.01	---	.04	.00	0	0	0	0	0
31	0	---	0	.01	---	.04	---	0	---	0	0	---
TOTAL	0	3.32	0	.30	.53	.92	1.13	0	0	0	0	0
MEAN	.000	.11	.000	.010	.018	.030	.038	.000	.000	.000	.000	.000
MAX	.00	2.5	.00	.01	.04	.04	.10	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.01	.02	.00	.00	.00	.00	.00	.00
AC-FT	.00	6.6	.00	.6	1.1	1.8	2.2	.00	.00	.00	.00	.00
CAL YR 1983	TOTAL	32.61	MEAN	.089	MAX	12	MIN	.00	AC-FT	65		
WTR YR 1984	TOTAL	6.20	MEAN	.017	MAX	2.5	MIN	.00	AC-FT	12		

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 downstream from Jim Ned Creek, 8 mi north of Brownwood, and 57.1 mi upstream from mouth.

DRAINAGE AREA.--1,565 mi².

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 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 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 long located 800 ft to left of dam. The controlled service spillway consists of two 12-foot horseshoe-shaped concrete conduits. 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. These structures control runoff from 353 mi² in the Jim Ned Creek and Pecan Bayou drainage basins. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	1,450.0	-
Crest of spillway.....	1,425.1	143,400
Lowest gated outlet (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 May 2, 1956 (gage height, 1,431.4 ft); minimum, 11,900 acre-ft July 15, 1934 (gage height, 1,389.5 ft).

EXTREMES (AT 1800) FOR CURRENT YEAR.--Maximum contents observed, 109,700 acre-ft Oct. 10-14 (gage height, 1,420.0 ft); minimum, 81,310 acre-ft Sept 28, 29 (gage height, 1,414.8 ft).

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

1,414.0	77,530
1,417.0	92,430
1,420.0	109,700

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 1800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106700	107300	104300	101300	100700	100100	102500	98970	91910	97300	90350	83740
2	106700	107300	104300	101300	100700	99530	102500	98970	91390	97300	89830	83740
3	106700	107300	103700	101300	100700	99530	102500	98410	91390	96750	89830	84230
4	106700	107300	103700	101300	100700	98970	102500	98410	90870	96750	89830	85730
5	106700	107300	103700	101300	100700	98970	102500	97850	90870	96750	89310	85730
6	106700	107300	103100	101300	100700	98410	101900	97850	91390	96210	89310	85730
7	106100	107300	103100	101300	100700	98410	101900	97850	102500	96210	88790	85230
8	106100	106700	103100	100700	100700	98410	101900	97850	102500	95670	88790	85230
9	105500	106700	103100	100700	100700	98410	101900	97850	102500	95670	88790	84730
10	109700	106700	103100	100700	100700	98410	101900	97300	102500	95130	88790	84730
11	109700	106700	103100	100700	100700	98410	101900	97300	102500	94590	88790	84730
12	109700	106700	103100	100700	100700	98410	101900	96750	101900	94590	88270	84230
13	109700	106700	103100	100700	100700	98410	101900	96750	101900	94050	88270	84230
14	109700	106100	103100	100700	100700	97850	101900	96750	101900	94050	88270	84230
15	109100	106100	102500	100700	100100	97850	101900	96210	101300	93510	88270	83740
16	109100	106100	102500	100700	100100	97850	101300	96210	101300	93510	87750	83250
17	109100	106100	102500	100700	100100	97850	101300	95670	100700	93510	87750	83250
18	108500	106100	102500	100700	100100	97850	101300	95670	100700	92970	87750	82760
19	108500	106100	102500	100700	100100	97850	101300	95670	100100	92430	87230	82760
20	108500	105500	102500	100700	100100	97850	101300	95130	99530	92430	87230	82760
21	108500	105500	102500	100700	100100	97850	100700	94590	99530	91910	87230	82760
22	108500	104900	102500	100700	100100	102500	100700	94590	98970	91910	86730	82270
23	108500	104900	102500	100700	100100	102500	100700	94050	98970	91910	86730	82270
24	108500	104900	102500	100700	100100	102500	100700	94050	98410	91910	86230	82270
25	107900	104900	102500	100700	100100	103100	100100	93510	98410	91390	85730	82270
26	107900	104300	102500	100700	100100	103100	100100	92970	97850	91390	85230	81790
27	107900	104300	102500	100700	100100	103100	99530	92970	97850	91390	85230	81790
28	107900	104300	102500	100700	100100	103100	99530	92970	97850	90870	84730	81310
29	107300	104300	101900	100700	100100	102500	99530	92430	97850	90870	84730	81310
30	107300	104300	101900	100700	---	102500	98970	91910	97300	90870	84230	81790
31	107300	---	101900	100700	---	102500	---	91910	---	90350	84230	---
MAX	109700	107300	104300	101300	100700	103100	102500	98970	102500	97300	90350	85730
MIN	105500	104300	101900	100700	100100	97850	98970	91910	90870	90350	84230	81310
(+)	1419.6	1419.1	1418.7	1418.5	1418.4	1418.8	1418.2	1416.9	1417.9	1416.6	1415.4	1414.9
(+)	0	-3000	-2400	-1200	-600	+2400	-3530	-7060	+5390	-6950	-6120	-2440

CAL YR 1983 MAX 128700 MIN 101900 † -15600

WTR YR 1984 MAX 109700 MIN 81300 † -25510

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

COLORADO RIVER BASIN

08143000 LAKE BROWNWOOD NEAR BROWNWOOD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1984 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
APR 16...	1830	542	16.0	170	56	50	10	37

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)
APR 16...	1	5.9	110	34	72	.30	6.1	280

COLORADO RIVER BASIN

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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 downstream from bridge on Farm Road 573, 0.6 mi downstream from Blanket Creek, 5.5 mi southwest of Mullin, and 13.6 mi upstream from mouth.

DRAINAGE AREA.--2,073 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is affected by Lake Brownwood 47 mi upstream (see station 08143000). At end of year, flow from 152 mi 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 below the flood-spillway crests.

AVERAGE DISCHARGE.--17 years, 107 ft³/s (77,520 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft³/s Jan. 23, 1968 (gage height, 29.26 ft); no flow for many days in 1974, 1978, 1980-81, and 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,520 ft³/s Mar. 23 at 2200 hours (gage height, 6.02 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.60	5.1	4.4	3.8	4.9	9.4	5.90	.37	0	.0	1.30	5.60
2	.99	3.9	4.5	3.6	5.3	8.3	4.70	.37	0	.0	1.40	15.00
3	.75	3.0	3.5	3.6	5.3	5.8	4.90	.34	0	.0	.85	11.00
4	.75	2.5	2.1	4.1	6.7	4.9	4.70	.27	0	.0	.64	28.00
5	.62	2.8	2.8	4.1	6.2	4.9	5.50	.28	0	.0	.79	19.00
6	.35	15.0	4.7	4.1	5.8	5.3	6.20	.35	0	.0	.91	7.10
7	.49	31.0	4.5	3.5	5.3	6.2	6.60	.31	0	.0	.64	4.00
8	.85	14.0	4.2	3.8	5.3	6.7	7.80	.31	0	.0	.69	2.70
9	30.00	8.7	3.2	11.0	5.3	6.7	12.00	.31	0	.0	.40	2.00
10	14.00	6.1	3.0	13.0	4.5	6.7	12.00	.29	0	.0	.22	.84
11	20.00	4.9	3.6	16.0	4.5	337.0	8.90	.22	0	.0	.10	.68
12	9.30	3.6	2.7	8.8	4.5	33.0	6.70	.15	0	.0	.03	.53
13	9.20	3.1	1.9	6.3	4.9	13.0	4.40	.11	0	.0	.01	.48
14	6.90	2.6	1.7	4.9	4.1	16.0	2.80	.06	0	.0	.01	.27
15	5.40	2.2	1.7	4.4	4.5	12.0	2.40	.02	0	.0	.00	.46
16	17.00	2.2	2.9	4.1	3.7	9.5	1.90	.00	0	.0	.00	.31
17	15.00	2.2	4.3	4.1	3.0	7.6	2.00	.00	0	.0	.00	.13
18	13.00	2.3	4.5	4.1	2.7	7.2	2.10	.00	0	.0	.00	.14
19	9.60	2.8	4.5	4.1	1.9	8.6	1.30	.00	0	.0	.00	.12
20	7.40	2.3	5.2	4.1	1.5	7.9	.63	.00	0	.0	.00	.10
21	6.10	1.8	4.9	4.1	3.7	4.8	.45	.00	0	.0	.53	17.00
22	5.80	1.9	5.6	4.5	5.3	4.5	.49	.00	0	.0	.71	14.00
23	5.90	4.9	5.1	4.6	7.7	535.0	.64	.00	0	.0	.64	3.20
24	8.90	3.0	4.7	5.7	7.2	415.0	.72	.00	0	172.0	.73	1.50
25	9.40	2.4	3.9	5.8	6.7	70.0	.58	.00	0	17.0	.55	4.00
26	8.80	3.7	3.4	6.2	7.2	29.0	.54	.00	0	23.0	.49	2.50
27	7.40	2.5	3.4	6.2	73.0	18.0	.54	.00	0	28.0	.34	2.30
28	6.50	2.2	5.1	7.0	53.0	11.0	.54	.00	0	17.0	.31	4.80
29	5.90	2.0	5.6	6.3	14.0	11.0	.47	.00	0	8.0	.31	12.00
30	5.50	3.1	4.8	4.6	---	7.8	.37	.00	0	3.3	153.00	4.00
31	5.30	---	4.4	4.7	---	6.3	---	.00	---	1.5	5.40	---
TOTAL	238.70	147.8	120.8	175.2	267.7	1629.1	108.77	3.76	0	269.8	171.00	163.76
MEAN	7.70	4.93	3.90	5.65	9.23	52.6	3.63	.12	.000	8.70	5.52	5.46
MAX	30	31	5.6	16	73	535	12	.37	.00	172	153	28
MIN	.35	1.8	1.7	3.5	1.5	4.5	.37	.00	.00	.00	.00	.10
AC-FT	473	293	240	348	531	3230	216	7.5	.00	535	339	325
CAL YR 1983	TOTAL	7630.95	MEAN	20.9	MAX	2490	MIN	.03	AC-FT	15140		
WTR YR 1984	TOTAL	3296.39	MEAN	9.01	MAX	535	MIN	.00	AC-FT	6540		

COLORADO RIVER BASIN

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, 200 micromhos July 24, 1984.

WATER TEMPERATURES (1967-82): Maximum daily, 37.0°C July 18, 1979; minimum daily, 0.5°C Feb. 7, 1979.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,960 micromhos Jan. 3; minimum daily, 200 micromhos July 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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 05...	0925	.68	1460	22.5	240	79	66	18	200
NOV 16...	1010	2.1	902	14.0	210	65	63	14	98
FEB 01...	0835	4.9	1700	7.0	270	87	77	18	200
MAR 13...	1435	11	592	15.0	120	38	38	7.3	63
AUG 21...	1410	.67	1360	29.0	250	55	74	17	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 05...	6	13	160	69	310	.40	3.2	780
NOV 16...	3	9.7	150	51	170	.30	3.5	500
FEB 01...	6	14	180	88	330	.40	5.8	840
MAR 13...	3	5.8	87	29	110	.20	5.2	310
AUG 21...	5	12	200	54	290	.40	9.2	750

COLORADO RIVER BASIN

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08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	238.70	1020	562	362	180	113	73	47	250
NOV. 1983	147.8	1020	562	224	170	69	73	29	250
DEC. 1983	120.8	1170	646	211	210	70	82	27	270
JAN. 1984	175.2	1390	773	366	270	129	97	46	300
FEB. 1984	267.7	1240	689	498	240	172	87	63	270
MAR. 1984	1629.1	389	215	946	57	249	29	126	110
APR. 1984	108.77	480	265	78	67	20	36	10	140
MAY 1984	3.76	668	369	3.7	100	1.0	49	0.5	180
JUNE 1984	0.00	*	*	0.00	*	0.00	*	0.00	*
JULY 1984	269.80	358	198	144	52	38	26	19	100
AUG. 1984	171.00	397	220	101	58	27	29	14	110
SEPT 1984	163.76	716	396	175	110	49	52	23	190
TOTAL	3296.39	**	**	3100	**	937	**	404	**
WTD.AVG.	9.0	631	349	**	110	**	45	**	160

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1440	1270	1010	1930	1700	1370	540	631		---	1120	650
2	1460	1290	970	1950	1600	1530	550	637		---	1160	530
3	1450	1280	1030	1960	1630	1560	500	642		---	1200	610
4	1460	1300	1110	1800	1640	1700	525	646		---	1230	500
5	1470	1240	1050	1740	1660	1750	490	650		---	1240	750
6	1450	1050	730	1700	1650	1730	475	642		---	1260	900
7	1460	940	800	1620	1680	1710	480	651		---	1280	980
8	1440	1010	840	1500	1690	1720	465	660		---	1300	1000
9	930	990	1020	1050	1700	1680	370	665		---	1340	1030
10	1130	930	1190	960	1710	1610	400	710		---	1360	1050
11	560	890	1060	770	1710	350	490	735		---	1380	1090
12	636	880	1120	1000	1720	520	480	760		---	1400	1110
13	750	895	1220	1240	1700	590	500	775		---	1420	1120
14	1100	905	1260	1450	1720	630	520	790		---	1440	1130
15	1130	904	1350	1560	1710	660	510	815		---	---	1140
16	840	902	1270	1650	1690	620	520	---		---	---	1150
17	1000	920	950	1500	1680	590	521	---		---	---	1170
18	1070	907	910	1360	1650	640	532	---		---	---	1160
19	1150	898	930	1420	1660	620	544	---		---	---	1180
20	1110	933	900	1480	1700	660	550	---		---	---	1190
21	1080	970	1020	1530	1660	670	565	---		---	1420	940
22	1050	990	870	1550	1670	650	578	---		---	1340	1000
23	1100	920	1020	1560	1660	250	589	---		---	1410	850
24	1140	970	1230	1580	1690	310	600	---		200	1390	720
25	1170	1080	1300	1570	1710	440	595	---		360	1400	490
26	1200	1040	1370	1530	1680	500	600	---		320	1410	530
27	1230	1140	1460	1580	750	550	607	---		650	1420	540
28	1280	1190	1720	1500	890	530	610	---		1000	1410	500
29	1260	1220	1780	1540	1200	540	625	---		1040	1440	630
30	1270	1250	1840	1570	---	530	640	---		1060	310	710
31	1260	---	1920	1600	---	520	---	---		1070	800	---
MEAN	1160	1040	1170	1510	1600	895	532	694		713	1280	878

COLORADO RIVER BASIN

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984												
DAY	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	---	9.0	---	---	---	---	20.0	---	---	---	27.0
2	---	19.0	---	---	10.0	16.0	20.0	---	---	---	---	---
3	23.0	21.0	11.0	5.0	8.0	15.0	20.0	---	---	---	---	27.0
4	---	---	---	---	8.0	12.0	19.0	26.0	---	---	28.0	25.0
5	23.0	20.0	13.0	6.0	---	---	18.0	27.0	---	---	---	---
6	24.0	---	---	---	---	---	---	---	---	---	28.0	26.0
7	23.0	22.0	---	---	---	---	19.0	---	---	---	30.0	26.0
8	---	20.0	10.0	5.0	10.0	17.0	---	23.0	---	---	30.0	27.0
9	---	19.0	---	7.0	11.0	14.0	16.0	---	---	---	30.0	---
10	21.0	16.0	14.0	6.0	14.0	14.0	17.0	---	---	---	---	27.0
11	---	15.0	---	6.0	15.0	---	23.0	---	---	---	---	---
12	19.0	16.0	8.0	---	12.0	---	---	---	---	---	---	27.0
13	17.0	---	10.0	---	13.0	---	25.0	---	---	---	---	29.0
14	19.0	15.0	9.0	---	12.0	19.0	---	---	---	---	---	28.0
15	19.0	---	---	---	14.0	21.0	---	---	---	---	---	26.0
16	---	---	8.0	4.0	12.0	---	20.0	---	---	---	---	---
17	---	15.0	7.0	---	15.0	20.0	---	---	---	---	---	---
18	22.0	---	---	3.0	14.0	---	---	---	---	---	---	---
19	23.0	---	---	---	12.0	---	22.0	---	---	---	---	24.0
20	---	---	---	3.0	11.0	18.0	21.0	---	---	---	---	24.0
21	20.0	15.0	3.0	4.0	12.0	18.0	---	---	---	---	28.0	22.0
22	21.0	16.0	.0	---	11.0	19.0	---	---	---	---	27.0	---
23	---	---	1.0	7.0	11.0	18.0	20.0	---	---	---	28.0	---
24	---	13.0	1.0	---	12.0	15.0	21.0	---	---	23.0	---	24.0
25	19.0	---	---	8.0	---	---	---	---	---	---	---	---
26	---	16.0	4.0	6.0	---	---	25.0	---	---	27.0	---	---
27	18.0	11.0	4.0	---	---	20.0	---	---	---	28.0	29.0	21.0
28	18.0	---	3.0	---	---	17.0	21.0	---	---	28.0	30.0	---
29	17.0	10.0	4.0	---	12.0	---	---	---	---	---	---	18.0
30	---	---	3.0	7.0	---	18.0	19.0	---	---	27.0	---	---
31	19.0	---	---	8.0	---	18.0	---	---	---	---	26.0	---
MEAN	20.5	16.5	6.5	5.5	12.0	17.0	20.5	24.0	---	26.5	28.5	25.0

COLORADO RIVER BASIN

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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 downstream from Las Moras Creek, 1.9 mi upstream from Volkmann Draw, and 116.3 mi upstream from mouth.

DRAINAGE AREA.--1,335 mi², of which 6.6 mi² 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 National Geodetic Vertical Datum of 1929. Sept. 14, 1915, to Mar. 12, 1924, nonrecording gage at site 635 ft downstream at datum 2.20 ft lower. Mar. 13, 1924, to Feb. 21, 1939, nonrecording gage at site 1,000 ft upstream at datum 2.00 ft 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 to right at present datum. Feb. 8, 1962, to Jan. 22, 1963, nonrecording gage at site 600 ft downstream at present datum.

REMARKS.--Records good except those for Mar. 17 to May 4, which are fair. Since and datum about 1890, low flow during irrigation season regulated by diversions to Noyes Canal 4.5 mi 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 above station. See record for (station 08144000). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--69 years, 63.1 ft³/s (45,720 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s July 23, 1938 (gage height, 22.2 ft, from floodmark), present site and datum, from rating curve extended above 56,000 ft³/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 June 6, 1899, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 44 ft³/s May 27 at 1000 hours (gage height, 4.34 ft), no peak above base of 670 ft³/s; minimum daily, 0.43 ft³/s June 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	11.0	13	16	17	15.0	15.0	8.6	11.00	1.9	6.5	2.5
2	2.5	10.0	13	18	17	16.0	15.0	7.5	6.80	22.0	6.0	6.5
3	2.4	9.7	14	18	18	16.0	18.0	8.1	5.60	3.4	6.5	6.9
4	2.4	11.0	14	19	17	16.0	19.0	7.8	4.40	4.0	6.5	8.3
5	2.3	24.0	14	19	17	17.0	17.0	6.9	5.20	6.3	6.5	11.0
6	1.3	24.0	14	19	17	17.0	16.0	5.6	5.10	6.4	5.6	12.0
7	5.4	19.0	14	18	17	17.0	15.0	6.2	4.40	8.3	5.2	7.7
8	8.2	16.0	14	20	17	17.0	13.0	1.6	3.90	5.5	4.1	5.1
9	8.9	15.0	14	27	17	16.0	13.0	1.3	4.00	4.2	3.8	4.2
10	10.0	14.0	14	28	17	16.0	13.0	2.6	3.60	3.9	2.9	4.0
11	9.8	13.0	14	24	16	16.0	12.0	3.8	4.90	3.4	2.4	3.9
12	8.8	13.0	13	21	16	18.0	13.0	3.9	2.10	3.0	2.2	3.6
13	7.7	13.0	12	20	16	18.0	15.0	3.9	4.10	2.8	2.0	3.4
14	7.2	13.0	13	18	16	19.0	15.0	4.0	4.10	2.6	1.8	3.3
15	7.3	13.0	13	18	15	18.0	15.0	4.1	3.40	2.5	1.5	3.1
16	8.4	14.0	13	19	15	17.0	15.0	4.1	3.20	2.8	1.3	2.8
17	9.0	13.0	13	19	15	16.0	14.0	4.4	3.10	2.6	1.5	2.3
18	9.1	9.9	13	19	23	15.0	13.0	4.1	3.30	2.5	1.3	2.1
19	8.3	10.0	14	19	19	15.0	13.0	4.5	3.10	2.4	1.3	2.0
20	13.0	10.0	14	19	17	15.0	13.0	4.1	3.10	2.3	1.5	2.1
21	15.0	10.0	15	20	17	16.0	13.0	3.9	3.00	2.3	1.3	2.7
22	12.0	10.0	15	20	17	16.0	13.0	4.1	3.10	3.1	1.5	3.2
23	10.0	11.0	15	20	17	9.7	12.0	4.6	2.50	3.0	1.3	3.1
24	9.2	11.0	15	20	16	6.0	11.0	5.5	2.20	4.2	1.5	3.0
25	9.0	11.0	15	20	16	13.0	10.0	6.3	1.90	3.7	1.5	3.1
26	9.2	11.0	15	20	17	13.0	9.2	10.0	1.40	5.1	1.5	3.1
27	9.2	13.0	15	20	17	13.0	9.2	27.0	.63	7.5	1.8	3.5
28	9.3	13.0	16	19	16	15.0	8.6	19.0	.45	7.5	1.8	4.6
29	9.8	13.0	13	19	16	15.0	8.1	15.0	.43	7.5	1.8	7.2
30	11.0	13.0	15	18	---	15.0	8.1	11.0	.81	7.0	1.9	10.0
31	11.0	---	16	17	---	15.0	---	9.8	---	7.0	1.9	---
TOTAL	249.7	391.6	435	611	488	476.7	394.2	213.3	104.82	150.7	88.2	140.3
MEAN	8.05	13.1	14.0	19.7	16.8	15.4	13.1	6.88	3.49	4.86	2.85	4.68
MAX	15	24	16	28	23	19	19	27	11	22	6.5	12
MIN	1.3	9.7	12	16	15	6.0	8.1	1.3	.43	1.9	1.3	2.0
AC-FT	495	777	863	1210	968	946	782	423	208	299	175	278

CAL YR 1983 TOTAL 5712.50 MEAN 15.7 MAX 36 MIN 1.3 AC-FT 11330
WTR YR 1984 TOTAL 3743.52 MEAN 10.2 MAX 28 MIN .43 AC-FT 7430

COLORADO RIVER BASIN

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 upstream from Hudson Branch, and 8.4 mi southeast of Brady, and 72.9 mi upstream from mouth.

DRAINAGE AREA.--1,633 mi², of which 6.60 mi² 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 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.

AVERAGE DISCHARGE.--5 years, 68.4 ft³/s (49,560 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,000 ft³/s Sept. 8, 1980 (gage height, 25.50 ft); minimum, 0.24 ft³/s Aug. 1, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Highest stage since June 1899, 33.8 ft July 23, 1938, from high-water mark on left bank 150 ft upstream from present site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 110 ft³/s July 24 at 2000 hours (gage height, 2.70 ft), no peak above base of 1,000 ft³/s; minimum daily, 0.02 ft³/s Sept. 13-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	16	30	36	37	37	25.0	4.30	3.90	.11	4.30	.08
2	6.7	20	32	40	38	37	27.0	6.30	3.00	.08	5.50	.08
3	5.6	18	37	40	38	34	25.0	9.20	2.40	.05	6.40	.10
4	4.8	18	38	40	38	29	19.0	8.60	2.10	.05	6.00	.13
5	3.9	28	35	39	38	23	16.0	6.80	2.20	.05	5.90	.12
6	3.3	64	35	39	38	24	16.0	5.80	1.70	.05	6.10	.10
7	4.7	40	33	40	38	27	16.0	7.70	1.10	.04	7.10	.08
8	4.7	39	33	38	36	29	21.0	5.80	.83	.03	5.10	.08
9	5.1	36	34	43	35	27	28.0	4.70	.73	.03	3.80	.08
10	4.8	32	29	45	35	30	27.0	3.70	.75	.76	2.70	.06
11	4.0	30	32	43	35	34	27.0	2.60	.74	1.00	2.20	.04
12	4.9	30	34	43	33	34	25.0	2.00	.54	.81	1.90	.03
13	8.3	30	35	40	33	35	25.0	1.50	.40	.51	4.20	.02
14	6.3	30	33	40	29	35	18.0	1.20	.28	.34	2.70	.02
15	6.7	28	31	41	24	33	15.0	.90	.23	.23	1.70	.02
16	7.5	28	33	41	24	29	15.0	.71	.18	.16	1.40	.02
17	7.4	28	33	40	25	32	17.0	.71	.14	.12	.85	.02
18	11.0	28	33	40	28	27	16.0	.87	.08	.09	.81	.02
19	9.3	30	31	40	27	23	16.0	1.30	.07	.07	.64	.02
20	13.0	28	30	40	29	22	13.0	2.00	.08	.07	.54	.03
21	18.0	28	33	40	38	22	13.0	9.30	.08	.08	.31	.06
22	16.0	27	34	43	34	24	10.0	26.00	.08	.08	.22	.12
23	13.0	24	36	41	36	20	9.1	19.00	.07	.08	.14	.13
24	17.0	22	36	44	37	16	8.9	13.00	.07	17.00	.10	.09
25	24.0	20	38	43	37	18	8.6	12.00	.07	52.00	.08	.07
26	24.0	23	34	41	41	25	10.0	9.10	.07	17.00	.07	.03
27	22.0	25	36	36	41	23	7.8	6.60	.09	8.90	.07	.03
28	18.0	25	40	33	38	21	6.3	7.50	.16	6.50	.05	.10
29	16.0	26	36	37	37	21	6.7	8.40	.20	4.30	.04	.29
30	15.0	29	43	35	---	21	4.9	5.00	.17	6.10	.05	.14
31	12.0	---	35	34	---	24	---	4.20	---	6.00	.08	---
TOTAL	324.1	850	1062	1235	997	836	492.3	196.79	22.51	122.69	71.05	2.21
MEAN	10.5	28.3	34.3	39.8	34.4	27.0	16.4	6.35	.75	3.96	2.29	.074
MAX	24	64	43	45	41	37	28	26	3.9	52	7.1	.29
MIN	3.3	16	29	33	24	16	4.9	.71	.07	.03	.04	.02
AC-FT	643	1690	2110	2450	1980	1660	976	390	45	243	141	4.4
CAL YR 1983	TOTAL	10226.17	MEAN	28.0	MAX	90	MIN	.43	AC-FT	20280		
WTR YR 1984	TOTAL	6211.65	MEAN	17.0	MAX	64	MIN	.02	AC-FT	12320		

COLORADO RIVER BASIN

117

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 downstream from Fitzgerald Creek, 2.2 mi south of Eden, 2.4 mi upstream from Hardin Branch, and 63.8 mi upstream from mouth.

DRAINAGE AREA.--101 mi².

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 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.--22 years, 0.99 ft³/s (717 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,110 ft³/s Apr. 28, 1966 (gage height, 7.08 ft); no flow for many days most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1884, 15.8 ft in July 1938, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 333 ft³/s Aug. 12 at 1300 hours (gage height, 3.14 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.05	.10	.13	.20	.20	.06	.07	0	0	.00	0
2	.00	.06	.14	.13	.20	.17	.06	.07	0	0	.00	0
3	.00	.07	.20	.13	.20	.17	.07	.07	0	0	.00	0
4	.00	.08	.20	.13	.20	.17	.08	.07	0	0	.00	0
5	.00	1.10	.18	.13	.20	.17	.08	.07	0	0	.00	0
6	.00	.34	.17	.13	.20	.17	.08	.05	0	0	.00	0
7	.00	.11	.17	.13	.20	.16	.08	.04	0	0	.00	0
8	.00	.08	.17	.13	.20	.15	.08	.02	0	0	.00	0
9	.00	.06	.17	.13	.20	.15	.08	.02	0	0	.00	0
10	.00	.04	.17	.13	.20	.15	.08	.02	0	0	.00	0
11	.00	.04	.16	.13	.20	.15	.08	.01	0	0	.00	0
12	.00	.05	.15	.13	.20	.17	.08	.00	0	0	25.00	0
13	.00	.07	.15	.11	.20	.17	.08	.00	0	0	.30	0
14	.00	.08	.15	.11	.20	.16	.08	.00	0	0	.15	0
15	.04	.07	.15	.11	.20	.11	.08	.00	0	0	.14	0
16	.08	.05	.15	.11	.20	.11	.08	.00	0	0	.09	0
17	.11	.04	.13	.11	.23	.11	.08	.00	0	0	.08	0
18	.13	.05	.15	.11	.27	.11	.08	.02	0	0	.05	0
19	.24	.05	.15	.11	.29	.11	.08	.06	0	0	.02	0
20	.59	.05	.15	.12	.29	.11	.08	.07	0	0	.01	0
21	.62	.05	.15	.12	.32	.11	.08	.07	0	0	.00	0
22	.47	.06	.15	.12	.31	.11	.07	.07	0	0	.00	0
23	.45	.08	.15	.12	.25	.35	.07	.06	0	0	.00	0
24	.44	.08	.15	.13	.22	.37	.07	.06	0	0	.00	0
25	.48	.08	.15	.13	.22	.21	.07	.04	0	0	.00	0
26	.49	.08	.15	.13	.30	.12	.07	.02	0	0	.00	0
27	.16	.08	.15	.15	.32	.11	.07	.00	0	0	.00	0
28	.11	.08	.15	.15	.27	.09	.07	.00	0	0	.00	0
29	.24	.09	.13	.17	.24	.06	.07	.00	0	0	.00	0
30	.27	.09	.13	.20	---	.06	.07	.00	0	0	.00	0
31	.05	---	.13	.20	---	.06	---	.00	---	0	.00	---
TOTAL	4.97	3.31	4.75	4.07	6.73	4.62	2.26	.98	0	0	25.84	0
MEAN	.16	.11	.15	.13	.23	.15	.075	.032	.000	.000	.83	.000
MAX	.62	1.1	.20	.20	.32	.37	.08	.07	.00	.00	.25	.00
MIN	.00	.04	.10	.11	.20	.06	.06	.00	.00	.00	.00	.00
AC-FT	9.9	6.6	9.4	8.1	13	9.2	4.5	1.9	.00	.00	51	.00

CAL YR 1983 TOTAL 121.70 MEAN .33 MAX 22 MIN .00 AC-FT 241
WTR YR 1984 TOTAL 57.53 MEAN .16 MAX 25 MIN .00 AC-FT 114

COLORADO RIVER BASIN

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 downstream from Live Oak Creek, and 30.4 mi upstream from mouth.

DRAINAGE AREA.--588 mi².

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 National Geodetic Vertical Datum of 1929. Prior to July 9, 1940, nonrecording gage at site 3,600 ft upstream at datum 8.24 ft higher.

REMARKS.--Records good except those above 5 ft³/s, which are fair. 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 ft³/s (18,260 acre-ft/yr); 22 years (water years 1963-84) regulated, 9.10 ft³/s (6,590 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,100 ft³/s Sept. 10, 1952 (gage height, 24.80 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, 29.1 ft July 23, 1938, present site and datum (discharge at site 5 mi downstream, 86,000 ft³/s), by slope-area measurement. Flood of Oct. 6, 1930 (second highest since 1882), reached a stage of 25.9 ft (discharge, 50,300 ft³/s, present site and datum), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 201 ft³/s Aug. 12 at 1300 hours (gage height, 7.60 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	0	.00	.00	0	0	.00	.00	.00	.00	.14
2	.00	.00	0	.00	.00	0	0	.00	.00	.00	.00	.09
3	.00	.00	0	.00	.00	0	0	.00	.00	.00	.00	.08
4	.00	.00	0	.00	.00	0	0	.00	.00	.00	.00	.00
5	.00	1.30	0	.00	.00	0	0	.01	.00	.00	.00	.00
6	.00	.17	0	.00	.00	0	0	.01	.00	.00	.00	.00
7	.00	.06	0	.00	.00	0	0	.02	.00	.00	.00	.00
8	.00	.05	0	.00	.00	0	0	.02	.00	.00	.00	.00
9	.00	.04	0	.03	.04	0	0	.02	.00	.00	.00	.00
10	.00	.03	0	.00	.11	0	0	.03	.00	.00	.00	.00
11	.00	.03	0	.00	.09	0	0	.03	.00	.00	.00	.00
12	.00	.02	0	.00	.07	0	0	.02	.00	.00	42.00	.00
13	.00	.01	0	.00	.06	0	0	.02	.00	.00	4.30	.00
14	.00	.00	0	.00	.06	0	0	.00	.00	.00	.44	.00
15	.00	.00	0	.00	.06	0	0	.00	.00	.00	.12	.00
16	.00	.00	0	.00	.06	0	0	.00	.00	.00	.04	.00
17	.00	.00	0	.00	.06	0	0	.02	.00	.00	.03	.00
18	.00	.00	0	.00	.77	0	0	.01	.00	.00	.04	.00
19	.00	.00	0	.00	.31	0	0	.10	.00	.00	.04	.00
20	.16	.00	0	.00	.03	0	0	.17	.00	.00	.03	.00
21	.01	.00	0	.00	.05	0	0	.13	.00	.00	.03	.00
22	.00	.00	0	.00	.05	0	0	.09	.00	.00	.03	.00
23	.00	.00	0	.00	.13	0	0	.06	.00	.00	.03	.00
24	.00	.00	0	.00	.21	0	0	.05	.00	2.20	.02	.00
25	.00	.00	0	.00	.10	0	0	.04	.00	.73	.02	.00
26	.00	.00	0	.00	.00	0	0	.02	.00	.12	.00	.00
27	.00	.00	0	.00	.00	0	0	.01	.00	2.90	.00	.00
28	.00	.00	0	.00	.00	0	0	.81	.00	.20	.00	.05
29	.00	.00	0	.00	.00	0	0	.05	.01	.02	.00	.09
30	.00	.00	0	.00	---	0	0	.01	.01	.02	.00	.04
31	.00	---	0	.00	---	0	---	.00	---	.01	.00	---
TOTAL	.17	1.71	0	.03	2.26	0	0	1.75	.02	6.20	47.17	.49
MEAN	.005	.057	.000	.001	.078	.000	.000	.056	.001	.20	1.52	.016
MAX	.16	1.3	.00	.03	.77	.00	.00	.81	.01	2.9	.42	.14
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.3	3.4	.00	.06	4.5	.00	.00	3.5	.04	12	94	1.0
CAL YR 1983	TOTAL	175.59	MEAN .48	MAX 116	MIN .00	AC-FT 348						
WTR YR 1984	TOTAL	59.80	MEAN .16	MAX 42	MIN .00	AC-FT 119						

COLORADO RIVER BASIN

119

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 north of San Saba, 2.7 mi upstream from Mill Creek, 4.8 mi downstream from China Creek, and 16.8 mi upstream from mouth.

DRAINAGE AREA.--3,046 mi², of which 6.6 mi² 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 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 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. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--69 years, 230 ft³/s (166,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 203,000 ft³/s July 23, 1938 (gage height, 39.3 ft, present site and datum), from rating curve extended above 41,000 ft³/s on basis of slope-area measurement of peak flow, no flow at times in 1818, 1930, 1954-56, 1963-64, and 1984.
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, present site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 484 ft³/s Aug. 16 at 0230 hours (gage height, 4.97 ft), no peak above base of 3,000 ft³/s, no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	38	41	53	46	49	32	19.0	13.00	4.80	9.70	29.0
2	20	36	40	60	45	47	36	19.0	10.00	4.80	9.20	19.0
3	21	37	45	59	45	48	35	16.0	7.10	5.80	12.00	21.0
4	20	35	46	59	47	50	35	12.0	4.80	7.90	11.00	17.0
5	19	50	50	57	46	50	31	15.0	7.60	7.90	11.00	14.0
6	20	59	51	57	45	51	31	17.0	8.90	5.40	11.00	12.0
7	20	86	48	59	45	45	29	19.0	12.00	1.90	10.00	12.0
8	20	84	47	56	46	40	32	17.0	13.00	1.40	5.70	12.0
9	30	64	47	67	48	38	33	12.0	7.90	2.80	2.10	10.0
10	29	52	47	69	47	40	32	7.0	6.80	4.60	.51	7.9
11	33	51	46	67	46	47	30	7.0	6.60	2.10	.13	6.5
12	32	49	46	67	42	45	30	7.9	6.70	.97	5.20	6.9
13	26	47	41	62	43	48	27	9.5	6.70	.43	11.00	5.1
14	25	45	43	62	43	49	31	11.0	4.90	.14	32.00	4.2
15	24	44	47	64	44	46	32	7.6	4.30	.05	70.00	4.5
16	24	42	48	64	42	44	32	5.6	6.50	.00	180.00	4.9
17	25	41	47	61	38	43	28	5.5	6.90	.00	34.00	4.2
18	25	42	47	58	36	42	26	12.0	6.90	.01	25.00	5.2
19	27	42	41	56	39	42	26	13.0	6.50	.00	20.00	2.8
20	28	40	40	55	41	34	27	13.0	4.40	.00	18.00	3.7
21	27	40	43	54	45	33	27	11.0	1.10	.00	15.00	4.4
22	26	44	47	54	43	29	26	4.4	.23	.00	16.00	9.1
23	28	45	50	57	42	158	25	3.8	.08	.00	16.00	18.0
24	29	44	50	58	44	53	23	4.2	.20	.00	15.00	17.0
25	31	41	57	58	41	43	21	4.1	.90	.00	15.00	12.0
26	33	38	47	58	52	37	17	3.6	.91	.00	14.00	8.6
27	30	38	55	61	58	32	16	4.2	.70	4.70	9.90	10.0
28	32	37	61	58	53	28	15	8.9	.46	6.90	8.90	13.0
29	40	38	55	51	50	30	18	12.0	1.50	78.00	9.50	18.0
30	42	41	69	45	---	31	18	8.0	1.60	34.00	11.00	20.0
31	41	---	48	43	---	30	---	10.0	---	16.00	19.00	---
TOTAL	847	1390	1490	1809	1302	1402	821	319.3	159.18	190.60	626.84	332.0
MEAN	27.3	46.3	48.1	58.4	44.9	45.2	27.4	10.3	5.31	6.15	20.2	11.1
MAX	42	86	69	69	58	158	36	19	13	78	180	29
MIN	19	35	40	43	36	28	15	3.6	.08	.00	.13	2.8
AC-FT	1680	2760	2960	3590	2580	2780	1630	633	316	378	1240	659

CAL YR 1983 TOTAL 22019.30 MEAN 60.3 MAX 881 MIN 9.3 AC-FT 43680
WTR YR 1984 TOTAL 10688.92 MEAN 29.2 MAX 180 MIN .00 AC-FT 21200

COLORADO RIVER BASIN

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 downstream from San Saba River, 9.2 mi east of San Saba, and at mile 474.3.

DRAINAGE AREA.--31,217 mi², approximately, of which 11,398 mi² 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 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 for 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. Flow is affected at times by discharge from the flood-detention pools of 187 floodwater-retarding structures with a combined detention capacity of 205,700 acre-ft. These structures control runoff from 944 mi². 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 (970,100 acre-ft/yr); 16 years (water years 1969-84) partially regulated, 608 ft³/s (440,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 224,000 ft³/s July 23, 1938 (gage height, 63.2 ft, 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 Sept. 25, 1900, discharge, 184,000 ft³/s present site, from floodmarks at former site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,490 ft³/s Mar. 24 at 1500 hours (gage height, 6.38 ft); no flow July 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	50	57	83	91	171	87	20.0	8.70	.22	108	146.0
2	25	81	61	90	92	128	83	25.0	7.50	.17	106	124.0
3	26	106	64	102	88	108	79	26.0	8.50	.14	105	85.0
4	27	93	67	105	89	94	80	22.0	8.70	.17	108	68.0
5	27	104	73	105	90	84	78	17.0	8.80	.84	115	1010.0
6	26	111	74	105	90	78	70	12.0	6.20	2.70	116	798.0
7	26	112	76	105	88	78	69	13.0	5.30	4.30	116	381.0
8	28	167	80	112	85	79	67	15.0	6.40	4.20	113	256.0
9	38	354	83	147	84	74	65	17.0	8.10	2.80	107	171.0
10	39	249	86	125	85	71	74	16.0	9.70	1.60	101	118.0
11	57	192	87	133	92	70	73	12.0	8.50	.96	94	83.0
12	60	161	87	127	85	104	67	8.7	6.20	.59	116	61.0
13	50	136	84	130	81	898	57	6.8	4.70	.37	79	46.0
14	39	114	79	128	84	245	51	5.7	3.30	.29	76	34.0
15	33	102	79	145	82	166	49	5.4	2.40	.20	122	23.0
16	31	92	79	234	72	148	49	6.6	1.90	.16	203	14.0
17	31	85	75	203	66	118	48	7.5	1.70	.12	124	11.0
18	30	80	68	177	68	100	45	7.9	1.50	.09	77	8.0
19	31	73	66	160	57	87	41	8.9	1.20	.06	87	6.0
20	34	66	68	140	60	82	39	13.0	1.30	.03	49	4.8
21	32	63	70	129	71	70	38	16.0	2.30	.00	30	4.8
22	31	63	72	122	79	60	31	15.0	2.80	.00	29	4.1
23	29	67	76	119	73	769	29	11.0	2.80	.00	29	3.8
24	29	64	78	118	63	2870	31	6.7	2.10	.02	29	7.0
25	32	64	81	83	64	1380	27	4.4	1.40	.03	27	41.0
26	32	65	81	90	72	537	24	3.5	.86	.02	25	30.0
27	38	64	83	102	84	304	22	3.2	.67	58.00	20	18.0
28	37	60	87	113	171	200	17	4.3	.55	21.00	14	14.0
29	35	58	90	113	193	148	13	5.3	.40	10.00	13	22.0
30	43	58	83	106	---	118	11	5.1	.29	90.00	11	25.0
31	50	---	78	96	---	99	---	8.1	---	122.00	12	---
TOTAL	1072	3154	2372	3847	2499	9538	1514	348.1	124.77	321.08	2361	3617.5
MEAN	34.6	105	76.5	124	86.2	308	50.5	11.2	4.16	10.4	76.2	121
MAX	60	354	90	234	193	2870	87	26	9.7	122	203	1010
MIN	25	50	57	83	57	60	11	3.2	.29	.00	11	3.8
AC-FT	2130	6260	4700	7630	4960	18920	3000	690	247	637	4680	7180

CAL YR 1983 TOTAL 56500.50 MEAN 155 MAX 6220 MIN 6.8 AC-FT 112100
WTR YR 1984 TOTAL 30768.45 MEAN 84.1 MAX 2870 MIN .00 AC-FT 61030

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.

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, 1,980 micromhos Nov. 10; minimum daily, 410 micromhos July 28.

WATER TEMPERATURES: Maximum daily, 34.0°C July 15; minimum daily, 2.0°C Dec. 30, 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
NOV 08...	1050	164	930	7.6	20.5	10	8.2	94	1.0	150
JAN 04...	1105	90	1450	7.7	7.0	2.9	9.2	77	3.8	21
MAR 13...	1020	920	1800	7.6	16.0	32	8.3	87	.6	68
MAY 08...	1025	14	685	7.8	20.0	55	9.2	104	.8	2400
JUL 10...	1035	1.5	850	7.8	28.5	27	9.4	126	.6	53
AUG 28...	1040	14	730	7.6	28.0	1.9	9.0	120	1.8	24

DATE	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED AS (MG/L AS SO4)
NOV 08...	110	330	120	75	35	66	2	4.9	210	80
JAN 04...	25	490	260	110	53	110	2	4.0	230	200
MAR 13...	60	450	330	99	49	190	4	7.4	120	230
MAY 08...	5200	270	19	53	33	39	1	3.4	250	25
JUL 10...	170	270	40	45	38	67	2	4.7	230	23
AUG 28...	45	240	63	49	29	55	2	5.4	180	47

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 SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
NOV 08...	130	.30	8.1	471	530	--	<.020	.20	.15	.110
JAN 04...	230	1.6	9.9	873	860	--	<.010	.40	.41	<.010
MAR 13...	370	.40	5.4	1090	1000	.56	.040	.60	.56	.030
MAY 08...	66	.20	9.2	372	380	--	.010	<.10	<.10	.130
JUL 10...	120	.30	12	434	450	--	.010	<.10	<.10	.090
AUG 28...	99	.20	12	402	410	--	.020	<.10	<.10	.100

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DATE										
NOV 08...		.040	.79	.90	.030	<.010	<.010	30	13	90
JAN 04...		<.010	--	.50	.030	.010	.020	62	15	91
MAR 13...		<.010	1.2	1.2	.070	.010	.020	16	40	99
MAY 08...		.150	.67	.80	.100	.020	.020	120	4.5	70
JUL 10...		.100	.71	.80	.060	.020	.020	44	.18	93
AUG 28...		.110	1.2	1.3	.070	.010	<.010	37	1.4	96
DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 08...	1050	1	180	<.5	<1	<1	<3	1	12	<1
MAR 13...	1020	<1	130	<.5	<1	1	<3	2	16	<1
JUL 10...	1035	3	140	<1.0	<1	<1	<3	<1	8	<1
AUG 28...	1040	2	140	<1.0	<1	1	<3	2	21	6
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 08...	33	2	.2	<10	1	<1	1	810	<6	16
MAR 13...	61	3	<.1	<10	<1	1	<1	2000	<6	13
JUL 10...	27	3	<.1	<10	<1	<1	<1	420	<6	12
AUG 28...	20	11	<.1	<10	2	<1	<1	440	<6	<3

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	1072	587	324	938	64	186	39	113	220
NOV. 1983	3154	1390	805	6860	250	2140	200	1680	410
DEC. 1983	2372	1430	823	5270	250	1610	200	1250	430
JAN. 1984	3847	1340	766	7950	220	2310	170	1770	420
FEB. 1984	2499	1050	591	3990	150	1020	110	735	350
MAR. 1984	9538	827	467	12000	120	3040	84	2170	280
APR. 1984	1514	717	399	1630	85	349	55	226	260
MAY 1984	348.1	698	388	365	82	77	53	50	250
JUNE 1984	124.77	768	428	144	94	32	62	21	270
JULY 1984	321.08	653	363	315	76	66	49	42	240
AUG. 1984	2361	749	418	2660	93	592	61	392	270
SEPT 1984	3617.5	907	510	4980	120	1210	86	842	310
TOTAL	30768.45	**	**	47100	**	12600	**	9300	**
WTD.AVG.	84	999	567	**	150	**	110	**	330

COLORADO RIVER BASIN

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08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	610	625	1350	1520	1160	1370	760	680	730	800	800	800
2	615	590	1210	1430	1120	1350	750	670	745	810	820	1240
3	612	580	1050	1420	1100	1290	710	675	730	815	830	1170
4	609	570	1300	1380	1080	1230	720	680	760	820	860	1090
5	607	700	1430	1410	1060	1140	735	685	750	840	890	830
6	610	810	1140	1440	1030	1080	750	680	740	820	880	750
7	527	890	950	1300	1040	1010	730	640	765	800	900	810
8	582	960	740	1370	1030	918	700	670	770	840	950	840
9	585	1950	875	1460	1040	1020	715	690	780	845	965	1220
10	590	1980	1270	1180	965	1130	680	700	770	850	970	1360
11	587	1550	1330	1320	1000	1120	720	710	780	840	960	1350
12	583	1100	1400	1530	1020	1830	730	720	785	850	720	1340
13	537	1090	1890	1270	970	1580	735	715	780	860	620	1270
14	617	1220	1770	1380	1060	1520	740	710	785	865	610	1190
15	560	1430	1620	1400	1050	1550	745	730	790	860	570	1160
16	570	1640	1640	1220	1030	1410	740	740	795	875	505	1120
17	579	1680	1500	1440	970	1040	670	735	810	880	550	1100
18	588	1660	1390	1650	900	1000	715	730	805	870	575	1080
19	568	1740	1480	1570	920	965	680	740	815	880	582	1060
20	530	1680	1400	1510	810	925	700	720	810	870	591	1030
21	569	1620	1220	1370	850	890	695	700	790	---	610	1020
22	565	1740	1590	1290	940	842	700	720	800	---	680	1000
23	562	1700	1740	1220	1000	620	715	730	790	---	707	980
24	597	1680	1790	1150	960	450	700	735	795	875	730	1000
25	600	1650	1650	1100	985	510	670	740	805	850	728	750
26	604	1540	1670	1080	945	750	650	730	810	827	730	670
27	610	1710	1620	1110	860	1150	665	735	805	530	720	860
28	603	1580	1540	1100	1190	1020	670	720	800	410	700	870
29	591	1590	1450	1100	1390	820	680	710	790	420	670	850
30	605	1490	1520	1120	---	770	690	720	795	550	650	880
31	619	---	1570	1200	---	765	---	710	---	820	630	---
MEAN	587	1360	1420	1320	1020	1070	709	709	783	792	732	1020

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	---	10.0	5.0	12.0	---	18.0	21.0	25.0	29.0	20.0	30.0
2	---	23.0	---	7.0	---	16.0	20.0	25.0	---	29.0	29.0	29.0
3	---	22.0	14.0	8.0	12.0	---	19.0	25.0	26.0	30.0	30.0	28.0
4	27.0	23.0	15.0	10.0	13.0	16.0	18.0	27.0	26.0	30.0	---	27.0
5	26.0	---	15.0	11.0	13.0	12.0	---	---	26.0	30.0	30.0	26.0
6	26.0	23.0	12.0	11.0	12.0	14.0	19.0	28.0	28.0	31.0	30.0	27.0
7	25.0	---	---	11.0	---	15.0	19.0	28.0	---	---	30.0	---
8	25.0	20.0	14.0	10.0	11.0	15.0	21.0	23.0	25.0	31.0	30.0	29.0
9	24.0	19.0	15.0	10.0	15.0	---	23.0	24.0	28.0	---	30.0	30.0
10	---	18.0	15.0	9.0	16.0	14.0	23.0	24.0	28.0	31.0	29.0	29.0
11	---	17.0	15.0	10.0	---	14.0	23.0	25.0	28.0	31.0	28.0	---
12	22.0	---	14.0	10.0	15.0	18.0	22.0	27.0	27.0	31.0	27.0	28.0
13	20.0	22.0	13.0	9.0	15.0	18.0	22.0	28.0	29.0	31.0	30.0	29.0
14	21.0	20.0	12.0	---	16.0	20.0	22.0	28.0	29.0	30.0	29.0	29.0
15	21.0	18.0	11.0	6.0	16.0	21.0	---	26.0	30.0	34.0	30.0	26.0
16	---	17.0	9.0	8.0	19.0	22.0	19.0	25.0	---	---	---	24.0
17	---	18.0	---	---	---	20.0	20.0	24.0	30.0	31.0	31.0	25.0
18	26.0	18.0	6.0	5.0	19.0	---	22.0	24.0	29.0	29.0	32.0	25.0
19	26.0	18.0	5.0	7.0	14.0	18.0	23.0	---	30.0	29.0	---	25.0
20	25.0	---	4.0	4.0	11.0	18.0	24.0	26.0	---	30.0	---	25.0
21	23.0	---	4.0	6.0	14.0	19.0	24.0	27.0	30.0	---	30.0	---
22	---	20.0	3.0	5.0	14.0	20.0	23.0	30.0	30.0	---	31.0	27.0
23	23.0	---	---	8.0	15.0	20.0	---	28.0	30.0	---	---	27.0
24	22.0	---	---	9.0	15.0	16.0	23.0	---	30.0	27.0	31.0	27.0
25	---	15.0	---	10.0	---	18.0	24.0	29.0	31.0	29.0	31.0	28.0
26	20.0	---	---	11.0	16.0	19.0	25.0	30.0	31.0	---	31.0	27.0
27	20.0	---	5.0	12.0	12.0	20.0	---	---	30.0	26.0	32.0	23.0
28	20.0	---	---	13.0	12.0	18.0	25.0	25.0	30.0	29.0	31.0	---
29	21.0	---	---	14.0	14.0	19.0	25.0	24.0	31.0	28.0	32.0	19.0
30	---	15.0	2.0	10.0	---	19.0	24.0	26.0	---	28.0	30.0	20.0
31	21.0	---	2.0	10.0	---	---	---	25.0	---	29.0	29.0	---
MEAN	23.0	19.0	10.0	9.0	14.0	17.5	22.0	26.0	28.5	29.5	29.5	26.5

COLORADO RIVER BASIN

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 upstream from bridge on State Highway 29, 11 mi west of Burnet, and at mile 413.6.

DRAINAGE AREA.--31,910 mi², approximately, of which 11,398 mi² 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 National Geodetic Vertical Datum of 1929 (levels run 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 uncontrolled emergency concrete spillway, and natural ground. A net opening of 1,270 ft is controlled by thirty 33- by 15-foot and by seven 40- by 15-foot 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, 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, of which 1,091,000 acre-ft 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 Jan. 24, 1968 (gage height, 1,020.8 ft); minimum after initial filling of lake in July 1938, 340,800 acre-ft Sept. 8-10, 1952 (gage height, 983.4 ft).

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents observed, 835,300 acre-ft Oct. 11 (gage height, 1,012.92 ft); minimum, 397,200 acre-ft Sept. 30 (gage height, 987.69 ft).

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

987.0	387,000	1,004.0	659,000
995.0	587,700	1,013.0	837,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	833200	827300	823400	792400	794400	790200	804900	796100	740200	659800	563900	477600
2	832600	825000	823400	793000	795000	791000	805300	794800	737400	656100	560500	474600
3	832400	825000	823600	793000	794800	790800	805100	793600	734400	652000	558700	470100
4	832400	825700	823400	793000	795000	791800	804900	791400	736400	647500	555600	465200
5	832200	827100	823800	793000	795000	791800	804500	790800	745200	644200	553000	460800
6	831500	827100	823100	793200	794600	791600	804000	789600	743400	640100	550800	457400
7	831300	827100	822300	791000	794200	791600	805100	790200	740600	636100	547600	453800
8	831100	827100	822500	793000	794400	791600	805100	788200	737400	632000	545300	450900
9	833200	826900	822500	793200	794600	791200	804500	786000	734100	628900	541000	447900
10	833200	826100	822700	793200	794200	791600	804900	784000	732200	624100	539900	444800
11	835300	825200	822700	792800	795000	791400	804500	782200	728500	620500	538000	441000
12	834100	825700	820000	793200	795200	791800	804500	780800	725300	617200	535400	438000
13	833200	825900	817500	793200	795200	791800	804500	779600	723000	613100	533000	434400
14	832600	826100	815800	793200	795000	793200	804200	778000	719400	609100	530300	431100
15	832400	825700	816000	793200	795400	793800	803200	775800	716400	605000	527900	429000
16	832200	825500	815600	793200	795000	794000	802800	774600	712600	601400	524700	425200
17	832000	825200	815200	793600	794200	794200	802400	773200	708600	599100	522000	421400
18	831800	825200	815400	793800	793800	795000	802100	771600	706700	596400	520000	418100
19	831500	825200	814700	793800	793800	794600	802100	770000	702500	592900	517500	414600
20	831300	824800	814300	793800	793800	794200	801700	768000	699500	590200	515600	412500
21	830700	824600	814700	793600	792200	794200	802100	766000	695500	588200	513500	410900
22	830500	825500	810500	793800	791800	794200	801500	763600	692300	585600	510000	408900
23	830100	825000	810500	794000	791600	796300	800700	761800	688300	583500	508000	406200
24	829900	824800	806800	794200	791400	798600	799800	759400	684500	584900	505500	404300
25	829700	823800	801700	794200	790600	803400	799600	755000	681200	582500	502100	402100
26	829200	824200	799400	794200	793600	805100	799600	755000	676900	580000	499100	399700
27	829000	824400	799000	794400	791200	807200	799800	753000	673400	578000	496400	397900
28	828400	824000	798400	794400	790600	805500	799000	753800	671500	575200	492500	398200
29	828400	823600	795000	794400	790400	805300	798800	748400	667200	572400	489000	397800
30	828200	824000	792400	794600	---	805100	797900	745800	664100	569800	486300	397200
31	827800	---	792000	794400	---	805500	---	743200	---	566900	482600	---
MAX	835300	827300	823800	794600	795400	807200	805300	796100	745200	659800	563900	477600
MIN	827800	823600	792000	791000	790400	790200	797900	743200	664100	566900	482600	397200
(†)	1012.56	1012.38	1010.85	1010.97	1010.77	1011.50	1011.14	1008.41	1004.27	998.80	993.57	987.69
(‡)	-5800	-3800	-32000	+2400	-4000	+15100	-7600	-54700	-79100	-97200	-84300	-85400

CAL YR 1983 MAX 932100 MIN 792000 ‡ -39500
WTR YR 1984 MAX 835300 MIN 397200 ‡ -436400

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

COLORADO RIVER BASIN

125

08150000 LLANO RIVER NEAR JUNCTION, TX

LOCATION.--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 east of Junction, 2.6 mi downstream from bridge on Interstate Highway 10, 2.8 mi downstream from confluence of North and South Llano Rivers, 5.3 mi upstream from Johnson Fork, and 114.8 mi upstream from mouth.

DRAINAGE AREA.--1,854.14 mi², 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.--Water-stage recorder. Datum of gage is 1,636.32 ft 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 downstream at datum 6.0 ft 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.--69 years, 192 ft³/s (1.41 in/yr), 139,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 319,000 ft³/s June 14, 1935 (gage height, 43.3 ft at regular gage, 41.4 ft at former gage 5,330 ft downstream, from floodmarks), from rating curve extended above 54,000 ft³/s on basis of slope-area measurements of 154,000 and 319,000 ft³/s; minimum, 3.1 ft³/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.--Maximum discharge, 213 ft³/s Nov. 6 at 0600 hours (gage height, 1.86 ft), no peak above base of 1,500 ft³/s; minimum daily, 49 ft³/s July 16-18, Sept. 14, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	80	95	88	85	82	76	61	52	65	69	52
2	67	81	97	93	86	81	77	62	51	63	69	51
3	66	81	99	95	84	82	75	58	52	64	67	57
4	67	82	96	93	84	82	73	57	53	61	67	62
5	66	140	95	90	82	83	73	57	58	63	65	57
6	66	185	93	89	84	82	74	57	57	62	63	56
7	65	137	93	88	83	82	78	56	55	62	60	55
8	66	119	93	91	82	82	78	51	55	62	57	55
9	73	111	94	103	83	82	73	51	56	60	58	57
10	76	105	94	97	82	82	71	51	52	57	58	53
11	74	102	92	92	84	82	70	52	53	57	57	51
12	73	101	91	89	83	83	69	52	55	56	58	51
13	70	102	90	88	82	81	69	52	54	54	58	50
14	70	100	90	87	80	80	68	54	53	52	54	49
15	71	99	90	87	81	80	66	53	53	52	53	51
16	71	98	89	87	80	80	66	53	53	49	54	51
17	72	99	89	88	81	80	66	62	52	49	52	51
18	72	100	90	87	83	80	66	71	51	49	52	51
19	73	100	89	86	81	77	66	85	52	52	53	51
20	85	97	91	87	82	75	64	77	52	56	54	50
21	84	97	90	87	84	76	62	68	52	56	54	51
22	80	99	89	87	84	76	63	63	52	56	51	57
23	78	99	89	87	83	79	64	60	52	52	50	56
24	78	97	88	87	83	78	64	59	52	65	53	51
25	78	97	87	86	82	76	64	57	52	73	54	51
26	79	98	89	85	83	76	63	55	52	95	53	49
27	80	98	89	85	80	76	61	54	54	93	54	52
28	80	97	89	84	80	73	61	53	67	87	52	60
29	80	96	87	84	80	74	61	53	84	79	51	71
30	80	97	87	84	---	75	61	53	73	77	51	70
31	80	---	88	84	---	76	---	51	---	74	52	---
TOTAL	2287	3094	2822	2745	2391	2453	2042	1798	1659	1952	1753	1629
MEAN	73.8	103	91.0	88.5	82.4	79.1	68.1	58.0	55.3	63.0	56.5	54.3
MAX	85	185	99	103	86	83	78	85	84	95	69	71
MIN	65	80	87	84	80	73	61	51	51	49	50	49
AC-FT	4540	6140	5600	5440	4740	4870	4050	3570	3290	3870	3480	3230
CAL YR 1983	TOTAL	32807	MEAN 89.9	MAX 185	MIN 56	AC-FT 65070						
WTR YR 1984	TOTAL	26625	MEAN 72.7	MAX 185	MIN 49	AC-FT 52810						

COLORADO RIVER BASIN

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 downstream from downstream bridge on U.S. Highway 87, 1.0 mi upstream from Beaver Creek, 9.1 mi southeast of Mason, 10.2 mi downstream from James River, and 61.1 mi upstream from mouth.

DRAINAGE AREA.--3,247.14 mi², of which 5.14 mi² 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 National Geodetic Vertical Datum of 1929. Prior to Jan. 19, 1971, at site 190 ft upstream at same datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years (water years 1969-84), 324 ft³/s (1.36 in/yr), 234,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 260,000 ft³/s Sept. 8, 1980 (gage height, 37.00 ft, from floodmark), from rating curve extended above 151,000 ft³/s on basis of slope-area measurement and discharge measurement of 145,000 ft³/s; minimum, 16 ft³/s July 23, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, about 46 ft June 14, 1935, from information by State Department of Highways and Public Transportation; discharge, about 380,000 ft³/s; at site 17.0 mi downstream discharge was 388,000 ft³/s by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 367 ft³/s May 20 at 0600 hours (gage height, 1.94 ft), no peak above base of 3,000 ft³/s; minimum, 7.0 ft³/s July 17 (result of pumping).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	84	108	115	103	93	73	59	54	69	84	36
2	62	84	109	115	103	92	74	62	53	71	80	31
3	62	85	113	115	103	95	76	61	48	62	79	36
4	63	87	114	116	106	98	72	56	49	52	71	44
5	61	140	112	114	102	99	74	56	51	45	67	44
6	59	159	111	120	100	101	76	52	51	43	63	49
7	60	211	106	122	104	100	79	53	48	42	58	48
8	60	223	104	130	100	100	85	51	51	38	53	45
9	67	170	104	147	101	96	86	46	51	35	47	41
10	78	140	106	130	102	94	83	47	48	33	45	36
11	75	128	104	140	104	94	83	43	50	31	43	34
12	74	121	104	136	104	98	81	41	51	28	45	34
13	74	115	103	128	96	99	81	40	48	25	44	33
14	71	112	101	120	96	97	76	39	41	21	45	31
15	68	110	101	118	92	95	72	40	41	17	60	28
16	68	107	100	117	92	94	69	39	39	15	50	27
17	69	103	99	117	94	94	70	47	38	10	45	27
18	71	103	102	117	97	92	69	57	37	12	43	26
19	76	102	105	116	99	91	71	62	34	64	42	27
20	78	100	105	114	98	87	70	288	30	57	38	29
21	87	102	108	110	97	84	65	166	30	52	38	38
22	82	104	111	110	98	83	63	103	25	43	38	52
23	87	103	111	113	98	84	64	84	27	34	36	39
24	88	100	125	114	96	83	65	73	22	51	30	35
25	82	101	100	114	99	80	64	65	18	206	31	36
26	79	101	112	110	95	82	65	60	18	127	29	36
27	76	106	116	108	94	70	64	55	19	112	24	36
28	79	104	120	106	91	65	59	53	158	95	22	41
29	80	106	118	106	92	68	58	52	157	112	27	63
30	81	107	115	103	---	75	59	49	86	106	30	62
31	82	---	108	103	---	75	---	48	---	92	41	---
TOTAL	2261	3518	3355	3644	2856	2758	2146	2047	1473	1800	1448	1144
MEAN	72.9	117	108	118	98.5	89.0	71.5	66.0	49.1	58.1	46.7	38.1
MAX	88	223	125	147	106	101	86	288	158	206	84	63
MIN	59	84	99	103	91	65	58	39	18	10	22	26
CFSM	.02	.04	.03	.04	.03	.03	.02	.02	.02	.02	.01	.01
IN.	.03	.04	.04	.04	.03	.03	.02	.02	.02	.02	.02	.01
AC-FT	4480	6980	6650	7230	5660	5470	4260	4060	2920	3570	2870	2270
CAL YR 1983	TOTAL	42022	MEAN	115	MAX 438	MIN 36	CFSM .04	IN .48	AC-FT 83350			
WTR YR 1984	TOTAL	28450	MEAN	77.7	MAX 288	MIN 10	CFSM .02	IN .33	AC-FT 56430			

COLORADO RIVER BASIN

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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 upstream from Llano River, 6.4 mi downstream from Spring Creek, and 11.1 mi southeast of Mason.

DRAINAGE AREA.--215 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Aug. 3, 1978, at site 300 ft upstream at same datum.

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

AVERAGE DISCHARGE.--21 years, 16.8 ft³/s (1.06 in/yr), 12,170 acre-ft/yr.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,380 ft³/s Nov. 5 at 1430 hours (gage height, 7.60 ft), no other peak above base of 1,000 ft³/s; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.49	3.2	1.8	2.6	1.4	.94	.52	.15	2.8	.02	.69	.03
2	.54	3.3	1.7	3.7	1.6	1.1	1.2	.16	1.4	.00	.51	.02
3	.52	3.3	2.7	4.8	1.6	1.3	1.2	.10	.69	.00	.25	11
4	.51	3.4	2.8	5.0	1.6	1.3	.81	.09	.53	.00	.20	3.2
5	.46	392	2.3	3.5	1.5	1.8	.80	.06	.38	.00	.17	1.7
6	.43	64	1.6	2.8	1.4	3.2	.73	.04	.24	.00	.14	1.3
7	.40	23	1.2	2.5	1.4	3.2	.83	.04	.22	.00	.10	.87
8	.36	10	1.2	2.6	1.4	2.6	.97	.03	.17	.00	.07	.53
9	.64	6.2	1.2	7.7	1.5	1.8	1.3	.03	.13	.00	.06	.35
10	.43	4.1	1.3	11	1.6	1.6	1.3	.03	.11	.00	.04	.25
11	1.4	3.0	1.3	6.0	1.7	1.6	.89	.03	.07	.00	.04	.19
12	4.2	2.5	1.2	3.7	1.8	1.6	.59	.03	.05	.00	.04	.16
13	3.4	2.2	.99	2.8	2.1	1.6	.39	.03	.03	.00	.04	.14
14	3.5	2.0	.84	2.4	2.3	1.6	.24	.03	.03	.00	.03	.14
15	2.4	1.5	.84	2.4	1.7	1.4	.27	.04	.02	.00	.03	.14
16	1.7	1.3	.84	2.4	1.0	1.2	.24	.04	.02	.00	.03	.12
17	1.3	1.2	.95	2.4	.93	1.4	.24	.07	.01	.00	.02	.11
18	1.3	1.2	1.1	2.4	1.2	1.6	.25	.12	.00	.00	.02	.12
19	1.5	1.2	1.3	2.3	1.2	1.7	.23	.09	.00	.00	.01	.12
20	5.3	.95	1.6	2.2	1.2	1.4	.18	.07	.00	.00	.00	.12
21	22	.84	1.9	1.9	1.2	.95	.11	.04	.00	.00	.00	.61
22	13	.94	2.0	2.3	1.5	.78	.18	.03	.00	.00	.00	.40
23	7.3	1.8	2.1	2.6	1.5	.85	.21	.03	.00	.00	.00	.20
24	5.2	3.2	6.4	2.6	1.3	1.0	.18	.03	.00	.31	.00	.15
25	4.2	3.0	1.6	2.5	1.2	1.1	.14	.02	.00	.07	.00	.12
26	3.4	2.1	1.7	2.3	1.3	1.1	.14	.03	.00	.04	.00	.09
27	3.1	2.2	2.4	2.0	1.0	.91	.12	.03	.00	.05	.00	.11
28	2.8	2.1	2.2	1.8	.84	.63	.14	.03	.30	.71	.00	.75
29	2.6	2.1	2.6	1.8	.84	.52	.20	34	.05	6.2	.00	.72
30	2.8	2.0	1.8	1.5	---	.49	.14	16	.04	3.0	.00	.33
31	2.9	---	2.0	1.4	---	.35	---	6.3	---	1.5	.06	---
TOTAL	100.08	549.83	55.46	97.9	40.81	42.62	14.74	57.82	7.29	11.90	2.55	24.09
MEAN	3.23	18.3	1.79	3.16	1.41	1.37	.49	1.87	.24	.38	.082	.80
MAX	22	392	6.4	11	2.3	3.2	1.3	34	2.8	6.2	.69	11
MIN	.36	.84	.84	1.4	.84	.35	.11	.02	.00	.00	.00	.02
CFSM	.02	.09	.008	.02	.007	.006	.002	.009	.001	.002	.000	.004
IN.	.02	.10	.01	.02	.01	.01	.00	.01	.00	.00	.00	.00
AC-FT	199	1090	110	194	81	85	29	115	14	24	5.1	48

CAL YR 1983 TOTAL 2673.56 MEAN 7.32 MAX 392 MIN .00 CFSM .03 IN .46 AC-FT 5300
WTR YR 1984 TOTAL 1005.09 MEAN 2.75 MAX 392 MIN .00 CFSM .01 IN .17 AC-FT 1990

COLORADO RIVER BASIN

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 downstream from bridge on State Highway 16, 7 mi upstream from Little Llano River, and 29.3 mi upstream from mouth.

DRAINAGE AREA.--4,197.14 mi², of which 5.14 mi² 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 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.--45 years, 352 ft³/s (1.14 in/yr), 255,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 232,000 ft³/s Sept. 10, 1952 (gage height, 32.6 ft), from rating curve extended above 129,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1952-56, 1964, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, 41.5 ft June 14, 1935 (discharge, 380,000 ft³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 490 ft³/s July 28 at 0715 hours (gage height, 3.29 ft), no peak above base of 7,500 ft³/s; no flow July 21, 22 (result of pumping by the city of Llano).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	66	77	83	90	80	49	30	39	215	71	16
2	54	66	77	98	93	81	59	37	41	150	58	18
3	54	67	86	98	90	81	58	30	41	80	45	18
4	50	69	85	99	93	80	55	33	38	74	39	20
5	46	119	88	98	97	86	54	32	36	77	36	23
6	48	138	81	102	94	86	56	28	36	61	35	28
7	48	200	81	104	94	86	63	27	35	45	29	22
8	43	181	81	127	94	80	64	27	35	31	27	21
9	59	191	81	166	97	77	61	26	35	23	25	18
10	66	155	80	125	99	79	71	25	35	17	22	18
11	61	123	76	144	101	77	58	24	35	12	21	18
12	75	105	77	132	102	79	62	23	35	8.4	21	16
13	66	97	72	120	98	78	62	22	34	6.9	20	14
14	58	89	69	108	98	81	58	22	33	4.8	18	13
15	55	81	69	103	95	81	53	22	32	3.6	20	13
16	55	79	66	101	90	77	52	23	30	2.0	20	12
17	54	77	66	99	93	81	49	25	29	1.0	18	11
18	55	75	66	96	97	83	47	30	28	.61	21	11
19	60	71	66	94	94	75	49	37	26	.29	22	11
20	62	64	67	94	102	71	49	150	25	.00	19	10
21	73	67	75	94	103	70	50	100	23	.00	16	13
22	65	78	76	94	101	70	45	70	22	16	14	15
23	73	83	77	94	101	74	46	60	21	19	14	15
24	74	75	103	97	98	67	44	55	21	71	14	16
25	65	69	66	99	99	63	40	50	16	91	13	18
26	63	71	76	101	101	66	44	47	13	50	13	17
27	60	81	85	101	79	74	39	46	2.1	178	13	16
28	63	73	97	98	86	48	38	45	7.3	309	11	17
29	64	73	91	98	77	50	45	44	17	141	11	21
30	64	75	83	92	---	52	31	41	230	71	12	21
31	65	---	73	90	---	49	---	40	---	66	20	---
TOTAL	1853	2858	2413	3249	2756	2282	1551	1271	1050.4	1824.60	738	500
MEAN	59.8	95.3	77.8	105	95.0	73.6	51.7	41.0	35.0	58.9	23.8	16.7
MAX	75	200	103	166	103	86	71	150	230	309	71	28
MIN	43	64	66	83	77	48	31	22	2.1	.00	11	10
CFSM	.01	.02	.02	.03	.02	.02	.01	.01	.008	.01	.006	.004
IN.	.02	.03	.02	.03	.02	.02	.01	.01	.01	.02	.01	.00
AC-FT	3680	5670	4790	6440	5470	4530	3080	2520	2080	3620	1460	992
CAL YR 1983	TOTAL	55255.00	MEAN	151	MAX	3200	MIN	21	CFSM	.04	IN	.49
WTR YR 1984	TOTAL	22346.00	MEAN	61.1	MAX	309	MIN	.00	CFSM	.02	IN	.20
										AC-FT	109600	
										AC-FT	44320	

COLORADO RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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 08...	1405	176	360	7.8	22.0	3.0	8.6	100	1.1	160	220	160
MAR 13...	1400	95	415	7.9	20.0	4.8	8.1	92	.5	24	86	180
JUL 10...	1355	39	360	7.9	29.0	4.3	8.8	118	.4	28	53	140
AUG 29...	0945	11	360	7.4	28.0	2.0	8.2	108	1.4	460	440	150

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	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 08...	12	31	20	14	.5	2.5	148	14	23	.30	11
MAR 13...	9	35	22	17	.6	1.8	170	17	24	.20	7.2
JUL 10...	15	21	20	19	.7	2.7	120	14	31	.30	19
AUG 29...	14	24	21	20	.7	3.1	133	11	30	.30	18

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, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTH- DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 08...	207	210	<.10	.040	.50	.010	<.010	.010	11	9.5	48
MAR 13...	221	230	<.10	.100	.20	<.010	<.010	.020	8	2.1	93
JUL 10...	204	200	<.10	.020	.60	.010	<.010	<.010	12	1.3	80
AUG 29...	200	210	<.10	.020	.70	.020	<.010	<.010	13	.39	90

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 08...	1405	1	75	<.5	<1	<1	<3	1	14	<1
MAR 13...	1400	<1	52	<.5	<1	1	<3	2	11	<1
JUL 10...	1355	2	54	<1	1	<1	<3	<1	15	6
AUG 29...	0945	2	58	1	<1	<1	<3	<1	15	5

COLORADO RIVER BASIN

08151500 LLANO RIVER AT LLANO, TX --Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 08...	16	3	<.1	<10	2	<1	1	260	<6	22
MAR 13...	10	5	<.1	<10	<1	<1	<1	310	<6	10
JUL 10...	10	4	<.1	<10	<1	<1	<1	240	8	16
AUG 29...	11	7	<.1	<10	1	<1	<1	250	<6	<3

COLORADO RIVER BASIN

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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 upstream from mouth, and 7.3 mi south of Kingsland.

DRAINAGE AREA.--346 mi².

PERIOD OF RECORD.--October 1966 to current year.

Water-quality records.--Sediment records: January 1968 to September 1975.

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 862.31 ft 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. Gage-height telemeter at station.

AVERAGE DISCHARGE.--18 years, 58.6 ft³/s (2.30 in/yr), 42,460 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft³/s June 16, 1981 (gage height, 17.63 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Sept. 11, 1952, the highest since at least 1881, reached a stage of 34.2 ft (discharge, 163,000 ft³/s), from slope-area measurement at gage site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 258 ft³/s June 5 at 0030 hours (gage height, 5.99 ft), no peak above base of 2,500 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.82	6.0	3.7	5.0	4.2	2.8	.18	.46	.00	.46	.00
2	.04	.82	5.7	4.6	5.2	4.6	2.5	.18	.32	.00	.32	.00
3	.04	1.0	6.7	5.7	5.0	4.7	2.1	.18	.18	.00	.04	.00
4	.04	1.1	5.0	5.5	5.0	4.7	2.0	.04	5.0	.00	.00	.00
5	.04	9.2	4.9	5.2	5.0	7.9	2.1	.18	60	.00	.00	.00
6	.04	19	4.4	5.4	5.1	7.0	2.0	.04	12	.00	.00	.00
7	.18	14	4.4	5.4	5.1	5.2	3.1	.04	4.7	.00	.00	.00
8	.18	14	4.0	11	5.1	4.7	3.7	.04	2.8	.00	.00	.00
9	9.3	11	3.9	82	5.5	4.7	2.6	.04	2.0	.00	.00	.00
10	5.8	7.5	4.1	50	5.6	4.8	2.1	.18	1.8	.00	.00	.00
11	29	5.6	3.9	36	5.6	4.6	1.9	.04	.63	.00	.00	.00
12	35	4.6	4.0	28	6.1	4.8	1.7	.18	1.2	.00	.00	.00
13	8.6	4.3	3.7	20	5.7	4.4	1.4	.18	.82	.00	.00	.00
14	4.2	3.8	4.0	14	5.4	4.2	1.4	.32	.63	.00	.00	.00
15	2.7	3.4	4.4	13	5.2	4.3	1.4	.32	.46	.00	.00	.00
16	2.0	3.4	4.4	12	5.0	4.4	1.2	.32	.46	.00	.00	.00
17	1.8	3.4	6.5	11	5.1	4.6	1.0	.46	.32	.00	.00	.00
18	1.6	3.4	6.1	9.8	5.5	4.7	1.0	.63	.04	.00	.00	.00
19	1.4	3.3	6.1	8.3	5.0	4.1	1.0	.18	.32	.00	.00	.00
20	2.2	3.1	6.1	7.9	5.1	3.7	.84	.32	.04	.00	.00	.00
21	2.6	2.9	6.1	7.9	4.0	3.8	.74	.32	.00	.00	.00	.00
22	1.8	3.4	5.7	7.8	4.1	3.5	.57	.32	.00	.00	.00	.32
23	1.4	8.4	5.4	8.3	4.8	4.4	.45	.32	.00	.00	.00	.96
24	1.1	7.0	5.4	8.1	4.6	3.6	.42	.18	.00	1.3	.00	1.0
25	.95	6.5	5.4	6.9	4.6	3.4	.57	.18	.00	1.7	.00	1.0
26	.82	7.2	5.4	6.5	4.6	3.5	.47	.18	.00	1.5	.00	1.0
27	.82	12	5.0	6.0	4.3	3.2	.36	.32	.00	1.4	.00	1.0
28	.82	9.8	4.7	5.7	4.0	2.6	.32	8.8	.00	1.3	.00	1.1
29	.82	8.3	4.7	5.4	2.9	2.5	.26	5.4	.00	1.3	.00	1.1
30	.82	6.8	4.7	5.3	---	2.7	.21	1.0	.00	.82	.00	1.0
31	.82	---	4.7	5.0	---	2.8	---	.82	---	.63	.00	---
TOTAL	116.97	189.04	155.5	411.4	143.2	132.3	42.21	21.89	94.18	9.95	.82	8.48
MEAN	3.77	6.30	5.02	13.3	4.94	4.27	1.41	.71	3.14	.32	.026	.28
MAX	35	19	6.7	82	6.1	7.9	3.7	8.8	60	1.7	.46	1.1
MIN	.04	.82	3.7	3.7	2.9	2.5	.21	.04	.00	.00	.00	.00
CFSM	.01	.02	.02	.04	.01	.01	.004	.002	.009	.001	.000	.001
IN.	.01	.02	.02	.04	.02	.01	.00	.00	.01	.00	.00	.00
AC-FT	232	375	308	816	284	262	84	43	187	20	1.6	17

CAL YR 1983	TOTAL	14026.93	MEAN	38.4	MAX	1540	MIN	.04	CFSM	.11	IN	1.51	AC-FT	27820
WTR YR 1984	TOTAL	1325.94	MEAN	3.62	MAX	82	MIN	.00	CFSM	.01	IN	.14	AC-FT	2630

COLORADO RIVER BASIN

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 upstream from Mueseback Creek, 3.8 mi south of Fredericksburg, and 88.7 mi upstream from mouth.

DRAINAGE AREA.--369 mi².

PERIOD OF RECORD.--July 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,564.96 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known regulation or diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 31.8 ft³/s (23,040 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s June 4, 1981 (gage height, 23.23 ft); no flow July 13-18, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Aug. 2, 1978, which is the highest since 1907, reached a stage of 41.6 ft (discharge not determined). The highest known discharge was 64,000 ft³/s June 1, 1979 (gage height, 34.4 ft, from floodmark), from rating curve extended above a discharge measurement of 42,300 ft³/s June 1, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 134 ft³/s Jan. 9 at 0400 hours (gage height, 5.04 ft), no other peak above base of 1,500 ft³/s; no flow July 13-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	4.5	7.7	6.6	8.5	8.3	5.6	4.5	4.0	2.00	.41	.07
2	2.6	4.5	7.7	7.7	8.8	8.8	6.9	4.8	2.5	1.70	.41	.04
3	2.6	4.5	7.7	7.7	8.7	8.2	7.2	4.4	2.1	1.50	.40	.04
4	2.6	4.9	7.2	8.8	8.2	8.2	6.1	3.6	2.1	1.40	.32	.07
5	2.6	34.0	7.7	8.8	7.7	8.7	6.0	3.3	2.8	1.20	.31	.12
6	2.5	18.0	7.2	8.2	7.7	9.2	6.0	3.1	4.0	.67	.27	.16
7	2.3	10.0	7.2	8.2	7.5	9.4	6.3	3.1	4.2	.41	.27	.18
8	2.3	7.7	7.2	16.0	7.7	9.4	7.5	3.0	3.6	.14	.24	.18
9	6.8	6.6	7.2	74.0	7.7	9.1	8.2	2.5	3.5	.13	.18	.18
10	6.4	5.6	8.2	24.0	7.7	9.2	8.1	2.6	2.9	.10	.18	.18
11	4.6	5.0	8.8	16.0	7.7	10.0	6.7	2.6	2.7	.10	.18	.18
12	7.8	4.9	8.2	15.0	8.0	10.0	6.6	2.2	2.8	.10	.21	.13
13	5.3	4.5	8.2	13.0	8.2	11.0	6.6	1.7	2.6	.00	.46	.13
14	3.9	4.5	8.2	12.0	8.2	11.0	5.9	1.4	2.3	.00	.61	.10
15	3.3	4.5	7.7	11.0	7.7	11.0	4.9	1.4	2.0	.00	.41	.04
16	3.2	4.5	7.2	11.0	7.2	12.0	5.4	1.2	1.6	.00	.38	.02
17	3.2	5.0	7.2	11.0	7.2	13.0	5.5	1.4	1.9	.00	.24	.04
18	3.2	5.4	7.2	11.0	7.5	12.0	5.7	3.1	2.0	.00	.24	.04
19	3.2	5.4	6.6	9.4	9.0	13.0	6.0	7.0	2.0	.32	.24	.04
20	12.0	5.4	6.6	9.3	8.8	12.0	5.5	6.0	2.0	3.00	.20	.07
21	17.0	5.0	7.2	8.8	8.8	11.0	5.2	3.2	2.0	1.10	.14	.26
22	11.0	5.4	7.2	8.8	9.1	11.0	4.9	3.2	1.6	.43	.13	.59
23	7.2	18.0	7.2	9.3	9.4	13.0	4.9	3.2	1.4	.38	.08	.52
24	5.6	17.0	7.2	9.8	9.4	14.0	5.2	2.6	1.2	3.00	.09	.40
25	4.9	11.0	6.6	9.4	9.4	14.0	4.9	2.0	1.4	3.50	.13	.32
26	4.5	8.2	6.6	8.7	10.0	8.3	5.8	1.3	1.4	1.60	.17	.55
27	4.5	8.2	7.2	8.2	9.0	7.2	5.9	2.2	1.2	.85	.18	.97
28	4.5	8.2	7.2	8.2	8.2	5.1	4.9	2.1	1.3	1.80	.14	.97
29	4.5	8.2	7.2	8.2	8.2	4.9	5.4	2.6	2.1	1.30	.10	1.30
30	4.5	8.2	7.2	8.0	---	5.4	4.9	1.6	2.6	.73	.07	1.40
31	4.5	---	7.2	7.7	---	5.5	---	4.6	---	.43	.07	---
TOTAL	155.7	246.8	228.9	383.8	241.2	302.9	178.7	91.5	69.8	27.89	7.46	9.29
MEAN	5.02	8.23	7.38	12.4	8.32	9.77	5.96	2.95	2.33	.90	.24	.31
MAX	17	34	8.8	74	10	14	8.2	7.0	4.2	3.5	.61	1.4
MIN	2.3	4.5	6.6	6.6	7.2	4.9	4.9	1.2	1.2	.00	.07	.02
AC-FT	309	490	454	761	478	601	354	181	138	55	15	18
CAL YR 1983	TOTAL	7513.22	MEAN	20.6	MAX	604	MIN	.95	AC-FT	14900		
WTR YR 1984	TOTAL	1943.94	MEAN	5.31	MAX	74	MIN	.00	AC-FT	3860		

08153500 PEDERNALES RIVER NEAR JOHNSON CITY, TX

LOCATION.--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 downstream from Towhead Creek, 1.1 mi northeast of Johnston City, 3.4 mi downstream from Buffalo Creek, and 48.0 mi upstream from mouth.

DRAINAGE AREA.--901 mi².

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 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 downstream at same datum.

REMARKS.--Water-discharge records good. There are some diversions above station for irrigation. During year, 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. These structures control runoff from 15.6 mi² in the Williamson Creek drainage basin. Gage-height telemeter at station.

AVERAGE DISCHARGE.--45 years (water years 1940-84), 173 ft³/s (125,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s Sept. 11, 1952 (gage height, 42.5 ft, from floodmark), from rating curve extended above 116,000 ft³/s on basis of slope-area measurement of 441,000 ft³/s; no flow at times in 1951-52, 1954, 1956-57, 1963-64, 1967-68, 1971, and 1984.
Maximum stage since at least 1859, 42.5 ft Sept. 11, 1952.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1869 reached a stage of 33 ft from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,270 ft³/s Nov. 6 at 0200 hours (gage height, 11.11 ft), no peak above base of 4,100 ft³/s; no flow July 15 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	22	14	24	27.00	24.00	31.0	3.70	15.00	.24	0	0
2	4.1	23	16	31	26.00	24.00	35.0	3.70	10.00	1.10	0	0
3	4.1	21	18	31	28.00	27.00	31.0	3.70	4.70	2.40	0	0
4	4.4	18	21	31	29.00	24.00	24.0	3.20	3.10	1.80	0	0
5	4.7	32	24	32	31.00	24.00	24.0	2.40	4.30	1.10	0	0
6	4.4	465	21	31	31.00	24.00	21.0	2.00	12.00	.92	0	0
7	3.4	121	21	27	31.00	24.00	18.0	1.40	10.00	.50	0	0
8	4.0	81	24	36	31.00	27.00	16.0	1.10	7.60	.28	0	0
9	187.0	43	27	195	31.00	24.00	14.0	1.50	6.70	.17	0	0
10	70.0	30	27	231	31.00	24.00	12.0	1.60	7.60	.10	0	0
11	46.0	26	27	128	31.00	24.00	12.0	1.60	7.60	.06	0	0
12	49.0	27	27	115	31.00	24.00	10.0	1.60	6.70	.03	0	0
13	41.0	27	24	88	36.00	24.00	10.0	.92	5.80	.02	0	0
14	27.0	31	24	45	36.00	27.00	8.8	.92	5.80	.01	0	0
15	23.0	27	24	40	27.00	27.00	8.8	.80	5.00	.00	0	0
16	23.0	24	27	40	33.00	27.00	7.6	.50	2.80	.00	0	0
17	26.0	24	27	40	35.00	27.00	7.7	.44	2.00	.00	0	0
18	27.0	31	31	40	31.00	27.00	9.5	1.80	1.60	.00	0	0
19	23.0	31	24	35	32.00	15.00	8.8	45.00	1.40	.00	0	0
20	23.0	27	18	35	30.00	24.00	8.5	21.00	1.10	.00	0	0
21	22.0	24	18	35	33.00	31.00	5.8	96.00	.92	.00	0	0
22	25.0	21	21	35	37.00	31.00	4.2	39.00	.80	.00	0	0
23	30.0	12	21	35	38.00	24.00	5.0	24.00	.69	.00	0	0
24	33.0	12	21	35	35.00	24.00	4.3	18.00	.59	.00	0	0
25	29.0	12	21	35	35.00	24.00	4.6	12.00	.50	.00	0	0
26	28.0	12	27	35	17.00	27.00	8.5	5.00	.33	.00	0	0
27	27.0	12	26	29	.84	16.00	7.7	4.70	.20	.00	0	0
28	23.0	12	23	27	13.00	.38	8.2	3.80	.17	.00	0	0
29	21.0	12	24	28	24.00	14.00	8.2	4.10	.20	.00	0	0
30	22.0	14	25	25	---	24.00	3.3	3.70	.24	.000	0	0
31	22.0	---	25	27	---	31.00	---	12.00	---	.00	0	---
TOTAL	880.8	1274	718	1621	850.84	738.38	377.5	321.18	125.44	8.73	0	0
MEAN	28.4	42.5	23.2	52.3	29.3	23.8	12.6	10.4	4.18	.28	.000	.000
MAX	187	465	31	231	38	31	35	96	15	2.4	.00	.00
MIN	3.4	12	14	24	.84	.38	3.3	.44	.17	.00	.00	.00
AC-FT	1750	2530	1420	3220	1690	1460	749	637	249	17	.00	.00
CAL YR 1983	TOTAL	35232.60	MEAN	96.5	MAX	10500	MIN	3.2	AC-FT	69880		
WTR YR 1984	TOTAL	6915.87	MEAN	18.9	MAX	465	MIN	.00	AC-FT	13720		

COLORADO RIVER BASIN

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 1983 TO SEPTEMBER 1984

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 03...	0910	4.3	596	24.0	230	32	35	35	36
DEC 27...	1420	25	811	4.5	310	48	49	45	52
FEB 06...	1042	31	677	10.0	260	42	42	38	40
MAR 19...	0944	19	734	18.5	260	41	37	41	52
APR 30...	1230	6.0	805	21.5	280	53	34	48	57
JUN 11...	1120	7.5	801	26.5	270	63	30	48	65

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 03...	1	3.3	200	35	52	.40	11	330
DEC 27...	1	3.3	260	46	85	.40	3.2	440
FEB 06...	1	2.9	220	39	65	.40	1.1	360
MAR 19...	1	3.0	220	39	87	.40	2.8	390
APR 30...	1	3.5	230	47	100	.50	3.4	430
JUN 11...	2	4.2	210	40	110	.50	6.7	430

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 downstream from Sandy Creek, 12 mi northwest of Austin, and at mile 318.0.

DRAINAGE AREA.--38,755 mi², approximately, of which 11,403 mi² 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. WDR TX-83-3: 1982.

GAGE.--Nonrecording gage. Datum of gage is 0.12 ft 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 concrete gravity, earth, and rockfill dam. Storage began Sept. 9, 1940, and dam was completed in early 1942. Capacity curve is based on an October 1939 survey. Capacity between gage heights 681.0 and 714.0 ft is 778,000 acre-ft 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 effluent 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 May 18, 1957 (gage height, 707.4 ft); minimum, 332,600 acre-ft Aug. 13, 14, 1951 (gage height, 614.2 ft).

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 956,300 acre-ft Oct. 1; maximum gage height, 668.67 ft Oct. 1; minimum contents, 547,800 acre-ft Sept. 30 (gage height, 637.64 ft).

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

635.0	520,600	645.0	631,700	655.0	754,500	665.0	899,900
640.0	572,700	650.0	690,700	660.0	824,700	670.0	976,900

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	956300	925000	931300	937500	945000	938600	923000	823800	733100	671900	628800	579300
2	951800	925600	930700	937500	945000	938600	920600	820700	729300	669900	626600	578800
3	949800	925000	930900	937500	945100	938800	918800	816600	725800	668500	627600	578700
4	948800	925100	931300	937500	945000	939200	915700	813500	725100	666500	626200	576000
5	944000	926500	931600	937500	944800	939400	913600	810400	727700	665200	624300	575400
6	940300	927500	932300	936800	945700	939400	910700	806500	727900	663000	623400	572600
7	937500	927500	932400	936900	946500	939200	909700	804500	725100	659700	621400	572000
8	934600	927500	930700	940000	947100	939200	909400	802200	722800	658700	621100	573200
9	940200	927900	931600	941600	946700	938200	906700	798100	720600	656700	619500	573200
10	938000	928400	931000	942800	946500	938500	904100	796200	718900	655900	618400	572000
11	936800	926100	931000	943600	946700	938600	901300	791900	717100	654000	617300	571200
12	934900	927300	929800	943700	948200	938800	898500	789600	715900	653300	616600	570500
13	933500	927600	929600	943600	949000	938800	897000	785100	714900	650300	614400	569900
14	932700	927900	928900	943700	948500	938800	896100	780800	711700	649400	611200	569400
15	931200	927300	928500	943400	949000	938600	891800	776400	708100	649400	611600	567800
16	929600	926800	927800	943400	950400	940600	887300	772600	704700	648800	609600	565400
17	929600	926700	927800	943300	951300	940300	883100	770700	702900	647600	609800	563200
18	928900	926500	927800	943400	952400	940800	879300	768000	700200	646800	607400	562700
19	928200	926700	926800	943300	952600	940500	875600	767600	701600	645200	604300	561500
20	928900	926200	926700	944700	948700	940500	868700	765400	695500	643300	601000	560800
21	927800	925900	926500	943900	947600	939400	864500	761900	695000	641600	600500	560200
22	927900	927600	926500	944000	942300	938500	860400	761800	691900	639700	599300	559300
23	927600	927600	927100	944200	940900	939200	856100	761000	689500	637100	598100	558200
24	927600	927300	928400	944700	940800	938000	851000	756900	687800	639700	596500	556200
25	927500	927000	929500	944700	940800	936400	848000	755400	686000	636400	593200	555000
26	927100	927300	934100	944500	941900	935100	843600	752200	685200	634200	591000	554300
27	927100	926800	935100	944000	940300	935700	840000	749800	681900	632400	588600	552300
28	926400	929300	935800	944500	940000	932100	836300	746800	678400	631900	586500	551300
29	926400	932100	935700	944800	939500	930900	832400	742200	676700	630200	585600	549600
30	926200	931500	936100	945000	---	927800	828200	739900	674800	629500	581900	547800
31	925600	---	937700	945100	---	940800	---	736600	---	628500	580100	---
MAX	956300	932100	937700	945100	952600	940800	923000	823800	733100	671900	628800	579300
MIN	925600	925000	926500	936800	939500	927800	828200	736600	674800	628500	580100	547800
(†)	667.07	667.07	667.47	667.95	667.59	667.67	660.23	653.62	648.65	644.73	640.63	637.64
(‡)	-30700	+5900	+6200	+7400	-5600	+1300	-112600	-91600	-61800	-46300	-48400	-32300
CAL YR 1983	MAX	1128000	MIN	915700	‡	-22300						
WTR YR 1984	MAX	956300	MIN	547800	‡	-408500						

† Gage height, in feet, at end of month.

‡ Change in contents, in acre-feet.

COLORADO RIVER BASIN

08154510 COLORADO RIVER BELOW MANSFIELD DAM, AUSTIN, TX

LOCATION.--Lat 30°23'30", long 97°54'28", Travis County, Hydrologic Unit 12090205, at the downstreams side of Mansfield Dam, 12.9 mi northwest of the State Capitol at Austin, and at mile 318.0.

DRAINAGE AREA.--38,755 mi², approximately, of which 11,403 mi² 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.--10 years 1,534 ft³/s (1,111,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 25,300 ft³/s Apr. 17-19, 1977; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2,930 ft³/s Feb. 20; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1340	378	134	.00	38	449	1130	1980	2500	2780	825	2210		
2	1200	.00	228	.00	.00	.00	1100	1810	2710	2600	1920	2160		
3	1150	.00	.00	.00	.00	.00	928	1740	2710	2340	674	1840		
4	1320	.00	.00	.00	81	.00	1140	1800	2710	2300	2020	2360		
5	1540	.00	.00	.00	166	111	1140	1800	2570	2290	1420	1870		
6	1650	.00	128	321	.00	79	1230	1830	2260	2380	1510	2050		
7	1460	.00	143	898	.00	.00	1200	1760	2540	2330	1380	1620		
8	1460	.00	172	134	43	.00	1160	1720	2440	2130	1360	1720		
9	1310	.00	.00	.00	184	294	1190	1840	2340	2200	1480	1510		
10	1540	236	528	.00	.00	.00	1340	2650	2200	2130	1530	1690		
11	1150	849	105	.00	.00	.00	1380	2240	2370	1980	1660	1640		
12	699	.00	105	.00	.00	169	1230	2670	2290	2210	1540	1810		
13	745	.00	38	.00	.00	.00	1380	2100	2270	1810	1830	1750		
14	425	.00	325	.00	.00	.00	1780	2050	2610	1590	1760	1760		
15	554	.00	163	.00	184	.00	1780	2220	2400	1550	1330	1820		
16	505	84	374	.00	.00	.00	1900	2440	2610	1600	1500	1830		
17	493	.00	122	.00	.00	.00	1820	2430	2400	1530	1400	1850		
18	423	.00	125	.00	.00	.00	1700	2190	2470	1480	1290	1710		
19	535	.00	387	.00	.00	242	1650	2060	2560	1640	1330	1640		
20	505	.00	.00	.00	2930	.00	1870	2230	2480	1560	1400	1380		
21	449	.00	262	.00	1650	438	1880	2270	2350	1680	1370	1260		
22	.00	344	1400	.00	2660	250	1930	1630	2450	1490	1500	1500		
23	.00	301	105	.00	701	224	1900	1720	2450	1870	1880	1340		
24	.00	236	294	.00	15	633	2460	1690	2610	978	1500	1450		
25	.00	173	1450	.00	.00	671	1410	1740	2270	1400	2270	1540		
26	.00	134	807	.00	.00	734	2350	2460	2570	1690	1890	1050		
27	.00	131	.00	604	122	692	1730	2460	2660	1510	1860	1040		
28	231	114	163	.00	51	642	1730	2310	2610	2330	1930	921		
29	.00	134	245	.00	.00	845	1770	2230	2340	1520	1670	737		
30	.00	123	482	.00	---	1420	1930	2500	2510	1380	2740	736		
31	176	---	.00	81	---	1150	---	2720	---	1260	2130	---		
TOTAL	20860.00	3237.00	8285.00	2038.00	8825.00	9043.00	47138	65290	74260	57538	49899	47794		
MEAN	673	108	267	65.7	304	292	1571	2106	2475	1856	1610	1593		
MAX	1650	849	1450	898	2930	1420	2460	2720	2710	2780	2740	2360		
MIN	.00	.00	.00	.00	.00	.00	928	1630	2200	978	674	736		
CFSM	.03	.004	.01	.002	.01	.01	.06	.08	.09	.07	.06	.06		
IN.	.03	.00	.01	.00	.01	.01	.06	.09	.10	.08	.07	.07		
AC-FT	41380	6420	16430	4040	17500	17940	93500	129500	147300	114100	98970	94800		
CAL YR 1983	TOTAL	251197.00	MEAN	688	MAX	2440	MIN	.00	CFSM	.03	IN	.34	AC-FT	498200
WTR YR 1984	TOTAL	394207.00	MEAN	1077	MAX	2930	MIN	.00	CFSM	.04	IN	.54	AC-FT	781900

COLORADO RIVER BASIN

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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 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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 28...	0830	560	7.7	19.0	4.5	49	.0	200	46
DEC 14...	0805	538	7.9	16.0	7.3	75	.5	180	52
FEB 21...	1530	534	8.0	14.0	9.1	89	1.0	190	52
APR 16...	1240	536	8.1	13.5	4.8	46	.9	200	58
JUN 27...	1240	539	7.6	21.0	5.8	66	.4	200	62
AUG 16...	0840	525	7.4	23.5	4.2	50	1.1	200	58

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 28...	42	22	35	1	3.6	150	40	63	.20
DEC 14...	40	20	31	1	3.3	130	39	61	.30
FEB 21...	42	21	31	1	3.8	140	39	56	.30
APR 16...	43	22	32	1	3.8	140	38	59	.30
JUN 27...	46	21	30	.9	3.2	140	37	57	.30
AUG 16...	43	22	33	1	3.8	140	38	59	.30

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
OCT 28...	7.4	300	<.020	<.10	.040	.46	.50	.090
DEC 14...	6.4	280	<.010	<.10	.020	--	<.20	.010
FEB 21...	7.6	280	<.010	.20	.030	.37	.40	.030
APR 16...	6.2	290	<.010	<.10	.010	.39	.40	<.010
JUN 27...	5.2	280	<.010	<.10	.020	.58	.60	<.010
AUG 16...	4.6	290	<.010	<.10	.060	.24	.30	<.010

COLORADO RIVER BASIN

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 upstream from West Fork Bull Creek and Farm Road 2222, and 7.1 mi northwest of the State Capitol Building in Austin.

DRAINAGE AREA.--22.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1976 to July 1978 (operated as a flood-hydrograph partial station only), July 1978 to current year.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is 534.08 ft 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.

AVERAGE DISCHARGE.--6 years, 8.30 ft³/s (5.05 in/yr), 6,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft³/s May 13, 1982 (gage height, 11.96 ft); no flow for several days in 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 176 ft³/s Aug. 12 at 1400 hours (gage height, 3.68 ft) no peak above base of 200 ft³/s; no flow for several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.8	2.7	2.1	2.4	2.2	2.7	.38	.16	.02	.25	.00
2	1.2	1.8	2.7	2.0	2.4	2.2	2.7	.38	.13	.02	.25	.06
3	1.1	1.8	15	2.0	2.4	2.2	2.6	.43	.13	.01	.25	.52
4	1.2	1.8	5.5	2.0	2.4	6.5	2.4	.42	.28	.00	.24	.07
5	1.2	9.9	4.8	2.0	2.4	13	2.1	.34	.78	.00	.21	.02
6	1.2	6.5	4.2	2.0	2.2	5.4	2.0	.34	6.1	.00	.17	.01
7	1.0	5.0	4.4	2.0	2.2	5.0	2.0	.34	1.5	.00	.13	.00
8	1.0	3.8	4.1	5.1	2.2	4.4	2.0	.29	.66	.00	.10	.01
9	20	3.3	4.1	14	2.7	3.8	1.8	.25	.46	.00	.08	.04
10	8.3	2.8	4.1	5.6	2.7	3.7	1.6	.25	.43	.00	.04	.06
11	4.5	2.4	3.8	4.8	2.7	3.7	1.6	.25	.37	.00	.04	.06
12	3.7	2.4	3.5	4.6	4.2	6.0	1.5	.25	3.1	.00	2.2	.06
13	3.0	2.4	3.4	4.1	3.4	4.6	1.3	.24	1.8	.00	.25	.06
14	2.7	2.4	3.0	4.1	3.4	4.4	1.2	.21	.74	.00	.18	.04
15	2.6	2.2	3.0	3.8	3.4	4.4	1.0	.21	.43	.00	.11	.04
16	2.2	2.2	2.8	3.7	2.8	4.2	.92	.24	.40	.00	.06	.03
17	2.2	2.2	2.7	3.7	2.2	3.7	.92	.26	.37	.00	.06	.02
18	4.6	2.2	2.4	3.5	2.6	3.7	.92	.86	.25	.01	.04	.02
19	4.6	2.2	2.4	3.1	2.5	4.0	.92	.73	.16	.00	.04	.02
20	6.8	2.0	2.4	3.0	2.4	3.4	.92	.63	.15	.00	.03	.02
21	4.6	2.0	2.4	3.0	2.4	3.0	.80	.49	.12	.00	.03	.05
22	3.3	2.1	2.4	3.0	2.3	2.9	.52	.38	.09	.00	.03	.07
23	2.8	3.8	2.4	3.0	2.2	4.2	.54	.29	.09	.00	.02	.04
24	2.5	2.9	2.4	3.0	2.2	3.9	.53	.29	.09	4.6	.02	.04
25	2.4	2.3	2.4	3.0	2.2	2.8	.49	.28	.08	1.2	.04	.04
26	2.0	2.6	2.4	3.0	4.6	2.7	.49	.24	.06	.43	.00	.04
27	2.0	5.2	2.3	3.0	3.1	2.7	.52	.23	.04	.33	.00	.04
28	2.0	3.8	2.3	2.3	2.5	2.5	.43	.16	.08	.28	.00	.04
29	2.0	3.1	2.4	2.4	2.2	2.2	.45	.12	.11	.27	.00	.04
30	1.9	3.2	2.2	2.4	---	2.5	.43	.14	.03	.29	.00	.04
31	1.8	---	2.0	2.4	---	2.7	---	.16	---	.26	.00	---
TOTAL	101.7	92.1	106.6	107.7	77.3	122.6	38.30	10.08	19.19	7.72	4.87	1.60
MEAN	3.28	3.07	3.44	3.47	2.67	3.95	1.28	.33	.64	.25	.16	.053
MAX	20	9.9	15	14	4.6	13	2.7	.86	6.1	4.6	2.2	.52
MIN	1.0	1.8	2.0	2.0	2.2	2.2	.43	.12	.03	.00	.00	.00
CFSM	.15	.14	.15	.16	.12	.18	.06	.02	.03	.01	.007	.002
IN.	.17	.15	.18	.18	.13	.20	.06	.02	.03	.01	.01	.00
AC-FT	202	183	211	214	153	243	76	20	38	15	9.7	3.2
CAL YR 1983	TOTAL	2540.23	MEAN 6.96	MAX 78	MIN .62	CFSM .31	IN 4.24	AC-FT 5040				
WTR YR 1984	TOTAL	689.76	MEAN 1.88	MAX 20	MIN .00	CFSM .08	IN 1.15	AC-FT 1370				

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 1983 TO SEPTEMBER 1984

								OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC- CI, FECAL, KF AGAR (COLS. PER 100 ML)	
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	(PER- CENT SATUR- ATION)	(MG/L)	(COLS./ 100 ML)	(COLS. PER 100 ML)
FEB 27...	0927	2.4	753	8.2	10.0	<1	4.6	9.6	86	1.2	180	520
APR 16...	1105	.92	642	8.1	18.0	10	2.8	8.1	88	1.6	160	240
JUL 24...	1345	16	836	8.1	25.0	70	60	9.5	116	3.9	K40000	18000
AUG 21...	0830	.02	1050	7.8	23.5	22	3.4	6.0	72	2.6	K180	K180
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)
FEB 27...	290	90	78	23	50	1	2.0	200	89	72	.20	5.2
APR 16...	260	75	68	23	34	.9	2.0	190	66	52	.20	5.9
JUL 24...	250	100	70	19	82	2	4.9	150	140	93	.30	9.9
AUG 21...	340	150	85	31	89	2	4.3	191	190	100	.20	11
DATE	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	
FEB 27...	440	8	4	--	<.010	<.10	.050	.15	.20	<.010	2.6	
APR 16...	370	<2	<2	--	<.010	<.10	.110	.19	.30	.020	1.9	
JUL 24...	510	97	39	.58	.020	.60	.060	.74	.80	.080	9.7	
AUG 21...	630	12	9	--	<.010	<.10	.020	.48	.50	.020	4.8	
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)					
JUL 24...	1345	<1	63	<1	<10	2	88					
AUG 21...	0830	2	76	<1	<10	<1	8					
DATE	TIME	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)					
JUL 24...	<1	13	<.1	<1	<1	7						
AUG 21...	4	33	<.1	<1	<1	4						
DATE	TIME	AME- TRYNE TOTAL (UG/L)	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	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- TRYNE TOTAL (UG/L)
JUL 24...	1345	<.10	<.10	<.10	<2.0	<.1	<.1	<.10	<2.0	<2.0	<.10	<.1

COLORADO RIVER BASIN

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 upstream from Tom Miller Dam on the Colorado River at Austin.

DRAINAGE AREA.--38,846 mi², of which 11,403 mi² 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 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
06...	1030	1.00	565	8.2	12.5	10.1	95
06...	1032	10.0	565	8.2	12.5	10.1	95
06...	1034	23.0	565	8.1	12.5	10.0	94
AUG							
17...	0950	1.00	538	8.0	27.5	6.8	87
17...	0952	10.0	538	8.0	27.0	6.7	85
17...	0954	18.0	538	7.8	26.0	4.7	59

301739097471201 LAKE AUSTIN SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAR												
06...	1000	1.00	565	8.2	12.5	1.10	<1	2.5	10.1	95	.6	K18
06...	1002	10.0	565	8.2	12.5	--	--	--	10.0	94	--	--
06...	1004	20.0	565	8.2	12.5	--	--	--	10.0	94	--	--
06...	1006	30.0	565	8.2	12.5	--	--	--	10.1	95	--	--
06...	1008	40.0	565	8.2	12.5	--	--	--	9.9	94	--	--
06...	1010	52.0	565	8.1	12.5	--	<1	2.3	9.8	93	1.7	--
AUG												
17...	0915	1.00	538	8.0	27.0	2.10	4	.60	6.8	86	.6	46
17...	0917	10.0	538	8.0	27.0	--	--	--	6.8	86	--	--
17...	0919	20.0	538	7.8	26.0	--	--	--	5.0	62	--	--
17...	0921	30.0	538	7.7	25.5	--	--	--	4.7	58	--	--
17...	0923	40.0	538	7.7	25.5	--	--	--	4.3	53	--	--
17...	0925	46.0	538	7.7	25.5	--	30	27	4.1	51	1.6	--

DATE	STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
MAR												
06...	45	210	55	48	23	32	1	3.8	160	42	59	.30
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	210	55	48	23	32	1	3.8	160	42	59	.30
AUG												
17...	K4	200	51	44	22	32	1	3.8	150	32	59	.30
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	200	48	43	22	31	1	3.9	150	36	60	.20

LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 LAKE AUSTIN SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)
MAR												
06...	6.8	310	9	<2	<.010	<.10	.020	.18	.20	.010	2.6	<1
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	<.010	<.10	.030	.17	.20	.020	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	6.8	310	7	<2	<.010	<.10	.020	.18	.20	.010	2.8	<1
AUG												
17...	5.5	290	3	2	<.010	<.10	.020	.28	.30	<.010	2.8	1
17...	--	--	--	--	<.010	<.10	.030	.37	.40	<.010	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	<.010	<.10	.030	.37	.40	<.010	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	5.6	290	52	15	<.010	<.10	.040	.36	.40	<.010	3.1	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)
MAR											
06...	80	<1	30	<1	49	<1	8	<.1	<1	<1	<3
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	90	--	10	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	81	<1	20	4	59	<1	11	<.1	<1	<1	8
AUG											
17...	74	<1	<10	2	4	4	1	<.1	<1	<1	<3
17...	--	--	--	--	10	--	<10	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	10	--	<10	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	74	<1	<10	1	<3	<1	21	<.1	<1	<1	<3

DATE	TIME	SAM- PLING DEPTH (FEET)	AME- TRYNE TOTAL	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
MAR							
06...	1000	1.00	<.10	<.10	<.10	<2.0	<.1
06...	1010	52.0	<.10	<.10	<.10	<2.0	<.1
AUG							
17...	0915	1.00	<.10	<.10	<.10	<2.0	<.1
17...	0925	46.0	<.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- TRYNE TOTAL (UG/L)
MAR						
06...	<.1	<.10	<2.0	<2.0	<.10	<.1
06...	<.1	<.10	<2.0	<2.0	<.10	<.1
AUG						
17...	<.1	<.10	<2.0	<2.0	<.10	<.1
17...	<.1	<.10	<2.0	<2.0	<.10	<.1

301739097470901 LAKE AUSTIN SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
06...	1040	1.00	565	8.2	12.5	10.1	95
06...	1042	10.0	565	8.2	12.5	10.1	95
06...	1044	19.0	565	8.2	12.5	10.2	96
AUG							
17...	0945	1.00	538	8.0	27.5	6.6	84
17...	0947	10.0	538	8.0	27.0	6.4	81
17...	0948	16.0	538	7.9	26.5	5.4	68

COLORADO RIVER BASIN
LAKE AUSTIN AT AUSTIN, TX--Continued

302043097472401 LAKE AUSTIN SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED CENT SATUR- ATION)	SILICA, DIS- SOLVED (MG/L AS SiO2)
MAR									
06...	1100	1.00	561	8.2	13.5	1.10	10.1	98	--
06...	1102	10.0	561	8.2	13.5	--	10.0	97	--
06...	1104	20.0	561	8.2	13.5	--	10.0	97	--
06...	1106	29.0	561	8.2	13.0	--	10.0	96	--
AUG									
17...	1005	1.00	536	8.1	28.0	2.60	7.2	93	5.4
17...	1007	10.0	536	8.0	27.5	--	6.7	86	--
17...	1009	20.0	541	7.8	26.0	--	4.9	61	--
17...	1011	27.0	541	7.7	26.0	--	4.4	55	--

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)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR								
06...	<.010	<.10	.020	.28	.30	.010	40	<10
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	<.010	<.10	<.010	--	<.20	.010	40	<10
AUG								
17...	<.010	<.10	.030	.37	.40	<.010	5	<1
17...	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--
17...	<.010	<.10	<.010	--	.40	.010	<10	<10

301926097502201 LAKE AUSTIN SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAR												
06...	1130	1.00	535	8.1	13.0	2.70	<1	1.4	9.7	93	.4	K10
06...	1132	10.0	535	8.1	13.0	--	--	--	9.7	93	--	--
06...	1134	20.0	535	8.1	13.0	--	--	--	9.7	93	--	--
06...	1136	28.0	535	8.1	13.0	--	<1	1.4	9.6	92	.3	--
AUG												
17...	1030	1.00	540	8.0	26.5	2.60	5	.50	6.2	78	.7	60
17...	1032	10.0	539	7.9	26.0	--	--	--	5.7	71	--	--
17...	1034	20.0	539	7.8	25.5	--	--	--	4.8	59	--	--
17...	1036	30.0	539	7.8	25.5	--	6	12	4.5	56	.6	--

DATE	TIME	STREP- TOCOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
MAR													
06...	23	200	48	43	22	32	1	3.7	150	37	58		.30
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	200	51	44	22	31	1	3.7	150	37	59		.30
AUG													
17...	K9	200	55	44	23	32	1	3.7	150	36	59		.30
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	200	48	43	22	32	1	3.7	150	38	59		.30

COLORADO RIVER BASIN

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LAKE AUSTIN AT AUSTIN, TX--Continued

301926097502201 LAKE AUSTIN SITE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)
MAR												
06...	6.9	290	4	<2	<.010	<.10	.020	.18	.20	.010	2.5	<1
06...	--	--	--	--	<.010	<.10	.040	.16	.20	.010	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	6.9	290	4	<2	<.010	<.10	.020	.18	.20	.010	2.4	<1
AUG												
17...	5.2	290	6	3	<.010	<.10	.030	.17	.20	<.010	2.7	<1
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	<.010	<.10	.030	.27	.30	<.010	--	--
17...	5.3	290	40	14	<.010	<.10	.030	.27	.30	<.010	2.9	<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)
MAR											
06...	73	<1	50	<1	<3	<1	2	<.1	<1	<1	8
06...	--	--	--	--	20	--	<10	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	74	<1	<10	<1	<3	<1	2	<.1	<1	<1	4
AUG											
17...	75	<1	<10	2	7	8	5	<.1	<1	<1	<3
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	<10	--	<10	--	--	--	--
17...	75	<1	<10	1	<3	<1	7	<.1	<1	<1	12

DATE	TIME	SAM- PLING DEPTH (FEET)	AME- TRYNE TOTAL	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
MAR							
06...	1130	1.00	<.10	<.10	<.10	<2.0	<.1
06...	1136	28.0	<.10	<.10	<.10	<2.0	<.1
AUG							
17...	1030	1.00	<.10	<.10	<.10	<2.0	<.1
17...	1036	30.0	<.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- TRYNE TOTAL (UG/L)
MAR						
06...	<.1	<.10	<2.0	<2.0	<.10	<.1
06...	<.1	<.10	<2.0	<2.0	<.10	<.1
AUG						
17...	<.1	<.10	<2.0	<2.0	<.10	<.1
17...	<.1	<.10	<2.0	<2.0	<.10	<.1

COLORADO RIVER BASIN
LAKE AUSTIN AT AUSTIN, TX--Continued

302021097540001 LAKE AUSTIN SITE DC
WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR								
06...	1210	1.00	530	8.1	13.5	3.1	9.5	92
06...	1212	10.0	530	8.1	13.0	--	9.5	91
06...	1214	14.0	530	8.1	13.0	--	9.3	89
AUG								
17...	1100	1.00	540	7.9	25.5	3.7	4.8	59
17...	1102	10.0	540	7.8	25.5	--	4.5	56
17...	1104	17.0	540	7.8	25.5	--	4.2	52

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)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR								
06...	<.010	<.10	.010	--	<.20	.010	30	20
06...	--	--	--	--	--	--	--	--
06...	<.010	<.10	.030	.17	.20	.010	30	10
AUG								
17...	<.010	<.10	.030	.27	.30	<.010	10	<10
17...	--	--	--	--	--	--	--	--
17...	<.010	<.10	.050	.25	.30	<.010	20	40

302314097544901 LAKE AUSTIN SITE EC
WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAR												
06...	1230	1.00	528	8.3	11.0	2.40	<1	1.4	11.0	101	.8	K6
06...	1232	8.00	526	8.3	11.0	--	<1	3.6	10.5	96	1.7	--
AUG												
17...	1130	1.00	540	7.6	25.0	2.10	4	.90	2.8	34	1.3	51
17...	1134	7.00	540	7.6	24.5	--	4	.90	2.4	29	.9	--
DATE	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 CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
MAR												
06...	34	190	52	42	21	31	1	3.7	140	36	59	.30
06...	--	200	56	42	22	32	1	3.6	140	36	58	.30
AUG												
17...	<1	200	51	44	22	33	1	3.9	150	35	60	.20
17...	--	200	48	43	22	32	1	3.9	150	35	60	.20
DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS (MG/L AS SOLVED)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (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)	ARSENIC DIS- SOLVED (UG/L AS AS)
MAR												
06...	6.6	280	<2	<2	.010	<.10	.020	.18	.20	.010	2.2	<1
06...	6.8	280	11	<2	.010	<.10	.030	.27	.30	.020	2.8	<1
AUG												
17...	4.5	290	<1	<1	<.010	<.10	.060	.24	.30	<.010	2.5	<1
17...	4.6	290	<1	<1	<.010	<.10	.060	.34	.40	<.010	2.7	<1

COLORADO RIVER BASIN

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LAKE AUSTIN AT AUSTIN, TX--Continued

302314097544901 LAKE AUSTIN SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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)
MAR											
06...	71	<1	30	<1	8	<1	3	<.1	<1	<1	9
06...	73	<1	30	<1	<3	<1	2	<.1	<1	<1	6
AUG											
17...	75	<1	<10	1	6	1	23	<.1	<1	<1	7
17...	74	<1	<10	1	14	4	24	<.1	<1	<1	<3

DATE	TIME	SAM- PLING DEPTH (FEET)	AME- TRYNE TOTAL	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
MAR							
06...	1230	1.00	<.10	<.10	<.10	<2.0	<.1
06...	1232	8.00	<.10	<.10	<.10	<2.0	<.1
AUG							
17...	1130	1.00	<.10	<.10	<.10	<2.0	<.1
17...	1134	7.00	<.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- TRYNE TOTAL (UG/L)
MAR						
06...	<.1	<.10	<2.0	<2.0	<.10	<.1
06...	<.1	<.10	<2.0	<2.0	<.10	<.1
AUG						
17...	<.1	<.10	<2.0	<2.0	<.10	<.1
17...	<.1	<.10	<2.0	<2.0	<.10	<.1

COLORADO RIVER BASIN

08155260 BARTON CREEK NEAR CAMP CRAFT ROAD, AUSTIN, TX

LOCATION.--Lat 30°16'12", long 97°49'43", Travis County, Hydrologic Unit 12090205, on left bank about 0.5 mi south of Camp Craft Road, 1.0 mi downstream from bridge on Lost Creek Blvd., and 5 mi west of the State Capitol Building in Austin.

DRAINAGE AREA.--109 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1982 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 570 ft, from topographic map.

REMARKS.--Water-discharge records good above 10 ft³/s and poor below. There are three recording rain gages in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 492 ft³/s June 14, 1983 (gage height, 8.57 ft); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 137 ft³/s Oct. 9 at 1815 hours (gage height, 7.14 ft), no peak above base of 1,000 ft³/s; no flow May 3 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	17	18	10	4.6	5.7	4.5	2.0	.02	.00	.00	.00	.00		
2	16	16	11	4.8	5.9	4.4	2.2	.01	.00	.00	.00	.00		
3	15	16	12	4.9	5.9	4.4	2.3	.00	.00	.00	.00	.00		
4	14	15	9.9	5.0	5.8	4.4	2.2	.00	.00	.00	.00	.00		
5	13	26	8.7	5.1	5.7	5.1	2.1	.00	.00	.00	.00	.00		
6	12	24	7.8	4.9	5.9	4.6	1.8	.00	.00	.00	.00	.00		
7	11	34	7.3	4.9	5.7	4.6	1.5	.00	.00	.00	.00	.00		
8	11	26	7.1	5.1	5.8	4.6	1.5	.00	.00	.00	.00	.00		
9	79	22	7.0	8.1	5.9	4.7	1.4	.00	.00	.00	.00	.00		
10	103	19	6.7	6.7	6.2	4.6	1.3	.00	.00	.00	.00	.00		
11	63	18	6.1	6.0	6.1	4.7	1.2	.00	.00	.00	.00	.00		
12	93	17	5.9	6.1	6.3	5.7	1.0	.00	.00	.00	.00	.00		
13	77	17	5.8	6.1	6.2	5.2	.98	.00	.00	.00	.00	.00		
14	50	16	5.7	5.8	6.0	4.9	.88	.00	.00	.00	.00	.00		
15	44	15	5.5	5.7	6.0	4.8	.79	.00	.00	.00	.00	.00		
16	40	14	5.4	5.5	5.8	4.8	.72	.00	.00	.00	.00	.00		
17	37	14	5.5	5.6	5.6	4.6	.61	.00	.00	.00	.00	.00		
18	35	13	5.5	5.5	5.8	4.3	.53	.00	.00	.00	.00	.00		
19	34	13	5.2	5.5	5.5	4.7	.42	.00	.00	.00	.00	.00		
20	46	12	5.2	5.4	5.5	4.3	.33	.00	.00	.00	.00	.00		
21	45	12	5.2	5.4	5.4	3.8	.28	.00	.00	.00	.00	.00		
22	37	12	5.2	5.5	5.3	3.3	.21	.00	.00	.00	.00	.00		
23	32	13	5.2	5.8	5.2	3.8	.16	.00	.00	.00	.00	.00		
24	29	12	4.9	5.9	5.2	4.6	.14	.00	.00	.00	.00	.00		
25	27	11	4.8	6.0	4.9	4.9	.11	.00	.00	.00	.00	.00		
26	24	11	4.9	6.0	5.1	3.3	.10	.00	.00	.00	.00	.00		
27	23	12	4.9	6.0	4.9	2.4	.08	.00	.00	.00	.00	.00		
28	21	12	4.8	5.9	4.9	2.3	.06	.00	.00	.00	.00	.00		
29	20	11	4.6	6.0	4.6	2.1	.05	.00	.00	.00	.00	.00		
30	20	11	4.6	5.9	---	2.9	.04	.00	.00	.00	.00	.00		
31	19	---	4.6	5.7	---	2.2	---	.00	---	.00	.00	---		
TOTAL	1107	482	197.0	175.4	162.8	129.5	26.99	.03	.00	.00	.00	.00		
MEAN	35.7	16.1	6.35	5.66	5.61	4.18	.90	.001	.000	.000	.000	.000		
MAX	103	34	12	8.1	6.3	5.7	2.3	.02	.00	.00	.00	.00		
MIN	11	11	4.6	4.6	4.6	2.1	.04	.00	.00	.00	.00	.00		
CFSM	.33	.15	.06	.05	.05	.04	.008	.000	.000	.000	.000	.000		
IN.	.38	.16	.07	.06	.06	.04	.01	.00	.00	.00	.00	.00		
AC-FT	2200	956	391	348	323	257	54	.06	.00	.00	.00	.00		
CAL YR 1983	TOTAL	11048.08	MEAN	30.3	MAX	235	MIN	.17	CFSM	.28	IN	3.77	AC-FT	21910
WTR YR 1984	TOTAL	2280.72	MEAN	6.23	MAX	103	MIN	.00	CFSM	.06	IN	.78	AC-FT	4520

COLORADO RIVER BASIN

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08155260 BARTON CREEK NEAR CAMP CRAFT ROAD NEAR AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: February 1983 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)
FEB 27...	1158	5.0	438	8.2	14.0	<1	2.6	9.9	97	1.1	K12	21
APR 16...	1145	1.7	427	8.0	19.0	10	4.0	11.6	127	2.1	57	K4
DATE		HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
FEB 27...		210	26	51	19	10	.3	.80	180	30	19	.20
APR 16...		200	38	48	19	11	.4	1.3	160	28	18	.20
DATE		SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, 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 27...		5.6	240	12	<2	<.010	<.10	<.010	--	.20	.010	1.9
APR 16...		7.4	230	6	<2	<.010	<.10	.080	.22	.30	.010	2.1

COLORADO RIVER BASIN

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 west of the intersection of Ben White and Lamar Boulevards, and 4.3 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--116 mi².

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 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, which are poor. No known regulation or diversions. There are three recording rain gages located in the watershed.

AVERAGE DISCHARGE.--7 years, 29.4 ft³/s (3.44 in/yr), 21,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,100 ft³/s May 25, 1981 (gage height, 15.03 ft); 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), based on a slope-area measurement of peak flow at a site about 2 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 83 ft³/s Oct. 9 at 1945 hours (gage height, 3.74 ft), no peak above base of 1,000 ft³/s; no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
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	14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	2.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	8.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.93	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	49	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	46	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	36	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	8.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	3.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	1.3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	33	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	3.1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	1.3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.52	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.06	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	361.64	26.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MEAN	11.7	.87	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	49	14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.10	.008	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
IN.	.12	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	717	52	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

CAL YR 1983 TOTAL 2972.37 MEAN 8.14 MAX 159 MIN .00 CFSM .07 IN .95 AC-FT 5900
WTR YR 1984 TOTAL 387.67 MEAN 1.06 MAX 49 MIN .00 CFSM .009 IN .12 AC-FT 769

COLORADO RIVER BASIN

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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 upstream from Barton Springs Road bridge over Barton Creek, 0.7 mi upstream from mouth, and 1.8 mi 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 National Geodetic Vertical Datum of 1929. May 1917 to September 1918, nonrecording gage at site 1,000 ft downstream at different datum.

REMARKS.--Water-discharge records fair. Only 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.

AVERAGE DISCHARGE.--7 years (water years 1918, 1979-84), 51.6 ft³/s (37,380 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD (DISCHARGE MEASUREMENTS ONLY).--Maximum measured discharge, 166 ft³/s May 10, 1941; minimum measured, 9.6 ft³/s Mar. 29, 1956.

EXTREMES FOR PERIOD OF RECORD (1917-18 AND SINCE MARCH 1978).--Maximum daily spring discharge, 108 ft³/s June 9-11 16, 20, 21, 1979; minimum daily spring discharge, 12 ft³/s Feb. 25, 1918.

EXTREMES FOR CURRENT YEAR.--Maximum daily spring discharge, 67 ft³/s Oct. 12, 13, 20-24; minimum daily, 24 ft³/s Sept. 14-23, 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	61	53	44	41	34	33	30	27	27	26	25
2	63	61	53	43	41	34	33	30	27	27	26	25
3	62	62	54	43	40	34	33	30	28	27	26	25
4	62	63	55	43	40	34	32	30	28	27	25	26
5	61	61	54	43	40	34	32	30	28	27	25	26
6	62	61	54	43	39	34	33	30	29	26	25	26
7	60	61	53	43	39	34	33	30	29	26	26	25
8	59	62	53	43	39	34	33	29	28	26	26	25
9	62	63	52	47	38	34	32	29	28	26	26	25
10	64	62	52	46	38	34	32	29	28	26	25	25
11	66	61	51	46	38	34	32	29	28	26	25	25
12	67	61	51	45	37	34	32	29	28	26	25	25
13	67	61	51	45	37	34	32	29	28	26	25	25
14	66	60	50	44	36	34	32	28	28	26	25	24
15	66	60	50	44	36	34	31	27	27	26	27	24
16	66	59	50	44	36	34	31	28	27	26	26	24
17	66	59	49	44	35	34	31	28	27	26	26	24
18	66	59	49	43	35	34	31	29	27	26	26	24
19	65	59	48	43	33	34	31	29	27	26	26	24
20	67	59	48	43	34	34	31	29	27	26	26	24
21	67	58	48	43	34	34	31	29	27	26	26	24
22	67	58	47	43	33	34	31	28	27	26	25	24
23	67	57	47	43	33	34	31	27	27	26	25	24
24	67	56	47	43	33	34	31	27	27	26	25	25
25	66	55	46	43	33	34	31	27	27	26	25	25
26	65	55	46	43	34	34	31	28	27	26	25	25
27	64	55	46	42	34	34	30	28	27	26	25	25
28	63	54	45	42	34	34	30	28	27	26	25	24
29	62	54	45	42	34	34	30	28	27	26	25	24
30	62	54	44	42	---	33	30	28	27	26	25	24
31	61	---	44	41	---	33	---	28	---	26	25	---
TOTAL	1991	1771	1535	1346	1054	1052	946	888	824	811	789	740
MEAN	64.2	59.0	49.5	43.4	36.3	33.9	31.5	28.6	27.5	26.2	25.5	24.7
MAX	67	63	55	47	41	34	33	30	29	27	27	26
MIN	59	54	44	41	33	33	30	27	27	26	25	24
AC-FT	3950	3510	3040	2670	2090	2090	1880	1760	1630	1610	1560	1470
CAL YR 1983	TOTAL	23589	MEAN 64.6	MAX 87	MIN 38	AC-FT 46790						
WTR YR 1984	TOTAL	13747	MEAN 37.6	MAX 67	MIN 24	AC-FT 27270						

COLORADO RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
FEB 27...	1040	34	625	7.2	21.5	<1	.60	5.1	59	.2	110	130
APR 16...	1045	33	670	6.8	20.5	3	.60	5.1	58	.9	76	K8
AUG 22...	1130	25	730	6.8	22.0	3	.60	4.0	46	1.8	37	49

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
FEB 27...	300	42	83	23	20	.5	1.3	260	30	34	.30
APR 16...	300	52	81	24	25	.6	1.4	250	35	44	.30
AUG 22...	300	47	78	26	33	.9	1.8	255	45	54	.40

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, 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 27...	11	360	<2	<2	<.010	1.4	.060	.24	.30	<.010	.2
APR 16...	11	370	<2	<2	<.010	1.5	.080	.12	.20	.050	.3
AUG 22...	11	400	6	<1	<.010	1.5	.010	.49	.50	.010	1.0

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
AUG 22...	1130	<1	60	<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)
AUG 22...	<1	3	.1	<1	<1	<3

LOCATION.--Lat 30°20'50", long 97°44'41", Travis County, Hydrologic Unit 12090205, at Northwest Park in Austin, 400 ft upstream from Shoal Creek Boulevard bridge, 0.5 mi west of intersection of Burnet Road and Justin Lane, and 5.0 mi north of the State Capitol Building in Austin.

PERIOD OF RECORD.--March 1975 to September 1984 (discontinued).

REMARKS.--Records fair. The city of Austin diverts water into the channel above gage during 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 upstream from station. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,600 ft³/s May 24, 1981 (gage height, 18.00 ft), from rating curve extended above 1,100 ft³/s on basis of slope-area measurement of 14,600 ft³/s; no flow for several days each year except 1981 and 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 497 ft³/s July 24 at 0800 hours (gage height, 5.06 ft), no peak above base of 750 ft³/s; no flow for several days.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.12	.24	.20	.35	1.7	.17	.10	.12	.02	.00	4.1
2	.08	.12	.28	.17	.43	.80	.15	.07	.12	.18	.00	15
3	.10	.75	36	.17	.43	.48	.03	.05	.08	.27	.00	36
4	.10	6.5	.18	.20	.43	4.6	.05	.05	.21	.07	.00	12
5	.10	26	.12	.19	.43	1.0	.07	.04	8.5	.03	.00	.14
6	.08	.42	.10	.07	.43	.54	.07	.05	11	.00	.00	.00
7	.08	.23	.10	.05	.43	.54	.12	.05	.20	.00	.00	.30
8	.10	.20	.04	24	.49	.54	.05	.10	.16	.00	.00	.04
9	65	.23	.06	24	.86	.54	.04	.07	.13	.03	.00	.01
10	.53	.24	.05	1.1	.54	.54	.02	.08	.13	.00	.00	.10
11	.21	.24	.03	.68	.48	.57	.04	.05	.13	.16	.00	.02
12	.40	.24	.12	.54	6.9	11	.04	.06	20	.05	34	.00
13	.23	.24	.00	.54	.58	.23	.06	.07	.83	.05	10	.00
14	.23	.28	.04	.54	.48	.18	.07	.06	.06	.04	2.2	.00
15	.24	.20	.06	.61	.48	.25	.21	.05	.04	.02	.19	.00
16	.24	.20	.09	.68	.51	.20	.08	.52	.03	.02	.19	.00
17	.24	.20	.02	.61	.54	.17	.08	.18	.03	.08	.12	.00
18	14	.20	.00	.61	.88	3.6	.08	6.7	.04	.08	.16	.00
19	.59	.63	.00	.68	.45	1.7	.08	2.6	.04	.22	.08	.00
20	25	.12	.04	.68	1.4	.20	.08	.25	.08	.08	.06	.00
21	.70	.10	.18	.68	.67	.20	.08	.17	.06	.07	.23	.00
22	.24	1.8	.15	2.9	.60	.20	.08	.17	.12	.07	.07	.00
23	.24	14	.18	1.7	.54	5.7	.10	.17	.03	.11	.03	.00
24	.24	.27	.11	.61	.54	.02	.10	.16	.00	41	.05	6.6
25	.24	.20	.15	.54	.54	.01	.10	.15	.08	.47	.04	5.3
26	.24	.66	.18	.54	7.3	.00	.08	.15	.07	.00	.05	.00
27	.20	13	.22	.54	.94	.00	.07	.14	.04	.00	.11	.00
28	.19	.43	.15	.54	1.3	.03	.08	.24	.06	.00	.13	.00
29	.12	.30	.10	.54	1.6	.09	.09	.14	.08	.00	.05	.00
30	.12	.24	.12	.48	---	.12	.04	.13	.05	.00	.00	.00
31	.12	---	.16	.48	---	.15	---	.14	---	.00	21	---
TOTAL	110.28	68.36	39.27	65.87	31.55	35.90	2.41	12.96	42.52	43.12	68.76	79.61
MEAN	3.56	2.28	1.27	2.12	1.09	1.16	.080	.42	1.42	1.39	2.22	2.65
MAX	65	26	36	24	7.3	11	.21	6.7	20	41	34	36
MIN	.08	.10	.00	.05	.35	.00	.02	.04	.00	.00	.00	.00
CFSM	.55	.35	.20	.33	.17	.18	.01	.06	.22	.21	.34	.41
IN.	.63	.39	.22	.38	.18	.20	.01	.07	.24	.25	.39	.45
AC-FT	219	136	78	131	63	71	4.8	26	84	86	136	155

CAL YR 1983	TOTAL	1408.04	MEAN	3.86	MAX	104	MIN	.00	CFSM	.59	IN	8.03	AC-FT	2790
WTR YR 1984	TOTAL	600.61	MEAN	1.64	MAX	65	MIN	.00	CFSM	.25	IN	3.43	AC-FT	1190

COLORADO RIVER BASIN

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 west of the State Capitol Building in Austin.

DRAINAGE AREA.--12.3 mi².

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 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, 1984." Two recording rain gages are located in the watershed above this site.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s May 24, 1981 (gage height, 23.22 ft).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 893 ft³/s Oct. 9 at 0915 hours (gage height, 5.60 ft).

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
NOV												
05...	1555	492	180	7.6	--	130	900	--	--	15	400000	220000
JAN												
08...	2200	488	315	--	--	--	--	--	--	16	84000	270000
08...	2215	485	390	--	--	130	250	--	--	--	86000	160000
08...	2230	480	436	--	--	--	--	--	--	11	--	--
08...	2245	392	376	--	--	400	380	--	--	--	38000	150000
08...	2300	480	347	7.5	--	--	--	--	--	--	K14000	130000
FEB												
28...	1047	.14	660	8.4	7.5	<1	2.3	12.0	101	1.0	8000	7200
MAR												
12...	0145	390	225	--	--	--	--	--	--	23	44000	240000
12...	0215	140	278	7.9	--	--	--	--	--	34	52000	290000
12...	0245	390	224	--	--	--	--	--	--	20	K120000	160000
JUN												
12...	2030	396	278	--	--	--	--	--	--	11	310000	88000
12...	2045	604	266	--	--	200	420	--	--	--	280000	120000
12...	2100	643	271	--	--	--	--	--	--	--	--	--
12...	2115	678	248	7.5	--	--	--	--	--	13	K150000	81000
12...	2130	584	215	--	--	--	--	--	--	8.6	K200000	74000
12...	2145	468	199	--	--	200	440	--	--	--	--	--
JUL												
24...	0945	385	295	--	--	--	--	--	--	15	K1100000	80000
24...	1000	805	326	--	--	800	800	--	--	--	K680000	220000
24...	1015	763	360	--	--	--	--	--	--	--	--	--
24...	1030	702	313	7.6	--	--	--	--	--	--	--	--
24...	1045	604	261	--	--	1300	800	--	--	14	K720000	130000
24...	1100	539	222	--	--	--	--	--	--	12	--	--
AUG												
12...	1615	396	473	--	--	--	--	--	--	--	2900000	160000
12...	1630	732	324	--	--	--	--	--	--	--	--	--
12...	1645	632	276	--	--	--	--	--	--	--	--	--
12...	1700	515	272	--	--	--	--	--	--	--	--	86000
12...	1715	431	285	--	--	--	--	--	--	--	--	--
12...	1730	358	296	--	--	--	--	--	--	--	2800000	54000

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

[illegible]

COLORADO RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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 05...	1555	1	19	<1	<10	3	46
MAR 12...	0145	2	<100	<1	20	14	100
MAR 12...	0245	3	<100	<1	20	5	100
JUN 12...	2045	2	<100	<1	<10	5	180
JUL 24...	0945	2	<100	<1	<10	6	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)
NOV 05...	<1	11	<.1	1	<1	4
MAR 12...	2	<10	<.1	<1	<1	150
MAR 12...	1	<10	<.1	<1	<1	10
JUN 12...	10	50	<.1	<1	<1	20
JUL 24...	12	30	<.1	<1	<1	20

DATE	TIME	AME- TRYNE TOTAL	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	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- TRYNE TOTAL (UG/L)
JUN 12...	2100	<.10	<.10	<.10	--	.9	<.1	<.10	--	--	<.10	<.1
JUL 24...	1015	<.10	<.10	<.10	--	.2	<.1	<.10	--	--	.80	<.1
AUG 12...	1615	--	--	--	<2.0	--	--	--	<2.0	<2.0	--	--
12...	1630	<.10	<.10	<.10	--	.3	<.1	<.10	--	--	<.10	<.1
12...	1645	--	--	--	<2.0	--	--	--	<2.0	<2.0	--	--
12...	1700	<.10	<.10	<.10	--	.2	<.1	<.10	--	--	<.10	<.1
12...	1715	--	--	--	<2.0	--	--	--	<2.0	<2.0	--	--
12...	1730	<.10	<.10	<.10	--	.2	<.1	<.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 downstream from Interstate Highway 35, and 2.3 mi southeast of the State Capitol in Austin.

DRAINAGE AREA.--39,003 mi², approximately, of which 11,403 mi² probably is noncontributing.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: February 1975 to current year.

301559097424801 TOWN LAKE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
07...	1020	1.00	610	8.2	16.5	9.0	92
07...	1022	10.0	610	8.2	16.5	9.1	93
07...	1024	20.0	610	8.1	16.5	9.1	93
07...	1026	30.0	610	7.9	15.0	6.2	62
AUG							
20...	0945	1.00	540	8.1	28.5	7.2	94
20...	0947	10.0	540	8.1	28.0	7.9	103
20...	0949	20.0	540	7.8	27.5	5.9	76
20...	0951	25.0	540	7.7	27.0	4.2	54

301500097424801 TOWN LAKE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR										
07...	0940	1.00	610	8.1	17.0	1.80	<1	1.4	9.0	93
07...	0942	10.0	610	8.1	17.0	--	--	--	9.2	95
07...	0944	20.0	610	8.1	16.0	--	--	--	8.5	86
07...	0946	30.0	610	7.9	15.5	--	<1	35	7.8	78
AUG										
20...	0900	1.00	539	8.0	29.0	2.70	3	1.3	6.9	91
20...	0902	10.0	540	7.9	28.0	--	--	--	6.5	85
20...	0904	20.0	540	7.8	27.5	--	--	--	6.0	77
20...	0906	25.0	540	7.7	27.5	--	4	11	5.0	64

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC- CI, KF AGAR (COLS./ PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
MAR										
07...	1.0	45	23	250	41	64	22	29	.8	2.7
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	.4	--	--	250	36	62	22	29	.8	2.7
AUG										
20...	1.4	K62	K5	200	51	44	22	32	1	3.6
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	1.2	--	--	200	51	44	22	32	1	3.8

DATE	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOL- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)
MAR										
07...	210	41	50	.30	6.8	340	6	<2	.39	.010
07...	--	--	--	--	--	--	--	--	.39	.010
07...	--	--	--	--	--	--	--	--	--	--
07...	210	39	49	.30	6.9	340	86	27	.38	.020
AUG										
20...	150	41	58	.30	5.7	300	4	1	--	<.010
20...	--	--	--	--	--	--	--	--	--	<.010
20...	--	--	--	--	--	--	--	--	--	--
20...	150	38	58	.30	6.1	290	16	1	--	<.010

COLORADO RIVER BASIN

TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 TOWN LAKE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)
MAR										
07...	.40	.020	.18	.20	.60	.010	1.8	1	69	<1
07...	.40	.100	.20	.30	.70	.020	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	.40	.100	.20	.30	.70	.050	1.8	1	69	<1
AUG										
20...	<.10	.020	.18	.20	--	<.010	2.8	1	74	<1
20...	<.10	<.010	--	.20	--	<.010	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	<.10	.060	.14	.20	--	<.010	2.6	1	75	<1

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAR									
07...	30	4	7	<1	2	<.1	<1	<1	6
07...	--	--	50	--	<10	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	30	2	6	<1	7	<.1	<1	<1	8
AUG									
20...	<10	3	<3	9	<1	<.1	<1	<1	8
20...	--	--	20	--	<10	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	<10	1	5	1	10	<.1	<1	<1	7

DATE	TIME	SAM- PLING DEPTH (FEET)	AME- TRYNE TOTAL	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
MAR							
07...	0940	1.00	<.10	<.10	<.10	<2.0	<.1
07...	0946	30.0	<.10	<.10	<.10	<2.0	<.1
AUG							
20...	0900	1.00	<.10	<.10	<.10	<2.0	<.1
20...	0906	25.0	<.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- TRYNE TOTAL (UG/L)
MAR						
07...	<.1	<.10	<2.0	<2.0	<.10	<.1
07...	<.1	<.10	<2.0	<2.0	<.10	<.1
AUG						
20...	<.1	<.10	<2.0	<2.0	<.10	<.1
20...	<.1	<.10	<2.0	<2.0	<.10	<.1

301503097424701 TOWN LAKE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
07...	1006	1.00	610	8.1	17.0	9.0	93
07...	1008	10.0	610	8.1	17.0	9.1	94
07...	1010	20.0	610	8.1	16.5	8.4	86
AUG							
20...	0935	1.00	540	7.9	28.5	6.9	91
20...	0937	10.0	540	7.9	28.0	6.5	85
20...	0939	18.0	540	7.9	28.0	6.2	81

TOWN LAKE AT AUSTIN, TX--Continued

301500097440801 TOWN LAKE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
07...	1045	1.00	605	8.1	16.0	9.0	91
07...	1047	10.0	605	8.1	16.0	8.8	89
07...	1049	14.0	602	8.0	15.5	7.8	78
AUG							
20...	1015	1.00	544	7.9	28.0	6.5	85
20...	1017	13.0	544	7.9	27.5	6.2	80

301504097440901 TOWN LAKE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
07...	1035	1.00	606	8.1	16.5	9.1	93
07...	1037	10.0	604	8.1	16.0	8.9	90
07...	1039	20.0	602	8.1	16.0	8.8	89
07...	1041	30.0	616	7.7	15.0	4.1	41
AUG							
20...	1010	1.00	544	8.0	28.0	6.6	86
20...	1011	10.0	544	8.0	28.0	6.6	86
20...	1012	20.0	544	7.9	27.5	6.2	80
20...	1013	27.0	544	7.9	27.5	6.0	77

301544097445201 TOWN LAKE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
07...	1106	1.00	605	7.8	15.5	8.2	82
07...	1108	10.0	605	7.8	15.5	8.1	81
AUG							
20...	1038	1.00	550	7.8	27.5	5.9	76
20...	1040	8.00	550	7.8	27.5	5.7	73

301546097445101 TOWN LAKE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
07...	1100	1.00	610	7.8	16.0	8.7	88
07...	1102	10.0	610	7.8	16.0	8.8	89
07...	1104	14.0	610	7.8	16.0	8.7	88
AUG							
20...	1030	1.00	546	7.9	29.0	6.5	86
20...	1032	10.0	546	7.8	27.5	5.9	76
20...	1034	17.0	546	7.8	27.5	5.7	73

COLORADO RIVER BASIN
TOWN LAKE AT AUSTIN, TX--Continued

301556097452301 TOWN LAKE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
07...	1135	1.00	622	7.7	16.0	9.3	95
07...	1137	10.0	622	7.7	15.5	9.2	93
AUG							
20...	1100	1.00	540	7.9	27.5	5.8	75
20...	1102	10.0	540	7.9	27.5	5.8	75
20...	1104	15.0	540	7.9	27.5	5.8	75

301558097452201 TOWN LAKE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR										
07...	1115	1.00	625	7.6	16.5	2.10	<1	1.1	8.9	91
07...	1117	10.0	622	7.8	15.5	--	--	--	9.8	99
07...	1119	20.0	613	7.8	15.5	--	<1	.90	8.8	88
AUG										
20...	1045	1.00	540	7.9	27.5	2.60	5	1.6	6.0	77
20...	1047	10.0	540	7.9	27.5	--	--	--	5.9	76
20...	1049	21.0	548	7.8	27.5	--	4	1.6	5.8	75

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
MAR										
07...	1.0	260	74	280	52	75	23	24	.6	2.1
07...	--	--	--	--	--	--	--	--	--	--
07...	1.0	--	--	270	47	69	23	25	.7	2.2
AUG										
20...	1.5	80	K19	200	48	43	22	33	1	3.8
20...	--	--	--	--	--	--	--	--	--	--
20...	1.4	--	--	200	55	44	23	34	1	3.7

DATE	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)
MAR										
07...	230	35	42	.30	7.3	350	<2	<2	.78	.020
07...	--	--	--	--	--	--	--	--	.69	.010
07...	220	36	44	.30	7.8	340	5	<2	.49	.010
AUG										
20...	150	37	57	.30	5.8	290	6	3	--	<.010
20...	--	--	--	--	--	--	--	--	--	<.010
20...	150	41	59	.30	5.9	300	5	4	--	<.010

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR									
07...	.80	.050	--	<.20	--	.010	1.0	17	6
07...	.70	<.010	--	.20	.90	.010	--	80	10
07...	.50	.040	.26	.30	.80	.010	1.4	5	13
AUG									
20...	<.10	<.010	--	.20	--	<.010	2.7	4	5
20...	<.10	.020	.38	.40	--	<.010	--	10	<10
20...	<.10	.020	.18	.20	--	.010	2.4	7	7

COLORADO RIVER BASIN

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TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 TOWN LAKE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

										OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	
DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)				
MAR													
07...	1200	1.00	584	7.6	15.5	4.0	<1	.90	9.6	97	.1	K6	
07...	1202	13.0	575	7.8	15.0	--	<1	1.1	10.1	100	.2	--	
AUG													
20...	1130	1.00	539	7.9	27.0	2.30	4	2.0	5.8	74	1.5	39	
20...	1132	10.0	539	7.8	27.0	--	--	--	5.9	75	--	--	
20...	1134	16.0	539	7.8	27.0	--	20	1.8	5.8	74	1.5	--	
DATE	100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- 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)
MAR													
07...	62	240	47	57	23	26	.8	2.8	190	37	47	.20	
07...	--	230	42	55	23	28	.8	3.1	190	39	51	.30	
AUG													
20...	80	200	46	42	22	32	1	3.8	150	38	59	.30	
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	200	51	44	22	32	1	3.6	150	37	57	.30	
DATE	SIO2)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDE (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)	CARBON, ORGANIC TOTAL (MG/L AS C)
MAR													
07...	7.6	310	<2	<2	<.010	.40	.050	.15	.20	.60	.010	1.6	
07...	7.0	320	3	<2	<.010	.30	.040	.16	.20	.50	.010	2.0	
AUG													
20...	5.5	290	5	2	<.010	<.10	.010	.19	.20	--	<.010	2.8	
20...	--	--	--	--	<.010	<.10	.020	.18	.20	--	<.010	--	
20...	5.6	290	3	1	<.010	<.10	.030	.67	.70	--	<.010	2.8	
DATE	AS AS)	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)
MAR													
07...	<1	73	<1	40	<1	4	<1	6	<.1	<1	<1	9	
07...	<1	73	<1	30	<1	10	<1	6	<.1	<1	<1	8	
AUG													
20...	1	74	<1	<10	<1	3	5	2	<.1	<1	<1	5	
20...	--	--	--	--	--	<10	--	<10	--	--	--	--	--
20...	1	74	<1	<10	<1	<3	2	1	<.1	<1	<1	6	

COLORADO RIVER BASIN

TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 TOWN LAKE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	AME- TRYNE TOTAL	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
MAR							
07...	1200	1.00	<.10	<.10	<.10	<2.0	<.1
07...	1202	13.0	<.10	<.10	<.10	<2.0	<.1
AUG							
20...	1130	1.00	<.10	<.10	<.10	<2.0	<.1
20...	1134	16.0	<.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- TRYNE TOTAL (UG/L)
MAR						
07...	<.1	<.10	<2.0	<2.0	<.10	<.1
07...	<.1	<.10	<2.0	<2.0	<.10	<.1
AUG						
20...	<.1	<.10	<2.0	<2.0	<.10	<.1
20...	<.1	<.10	<2.0	<2.0	<.10	<.1

301601097454001 TOWN LAKE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
07...	1145	1.00	644	7.6	19.0	15.0	162
AUG							
20...	1115	1.00	739	7.3	25.5	6.5	81

COLORADO RIVER BASIN

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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 upstream from upstream bridge on U.S. Highway 183 in Austin, 1.4 mi downstream from Longhorn Dam, and at mile 290.3.

DRAINAGE AREA.--39,009 mi², approximately, of which 11,403 mi² 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 National Geodetic Vertical Datum of 1929. Prior to June 19, 1939, all records collected at or near Congress Avenue Bridge 3.9 mi upstream at datum 19.6 ft higher; prior to June 18, 1915, nonrecording gages, recording gages thereafter; June 20, 1939, to Oct. 16, 1963, at site 1,000 ft downstream from present site at datum 5.0 ft 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 (1,964,000 acre-ft/yr); 48 years (water years 1937-84) regulated, 1,965 ft³/s (1,424,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 481,000 ft³/s June 15, 1935 (gage height, 50 ft, present site and datum, from floodmark); minimum daily, 2.4 ft³/s Feb. 28, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 51 ft 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, 4,700 ft³/s Oct. 11 at 2300 hours (gage height, 7.62 ft); maximum gage height, 8.50 ft July 20 at 2330 hours; minimum daily discharge, 2.4 ft³/s Feb. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1260	139	191	107	73.0	75	1500	1910	2540	2150	286	2060
2	1220	127	44	125	85.0	82	1450	1840	2720	2130	1390	2030
3	1240	137	232	96	81.0	76	1200	1770	2700	1980	398	2080
4	1280	152	79	104	78.0	123	1350	1780	2740	1790	1550	2030
5	1530	331	78	100	73.0	119	1410	1670	2980	1850	1200	1730
6	1570	774	90	95	74.0	79	1920	1810	2690	1850	1140	1700
7	1630	247	159	448	75.0	85	1470	1860	2580	1780	1130	1570
8	1460	155	20	234	80.0	86	1460	1770	2470	1640	1130	1450
9	1990	141	192	403	87.0	85	1220	1560	2300	1730	1140	1610
10	1530	94	230	110	74.0	95	1610	2320	2360	1680	1180	1360
11	1510	52	180	87	80.0	83	1660	2000	2300	1620	1510	1460
12	903	80	194	89	92.0	303	1320	1900	2510	1620	1450	1590
13	735	104	206	83	78.0	95	1480	2130	2470	1540	1390	1610
14	592	101	204	79	75.0	99	1950	2050	2430	1150	1510	1600
15	602	104	205	76	90.0	96	2020	2050	2480	1110	1190	1700
16	606	91	310	2300	74.0	89	1740	2510	2640	1210	1260	1690
17	1090	92	221	3670	75.0	89	2140	2510	2480	1140	1240	1700
18	614	105	210	1700	94.0	98	1960	2410	2520	981	1120	1610
19	604	102	207	71	76.0	118	1790	2280	2550	1020	1080	1600
20	718	85	220	73	104.0	85	2050	2150	2360	1060	1080	1430
21	600	801	228	68	83.0	315	2160	2090	2360	1340	1080	1310
22	141	133	1680	82	83.0	323	2060	1750	2330	1080	1410	1340
23	133	269	221	87	596.0	430	2150	1680	2300	1150	1520	1380
24	129	194	961	75	57.0	844	1950	1650	2270	1250	1520	1370
25	137	249	1450	75	5.4	856	1690	1650	2360	912	1700	1330
26	130	253	849	74	6.6	862	2380	2090	2550	1250	1700	1120
27	130	289	142	80	2.8	869	1990	2510	2380	1150	1690	1140
28	127	208	122	73	2.4	819	2040	2390	2630	1010	1790	863
29	134	178	96	76	31.0	987	2000	2320	2450	997	1940	739
30	131	184	306	81	---	1570	1890	2610	2000	989	1980	699
31	127	---	108	80	---	1490	---	2540	---	897	1950	---
TOTAL	24603	5971	9635	10901	2485.2	11425	53010	63560	74450	43056	41654	44901
MEAN	794	199	311	352	85.7	369	1767	2050	2482	1389	1344	1497
MAX	1990	801	1680	3670	596	1570	2380	2610	2980	2150	1980	2080
MIN	127	52	20	68	2.4	75	1200	1560	2000	897	286	699
AC-FT	48800	11840	19110	21620	4930	22660	105100	126100	147700	85400	82620	89060
CAL YR 1983	TOTAL	322767.0	MEAN	884	MAX	2590	MIN	20	AC-FT	640200		
WTR YR 1984	TOTAL	385651.2	MEAN	1054	MAX	3670	MIN	2.4	AC-FT	764900		

COLORADO RIVER BASIN

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, 795 micromhos Mar. 10, 1984; minimum daily, 243 micromhos Dec. 2, 1953.

WATER TEMPERATURES: Maximum daily, 33.0°C July 25, 1979; minimum daily, 5.0°C Jan. 3, 1984.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 795 micromhos Mar. 10; minimum daily, 477 micromhos Nov. 4.

WATER TEMPERATURES: Maximum daily, 27.0°C Aug. 25; minimum daily, 5.0°C Jan. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CAC03)
OCT 25...	1210	130	551	8.5	22.0	1.3	13.2	153	.2	200	82	210
JAN 30...	1615	80	606	--	13.0	--	--	--	--	--	--	250
FEB 21...	1000	85	606	7.9	16.5	.60	8.0	83	1.4	160	230	240
JUN 26...	1115	2830	544	7.9	23.5	1.2	6.2	74	.4	60	56	200
AUG 16...	1425	1360	502	7.7	29.5	1.9	3.8	50	1.2	290	20	190

DATE	HARDNESS, NONCARBONATE (MG/L AS CAC03)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
OCT 25...	52	50	21	30	.9	3.1	160	38	55	.30	7.5
JAN 30...	36	62	22	27	.8	2.5	210	36	47	.30	6.5
FEB 21...	49	59	22	30	.9	2.9	190	40	52	.30	5.8
JUN 26...	50	45	21	31	1	3.4	150	35	57	.30	5.4
AUG 16...	45	43	21	32	1	3.8	150	35	58	.30	5.7

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDIMENT, DIS-SUSPENDED (MG/L)	SEDIMENT, DIS-CHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 25...	307	300	<.10	.040	.70	.010	.040	.020	14	4.9	72
JAN 30...	--	330	--	--	--	--	--	--	--	--	--
FEB 21...	332	330	.31	.060	.40	.030	.010	.050	3	.69	60
JUN 26...	290	290	<.10	<.010	.70	.010	<.010	.020	6	46	68
AUG 16...	283	290	<.10	.020	.40	.010	<.010	.050	2	7.3	67

COLORADO RIVER BASIN

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08158000 COLORADO RIVER AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 25...	1210	1	66	<.5	<1	<1	<3	2	<3	1
FEB 21...	1000	8	74	.5	<1	<1	<3	4	13	2
JUN 26...	1115	<1	79	<2.0	<1	<1	<3	3	<3	1
AUG 16...	1425	<1	81	<1.0	<1	<1	<3	2	3	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 25...	18	2	<.1	<10	8	<1	1	520	<6	<3
FEB 21...	17	11	<.1	<10	<1	<1	<1	810	<6	17
JUN 26...	20	5	<.1	<10	<1	<1	<1	460	<6	6
AUG 16...	14	2	<.1	<10	4	<1	<1	480	<6	8

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	24603	577	314	20800	53	3500	38	2510	220
NOV. 1983	5971	584	318	5120	54	865	38	618	220
DEC. 1983	9635	580	315	8200	53	1380	38	989	220
JAN. 1984	10901	583	317	9330	54	1580	38	1130	220
FEB. 1984	2485.2	622	336	2260	58	391	41	276	240
MAR. 1984	11425	580	315	9720	53	1640	38	1170	220
APR. 1984	53010	538	294	42000	48	6880	35	4990	210
MAY 1984	63560	536	292	50200	48	8190	35	5950	210
JUNE 1984	74450	535	292	58700	48	9570	35	6960	210
JULY 1984	43056	545	297	34600	49	5680	35	4110	210
AUG. 1984	41654	551	301	33800	50	5580	36	4030	210
SEPT 1984	44901	570	310	37600	52	6290	37	4510	220
TOTAL	385651.2	**	**	312000	**	51500	**	37300	**
WTD.AVG.	1054	550	300	**	49	**	36	**	210

COLORADO RIVER BASIN

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	576	582	575	620	654	577	553	537	529	536	564	550
2	596	581	611	610	612	618	551	535	535	548	553	551
3	589	494	559	616	628	632	562	534	537	537	548	549
4	596	477	589	553	638	545	552	535	533	529	550	556
5	595	563	590	600	641	537	545	535	527	550	552	578
6	586	573	580	614	612	614	537	532	534	545	542	556
7	585	555	609	525	622	590	568	535	536	537	563	557
8	587	596	596	550	561	615	508	533	528	508	543	558
9	563	609	585	516	622	618	543	534	535	535	546	559
10	584	619	593	576	630	795	539	537	532	550	541	568
11	576	586	590	574	639	765	533	540	535	553	551	571
12	533	590	595	567	640	629	514	536	520	537	556	577
13	574	580	668	594	617	617	536	538	536	548	547	569
14	576	591	623	600	555	594	538	530	538	539	543	568
15	574	607	591	610	617	582	535	521	541	552	539	570
16	576	591	588	582	622	599	531	540	525	528	525	574
17	555	593	595	602	634	638	538	544	542	561	551	575
18	567	598	600	562	606	626	539	539	535	553	556	574
19	548	600	607	576	638	627	536	530	540	538	554	580
20	565	598	602	564	641	678	535	540	534	551	557	578
21	570	599	618	575	636	623	544	535	535	552	559	577
22	560	601	565	600	638	596	537	534	535	570	550	579
23	571	607	585	614	616	607	536	536	537	557	554	581
24	582	593	580	604	627	589	540	530	538	559	549	583
25	551	584	550	618	626	575	535	532	544	560	554	584
26	573	594	560	638	620	565	534	535	537	555	570	567
27	592	593	575	607	626	563	536	532	539	554	553	602
28	590	594	594	610	637	577	538	533	534	550	556	586
29	575	599	598	608	631	565	536	541	535	553	555	596
30	584	610	605	606	---	554	533	536	536	549	551	593
31	596	---	610	623	---	556	---	539	---	557	556	---
MEAN	576	585	593	591	624	609	539	535	535	547	551	572

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	21.0	13.5	---	13.5	13.5	18.5	20.0	21.0	23.0	22.0	25.0
2	22.0	22.0	15.0	---	11.5	15.5	18.0	20.0	20.5	23.0	23.0	24.5
3	22.0	22.0	15.0	5.0	12.0	15.0	19.0	18.5	25.5	---	24.0	24.5
4	21.5	22.0	15.0	11.0	15.0	15.0	16.5	20.0	26.0	23.0	23.0	23.5
5	21.5	20.5	15.0	15.0	15.5	15.5	15.0	21.5	20.5	22.0	24.0	25.0
6	23.0	21.0	---	14.0	11.0	15.0	16.5	21.5	20.5	23.5	24.5	24.0
7	22.0	21.0	14.5	---	13.0	15.0	16.5	24.0	21.5	23.5	24.0	23.5
8	22.0	21.0	15.0	---	13.0	15.5	16.5	20.5	22.0	23.5	24.0	25.0
9	23.0	20.5	15.0	13.5	20.0	15.0	16.5	18.0	22.0	24.0	24.0	24.0
10	23.0	17.0	15.0	11.0	15.5	17.0	18.0	21.5	22.0	24.0	23.5	24.0
11	21.5	19.0	15.0	10.5	15.5	16.5	18.0	22.0	22.0	24.0	24.0	26.0
12	20.5	19.0	15.0	11.5	15.5	17.0	18.0	22.0	21.5	24.5	25.0	25.0
13	19.5	19.0	17.0	11.0	13.5	18.0	18.0	22.0	21.5	23.0	25.0	25.5
14	20.0	19.0	15.0	---	16.5	19.5	19.5	22.0	22.0	24.5	24.5	25.5
15	20.5	19.0	14.5	---	17.0	18.0	15.0	21.0	21.5	24.0	24.0	26.0
16	20.0	17.0	13.5	9.5	15.5	19.0	18.5	20.5	22.0	24.5	---	26.0
17	20.5	19.0	---	8.0	15.5	18.0	18.5	21.0	23.5	24.0	24.0	24.5
18	23.0	15.0	---	6.5	15.5	18.0	18.5	20.0	23.0	25.5	---	23.5
19	23.0	15.5	10.5	7.0	15.5	18.0	18.5	21.0	23.0	24.0	24.0	24.0
20	23.0	15.5	10.0	6.5	15.5	18.0	20.0	20.5	22.0	---	24.5	23.5
21	21.0	---	10.0	---	15.5	18.0	18.5	20.5	23.0	26.0	24.5	22.0
22	20.5	21.0	16.5	---	15.0	18.0	19.0	20.0	25.0	24.0	24.0	20.5
23	---	19.5	17.0	10.0	14.5	18.0	18.5	21.0	21.5	23.0	25.0	24.0
24	20.5	15.5	---	8.0	14.5	18.0	19.0	21.0	21.5	24.5	25.5	23.5
25	20.0	15.5	---	11.5	14.5	17.0	19.5	21.0	23.5	23.0	27.0	23.5
26	---	15.5	---	11.0	14.5	18.0	---	21.0	23.5	23.0	25.0	23.0
27	20.5	15.5	6.0	10.5	14.5	19.0	19.5	22.0	23.0	25.5	25.0	22.0
28	20.5	20.0	8.0	---	13.0	19.0	21.0	22.0	23.5	25.5	24.5	23.0
29	20.5	14.5	7.0	---	13.0	---	22.0	---	23.5	24.0	25.5	20.5
30	---	14.5	6.5	14.0	---	18.5	18.0	21.0	23.5	23.5	25.5	19.0
31	20.5	---	---	12.0	---	18.5	---	20.5	---	23.0	25.0	---
MEAN	21.5	18.5	13.0	10.5	14.5	17.0	18.0	21.0	22.5	24.0	24.5	24.0

COLORADO RIVER BASIN

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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 south of the intersection of Webberville Road and U.S. Highway 183, 4.1 mi east of the State Capitol Building in Austin, and 0.7 mi upstream from mouth.

DRAINAGE AREA.--13.1 mi².

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 National Geodetic Vertical Datum of 1929 (levels from city of Austin bench mark).

REMARKS.-- Water-discharge records fair. No known regulation or diversions. The station is part of a hydrologic research project to study the rainfall-runoff relationship for the Austin urban area. Station is equipped with an automatic water-quality sampler. There is a recording rain gage in the watershed.

AVERAGE DISCHARGE.--7 years (water years 1978-84), 5.94 ft³/s (6.16 in/yr) 4,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,100 ft³/s May 23, 1975 (gage height, 17.03 ft, from floodmark), from rating curve extended above 500 ft³/s on basis of slope-area measurement of peak flow; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 872 ft³/s Mar. 12 at 0230 hours (gage height, 9.00 ft); no peak above base of 1,500 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.04	.48	.31	.47	.28	.09	.00	.00	.01	.00	.00
2	.00	.04	.47	.31	.47	.28	.09	.00	.00	.01	.00	.00
3	.00	.10	20 .38	.34	.47	.28	.09	.00	.00	.02	.00	4.4
4	.00	5.2	.38	.31	.47	2.6	.09	.00	.00	.01	.00	.41
5	.00	16	.30	.31	.47	3.8	.09	.00	17	.01	.00	.02
6	.00	.64	.26	.31	.47	.23	.09	.00	2.6	.00	.00	.00
7	.00	.28	.25	.31	.47	.15	.09	.00	.13	.00	.00	.00
8	.00	.21	.25	39 .47	.51	.14	.09	.00	.09	.00	.00	.00
9	74	.19	.25	47	.60	.12	.09	.00	.07	.00	.00	.00
10	2.4	.17	.25	1.2	.60	.11	.09	.00	.06	.00	.00	.00
11	3.4	.17	.25	.91	.55	.11	.09	.00	.03	.17	.00	.00
12	5.1	.17	.25	.86	.64	66 .49	.09	.00	11 .63	.15	.00	.00
13	.27	.17	.25	.85	.61	.49	.09	.00	.04	.04	.00	.00
14	.21	.27	.25	.80	.51	.39	.09	.00	.12	.04	.00	.00
15	.16	.19	.25	.80	.51	.37	.09	.00	.05	.05	.04	.00
16	.11	.17	.23	.80	.51	.34	.09	.05	.04	.03	.01	.00
17	.08	.17	.25	.80	.51	.34	.09	.10	.04	.00	.00	.00
18	.74	.17	.28	.77	.51	.31	.09	1.7	.04	.49	.00	.00
19	.31	.16	.28	.75	.58	1.7	.09	10 .06	.06	.10	.00	.00
20	3.9	.14	.28	.75	2.0	.15	.09	.08	.18	.05	.00	.00
21	.27	.15	.28	.89	.81	.14	.08	.04	.04	.00	.00	.00
22	.07	.14	.28	1.5	.37	.14	.00	.02	.02	.00	.00	.00
23	.05	7.9	.23	2.7	.34	6.5	.00	.00	.03	.00	.00	.00
24	.05	.22	.26	.83	.34	.18	.00	.00	.05	12 .00	.00	.00
25	.05	.18	.28	.56	.34	.11	.00	.00	.02	.18	.00	.00
26	.04	24	.28	.51	13 .44	.11	.01	.00	.00	.10	.00	.00
27	.04	8.8	.28	.51	.44	.10	.00	.00	.05	.06	.00	.00
28	.04	.72	.28	.48	.29	.08	.00	.00	.05	.02	.00	.00
29	.04	.56	.28	.47	.28	.08	.00	.00	.00	.00	.00	.00
30	.04	.54	.31	.47	---	.09	.00	.00	.03	.00	.00	.00
31	.04	---	.31	.47	---	.09	---	.00	---	.01	.00	---
TOTAL	91.50	67.86	28.53	106.88	28.14	85.81	1.89	11.99	32.43	13.55	.05	4.83
MEAN	2.95	2.26	.92	3.45	.97	2.77	.063	.39	1.08	.44	.002	.16
MAX	74	24	20	47	13	66	.09	10	17	12	.04	4.4
MIN	.00	.04	.23	.31	.28	.08	.00	.00	.00	.00	.00	.00
CFSM	.23	.17	.07	.26	.07	.21	.005	.03	.08	.03	.000	.01
IN.	.26	.19	.08	.30	.08	.24	.01	.03	.09	.04	.00	.01
AC-FT	181	135	57	212	56	170	3.7	24	64	27	.10	9.6
CAL YR 1983	TOTAL	2159.37	MEAN 5.92	MAX 179	MIN .00	CFSM .45	IN 6.13	AC-FT 4280				
WTR YR 1984	TOTAL	473.46	MEAN 1.29	MAX 74	MIN .00	CFSM .10	IN 1.34	AC-FT 939				

COLORADO RIVER BASIN

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 1983 TO SEPTEMBER 1984

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)	
JAN													
08...	2114	315	340	--	--	--	--	--	--	--	68000	290000	
08...	2131	396	355	--	--	--	--	--	--	48	--	--	
08...	2146	348	320	--	--	100	320	--	--	40	98000	320000	
08...	2201	290	273	--	--	--	--	--	--	--	55000	270000	
08...	2216	236	184	--	--	100	180	--	--	11	--	--	
08...	2230	210	192	7.7	--	--	--	--	--	11	47000	270000	
FEB													
28...	0840	.44	543	8.1	7.5	<1	1.5	8.2	69	.7	1200	960	
MAR													
12...	0245	527	210	--	--	480	--	--	--	28	62000	130000	
12...	0300	891	213	7.8	--	--	--	--	--	43	72000	290000	
12...	0400	389	--	--	--	100	950	--	--	33	K32000	320000	
APR													
16...	1250	.09	657	9.0	22.0	15	2.7	11.1	128	2.6	110	74	
JUN													
06...	1000	12	207	7.7	22.5	75	240	7.3	86	6.1	K140000	13000	
		HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
JAN													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
08...	84	13	30	2.1	6.4	.3	3.5	71	17	7.2	.30	4.4	--
FEB													
28...	250	46	84	8.8	25	.7	2.7	200	46	31	.30	11	--
MAR													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
12...	78	3	27	2.5	10	.5	3.1	75	17	9.8	.20	9.5	--
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
16...	240	42	72	15	47	1	4.4	200	49	63	.50	6.9	--
JUN													
06...	84	12	29	2.8	8.2	.4	3.1	72	18	11	.20	5.6	--
		SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	
JAN													
08...	--	--	--	--	.43	.070	.50	.480	4.0	4.5	2.60	59	
08...	--	--	--	--	.53	.070	.60	.290	4.2	4.5	2.40	60	
08...	--	5680	366	--	.63	.070	.70	.100	3.4	3.5	2.30	49	
08...	--	--	--	--	.62	.080	.70	.110	2.4	2.5	1.70	43	
08...	--	2450	254	--	.56	.040	.60	.130	1.4	1.5	1.30	--	
08...	110	--	--	--	--	--	--	--	--	--	--	--	
FEB													
28...	330	2	<2	--	<.010	.50	.110	.09	.20	.040	2.6	--	
MAR													
12...	--	--	--	--	.20	.200	.40	.370	4.6	5.0	3.10	54	
12...	120	--	--	--	.05	.350	.40	.310	11	11	2.90	100	
12...	--	4940	454	--	.00	.410	.40	.450	8.1	8.5	3.00	69	
APR													
16...	380	5	<2	--	.83	.070	.90	.070	.53	.60	.270	4.6	
JUN													
06...	120	443	77	--	.35	.050	.40	.120	1.4	1.5	.350	18	

COLORADO RIVER BASIN

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08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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							
08...	2114	3	55	<1	<10	3	54
08...	2131	3	58	<1	<10	2	55
08...	2201	3	48	<1	<10	3	35
MAR							
12...	0245	2	<100	<1	10	6	120
JUN							
06...	1000	2	33	<1	<10	3	69

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						
08...	<1	110	<.1	<1	<1	16
08...	<1	110	<.1	<1	<1	14
08...	<1	8	<.1	<1	<1	13
MAR						
12...	2	<10	<.1	<1	<1	10
JUN						
06...	5	4	<.1	<1	<1	5

DATE	TIME	AME- TRYNE TOTAL (UG/L)	ATRA- TONE TOTAL (UG/L)	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	CYPRA- ZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
JUN								
06...	1000	<.10	<.10	.30	<.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)
JUN							
06...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

COLORADO RIVER BASIN

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 northeast of the State Capitol Building in Austin.

DRAINAGE AREA.--26.2 mi².

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 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, 1984." Two recording rain gages are located in the watershed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft³/s May 25, 1981 (gage height, 26.20 ft).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,530 ft³/s July 24 at 0830 hours (gage height, 9.71 ft).

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
NOV 05...	1635	376	289	7.3	20.5	100	2200	7.8	88	16	66000	150000
FEB 27...	1052	4.5	649	8.3	9.5	<1	2.0	11.8	105	1.2	620	620
APR 16...	1242	.08	602	8.5	18.5	10	2.3	15.1	165	1.3	190	540
JUN 06...	0840	99	279	7.4	21.5	100	280	6.8	78	16	40000	130000
JUL 24...	1030	553	153	8.0	21.0	850	1100	9.8	110	7.4	110000	76000

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 05...	110	14	41	2.8	14	.6	3.8	100	19	15	.30	6.0
FEB 27...	270	44	100	5.9	30	.8	2.6	230	51	40	.40	6.1
APR 16...	230	54	84	5.8	35	1	2.0	180	49	51	.50	1.8
JUN 06...	120	23	45	2.5	9.0	.4	3.6	100	22	15	.30	7.3
JUL 24...	73	16	27	1.3	3.6	.2	3.1	57	21	4.8	.30	5.3

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 05...	160	2090	656	.35	.050	.40	.260	4.7	5.0	.660	50
FEB 27...	370	12	6	1.2	.030	1.2	<.010	--	.40	.300	2.9
APR 16...	340	5	<2	.39	.010	.40	.100	.40	.50	.020	2.2
JUN 06...	160	1260	216	.54	.060	.60	.180	1.3	1.5	.400	45
JUL 24...	100	2980	129	.97	.030	1.0	.120	5.4	5.5	2.40	48

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 05...	1635	3	29	<1	<10	2	31
JUN 06...	0840	1	42	<1	<10	1	230
JUL 24...	1030	1	17	<1	<10	2	150

COLORADO RIVER BASIN

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08158200 WALNUT CREEK AT DESSAU ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		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)		
	DATE								
	NOV 05...	<1	1	<.1	<1	<1	4		
	JUN 06...	7	32	<.1	<1	<1	8		
	JUL 24...	4	12	<.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)	
JUN 06...	0840	<.10	<.10	<.10	<.10	<.10	<2.0	<.1	
JUL 24...	1030	<.10	--	.20	<.10	--	<2.0	.1	
DATE		PROME- TRYNE TOTAL (UG/L)	PRO- PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA- ZINE TOTAL (UG/L)	SIME- TONE TOTAL (UG/L)	SIME- TRYNE TOTAL (UG/L)	
JUN 06...		<.1	<.10	<2.0	<2.0	<.10	<.10	<.1	
JUL 24...		<.1	<.10	<2.0	<2.0	<.10	--	<.1	

COLORADO RIVER BASIN

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 downstream from bridge on Farm Road 969, 0.8 mi downstream from Little Walnut Creek, 2.8 mi upstream from Colorado River, 5.2 mi east of the State Capitol Building in Austin, and 2.8 mi upstream from mouth.

DRAINAGE AREA.--51.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 425.96 ft 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.--18 years, 23.6 ft³/s (6.25 in/yr), 17,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,300 ft³/s May 25, 1981 (gage height, 27.24 ft); no flow at times in 1967, 1971, and 1982-84.
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, backwater from Colorado River. A flood in 1919 reached a stage of 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 916 ft³/s July 24 at 1130 hours (gage height, 9.56 ft); no peak above base of 1,500 ft³/s; no flow for several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	3.0	4.1	5.6	5.4	11	.81	6.8	2.7	1.1	1.2	1.0	8.7		
2	3.2	4.1	5.4	5.4	11	.60	6.7	3.1	1.4	1.2	.15	6.2		
3	3.2	4.3	78	5.1	11	.81	6.7	3.0	1.4	.81	.24	46		
4	3.2	45	13	5.1	10	1.7	6.1	2.5	2.3	.76	.32	6.6		
5	3.1	83	11	5.1	8.9	24	6.1	2.3	12	.97	.32	2.5		
6	2.9	19	10	5.1	8.3	3.2	6.1	2.3	22	.81	.32	2.0		
7	2.8	9.8	9.1	5.1	7.8	1.1	5.8	2.2	5.1	1.1	.41	2.0		
8	2.7	7.6	8.3	35	7.5	.81	7.8	1.8	2.4	1.3	.14	1.7		
9	143	6.4	8.0	95	9.1	.60	5.5	1.4	2.0	.67	.35	1.1		
10	14	5.0	8.2	17	7.6	.60	5.3	1.4	2.0	.04	.23	1.1		
11	8.0	4.4	6.8	14	8.6	.81	4.4	1.4	2.5	4.1	.38	1.7		
12	9.9	4.3	6.8	14	13	21	4.3	1.4	3.0	1.9	6.5	1.7		
13	5.7	4.1	6.5	14	10	2.3	4.1	1.1	4.9	.23	3.3	.81		
14	5.3	4.1	5.7	15	8.0	.81	3.9	1.1	3.1	.05	1.3	.81		
15	4.9	3.7	5.7	16	8.7	2.3	3.5	1.1	2.7	.04	1.7	.81		
16	5.1	3.5	7.3	17	9.0	1.7	3.2	3.5	2.7	.00	1.6	.32		
17	4.7	3.4	6.4	17	11	1.7	3.2	2.3	2.6	.00	.51	.15		
18	8.2	3.5	6.1	18	8.7	1.7	3.2	14	2.4	.00	.61	.15		
19	9.1	6.2	5.8	22	4.4	16	3.2	16	5.4	.03	.17	.15		
20	24	5.1	5.7	24	10	6.8	3.2	5.7	4.3	.02	.47	.15		
21	15	5.0	5.7	23	6.6	7.6	3.2	3.8	3.4	.02	.19	2.0		
22	8.0	4.4	5.6	24	6.4	6.8	3.2	3.8	2.9	.00	.07	1.1		
23	6.2	22	5.6	26	8.0	30	2.9	3.5	2.7	.00	.07	.81		
24	5.3	6.6	5.8	21	5.7	12	3.1	3.5	2.4	132	.07	.81		
25	5.1	4.7	5.8	20	.81	8.5	3.6	3.5	2.9	6.5	.05	.81		
26	5.1	11	5.7	20	21	8.0	3.9	3.0	2.7	1.9	.05	.81		
27	4.5	24	5.4	19	2.7	7.8	2.9	2.3	3.1	.86	.07	.81		
28	4.7	9.9	4.4	19	.81	6.7	2.7	8.7	1.8	1.2	.06	.81		
29	4.4	7.8	5.0	15	.81	7.0	2.7	2.5	1.8	.30	.16	1.1		
30	4.3	6.9	5.2	12	---	6.6	2.5	2.5	1.5	.15	.57	1.6		
31	4.1	---	5.4	12	---	6.8	---	2.7	---	.94	14	---		
TOTAL	332.7	332.9	279.0	565.3	236.43	197.15	129.8	110.1	110.5	159.10	35.38	95.31		
MEAN	10.7	11.1	9.00	18.2	8.15	6.36	4.33	3.55	3.68	5.13	1.14	3.18		
MAX	143	83	78	95	21	30	7.8	16	22	132	14	46		
MIN	2.7	3.4	4.4	5.1	.81	.60	2.5	1.1	1.1	.00	.05	.15		
CFSM	.21	.22	.18	.36	.16	.12	.08	.07	.07	.10	.02	.06		
IN.	.24	.24	.20	.41	.17	.14	.09	.08	.08	.12	.03	.07		
AC-FT	660	660	553	1120	469	391	257	218	219	316	70	189		
CAL YR 1983	TOTAL	7869.57	MEAN	21.6	MAX	378	MIN	.97	CFSM	.42	IN	5.71	AC-FT	15610
WTR YR 1984	TOTAL	2583.67	MEAN	7.06	MAX	143	MIN	.00	CFSM	.14	IN	1.87	AC-FT	5120

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. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
DATE	TIME											
OCT 20...	1747	91	293	7.8	24.5	20	700	7.1	87	5.4	62000	K120000
FEB 27...	1250	7.6	461	8.1	11.5	60	37	9.2	86	2.2	2800	1500
MAR 23...	1145	127	426	7.9	19.0	1100	590	8.9	98	13	24000	32000
APR 18...	0808	4.1	560	7.9	17.0	7	1.9	8.6	91	1.5	130	240
JUN 05...	1010	28	225	7.5	23.0	110	330	6.3	75	7.0	90000	94000
JUL 24...	1215	644	164	7.8	22.0	750	2000	6.3	73	7.1	110000	74000
DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 20...	120	31	45	2.9	10	.4	2.9	94	24	17	.20	4.4
FEB 27...	190	42	69	4.8	20	.7	2.6	150	41	29	.40	3.2
MAR 23...	180	44	67	3.9	17	.6	2.9	140	37	27	.30	3.7
APR 18...	220	82	78	6.6	29	.9	2.4	140	65	47	.40	3.3
JUN 05...	90	10	33	1.9	7.2	.3	2.2	80	19	13	.20	3.4
JUL 24...	72	26	26	1.7	4.6	.2	2.9	46	23	6.7	.30	5.6
DATE	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	
OCT 20...	160	850	38	.18	.020	.20	.040	1.6	1.6	1.60	17	
FEB 27...	260	35	7	.27	.030	.30	.090	.41	.50	.060	5.4	
MAR 23...	240	1570	184	.23	.070	.30	<.010	--	.90	.960	25	
APR 18...	320	5	<2	--	.010	<.10	.090	.31	.40	.020	1.8	
JUN 05...	130	484	138	.34	.060	.40	.070	.33	.40	.250	20	
JUL 24...	99	6230	193	.67	.030	.70	.190	5.8	6.0	4.40	67	
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...	1747	1	37	<1	<10	1	26					
JUN 05...	1010	<1	30	<1	<10	3	41					
JUL 24...	1215	<1	27	<1	<10	2	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...	2	1	<.1	<1	<1	5						
JUN 05...	<1	2	<.1	<1	<1	5						
JUL 24...	3	27	<.1	<1	<1	6						

COLORADO RIVER BASIN

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	AME- TRYNE TOTAL	ATRA- TONE TOTAL (UG/L)	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	CYPRA- ZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
JUN 05...	1010	<.10	<.10	<.10	<.10	<.10	<2.0	.3
JUL 24...	1215	<.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)
JUN 05...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUL 24...	<.1	<.10	<2.0	<2.0	<.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 south of Webberville Road, and 5.0 mi east of the State Capitol in Austin.

DRAINAGE AREA.--53.5 mi².

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
FEB 28...	0937	36	790	7.3	17.5	15	4.6	6.5	68	15	84	150
MAR 12...	1030	100	496	7.1	19.0	700	270	9.0	99	14	2400	24000
APR 18...	0838	40	798	7.1	22.0	30	4.9	6.4	74	8.0	K110	63
JUN 06...	1115	112	458	7.4	24.0	300	160	7.9	96	4.8	K500	8000
JUL 24...	1140	1100	250	8.0	24.0	850	1600	8.4	101	8.2	92000	78000
AUG 21...	1040	32	834	7.3	29.5	25	3.3	5.1	68	3.4	700	180

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)
FEB 28...	170	60	40	17	86	3	10	110	100	95	2.2	8.8
MAR 12...	140	36	40	8.7	40	2	5.8	100	53	45	1.1	6.3
APR 18...	160	55	38	17	84	3	11	110	94	100	2.7	8.3
JUN 06...	130	33	40	7.4	36	1	5.2	98	48	44	1.1	6.4
JUL 24...	85	25	30	2.5	9.7	.5	3.4	60	27	13	.40	5.1
AUG 21...	170	83	34	20	94	3	11	84	91	110	3.5	9.5

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
FEB 28...	420	3	<2	6.8	1.60	8.4	3.10	1.8	4.9	6.10	10
MAR 12...	260	369	54	3.0	.770	3.8	1.40	3.6	5.0	3.70	14
APR 18...	420	11	<2	8.3	.770	9.1	2.90	1.9	4.8	10.0	10
JUN 06...	250	834	123	2.0	.250	2.2	.800	1.7	2.5	1.60	16
JUL 24...	130	7200	155	.98	.120	1.1	.360	18	18	6.00	90
AUG 21...	420	12	8	7.7	2.20	9.9	1.50	1.9	3.4	8.20	9.4

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)
JUN 06...	1115	<1	34	<1	<10	3	37
JUL 24...	1140	1	34	<1	<10	3	270
AUG 21...	1040	2	14	<1	<10	3	46

COLORADO RIVER BASIN

08158640 WALNUT CREEK SOUTHERN PACIFIC RAILROAD BRIDGE, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JUN 06...	2	9	<.1	<1	<1	13
JUL 24...	4	28	<.1	<1	<1	7
AUG 21...	3	33	.2	<1	<1	27

DATE	TIME	AME- TRYNE TOTAL (UG/L)	ATRA- TONE TOTAL (UG/L)	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	CYPRA- ZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
JUN 06...	1115	<.10	<.10	.10	<.10	<.10	<2.0	.2
JUL 24...	1140	<.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)
JUN 06...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUL 24...	<.1	<.10	<2.0	<2.0	<.10	--	<.1

COLORADO RIVER BASIN

175

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 northeast of intersection of State Highway 71 and Farm Road 973, 8.8 mi downstream from Govalle Sewage Treatment Plant outfall, and 9.6 mi downstream from gaging station at Austin.

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: October 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)	HARD- NESS (MG/L AS CACO3)
OCT 25...	1110	639	7.4	21.5	5	1.7	6.0	69	1.0	K16	50	200
DEC 14...	1305	640	7.9	17.0	<1	1.0	10.2	107	1.3	45	120	220
FEB 21...	1145	660	8.3	14.5	<1	1.9	14.4	142	2.6	K2	K12	210
APR 16...	1145	552	8.4	18.5	5	1.6	5.2	56	.8	22	K7	200
JUN 27...	1020	555	7.4	26.5	5	1.2	7.8	98	.4	K17	22	200
AUG 16...	1200	553	7.3	26.0	6	3.0	6.4	80	1.3	K5300	70	190

DATE	HARD- NESS, NONCAR- BONATE (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 25...	55	49	20	44	1	4.9	150	48	66	.80	8.3
DEC 14...	54	60	18	40	1	4.0	170	50	57	.70	5.5
FEB 21...	51	53	19	49	2	5.7	160	60	65	1.1	4.0
APR 16...	23	45	22	34	1	3.9	180	39	59	.30	5.7
JUN 27...	59	45	21	33	1	3.9	140	37	58	.40	5.2
AUG 16...	47	40	21	35	1	4.1	140	40	61	.40	5.8

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE PENDED (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDE 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 25...	330	9	1	2.4	.910	3.3	.440	.66	1.1	1.80	4.5
DEC 14...	340	2	<1	2.9	.110	3.0	.110	.59	.70	1.50	3.8
FEB 21...	350	9	7	3.9	.310	4.2	.410	1.7	2.1	2.10	5.7
APR 16...	320	5	<2	.17	.030	.20	.160	.44	.60	.240	2.6
JUN 27...	290	5	3	.36	.040	.40	.070	.43	.50	.220	3.1
AUG 16...	290	12	11	.47	.130	.60	.190	.41	.60	.340	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)
OCT 25...	1110	2	59	<1	<10	2	<3
FEB 21...	1145	2	45	<1	<10	10	12
JUN 27...	1020	<1	79	<1	<10	3	<4
AUG 16...	1200	<1	80	<1	<10	2	4

COLORADO RIVER BASIN

08158650 COLORADO RIVER BELOW AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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 25...	2	6	<.1	<1	<1	6
FEB 21...	<1	4	<.1	<1	<1	17
JUN 27...	<1	8	<.1	<1	<1	6
AUG 16...	<1	3	<.1	<1	<1	12

DATE	TIME	AME- TRYNE TOTAL	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	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- TRYNE TOTAL (UG/L)
FEB 21...	1145	<.10	<.10	<.10	<2.0	.4	<.1	<.10	<2.0	<2.0	<.10	<.1
JUN 27...	1020	<.10	<.10	<.10	<2.0	<.1	<.1	<.10	<2.0	<2.0	<.10	<.1
AUG 16...	1200	<.10	<.10	<.10	<2.0	<.1	<.1	<.10	<2.0	<2.0	<.10	<.1

COLORADO RIVER BASIN

177

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 southeast of Driftwood, and 10 mi west of Buda.

DRAINAGE AREA.--124 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958, November 1961 to June 1979 (periodic discharge measurements only), July 1979 to current year.

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.

AVERAGE DISCHARGE.--5 years 28.7 ft³/s (3.14 in/yr) 20,790 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,010 ft³/s June 11, 1981 (gage height, 15.24 ft); no flow for several days in August and September 1984.

Flood of Mar. 20, 1979, reached a stage of 11.48 ft (discharge, 4,980 ft³/s), on basis of peak flow over dam, 1.5 mi downstream. Flood of June 11, 1981, peaked at a depth of 5 ft over this dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35 ft³/s Oct. 9 at 1045 hours (gage height, 1.14 ft), no other peak above base of 500 ft³/s; no flow for several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	7.9	4.3	4.4	4.8	4.3	4.8	1.5	2.6	2.3	.23	.15
2	8.7	7.6	4.6	4.6	5.1	4.3	4.8	2.7	2.2	1.5	.20	.18
3	8.6	7.5	8.4	4.3	4.9	4.3	4.3	2.9	2.8	1.5	.14	.20
4	8.2	7.5	7.9	4.3	4.8	4.3	3.2	1.8	3.8	1.5	.15	.18
5	7.8	8.0	7.6	4.9	4.6	14	3.2	1.8	7.5	1.6	.15	.13
6	7.5	7.9	6.5	4.8	4.3	9.8	3.8	2.3	5.9	1.6	.10	.10
7	7.5	7.9	6.1	4.3	4.3	8.2	4.7	3.0	7.8	1.6	.09	.10
8	7.8	7.6	5.6	4.7	4.4	7.9	4.7	1.8	11	1.8	.10	.10
9	26	7.4	5.9	7.8	5.2	6.5	3.8	1.3	10	1.6	.10	.09
10	21	6.9	6.1	4.8	4.9	6.5	4.3	1.5	9.2	1.6	.09	.05
11	14	6.5	5.9	4.3	5.0	6.1	3.8	1.5	7.9	1.3	.10	.05
12	14	7.0	5.1	5.2	4.8	6.1	3.2	1.6	8.2	1.1	.08	.05
13	13	6.7	5.5	4.9	4.1	5.6	2.7	1.6	7.4	1.2	.10	.05
14	12	6.9	5.2	4.8	3.8	5.6	2.6	1.6	6.0	.92	.11	.00
15	11	5.6	5.2	4.8	4.2	5.2	2.7	2.0	5.6	.87	.18	.00
16	11	5.2	5.2	5.2	4.2	5.2	2.2	2.6	5.0	.60	.14	.00
17	10	5.2	5.2	5.2	4.0	5.2	2.2	3.7	4.5	.41	.10	.00
18	9.8	5.2	5.2	5.2	4.5	5.2	2.8	4.1	4.6	.35	.10	.00
19	9.0	4.9	5.2	4.8	4.2	6.1	3.8	5.8	3.7	.30	.11	.00
20	13	4.3	5.2	4.8	3.8	5.2	4.0	4.1	3.1	.20	.03	.00
21	12	4.3	5.2	4.8	3.8	4.8	3.7	3.2	2.4	.14	.00	.00
22	10	4.6	5.0	5.3	3.8	5.2	2.7	3.4	2.5	.15	.03	.00
23	10	5.2	4.8	6.2	4.3	5.6	2.2	3.2	2.2	.13	.00	.00
24	10	3.8	4.5	5.6	3.8	4.8	2.6	2.3	2.3	.15	.00	.00
25	9.1	3.8	4.3	5.2	3.2	4.8	2.7	2.2	1.5	.67	.05	.00
26	9.0	4.1	4.3	5.1	6.1	4.8	1.7	2.7	1.3	.82	.05	.00
27	9.0	5.0	4.8	4.8	3.2	4.8	1.8	2.5	1.6	2.1	.05	.00
28	8.6	4.2	5.1	5.0	2.7	4.8	1.7	5.0	1.7	.77	.15	.00
29	8.6	3.8	4.2	4.8	3.2	4.3	2.0	3.7	2.1	.37	.15	.00
30	8.3	4.7	3.8	4.8	---	4.3	1.0	3.0	2.7	.35	.15	.00
31	8.2	---	4.1	4.8	---	4.8	---	2.3	---	.28	.15	---
TOTAL	331.9	177.2	166.0	154.5	124.0	178.6	93.7	82.7	139.1	29.78	3.18	1.43
MEAN	10.7	5.91	5.35	4.98	4.28	5.76	3.12	2.67	4.64	.96	.10	.048
MAX	26	8.0	8.4	7.8	6.1	14	4.8	5.8	11	2.3	.23	.20
MIN	7.5	3.8	3.8	4.3	2.7	4.3	1.0	1.3	1.3	.13	.00	.00
CFSM	.09	.05	.04	.04	.04	.05	.03	.02	.04	.008	.001	.000
IN.	.10	.05	.05	.05	.04	.05	.03	.02	.04	.01	.00	.00
AC-FT	658	351	329	306	246	354	186	164	276	59	6.3	2.8
CAL YR 1983	TOTAL	11510.60	MEAN	31.5	MAX	265	MIN	1.6	CFSM	.25	IN	3.45
WTR YR 1984	TOTAL	1482.09	MEAN	4.05	MAX	26	MIN	.00	CFSM	.03	IN	.44
									AC-FT	22830		
									AC-FT	2940		

COLORADO RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
FEB 28...	0830	2.2	490	8.3	10.5	<1	1.1	10.0	91	.4	31	88
APR 17...	0820	1.3	473	7.5	17.0	5	1.1	9.0	95	2.1	K18	33
AUG 22...	0740	.04	486	7.2	24.5	5	.80	5.5	68	1.9	38	560

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)
FEB 28...	260	51	73	19	8.6	.2	1.0	210	44	15	.20	7.4
APR 17...	230	44	64	18	8.7	.3	1.1	190	41	13	.20	9.8
AUG 22...	250	34	66	20	9.1	.3	1.9	214	27	13	.20	16

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
FEB 28...	290	7	<2	--	<.010	<.10	.090	--	<.20	<.010	1.4
APR 17...	270	4	<2	.09	.010	.10	.090	--	<.20	.080	1.6
AUG 22...	280	5	<1	--	<.100	<.10	.030	.17	.20	.020	2.0

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)
AUG 22...	0740	<1	31	<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)
AUG 22...	1	16	<.1	<1	<1	4

COLORADO RIVER BASIN

179

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 southeast of Farm Road 1826 and 5.9 mi northeast of Driftwood.

DRAINAGE AREA.--124 mi².

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, from topographic map.

REMARKS.--Water-discharge records good. Station is part of hydrologic research project to study rainfall-runoff relation for the Austin urban-rural areas. There is a recording rain gage located in the watershed.

AVERAGE DISCHARGE.--5 years 5.60 ft³/s (6.23 in/yr) 4,060 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,330 ft³/s June 11, 1981 (gage height, 13.05 ft, from floodmarks), from slope-area measurements of peak flow; no flow in 1980, and 1983-84.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 9, 1919, reached a stage of 16.2 ft (discharge unknown) and was the highest since at least 1924, from information by local resident. A flood in 1915, was 2 ft higher than the 1939 flood, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14 ft³/s Mar. 4 at 2230 hours (gage height, 2.76 ft), no peak above base of 500 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	2.1	.91	.91	1.0	1.2	.91	.32	.00	.00	.00	.00
2	1.5	1.9	.91	.91	1.1	1.2	1.0	.33	.00	.00	.00	.00
3	1.4	2.3	1.9	.91	1.1	1.2	.88	.32	.00	.00	.00	.00
4	1.4	2.3	1.2	.91	1.0	2.9	.84	.26	.00	.00	.00	.00
5	1.4	2.5	1.2	.84	1.0	3.4	.80	.26	.02	.00	.00	.00
6	1.3	2.3	1.1	.80	1.0	1.9	.80	.25	.00	.00	.00	.00
7	1.3	2.1	1.0	.71	1.0	1.6	.83	.23	.00	.00	.00	.00
8	1.3	2.1	1.0	.90	1.0	1.4	.84	.23	.00	.00	.00	.00
9	4.2	1.9	1.0	2.0	1.2	1.3	.72	.21	.00	.00	.00	.00
10	2.5	1.7	1.0	1.1	1.2	1.3	.68	.19	.00	.00	.00	.00
11	2.5	1.7	1.0	.95	1.1	1.3	.65	.17	.00	.00	.00	.00
12	2.3	1.7	1.0	1.0	1.1	1.6	.64	.17	.00	.00	.00	.00
13	1.9	1.6	1.1	1.0	1.0	1.3	.63	.19	.00	.00	.00	.00
14	1.9	1.6	1.0	1.0	.91	1.3	.61	.25	.00	.00	.00	.00
15	1.9	1.4	.97	1.0	.94	1.3	.56	.19	.00	.00	.00	.00
16	1.7	1.4	1.0	1.0	.91	1.3	.53	.17	.00	.00	.00	.00
17	1.7	1.4	1.0	1.0	.96	1.2	.50	.15	.00	.00	.00	.00
18	1.9	1.4	1.0	1.0	1.0	1.2	.62	.15	.00	.00	.00	.00
19	1.9	1.4	.91	1.0	.91	1.3	.57	.11	.00	.00	.00	.00
20	3.5	1.4	.91	1.0	.99	1.2	.55	.08	.00	.00	.00	.00
21	2.9	1.4	.91	1.0	.97	1.2	.50	.05	.00	.00	.00	.00
22	2.5	1.4	.91	1.1	.91	1.2	.44	.05	.00	.00	.00	.00
23	2.5	1.4	.91	1.2	.89	1.3	.40	.04	.00	.00	.00	.00
24	2.3	1.2	.91	1.2	.84	1.2	.40	.04	.00	.00	.00	.00
25	2.3	1.0	.98	1.2	.91	1.0	.40	.03	.00	.00	.00	.00
26	2.3	1.0	1.0	1.1	2.1	1.0	.40	.03	.00	.00	.00	.00
27	2.3	1.3	1.0	1.1	1.2	1.0	.38	.02	.00	.00	.00	.00
28	2.3	1.0	1.0	1.1	1.2	.96	.35	.02	.00	.00	.00	.00
29	2.1	1.0	.91	1.1	1.2	.91	.35	.02	.00	.00	.00	.00
30	2.1	1.0	.91	1.0	---	.91	.29	.01	.00	.00	.00	.00
31	2.1	---	.91	1.0	---	.96	---	.00	---	.00	.00	---
TOTAL	64.8	47.9	31.46	32.04	30.64	42.04	18.07	4.54	.02	.00	.00	.00
MEAN	2.09	1.60	1.01	1.03	1.06	1.36	.60	.15	.001	.000	.000	.000
MAX	4.2	2.5	1.9	2.0	2.1	3.4	1.0	.33	.02	.00	.00	.00
MIN	1.3	1.0	.91	.71	.84	.91	.29	.00	.00	.00	.00	.00
CFSM	.17	.13	.08	.08	.09	.11	.05	.01	.000	.000	.000	.000
IN.	.20	.15	.10	.10	.09	.13	.06	.01	.00	.00	.00	.00
AC-FT	129	95	62	64	61	83	36	9.0	.04	.00	.00	.00

CAL YR 1983 TOTAL 1830.48 MEAN 5.02 MAX 31 MIN .10 CFSM .41 IN 5.58 AC-FT 3630
WTR YR 1984 TOTAL 271.51 MEAN .74 MAX 4.2 MIN .00 CFSM .06 IN .83 AC-FT 539

COLORADO RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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 KF AGAR (COLS. PER 100 ML)
FEB 28...	1000	1.3	489	8.3	9.5	<1	1.4	10.4	92	1.2	120	88
APR 17...	0900	.45	511	7.6	15.5	5	1.5	8.4	86	1.4	K48	K48

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)
FEB 28...	270	43	78	19	8.0	.2	.80	230	30	15	.20
APR 17...	270	46	75	19	8.3	.2	.90	220	28	12	.20

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, 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 28...	8.0	300	6	2	<.010	<.10	.070	.13	.20	<.200	1.9
APR 17...	9.2	280	<2	<2	<.010	<.10	.110	.19	.30	.010	1.3

COLORADO RIVER BASIN

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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 south the intersection of U.S. Highway 290 and Farm Road 1826 and 11.9 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--8.24 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.14 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No known regulation or diversion. There is a recording rain gage in the watershed.

AVERAGE DISCHARGE.--6 years (water years 1979-84), 4.99 ft³/s (8.22 in/yr), 3,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,080 ft³/s June 11, 1981 (gage height, 10.79 ft); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 110 ft³/s Oct. 20 at 1545 hours (gage height, 5.01 ft), no peak above base of 500 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	2.3	1.2	.91	1.1	.39	.34	.07	.00	.00	.00	.00
2	1.4	2.2	1.4	1.0	1.2	.42	.36	.07	.00	.00	.00	.00
3	1.2	2.2	1.2	1.0	1.2	.42	.37	.06	.00	.00	.00	.00
4	1.1	2.1	3.6	1.0	1.2	.63	.30	.06	.00	.00	.00	.00
5	1.1	9.7	3.2	.93	1.2	.59	.30	.06	.08	.00	.00	.00
6	1.0	9.3	2.2	.91	1.1	.45	.30	.06	.01	.00	.00	.00
7	1.0	7.6	2.0	.83	1.0	.42	.30	.04	.00	.00	.00	.00
8	.98	5.6	2.0	1.8	.88	.42	.30	.03	.00	.00	.00	.00
9	1.1	4.7	2.0	6.3	1.1	.38	.27	.03	.00	.00	.00	.00
10	3.7	3.7	2.2	1.8	1.1	.38	.26	.03	.00	.00	.00	.00
11	3.3	3.2	1.9	1.6	1.0	.38	.24	.02	.00	.00	.00	.00
12	4.0	3.1	1.8	1.6	1.0	.80	.21	.01	.00	.00	.00	.00
13	3.2	2.8	1.7	1.6	.91	.42	.18	.00	.00	.00	.00	.00
14	2.8	2.6	1.6	1.6	.91	.46	.18	.00	.00	.00	.00	.00
15	2.6	2.0	1.6	1.6	.89	.46	.18	.00	.00	.00	.00	.00
16	2.6	2.0	1.5	1.6	.82	.46	.17	.00	.00	.00	.00	.00
17	2.6	2.0	1.5	1.6	.82	.46	.13	.01	.00	.00	.00	.00
18	2.5	2.0	1.4	1.6	.88	.47	.13	.03	.00	.00	.00	.00
19	2.5	1.9	1.3	1.5	.61	.49	.13	.04	.00	.00	.00	.00
20	1.1	1.6	1.3	1.5	.59	.42	.13	.02	.00	.00	.00	.00
21	7.1	1.6	1.3	1.5	.59	.42	.11	.00	.00	.00	.00	.00
22	4.8	1.8	1.1	1.6	.59	.42	.10	.00	.00	.00	.00	.00
23	4.1	2.0	1.2	2.0	.57	.53	.10	.00	.00	.00	.00	.00
24	4.0	1.6	.97	1.8	.47	.46	.10	.00	.00	.00	.00	.00
25	3.3	1.6	1.0	1.7	.46	.46	.10	.00	.00	.00	.00	.00
26	3.1	1.6	1.0	1.6	.77	.46	.10	.00	.00	.00	.00	.00
27	2.6	1.9	1.0	1.5	.39	.45	.08	.00	.00	.00	.00	.00
28	2.6	1.3	1.1	1.5	.38	.34	.08	.00	.08	.00	.00	.00
29	2.4	1.3	.91	1.5	.38	.34	.07	.00	.01	.00	.00	.00
30	2.4	1.3	.91	1.2	---	.34	.07	.00	.00	.00	.00	.00
31	2.4	---	.91	1.1	---	.34	---	.00	---	.00	.00	---
TOTAL	99.88	88.6	58.80	49.28	24.11	13.88	5.69	.64	.18	.00	.00	.00
MEAN	3.22	2.95	1.90	1.59	.83	.45	.19	.021	.006	.000	.000	.000
MAX	11	9.7	12	6.3	1.2	.80	.37	.07	.08	.00	.00	.00
MIN	.98	1.3	.91	.83	.38	.34	.07	.00	.00	.00	.00	.00
CFSM	.39	.36	.23	.19	.10	.06	.02	.003	.001	.000	.000	.000
IN.	.45	.40	.27	.22	.11	.06	.03	.00	.00	.00	.00	.00
AC-FT	198	176	117	98	48	28	11	1.3	.4	.00	.00	.00

CAL YR 1983 TOTAL 1099.31 MEAN 3.01 MAX 93 MIN .18 CFSM .37 IN 4.96 AC-FT 2180
WTR YR 1984 TOTAL 341.06 MEAN .93 MAX 12 MIN .00 CFSM .11 IN 1.54 AC-FT 676

COLORADO RIVER BASIN

08158840 SLAUGHTER CREEK AT FARM ROAD 1826 NEAR AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1983 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)	
NOV 05...	1535	12	578	7.7	21.0	30	25	7.5	87	2.5	30000	63000	
FEB 28...	1030	.38	699	8.2	11.5	<1	1.0	10.8	100	.5	K3	K12	
APR 17...	0940	.15	672	7.6	17.5	5	1.1	9.5	102	2.0	K19	K5	
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 05...	280	78	78	20	18	.5	1.9	200	54	39	.20	7.8	
FEB 28...	350	100	97	26	22	.5	.50	250	55	58	.20	5.4	
APR 17...	310	85	83	26	21	.5	.50	230	46	53	.20	7.3	
DATE		SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	
NOV 05...	340	19	<1	.08	.020	.10	.060	.74	.80	.030	4.4		
FEB 28...	410	5	<2	--	<.010	<.10	.070	.13	.20	<.200	1.3		
APR 17...	370	4	<2	--	.010	<.10	.120	.28	.40	.010	1.6		
DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)						
NOV 05...	1535	<1	34	<1	<10	1	14						
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 05...		<1	8	<.1	3	<1	4						

COLORADO RIVER BASIN

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08158920 WILLIAMSON CREEK AT OAK HILL, TX

LOCATION.--Lat 30°06'06", 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 east of the intersection of U.S. Highway 290 and State Highway 71, and 7.7 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--6.30 mi².

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 National Geodetic Vertical Datum of 1929 (levels from city of Austin bench mark).

REMARKS.--Water-discharger records fair. Station is part of hydrologic-research project to study rainfall-runoff relation for the Austin urban-rural areas. Station is equipped with an automatic water-quality sampler. There are two recording rain gages located in the watershed above this station.

AVERAGE DISCHARGE.--6 years, 4.07 ft³/s (8.77 in/yr), 2,950 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,170 ft³/s June 11, 1981 (gage height, 8.55 ft); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 497 ft³/s Nov. 6 at 2000 hours (gage height, 3.82 ft); no peak above base of 500 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	2.2	1.5	.49	.65	.29	.37	.07	.00	.00	.00	.00
2	.14	2.2	1.5	.54	.70	.29	.39	.14	.00	.00	.00	.00
3	.10	2.5	1.2	.63	.75	.27	.45	.12	.00	.00	.00	.00
4	.07	3.3	1.5	.69	.85	.95	.43	.00	.00	.00	.00	.00
5	.07	1.6	1.4	.76	.70	.29	.58	.00	7.3	.00	.00	.00
6	.04	3.0	1.2	.93	.62	.21	.46	.00	.00	.00	.00	.00
7	.04	9.9	1.0	.94	.58	.20	.55	.00	.00	.00	.00	.00
8	.07	5.1	.95	4.8	.52	.22	.49	.00	.00	.00	.00	.00
9	33	4.0	.90	5.9	1.2	.22	.37	.00	.00	.00	.00	.00
10	2.0	2.9	.93	.72	1.0	.22	.37	.00	.00	.00	.00	.00
11	4.1	2.5	.93	.70	.95	.29	.29	.00	.00	.00	.00	.00
12	6.8	2.2	.90	.80	.88	1.7	.29	.00	.00	.00	.00	.00
13	2.7	2.1	.88	.79	.85	.29	.29	.00	.00	.00	.00	.00
14	2.0	2.0	.83	.85	.82	.29	.29	.00	.00	.00	.10	.00
15	1.2	1.6	.81	.74	.78	.32	.29	.00	.00	.00	.00	.00
16	1.2	1.8	.75	.80	.74	.52	.33	.02	.00	.00	.00	.00
17	1.2	2.0	.70	.77	.70	.41	.29	.00	.00	.00	.00	.00
18	1.2	1.7	.70	.70	1.0	.64	.29	.09	.00	.00	.00	.00
19	1.2	1.7	.81	.57	.88	.38	.28	.08	.00	.00	.00	.00
20	20	1.5	.86	.58	.75	.34	.23	.00	.00	.00	.00	.00
21	2.3	1.5	.85	.62	.72	.22	.21	.00	.00	.00	.00	.00
22	1.5	1.5	.58	.75	.68	.26	.16	.00	.00	.00	.00	.00
23	1.2	2.2	.57	.95	.64	.38	.09	.00	.00	.00	.00	.00
24	1.2	1.2	.55	.80	.64	.31	.06	.00	.00	.06	.00	.00
25	1.1	1.4	.48	.75	.35	.31	.06	.00	.00	.00	.00	.00
26	.97	1.5	.57	.70	.59	.37	.16	.00	.00	.00	.00	.00
27	.89	2.2	.53	.65	.22	.39	.12	.00	.00	.00	.00	.00
28	1.0	1.7	.48	.60	.22	.45	.03	.00	.00	.00	.00	.00
29	1.1	1.5	.40	.59	.29	.50	.12	.00	.00	.00	.00	.00
30	1.0	1.6	.46	.57	---	.42	.03	.00	.00	.00	.00	.00
31	1.8	---	.46	.56	---	.53	---	.00	---	.00	.00	---
TOTAL	91.36	113.5	36.98	31.24	20.27	12.48	8.37	.52	7.30	.06	.10	.00
MEAN	2.95	3.78	1.19	1.01	.70	.40	.28	.017	.24	.002	.003	.000
MAX	33	30	12	5.9	1.2	1.7	.58	.14	7.3	.06	.10	.00
MIN	.04	1.2	.40	.49	.22	.20	.03	.00	.00	.00	.00	.00
CFSM	.47	.60	.19	.16	.11	.06	.04	.003	.04	.000	.000	.000
IN.	.54	.67	.22	.18	.12	.07	.05	.00	.04	.00	.00	.00
AC-FT	181	225	73	62	40	25	17	1.0	14	.1	.2	.00

CAL YR 1983 TOTAL 980.84 MEAN 2.69 MAX 50 MIN .00 CFSM .43 IN 5.79 AC-FT 1950
WTR YR 1984 TOTAL 322.18 MEAN .88 MAX 33 MIN .00 CFSM .14 IN 1.90 AC-FT 639

COLORADO RIVER BASIN

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. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
20...	1545	117	438	--	--	--	--	--	--	--	54000	68000
20...	1600	239	313	--	--	60	600	--	--	--	72000	100000
20...	1615	169	213	--	--	--	--	--	--	6.7	--	--
20...	1630	123	188	--	--	--	--	--	--	11	--	--
NOV												
05...	1352	117	385	--	--	--	--	--	--	12	K36000	120000
05...	1407	190	303	--	--	--	--	--	--	--	42000	100000
05...	1422	154	--	--	--	--	--	--	--	--	--	--
05...	1437	117	197	--	--	35	600	--	--	--	--	--
05...	1452	84	189	--	--	--	--	--	--	9.7	80000	200000
05...	1507	73	193	7.9	--	--	--	--	--	7.6	92000	150000
FEB												
28...	1100	.10	661	8.6	10.0	<1	2.2	13.8	124	1.2	84	160
APR												
17...	1013	.20	706	8.0	16.5	10	2.5	13.0	136	2.1	140	120

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT												
20...	--	--	--	--	--	--	--	180	--	--	--	--
20...	--	--	--	--	--	--	--	130	--	--	--	--
20...	--	--	--	--	--	--	--	82	--	--	--	--
20...	--	--	--	--	--	--	--	70	--	--	--	--
NOV												
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	82	10	24	5.4	5.0	.2	3.5	72	16	7.5	.20	4.4
FEB												
28...	350	49	95	27	17	.4	1.4	300	39	31	.30	3.1
APR												
17...	360	57	100	26	17	.4	1.0	300	36	33	.30	8.8

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
20...	--	--	--	.38	.020	.40	.040	.76	.80	4.00	13
20...	--	--	--	.28	.020	.30	.050	1.7	1.7	1.20	22
20...	--	--	--	.28	.020	.30	.040	3.2	3.2	1.00	27
20...	--	--	--	.38	.020	.40	.040	4.5	4.5	1.10	29
NOV											
05...	--	--	--	.33	.070	.40	.080	4.9	5.0	.600	23
05...	--	--	--	.21	.090	.30	.100	6.9	7.0	.710	24
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	1180	120	.21	.090	.30	.090	2.9	3.0	.470	24
05...	--	--	--	.23	.070	.30	.080	5.4	5.5	.600	27
05...	110	--	--	--	--	--	--	--	--	--	--
FEB											
28...	390	4	<2	--	<.010	<.10	.120	.28	.40	.130	2.8
APR											
17...	400	3	<2	--	<.010	<.10	.120	.18	.30	.110	2.0

COLORADO RIVER BASIN

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08158920 WILLIAMSON CREEK AT OAKHILL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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...	1545	1	<100	<1	<10	2	50
NOV 05...	1407	1	23	42	<10	4	69

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...	2	10	<.1	<1	<1	10
NOV 05...	2	5	<.1	<1	<1	7

DATE	TIME	AME- TRYNE TOTAL	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	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- TRYNE TOTAL (UG/L)
NOV 05...	1422	<.10	<.10	<.10	<2.0	.1	<.1	<.10	<2.0	<2.0	<.10	<.1

COLORADO RIVER BASIN

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 south-east of the intersection of Jimmy Clay and Nuckles Crossing Roads, and 5.9 mi south of the State Capitol in Austin.

DRAINAGE AREA.--27.6 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1974 to September 1975 (periodic discharge measurements only), September 1975 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 493.88 ft National Geodetic Vertical Datum of 1929 (city of Austin bench mark). Prior to Oct. 1, 1982, at datum 3.30 ft higher.

REMARKS.--Water-discharge records good. 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.--9 years, 8.39 ft³/s (4.13 in/yr), 6,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft³/s June 11, 1981 (gage height, 20.55 ft), present datum; no flow Aug. 16, 1984.

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, 485 ft³/s Nov. 5 at 1715 hours (gage height, 7.75 ft), no peak above base of 500 ft³/s; no flow Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	2.4	4.2	4.3	1.6	1.4	2.4	1.5	.18	.33	.95	2.1
2	2.5	2.0	4.0	4.5	1.7	1.3	2.9	1.6	.21	.41	.85	1.9
3	2.4	1.8	11	4.1	1.6	1.4	2.6	1.4	.27	.36	.70	5.2
4	2.4	2.4	5.3	3.5	1.6	2.8	2.8	1.3	.81	.31	.60	3.1
5	2.5	58	3.8	3.7	1.8	12	2.9	1.2	13	.32	.50	2.3
6	2.4	13	3.5	3.6	2.0	2.2	2.9	1.2	20	.32	.40	2.1
7	2.1	13	3.7	3.6	2.0	1.7	3.1	1.1	2.1	.33	.35	2.1
8	2.0	4.7	3.7	7.2	1.7	1.5	3.0	.94	1.1	.37	.25	1.9
9	77	3.9	3.8	42	1.9	1.5	2.9	.87	.92	.38	.24	2.2
10	7.0	3.8	3.9	4.2	1.9	1.5	2.6	.80	.85	.38	.31	2.2
11	2.8	3.7	3.2	3.6	2.2	1.6	2.4	.68	.79	.38	.18	2.1
12	10	3.4	3.2	3.0	1.7	12	2.8	.74	.80	.41	.18	2.2
13	3.1	3.4	3.2	2.6	1.7	3.6	2.9	.68	.87	.45	.15	2.0
14	3.0	3.1	3.3	2.0	1.7	2.6	2.1	.57	.86	.40	.49	2.0
15	2.8	3.0	3.2	2.0	1.7	2.1	1.6	.47	.89	.40	.59	2.1
16	2.7	3.0	3.4	2.2	1.8	2.1	1.7	.38	.68	.40	.08	2.1
17	2.7	3.4	3.4	1.5	1.9	2.1	1.5	.34	.71	.43	.68	2.0
18	2.6	3.3	3.2	1.6	2.1	2.0	1.5	.47	.75	.46	1.2	2.1
19	2.6	3.1	3.1	1.3	2.5	2.6	1.6	.68	.84	.48	1.1	2.1
20	10	2.9	3.2	1.3	3.6	2.1	1.6	1.2	.64	.51	.44	2.2
21	6.4	3.0	3.2	1.5	2.3	3.3	1.6	.43	.58	.55	1.4	2.0
22	2.9	3.2	3.1	1.6	1.9	2.3	1.5	.24	.55	.60	1.4	1.7
23	2.6	5.9	3.4	2.9	1.8	8.1	1.6	.21	.51	.70	1.5	1.5
24	2.3	3.5	3.9	1.6	1.7	5.1	1.7	.18	.54	.80	1.4	1.3
25	2.2	3.4	3.8	1.5	1.7	3.6	1.7	.16	.56	.86	1.4	1.2
26	2.3	19	3.6	1.6	5.2	3.5	1.8	.16	.49	.92	1.5	.85
27	2.2	17	3.7	1.7	2.7	3.5	1.9	.16	.40	1.0	1.5	.74
28	2.2	5.4	3.4	1.4	1.5	3.5	1.9	.16	.34	1.0	1.1	.75
29	2.7	4.4	3.4	1.8	1.3	3.5	1.8	.14	.34	1.0	1.4	.65
30	2.8	4.2	3.5	1.5	---	2.9	1.6	.14	.33	1.0	1.4	1.2
31	2.4	---	4.2	1.5	---	1.8	---	.16	---	1.0	1.9	---
TOTAL	176.0	206.3	118.5	120.4	58.8	101.2	64.9	20.26	51.91	17.26	26.14	57.89
MEAN	5.68	6.88	3.82	3.88	2.03	3.26	2.16	.65	1.73	.56	.84	1.93
MAX	77	58	11	42	5.2	12	3.1	1.6	20	1.0	1.9	5.2
MIN	2.0	1.8	3.1	1.3	1.3	1.3	1.5	.14	.18	.31	.08	.65
CFSM	.21	.25	.14	.14	.07	.12	.08	.02	.06	.02	.03	.07
IN.	.24	.28	.16	.16	.08	.14	.09	.03	.07	.02	.04	.08
AC-FT	349	409	235	239	117	201	129	40	103	34	52	115
CAL YR 1983	TOTAL	2477.80	MEAN 6.79	MAX 134	MIN 1.2	CFSM .25	IN 3.34	AC-FT 4910				
WTR YR 1984	TOTAL	1019.56	MEAN 2.79	MAX 77	MIN .08	CFSM .10	IN 1.37	AC-FT 2020				

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- IDITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 05...	1520	38	679	7.2	21.5	30	44	5.8	67	30	32000	K5100
FEB 27...	1000	2.5	622	7.7	12.8	5	4.4	8.1	78	5.2	540	1200
MAR 23...	1040	2.9	726	7.5	19.0	60	58	5.3	58	15	K890	5600
APR 16...	1020	1.8	830	7.5	17.0	20	3.1	5.1	53	3.3	660	1300
JUN 05...	0800	28	278	8.0	22.5	150	180	6.2	73	4.5	K23000	50000
AUG 22...	0905	1.1	726	6.6	27.0	25	1.5	2.6	33	7.4	1200	500

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS STO2)
NOV 05...	250	41	82	11	39	1	5.2	210	59	49	.50	11
FEB 27...	280	47	91	12	28	.8	2.7	230	33	46	.40	7.0
MAR 23...	250	23	78	14	43	1	7.5	230	44	60	.50	10
APR 16...	320	34	100	18	47	1	5.0	290	33	70	.50	14
JUN 05...	110	2	38	4.2	13	.6	2.7	110	16	14	.30	6.6
AUG 22...	160	30	39	16	74	3	11	133	64	90	.80	11

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 05...	380	180	47	.21	.290	.50	3.30	4.7	8.0	2.10	20
FEB 27...	360	6	<2	.68	.120	.80	.810	.69	1.5	.330	4.1
MAR 23...	390	89	21	.79	.210	1.0	7.10	.40	7.5	1.50	5.5
APR 16...	460	5	<2	.65	.150	.80	4.70	1.3	6.0	.850	4.3
JUN 05...	160	289	78	.25	.050	.30	.200	1.8	2.0	.500	12
AUG 22...	390	9	<1	3.2	1.10	4.3	3.20	2.3	5.5	7.60	8.0

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 05...	1520	5	66	<1	<10	2	75
JUN 05...	0800	1	47	1	<10	2	44
AUG 22...	0905	7	37	<1	<10	4	59

COLORADO RIVER BASIN

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		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)		
	DATE								
	NOV 05...	<1	180	<.1	<1	<1	12		
	JUN 05...	<1	3	<.1	<1	<1	7		
	AUG 22...	2	140	.1	<1	<1	76		
DATE		TIME	AME- TRYNE TOTAL	ATRA- TONE TOTAL (UG/L)	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	CYPRA- ZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
JUN	05...	0800	<.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)	
JUN	05...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1	

COLORADO RIVER BASIN

189

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 downstream from Williamson Creek, 3.2 mi southwest of Del Valle, and 7.5 mi southeast of the State Capitol Building in Austin.

DRAINAGE AREA.--321 mi².

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 State Department of Highways and Public Transportation datum. May 15, 1924, to Mar. 15, 1930, nonrecording gage at highway bridge 1,700 ft upstream at 6.42-foot 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.--13 years (water years 1925-29, 1977-84), 76.2 ft³/s (3.22 in/yr), 55,210 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,000 ft³/s May 28, 1929 (gage height, 30.5 ft), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1869 occurred about July 3, 1869, stage about 38 ft from newspaper accounts, and Sept. 9, 1921, stage 38.0 ft, from floodmark, present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,470 ft³/s Nov. 5 at 1800 hours (gage height, 8.79 ft), no peak above base of 2,500 ft³/s; no flow for several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	9.3	14	11	6.3	7.7	8.7	2.3	.99	.00	.34	5.4
2	8.3	8.9	14	11	6.3	7.2	8.7	2.3	.99	.00	.41	4.2
3	8.1	9.3	33	11	6.5	7.0	8.7	2.3	.83	.08	.41	8.2
4	7.6	10	21	11	7.1	5.9	8.2	2.0	.93	.09	.89	11
5	7.2	254	16	11	7.7	49	8.2	1.7	41	.00	1.2	5.3
6	7.2	141	15	11	7.7	12	8.2	1.2	75	.00	1.2	3.1
7	7.2	54	14	11	7.9	7.6	8.2	.99	11	.00	1.1	2.5
8	7.2	28	14	11	8.2	7.2	7.7	.99	5.9	.00	.19	2.6
9	314	16	14	205	8.4	6.8	7.7	.57	4.1	.00	.00	2.0
10	61	13	14	20	9.2	6.2	7.2	.76	3.2	.00	.00	2.0
11	23	12	14	11	9.9	5.4	7.2	.76	2.5	.00	.00	2.0
12	31	11	14	9.2	9.9	20	6.8	.61	2.3	.00	.00	2.0
13	17	11	14	7.7	9.9	10	6.8	.57	2.9	.00	.00	2.0
14	15	10	14	6.8	9.9	7.3	6.7	.56	2.0	.00	.00	2.0
15	13	9.9	14	6.8	9.9	7.2	5.4	.41	1.7	.00	.70	.72
16	13	9.9	14	6.8	9.9	6.8	5.4	.57	1.4	.00	.16	.76
17	11	8.9	14	6.6	9.9	6.8	5.4	.57	.74	.00	.00	.59
18	10	9.2	14	6.3	9.9	6.8	4.9	.87	.57	.00	.00	.57
19	10	9.1	14	6.0	9.5	6.3	4.9	1.6	.41	.00	.26	1.1
20	21	8.7	14	5.8	9.4	6.3	4.9	3.3	.50	.00	.26	2.4
21	48	8.7	14	5.8	11	5.8	4.5	3.7	.57	.00	.00	3.6
22	14	8.9	14	5.8	11	6.5	3.6	2.8	.40	.00	.35	4.5
23	12	21	13	7.5	11	14	2.6	2.0	.14	.00	.21	5.1
24	11	15	13	7.8	9.9	18	2.6	1.9	.18	.00	.21	3.7
25	10	12	12	6.8	9.4	13	1.4	1.6	.20	.00	.21	2.9
26	9.3	55	11	6.8	18	11	2.3	1.4	.05	.00	.21	3.0
27	9.3	153	11	6.8	16	11	3.0	1.4	.00	.00	.21	1.8
28	9.3	31	11	6.8	9.0	10	2.3	1.2	.00	.01	.21	1.8
29	9.3	19	11	6.3	7.7	9.3	2.3	.77	.00	.15	.16	2.5
30	9.3	16	11	6.3	---	9.2	2.3	.76	.00	.21	.32	3.2
31	9.3	---	11	6.3	---	8.7	---	.99	---	.21	.80	---
TOTAL	752.1	982.8	441	459.0	276.4	316.0	166.8	43.45	160.50	.75	10.01	92.54
MEAN	24.3	32.8	14.2	14.8	9.53	10.2	5.56	1.40	5.35	.024	.32	3.08
MAX	314	254	33	205	18	49	8.7	3.7	75	.21	1.2	11
MIN	7.2	8.7	11	5.8	6.3	5.4	1.4	.41	.00	.00	.00	.57
CFSM	.08	.10	.04	.05	.03	.03	.02	.004	.02	.000	.001	.01
IN.	.09	.11	.05	.05	.03	.04	.02	.01	.02	.00	.00	.01
AC-FT	1490	1950	875	910	548	627	331	86	318	1.5	20	184

CAL YR 1983 TOTAL 17831.70 MEAN 48.9 MAX 2220 MIN 3.0 CFSM .15 IN 2.07 AC-FT 35370
WTR YR 1984 TOTAL 3701.35 MEAN 10.1 MAX 314 MIN .00 CFSM .03 IN .43 AC-FT 7340

COLORADO RIVER BASIN

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. Radiochemical analyses: October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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, UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
FEB 27...	0910	20	576	8.2	14.0	<1	6.0	8.7	86	2.2	K340	>2000
APR 16...	1125	5.4	536	8.6	21.0	10	1.1	13.0	147	1.4	K1600	180
JUN 05...	0900	82	611	8.0	27.0	75	38	4.6	59	4.2	5500	K6000
AUG 22...	0946	.93	707	7.0	27.5	7	.50	4.6	59	2.7	2100	380

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 SI02)
FEB 27...	230	43	75	11	34	1	3.2	190	41	46	.40	6.8
APR 16...	200	41	64	9.9	33	1	2.1	160	54	42	.40	9.6
JUN 05...	180	14	49	15	53	2	4.2	170	27	74	.40	16
AUG 22...	190	14	50	16	71	2	5.8	177	35	95	.60	13

DATE	SOLIDS, SUM OF CONSTIT- UENTS, 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 27...	330	15	8	.46	.040	.50	.080	.52	.60	.170	5.0
APR 16...	310	13	<2	--	<.010	<.10	.060	--	<.20	.010	1.7
JUN 05...	340	181	64	--	.010	<.10	.080	2.4	2.5	.470	9.7
AUG 22...	390	11	10	--	<.100	<.10	.020	.78	.80	1.10	5.4

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)
JUN 05...	0900	3	83	<1	<10	<1	8
AUG 22...	0946	15	57	<1	<10	<1	11

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JUN 05...	2	26	<.1	<1	<1	3
AUG 22...	2	13	<.1	<1	<1	7

COLORADO RIVER BASIN

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08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	AME- TRYNE TOTAL	ATRA- TONE TOTAL (UG/L)	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	CYPRA- ZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
JUN 05...	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)
JUN 05...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

COLORADO RIVER BASIN

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 northwest of McDade, 5.3 mi southeast of Elgin, and 14.2 mi upstream from mouth.

DRAINAGE AREA.--38.7 mi².

PERIOD OF RECORD.--July 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 422 ft, from topographic map.

REMARKS.--Records good. No known regulation or diversion. Two recording rain gages are located in the watershed. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 8.18 ft³/s (2.87 in/yr), 5,930 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,410 ft³/s June 11, 1981 (gage height, 15.74 ft); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14 ft³/s Oct. 21 at 0200 hours (gage height, 3.30 ft), no peak above base of 325 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	.06	.06	.55	.51	1.5	.75	.31	.06	.00	.00	.00	.00	
2	.06	.10	.87	.51	1.5	.75	.30	.06	.00	.00	.00	.00	
3	.06	.12	1.6	.63	1.5	.75	.30	.05	.00	.00	.00	.00	
4	.06	.14	1.1	.63	1.3	.75	.30	.03	.00	.00	.00	.00	
5	.06	.17	.69	.63	1.3	.67	.30	.03	.09	.00	.00	.00	
6	.06	.26	.39	.68	.93	.63	.55	.05	.09	.00	.00	.00	
7	.10	.30	.30	.75	.89	.70	.50	.05	.13	.00	.00	.00	
8	.14	.30	.17	.75	.89	.63	.38	.03	.05	.00	.00	.00	
9	.14	.30	.17	2.4	1.1	.63	.22	.05	.00	.00	.00	.00	
10	.14	.30	.22	1.9	1.3	.62	.22	.06	.00	.00	.00	.00	
11	.18	.30	.28	1.5	1.3	.51	.21	.06	.00	.00	.00	.00	
12	.08	.30	.30	1.2	1.8	.64	.13	.06	.00	.00	.00	.00	
13	.03	.30	.22	1.1	1.6	.82	.06	.08	.00	.00	.00	.00	
14	.03	.35	.06	.90	1.4	.80	.06	.13	.00	.00	.00	.00	
15	.05	.30	.06	.89	1.2	.75	.03	.06	.00	.00	.00	.00	
16	.06	.30	.06	.89	1.2	.75	.02	.06	.00	.00	.00	.00	
17	.09	.35	.09	.89	1.0	.73	.02	.11	.00	.00	.00	.00	
18	.14	.40	.21	.89	1.0	.52	.03	.20	.00	.00	.00	.00	
19	.12	.44	.22	.83	.94	1.3	.03	.20	.00	.00	.00	.00	
20	1.1	.51	.22	.75	.94	1.1	.03	.14	.00	.00	.00	.00	
21	7.5	.40	.22	.75	1.0	.64	.03	.14	.00	.00	.00	.00	
22	1.4	.40	.22	.81	1.0	.51	.03	.13	.00	.00	.00	.00	
23	.66	.57	.25	1.5	1.0	.63	.03	.06	.00	.00	.00	.00	
24	.33	.55	.30	1.6	1.1	2.1	.05	.10	.00	.00	.00	.00	
25	.24	.51	.30	1.4	1.1	1.1	.06	.13	.00	.00	.00	.00	
26	.14	.40	.40	1.3	1.3	.68	.06	.06	.00	.00	.00	.00	
27	.14	.40	.50	1.3	1.6	.54	.06	.05	.00	.00	.00	.00	
28	.08	.40	.63	1.3	1.1	.49	.06	.03	.00	.00	.00	.00	
29	.06	.51	.59	1.4	.75	.40	.06	.00	.00	.00	.00	.00	
30	.06	.63	.41	1.4	---	.40	.06	.00	.00	.00	.00	.00	
31	.06	---	.44	1.5	---	.40	---	.00	---	.00	.00	---	
TOTAL	13.43	10.37	12.04	33.49	34.54	22.69	4.50	2.27	.36	.00	.00	.00	
MEAN	.43	.35	.39	1.08	1.19	.73	.15	.073	.012	.000	.000	.000	
MAX	7.5	.63	1.6	2.4	1.8	2.1	.55	.20	.13	.00	.00	.00	
MIN	.03	.06	.06	.51	.75	.40	.02	.00	.00	.00	.00	.00	
CFSM	.01	.009	.01	.03	.03	.02	.004	.002	.000	.000	.000	.000	
IN.	.01	.01	.01	.03	.03	.02	.00	.00	.00	.00	.00	.00	
AC-FT	27	21	24	66	69	45	8.9	4.5	.7	.00	.00	.00	
CAL YR 1983	TOTAL	3613.87	MEAN	9.90	MAX	755	MIN	.00	CFSM	.26	IN	3.47	
WTR YR 1984	TOTAL	133.69	MEAN	.37	MAX	7.5	MIN	.00	CFSM	.01	IN	.13	
										AC-FT	7170	AC-FT	265

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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 south of Elgin, 10.7 mi north of Bastrop, and 10.8 mi upstream from mouth.

DRAINAGE AREA.--63.8 mi².

PERIOD OF RECORD.--July 1979 to current year.

Water-quality records.--Chemical, biochemical, and pesticide analyses: May 1979 to September 1981. Radiochemical analyses: May to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 392 ft, from topographic map.

REMARKS.--Records good. No known regulation or diversion. Three recording rain gages are located in the watershed. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 10.9 ft³/s (2.32 in/yr), 7,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,760 ft³/s June 11, 1981 (gage height, 21.54 ft); no flow for several days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6.6 ft³/s Oct. 21 at 1715 hours (gage height, 2.76 ft), no peak above base of 500 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.13	.31	1.6	.98	1.6	.20	.02	.02	.00	.00	.00
2	.02	.15	.30	1.6	1.2	1.4	.20	.05	.02	.00	.00	.00
3	.02	.18	1.5	1.9	1.0	1.2	.17	.19	.02	.00	.00	.00
4	.02	.33	.77	1.7	.89	1.2	.15	.15	.02	.00	.00	.00
5	.02	.45	1.6	1.6	1.1	1.0	.15	.05	.02	.00	.00	.00
6	.02	.38	1.2	1.6	.73	.99	.15	.03	.02	.00	.00	.00
7	.02	.21	.60	1.5	.57	.72	.15	.03	.02	.00	.00	.00
8	.02	.11	.50	1.5	.52	.72	.23	.02	.02	.00	.00	.00
9	.02	.13	.37	2.7	.59	.63	.20	.02	.02	.00	.00	.00
10	.02	.18	.31	3.5	.77	.63	.20	.01	.02	.00	.00	.00
11	.04	.19	.26	2.5	1.3	.52	.20	.01	.03	.00	.00	.00
12	.09	.13	.23	1.9	2.1	1.5	.34	.00	.04	.00	.35	.00
13	.06	.16	.22	1.1	2.6	.82	.20	.00	.04	.00	.37	.00
14	.03	.17	.21	.66	1.9	1.4	.13	.00	.03	.00	.00	.00
15	.03	.21	.24	.52	1.5	1.5	.10	.00	.02	.00	.00	.00
16	.03	.10	.23	.52	.99	.82	.09	.00	.02	.00	.00	.00
17	.03	.09	.33	.52	.83	.52	.09	.00	.01	.00	.00	.00
18	.03	.09	.33	.56	.81	.42	.09	.07	.00	.00	.00	.00
19	.07	.12	.33	.52	.55	.72	.10	.03	.00	.00	.00	.00
20	.95	.09	.39	.47	.48	1.8	.08	.02	.00	.00	.00	.00
21	4.8	.10	.52	.44	.57	.47	.05	.09	.00	.00	.00	.00
22	4.4	.08	.54	.45	.61	.23	.05	.02	.00	.00	.00	.00
23	2.4	.27	.57	.82	.58	.17	.04	.02	.00	.00	.00	.00
24	1.2	.17	.63	.91	.52	.86	.03	.02	.00	.00	.00	.00
25	.37	.20	.71	1.6	.48	1.1	.03	.01	.00	.00	.00	.00
26	.21	.18	.90	1.3	.89	.57	.03	.01	.00	.00	.00	.00
27	.15	.40	1.1	.89	2.0	.42	.03	.01	.00	.00	.00	.00
28	.13	.38	1.1	.72	3.1	.23	.03	.01	.00	.00	.00	.00
29	.10	.29	.96	.99	2.1	.23	.02	.01	.00	.00	.00	.00
30	.10	.28	2.0	1.0	---	.23	.02	.02	.00	.00	.00	.00
31	.11	---	1.7	.72	---	.20	---	.02	---	.00	.00	---
TOTAL	15.53	5.95	20.96	38.31	32.26	24.82	3.55	.94	.39	.00	.72	.00
MEAN	.50	.20	.68	1.24	1.11	.80	.12	.030	.013	.000	.023	.000
MAX	4.8	.45	2.0	3.5	3.1	1.8	.34	.19	.04	.00	.37	.00
MIN	.02	.08	.21	.44	.48	.17	.02	.00	.00	.00	.00	.00
CFSM	.008	.003	.01	.02	.02	.01	.002	.000	.000	.000	.000	.000
IN.	.01	.00	.01	.02	.02	.01	.00	.00	.00	.00	.00	.00
AC-FT	31	12	42	76	64	49	7.0	1.9	.8	.00	1.4	.00
CAL YR 1983	TOTAL	4473.37	MEAN	12.3	MAX	947	NIN	.00	CFSM .19	IN 2.61	AC-FT 8870	
WTR YR 1984	TOTAL	143.43	MEAN	.39	MAX	4.8	MIN	.00	CFSM .006	IN .08	AC-FT 284	

COLORADO RIVER BASIN

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 upstream from bridge on State Highway 71, 0.3 mi upstream from Gills Creek, 1.1 mi downstream from Piney Creek, and at mile 236.7.

DRAINAGE AREA.--39,979 mi², approximately, of which 11,403 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1960 to September 1973, October 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 307.38 ft National Geodetic Vertical Datum of 1929. Prior to May 10, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. There are many diversions above stations for irrigation and municipal supply. Regulation is the same as that for Colorado River at Austin (station 08158000). 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.--24 years, 2,091 ft³/s (1,515,000 acre-ft yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,600 ft³/s Oct. 29, 1960 (gage height, 34.45 ft); minimum daily, 75 ft³/s Apr. 1, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 60.3 ft July 7 or 8, 1869. Flood of June 16, 1935, reached a stage of 57.0 ft, and flood of Dec. 4, 1913, reached a stage of 53.3 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,630 ft³/s Jan. 18 at 0600 hours (gage height, 6.38 ft); maximum gage height, 8.07 ft June 29 at 2000 hours; minimum daily discharge, 155 ft³/s Mar. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1550	268	379	350	226	163	1220	1720	2670	2930	1640	2600
2	1500	266	370	280	227	155	1310	1700	2700	3050	1440	2710
3	1430	262	398	320	217	187	1220	1680	2880	3020	1060	2670
4	1510	268	373	270	212	219	1120	1620	2930	2980	1520	2700
5	1460	277	449	290	216	208	1170	1580	3030	2560	1040	2720
6	1750	347	319	260	212	265	1360	1530	3310	2640	1690	2510
7	1800	649	280	240	207	305	1190	1670	3100	2630	1620	2250
8	1890	848	270	900	202	216	1320	1700	2930	2570	1600	2190
9	1760	488	311	527	226	212	1350	1670	2820	2300	1600	1890
10	2520	377	252	836	227	208	1210	1710	2530	2370	1590	1840
11	2170	340	264	478	233	206	1410	2120	2600	2330	1590	1850
12	1570	319	334	348	224	230	1470	2100	2550	2230	1900	1780
13	1570	269	331	295	221	456	1260	1940	2680	2190	2230	1800
14	1050	257	349	287	223	382	1380	2040	2870	2170	2020	2040
15	939	270	325	279	209	249	1710	2070	2730	1790	1950	1960
16	774	272	354	268	193	223	1830	2090	2830	1580	2230	1970
17	743	270	356	1590	195	212	1620	2510	2980	1600	1820	2060
18	732	267	396	3500	204	203	1890	2570	2860	1650	1710	2080
19	746	267	357	2240	181	205	1800	2610	2900	1530	1590	2040
20	795	260	346	546	200	187	1620	2400	2940	1500	1400	1960
21	828	264	343	369	191	220	1810	2260	2760	1490	1330	1820
22	916	433	343	335	210	178	1870	2150	2710	1880	1340	1590
23	744	594	828	323	202	331	1830	1970	2730	1760	1570	1570
24	445	389	736	318	353	414	1900	1750	2720	1640	1890	1570
25	346	429	659	321	475	520	1760	1710	2670	1960	1950	1640
26	315	388	1140	288	269	781	1650	1700	2800	2000	2010	1580
27	300	419	927	269	173	808	1990	2000	3060	1820	2200	1460
28	289	503	795	255	210	766	1810	2510	2940	1940	2240	1340
29	280	518	400	258	182	818	1870	2450	3240	1760	2260	1190
30	274	429	300	241	---	820	1830	2420	3080	1670	2400	1080
31	267	---	500	230	---	1120	---	2680	---	1660	2580	---
TOTAL	33263	11207	13784	17311	6520	11467	46780	62630	85550	65200	55010	58460
MEAN	1073	374	445	558	225	370	1559	2020	2852	2103	1775	1949
MAX	2520	848	1140	3500	475	1120	1990	2680	3310	3050	2580	2720
MIN	267	257	252	230	173	155	1120	1530	2530	1490	1040	1080
AC-FT	65980	22230	27340	34340	12930	22740	92790	124200	169700	129300	109100	116000
CAL YR 1983	TOTAL	425248	MEAN	1165	MAX	9400	MIN	185	AC-FT	843500		
WTR YR 1984	TOTAL	467182	MEAN	1276	MAX	3500	MIN	155	AC-FT	926700		

COLORADO RIVER BASIN

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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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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 25...	0900	400	598	8.2	19.5	4.2	46	.2	210	40
DEC 14...	1105	362	677	8.4	14.0	9.8	96	1.0	240	46
FEB 21...	1320	200	686	8.5	13.0	14.4	137	1.4	230	47
APR 16...	0915	1170	575	7.8	19.0	4.2	45	2.0	200	49
JUN 27...	0910	2700	545	8.1	27.0	6.4	81	.2	200	57
AUG 16...	1035	2410	558	7.4	29.0	6.4	84	1.1	200	53

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- LILITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 25...	51	20	36	1	3.7	170	46	57	.40
DEC 14...	63	19	44	1	4.7	190	43	60	.70
FEB 21...	58	20	50	1	5.1	180	63	70	.80
APR 16...	45	21	36	1	4.1	150	42	61	.40
JUN 27...	46	20	31	1	3.8	140	38	59	.30
AUG 16...	45	22	35	1	4.2	150	36	61	.40

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
OCT 25...	4.5	320	--	<.020	.90	.010	.59	.60	.410
DEC 14...	1.1	350	3.3	.030	3.3	.030	.87	.90	1.60
FEB 21...	1.5	380	2.1	.020	2.1	.040	.96	1.0	1.60
APR 16...	4.8	300	.64	.060	.70	.150	.65	.80	.410
JUN 27...	4.6	290	.39	.010	.40	.020	1.1	1.1	.270
AUG 16...	6.4	300	.39	.010	.40	.050	.55	.60	.300

COLORADO RIVER BASIN

08160700 COLORADO RIVER ABOVE COLUMBUS, TX

LOCATION.--Lat 29°43'09", long 96°34'16", Colorado County, Hydrologic 12090301, at right downstream side of bridge on State Highway 71 and 1.8 mi north of the intersection of State Highway 71 and Interstate Highway 10.

DRAINAGE AREA.--41,313 mi², approximately, of which 11,403 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1983 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 169 ft, from topographic map.

REMARKS.--Water-discharge records good. Regulation is the same as that for Colorado River at Austin (station 08158000) and Colorado River at Bastrop (station 08159200). The Lower Colorado River Authority diverts water upstream from this station to Cedar Creek Reservoir, but there are many other diversions above station for irrigation and for municipal supply.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,960 ft³/s June 8, 1984 (gage height, 9.97 ft); minimum daily, 194 ft³/s Aug. 30.

EXTREMES FOR AUGUST TO SEPTEMBER 1983.--Maximum discharge, 2,370 ft³/s Aug. 12 (gage height, 9.17 ft); minimum daily, 501 ft³/s Aug. 20.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,960 ft³/s June 8 at 1000 hours (gage height, 9.97 ft); minimum daily, 194 ft³/s Mar. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1610	380	583	455	316	298	1000	1880	2250	2710	1450	2070
2	1370	365	507	382	304	282	1190	1870	2410	2570	1400	2210
3	1510	350	507	377	295	283	1340	1770	2410	2470	1390	2300
4	1450	340	422	397	281	254	1390	1790	2430	2500	1380	2390
5	1410	335	423	350	274	245	1340	1720	2560	2500	1300	2460
6	1440	410	403	331	257	196	1280	1670	2640	2470	1230	2450
7	1380	586	424	321	256	194	1270	1660	2780	2270	1290	2470
8	1570	564	419	310	261	229	1410	1670	2890	2210	1200	2410
9	1620	726	343	489	269	241	1310	1650	2740	2220	1400	2260
10	1690	871	323	604	279	313	1360	1650	2620	2180	1420	2190
11	1730	683	309	628	289	258	1370	1640	2530	2050	1430	2060
12	2150	538	314	910	297	249	1300	1690	2380	1980	1450	1950
13	1800	465	263	761	282	315	1400	2000	2380	2010	1480	1880
14	1570	420	255	573	279	260	1480	1970	2340	1980	1500	1780
15	1330	384	326	474	275	275	1340	1860	2400	1920	1730	1740
16	1110	339	345	419	273	494	1400	1930	2480	1880	1850	1870
17	1010	316	351	397	269	437	1680	1950	2380	1780	1770	1930
18	888	323	339	370	276	377	1760	2080	2420	1530	1850	1870
19	841	346	356	1000	261	716	1720	2690	2480	1440	1830	1910
20	822	330	374	1500	311	668	1880	2580	2420	1440	1680	1960
21	1020	313	386	1000	317	382	1830	2410	2440	1430	1600	1980
22	1150	315	359	700	280	351	1740	2280	2450	1350	1510	1930
23	931	319	387	600	275	348	1820	2180	2360	1320	1430	1860
24	974	325	369	500	280	511	1880	2100	2300	1370	1370	1730
25	883	608	601	460	273	375	1880	1960	2290	1540	1370	1610
26	730	531	897	440	310	485	1910	1800	2280	1510	1540	1560
27	593	462	718	420	481	648	1860	1720	2260	1510	1720	1530
28	502	469	1150	400	472	839	1790	1690	2300	1710	1770	1540
29	448	418	968	380	361	945	1960	1910	2450	1540	1870	1490
30	420	443	860	360	---	964	1850	2260	2470	1530	1960	1400
31	400	---	609	337	---	991	---	2270	---	1530	1990	---
TOTAL	36352	13274	14890	16645	8653	13423	46740	60300	73540	58450	48160	58790
MEAN	1173	442	480	537	298	433	1558	1945	2451	1885	1554	1960
MAX	2150	871	1150	1500	481	991	1960	2690	2890	2710	1990	2470
MIN	400	313	255	310	256	194	1000	1640	2250	1320	1200	1400
AC-FT	72100	26330	29530	33020	17160	26620	92710	119600	145900	115900	95530	116600

WTR YR 1984 TOTAL 449217 MEAN 1227 MAX 2890 MIN 194 AC-FT 891000

COLORADO RIVER BASIN

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08160700 COLORADO RIVER ABOVE COLUMBUS, TX--Continued

LOCATION.--Lat 29°43'09", long 96°34'16", Colorado County, Hydrologic Unit 12090301, at bridge on State Highway 71 and 1.8 mi north of the intersection of State Highway 71 and Interstate 10.

PERIOD OF RECORD.--Chemical, biochemical, pesticide, and sediment analyses: October 1982 to September 1983.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1983 to September 1984.

WATER TEMPERATURES: October 1983 to September 1984.

INSTRUMENTATION.--Beginning October 1983, 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 CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 924 micromhos Nov. 19; minimum daily, 434 micromhos Mar. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)
NOV 07...	1352	600	581	8.1	22.5	5	23	7.5	87	1.6
DEC 20...	1510	350	666	8.7	7.0	<1	1.1	12.9	107	.2
JAN 30...	1548	362	611	8.7	14.0	<1	2.9	11.5	111	.7
MAR 12...	1510	260	679	9.2	22.0	<1	3.8	13.2	153	2.1
APR 23...	1413	2030	563	8.2	24.5	40	29	8.1	98	1.4
JUN 04...	1522	2500	536	8.6	26.5	7	4.4	8.2	103	.7
JUL 23...	1100	1350	563	8.4	30.0	13	8.9	8.2	109	.7
AUG 27...	1612	1730	565	8.8	32.0	20	4.0	9.2	127	.5

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC- CI, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)
NOV 07...	1400	2600	220	32	59	18	36	1	4.1	190
DEC 20...	K6	K9	250	48	68	19	40	1	4.1	200
JAN 30...	K5	K7	240	52	62	21	39	1	3.8	190
MAR 12...	K1	K6	240	45	65	20	49	1	4.8	200
APR 23...	24	84	200	53	45	22	35	1	4.1	150
JUN 04...	K5	170	200	48	43	22	33	1	3.6	150
JUL 23...	22	92	210	65	48	23	35	1	4.4	150
AUG 27...	K19	640	210	56	46	22	36	1	4.1	150

COLORADO RIVER BASIN

08160700 COLORADO RIVER ABOVE COLUMBUS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)
NOV 07...	44	50	.40	4.5	330	30	<1	.48	.020
DEC 20...	49	53	.50	1.6	360	<1	<1	1.3	.010
JAN 30...	49	57	.40	4.4	350	<2	<2	--	<.010
MAR 12...	62	64	.80	1.5	390	7	<2	--	.010
APR 23...	41	58	.40	6.6	300	67	16	.37	.030
JUN 04...	34	58	.40	3.1	290	19	<2	--	<.010
JUL 23...	42	60	.40	6.6	310	18	12	--	<.010
AUG 27...	42	62	.30	5.8	310	13	10	.19	.010

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED TOTAL (MG/L AS C)	PHENOLS TOTAL (UG/L)
NOV 07...	.50	.120	1.2	1.3	.270	.180	3.5	3.5	6
DEC 20...	1.3	.010	.29	.30	.640	.650	2.8	6.1	--
JAN 30...	.50	.010	.49	.50	.260	.230	2.7	2.9	--
MAR 12...	<.10	.080	.52	.60	.610	.650	4.9	4.5	--
APR 23...	.40	.140	.56	.70	.510	.030	3.3	3.1	<1
JUN 04...	<.10	.020	.28	.30	.200	.180	3.0	2.6	--
JUL 23...	.20	.010	.49	.50	.260	.230	2.8	3.2	--
AUG 27...	.20	.030	.17	.20	.310	.270	4.9	3.3	<1

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	CYANIDE TOTAL (MG/L AS CN)
NOV 07...	1352	2	<100	<1	10	5	<.01
APR 23...	1413	2	200	<1	<10	4	<.01
AUG 27...	1612	2	<100	<1	<10	3	<.01

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
NOV 07...	900	1	40	5.8	<1	<1	10
APR 23...	1600	4	100	<.1	<1	<1	20
AUG 27...	290	<1	20	.2	<1	<1	20

COLORADO RIVER BASIN

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08160700 COLORADO RIVER ABOVE COLUMBUS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
NOV 07...	1352	<.1	<.10	<.01	<.1	<.01	<.01	<.01	.01	<.01
APR 23...	1413	<.1	<.10	<.01	<.1	<.01	<.01	<.01	.01	<.01
AUG 27...	1612	<.1	<.10	<.01	<.1	<.01	<.01	<.01	.01	<.01

DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
NOV 07...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
APR 23...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
AUG 27...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 07...	<.01	<.01	<.1	<1	<.01	.06	<.01	<.01	<.01
APR 23...	<.01	<.01	<.1	<1	<.01	.03	<.01	<.01	<.01
AUG 27...	<.01	<.01	<.1	<1	<.01	.07	<.01	<.01	<.01

COLORADO RIVER BASIN

08160700 COLORADO RIVER ABOVE COLUMBUS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	36352	577	319	31300	59	5830	42	4150	210
NOV. 1983	13274	695	396	14200	58	2080	61	2200	250
DEC. 1983	14890	636	357	14300	59	2390	51	2060	230
JAN. 1984	16645	613	341	15300	60	2680	48	2140	230
FEB. 1984	8653	699	397	9280	59	1380	61	1430	250
MAR. 1984	13423	663	375	13600	59	2130	56	2030	240
APR. 1984	46740	591	328	41400	59	7510	44	5610	220
MAY 1984	60300	545	299	48700	59	9560	38	6190	200
JUNE 1984	73540	551	303	60100	59	11700	39	7710	200
JULY 1984	58450	568	313	49400	59	9350	41	6470	210
AUG. 1984	48160	618	345	44900	59	7700	49	6330	230
SEPT 1984	58790	637	357	56600	60	9480	51	8120	230
TOTAL	449217	**	**	399000	**	71800	**	54400	**
WTD.AVG.	1227	593	329	**	59	**	45	**	220

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	569	---	---	634	816	781	790	---	---	620
2	---	---	571	---	---	637	---	---	712	---	---	633
3	---	---	570	---	---	640	---	---	675	---	---	634
4	572	570	571	---	---	643	---	---	645	---	---	630
5	580	570	575	---	---	644	---	---	625	---	---	640
6	579	571	575	---	---	628	---	---	629	---	---	645
7	---	---	572	---	---	604	---	---	625	---	---	648
8	---	---	570	---	---	606	---	---	626	---	---	651
9	---	---	569	---	---	592	---	---	642	---	---	615
10	---	---	569	642	608	626	---	---	648	---	---	602
11	---	---	569	648	637	643	---	---	652	---	---	600
12	---	---	568	642	638	640	---	---	650	---	---	583
13	---	---	568	659	636	642	---	---	668	---	---	647
14	---	---	570	669	647	653	---	---	671	---	---	605
15	---	---	572	729	663	689	---	---	647	---	---	617
16	---	---	576	809	627	680	---	---	642	---	---	626
17	---	---	579	649	621	629	---	---	640	---	---	630
18	---	---	584	691	614	635	---	---	643	---	---	636
19	---	---	586	924	603	674	---	---	637	---	---	580
20	---	---	587	678	617	646	---	---	635	---	---	570
21	---	---	579	777	688	741	686	659	670	---	---	580
22	---	---	576	821	779	799	717	688	702	---	---	594
23	---	---	582	826	806	816	727	718	723	---	---	602
24	---	---	580	842	814	827	735	580	699	---	---	613
25	---	---	584	842	825	833	---	---	625	---	---	619
26	---	---	592	859	838	845	---	---	585	---	---	622
27	---	---	603	868	848	855	---	---	593	---	---	626
28	---	---	613	849	829	837	---	---	576	---	---	629
29	---	---	621	844	815	828	---	---	585	---	---	634
30	---	---	626	835	791	817	---	---	590	753	631	667
31	---	---	629	---	---	---	---	---	595	720	679	691
MONTH	580	570	582	924	603	699	816	580	647	753	631	622

08160700 COLORADO RIVER ABOVE COLUMBUS, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	736	679	698	768	715	739	646	622	632	556	549	553
2	755	700	724	743	704	724	625	621	623	558	549	553
3	792	707	775	752	688	718	626	618	622	562	551	556
4	761	722	741	750	702	721	632	624	628	563	552	557
5	754	719	741	759	735	746	641	629	634	563	553	558
6	758	728	745	772	691	747	634	627	631	565	554	560
7	765	661	717	---	---	760	646	632	639	566	553	560
8	674	607	648	800	745	772	660	642	650	554	530	546
9	659	571	640	798	764	777	664	647	655	557	532	551
10	703	599	660	824	784	801	651	641	647	559	552	556
11	824	629	676	829	790	813	640	574	605	559	554	556
12	676	617	651	833	608	675	618	563	589	557	552	554
13	730	640	669	718	661	687	605	554	585	556	548	552
14	697	633	665	741	698	714	599	558	582	557	549	553
15	734	638	674	741	699	720	592	563	576	555	546	551
16	704	656	677	726	667	690	624	542	576	549	544	546
17	692	669	681	706	680	688	591	544	570	550	545	548
18	698	679	688	716	694	705	597	565	580	548	529	537
19	705	682	693	726	540	683	607	548	579	523	473	505
20	707	657	680	499	434	452	619	586	599	532	497	514
21	703	674	685	528	443	500	616	571	594	549	533	544
22	708	685	697	618	528	561	618	575	596	555	545	550
23	723	681	700	631	435	590	601	558	575	550	544	547
24	728	668	694	648	552	628	564	551	558	549	538	543
25	709	664	684	631	535	581	559	553	555	545	534	539
26	738	670	712	660	633	647	558	549	554	544	535	540
27	733	707	723	669	653	664	559	547	555	546	539	542
28	741	727	733	657	626	636	560	552	555	551	528	543
29	752	731	741	678	630	652	562	550	556	549	536	542
30	---	---	---	679	666	673	556	552	555	546	536	541
31	---	---	---	669	647	657	---	---	---	548	539	544
MONTH	824	571	697	833	434	681	664	542	595	566	473	546

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	543	535	539	587	519	554	581	561	571	762	719	740
2	545	534	539	594	541	562	588	579	583	718	681	703
3	545	533	539	591	553	576	592	583	588	678	652	660
4	547	536	541	603	564	583	594	587	590	652	650	651
5	549	541	545	589	559	564	597	590	593	653	646	648
6	548	535	544	566	561	564	600	593	596	646	626	637
7	550	536	543	565	560	563	606	593	600	625	616	620
8	556	537	544	565	560	562	608	599	603	615	605	608
9	553	513	539	568	561	564	613	601	606	611	605	609
10	558	518	542	570	561	566	614	610	612	616	603	607
11	542	515	536	573	562	568	619	604	611	639	616	630
12	543	529	536	575	565	570	616	592	606	639	620	629
13	563	536	548	581	569	575	605	591	598	619	614	617
14	559	526	547	585	573	578	603	595	599	621	617	620
15	566	534	552	589	575	582	612	598	604	621	618	619
16	566	533	551	583	557	570	622	608	614	620	615	618
17	571	532	553	562	554	558	619	614	617	616	609	613
18	572	546	551	562	531	556	617	610	614	623	614	618
19	575	532	550	563	532	555	613	596	607	624	620	622
20	572	539	552	568	559	563	600	591	597	628	623	625
21	578	540	557	571	561	566	600	590	596	630	628	629
22	577	534	557	567	558	563	595	588	593	637	630	634
23	578	540	555	570	564	567	608	588	592	636	633	635
24	588	529	559	566	554	560	593	546	570	639	636	638
25	588	550	569	570	562	567	591	552	571	644	638	641
26	594	554	574	578	567	572	596	550	575	648	643	646
27	587	555	571	578	551	569	586	561	570	648	638	643
28	593	541	571	577	553	568	569	566	567	652	645	649
29	600	556	572	582	573	577	802	732	779	650	643	646
30	605	550	575	583	573	578	804	793	799	642	637	639
31	---	---	---	579	565	572	791	762	775	---	---	---
MONTH	605	513	552	603	519	567	804	546	613	762	603	636

COLORADO RIVER BASIN

08160700 COLORADO RIVER ABOVE COLUMBUS, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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

DAY	MAX	MIN	MEAN
	FEBRUARY	MARCH	APRIL
1	12.5	11.5	12.0
2	13.0	12.5	12.5
3	13.5	12.0	13.0
4	13.0	12.0	12.5
5	13.0	11.0	12.0
6	12.0	10.5	11.5
7	12.0	6.5	10.0
8	12.0	9.0	11.0
9	15.0	12.0	13.0
10	17.5	14.0	15.5
11	18.5	16.0	17.0
12	19.0	16.0	17.5
13	18.5	14.0	16.0
14	19.0	14.0	16.0
15	19.5	15.5	16.5
16	---	---	---
17	---	---	---
18	---	---	---
19	---	---	---
20	---	---	---
21	---	---	---
22	---	---	---
23	---	---	---
24	---	---	---
25	---	---	---
26	---	---	---
27	---	---	---
28	---	---	---
29	---	---	---
30	---	---	---
31	---	---	---
MONTH	19.5	6.5	13.5

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TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

[illegible]

COLORADO RIVER BASIN

08160700 COLORADO RIVER ABOVE COLUMBUS, TX--Continued

Colorado River above Columbus, TX (08160700)

Phytoplankton Analyses October 1983 to September 1984

Date	12-20-83
Time	1510
<hr/>	
TOTAL CELLS/ml	480
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	N/A

<u>Organisms</u>	<u>Cells/ml</u>
CHLOROPHYTA (Green algae)	
<u>Chlamydomonas</u> sp.	60
CYANOPHYTA (Blue-green algae)	
<u>Chroococcus</u> limneticus	40
<u>Dactylococcopsis</u> raphidioides	10
<u>Oscillatoria</u> limnetica	190
CRYPTOPHYTA (Cryptomonads)	
<u>Cryptomonas</u> sp.	10
<u>Rhodomonas</u> sp.	10
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<u>Stephanodiscus</u> hantzschii	40
Order Pennales	
<u>Achnanthes</u> lanceolata var. <u>dubia</u>	30
<u>Cocconeis</u> placentula	10
<u>Hannaea</u> arcus	10
<u>Navicula</u> symmetrica	50
<u>Nitzschia</u> sp.	10
<u>Surirella</u> angustata	10

Colorado River above Columbus, TX (08160700)

Phytoplankton Analyses October 1983 to September 1984

Date	1-30-84
Time	1548
<hr/>	
TOTAL CELLS/ml	1860
NUMBER OF SPECIES	7
DEPTH COLLECTED (ft.)	N/A

<u>Organisms</u>	<u>Cells/ml</u>
CHLOROPHYTA (Green algae)	
<u>Golenkinia</u> radiata var. <u>brevispina</u>	30
Unicellular coccoïd	100
CYANOPHYTA (Blue-green algae)	
<u>Oscillatoria</u> limnetica	1430
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<u>Melosira</u> varians	70
Order Pennales	
<u>Cocconeis</u> placentula	100
<u>Navicula</u> latens	30
<u>Nitzschia</u> sp.	100

COLORADO RIVER BASIN

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08160700 COLORADO RIVER ABOVE COLUMBUS, TX--Continued

Colorado River above Columbus, TX (08160700)

Phytoplankton Analyses October 1983 to September 1984

Date	3-12-84
Time	1510

TOTAL CELLS/ml	750
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	N/A

Organisms	Cells/ml
CYANOPHYTA (Blue-green algae)	
<u>Anabaena</u> sp.	100
<u>Chroococcus</u> limneticus	80
<u>Synechococcus</u> elongatus	20
BACILLARIOPHYTA (Diatoms)	
Order Pennales	
<u>Cocconeis</u> pediculus	40
<u>Cocconeis</u> placentula	80
<u>Cymatopleura</u> solea	10
<u>Diatoma</u> vulgare	130
<u>Navicula</u> capitata	10
<u>Navicula</u> cryptocephala	20
<u>Navicula</u> ilopangensis	10
<u>Navicula</u> latens	60
<u>Navicula</u> menisculus var. <u>upsaliensis</u>	10
<u>Navicula</u> rhyncocephala	10
<u>Navicula</u> secreta var. <u>apiculata</u>	10
<u>Navicula</u> symmetrica	40
<u>Navicula</u> sp.	10
<u>Nitzschia</u> frustulum	20
<u>Nitzschia</u> hungarica	50
<u>Nitzschia</u> inconspicua	20
<u>Nitzschia</u> tryblionella	20

Colorado River above Columbus, Texas (08160700)

Phytoplankton Analyses October 1983 to September 1984

Date	4-23-84
Time	1413
<hr/>	
TOTAL CELLS/ml	2,014
NUMBER OF SPECIES	48
DEPTH COLLECTED (ft.)	N/A

Organisms	Cells/ml
CHLOROPHYTA (Green algae)	
<u>Scenedesmus bijuga</u>	132
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<u>Biddulphia laevis</u>	148
<u>Rhizosolenia sp.</u>	4
Order Pennales	
<u>Achnanthes lanceolata</u> var. <u>dubia</u>	58
<u>Achnanthes affinis</u>	4
<u>Achnanthes linearis</u> f. <u>curta</u>	8
<u>Achnanthes minutissima</u>	8
<u>Cocconeis fluviatilis</u>	85
<u>Cocconeis pediculus</u>	625
<u>Cocconeis placentula</u> var. <u>euglypta</u>	454
<u>Cymatopleura solea</u>	12
<u>Diatoma vulgare</u>	16
<u>Fragilaria vaucheriae</u>	8
<u>Gomphonema angustatum</u>	8
<u>Gomphonema brasiliense</u>	58
<u>Gyrosigma spencerii</u>	4
<u>Navicula bicephala</u>	4
<u>Navicula cincta</u>	8
<u>Navicula capitata</u>	12
<u>Navicula contenta</u>	8
<u>Navicula cryptocephala</u> var. <u>veneta</u>	19
<u>Navicula decussis</u>	12
<u>Navicula elginensis</u>	16
<u>Navicula graciloides</u>	27
<u>Navicula halophila</u>	12
<u>Navicula heufleri</u>	12
<u>Navicula ilopangensis</u>	4
<u>Navicula lateropunctata</u>	8
<u>Navicula minuscula</u>	4
<u>Navicula notha</u>	16
<u>Navicula rhyncocephala</u>	8
<u>Navicula schroeteri</u> var. <u>escambia</u>	19
<u>Navicula secreta</u> var. <u>apiculata</u>	4
<u>Navicula symmetrica</u>	27
<u>Navicula tripunctata</u>	12
<u>Navicula viridula</u> var. <u>rostellata</u>	4
<u>Nitzschia apiculata</u>	12
<u>Nitzschia communis</u>	12
<u>Nitzschia denticula</u>	8
<u>Nitzschia frustulum</u>	39
<u>Nitzschia inconspicua</u>	27
<u>Nitzschia palea</u>	8
<u>Nitzschia sigmoidea</u>	8
<u>Nitzschia thermalis</u>	12
<u>Pleurosigma sp.</u>	4
<u>Surirella ovalis</u>	4
<u>Surirella sp.</u>	8
<u>Synedra ulna</u>	4

COLORADO RIVER BASIN

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08160700 COLORADO RIVER ABOVE COLUMBUS, TX--Continued

Colorado River above Columbus, Texas (08160700)

Phytoplankton Analyses October 1983 to September 1984

Date	6-4-84
Time	1522
TOTAL CELLS/ml	495
NUMBER OF SPECIES	11
DEPTH COLLECTED (ft.)	N/A
<u>Organisms</u>	<u>Cells/ml</u>
CHLOROPHYTA (Green algae)	
<u>Chodatella</u> sp.	33
CYANOPHYTA (Blue-green algae)	
<u>Anabaena</u> sp.	132
<u>Chroococcus pallidus</u>	66
BACILLARIOPHYTA (Diatoms)	
Order Pennales	
<u>Diploneis</u> ap.	33
<u>Navicula elginensis</u>	9
<u>Navicula minuscula</u>	110
<u>Navicula schroeteri</u> var. <u>escambia</u>	33
<u>Navicula symmetrica</u>	13
<u>Nitzschia amphibia</u>	3
<u>Nitzschia hungarica</u>	33
<u>Nitzschia palea</u>	30

Colorado River above Columbus, Texas (08160700)

Phytoplankton Analyses October 1983 to September 1984

Date	7-23-84
Time	1100
TOTAL CELLS/ml	7006
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	N/A
<u>Organisms</u>	<u>Cells/ml</u>
CHLOROPHYTA (Green algae)	
<u>Scenedesmus brasiliensis</u>	250
CYANOPHYTA (Blue-green algae)	
<u>Aphanocapsa delicatissima</u>	438
<u>Chroococcus</u> sp.	63
<u>Merismopedia minima</u>	4875
<u>Synechococcus aeruginosa</u>	315
<u>Synechocystis</u> sp.	63
BACILLARIOPHYTA (Diatoms)	
Order Pennales	
<u>Cocconeis pediculus</u>	188
<u>Cocconeis placentula</u>	250
<u>Navicula contentata</u> var. <u>biceps</u>	6
<u>Navicula cryptocephala</u>	50
<u>Navicula decussis</u>	63
<u>Navicula graciloides</u>	6
<u>Navicula ilopangensis</u>	63
<u>Navicula schroeteri</u> var. <u>escambia</u>	63
<u>Nitzschia amphibia</u>	82
<u>Nitzschia frustulum</u>	63
<u>Nitzschia palea</u>	32
<u>Nitzschia parvula</u>	6
<u>Nitzschia thermalis</u>	32
<u>Nitzschia</u> sp.	98

COLORADO RIVER BASIN

08160700 COLORADO RIVER ABOVE COLUMBUS, TX--Continued

Colorado River above Columbus, Texas (08160700)

Phytoplankton Analyses October 1983 to September 1984

Date	8-27-84
Time	1612

TOTAL CELLS/ml	52,380
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	N/A

Organisms	Cells/ml
CHLOROPHYTA (Green algae)	
<u>Chlamydomonas</u> sp. 1	227
<u>Chlamydomonas</u> sp. 3	114
<u>Chlorogonium</u> <u>euchlorum</u>	114
CYANOPHYTA (Blue-green algae)	
<u>Aphanocapsa</u> <u>delicatissima</u>	21591
<u>Oscillatoria</u> <u>angustissima</u>	8081
<u>Synechococcus</u> <u>aeruginosa</u>	3409
<u>Synechococcus</u> <u>lineare</u>	18182
BACILLARIOPHYTA (Diatoms)	
Order Pennales	
<u>Amphora</u> <u>acutiuscula</u>	91
<u>Amphora</u> <u>submontana</u>	23
<u>Amphora</u> <u>ovalis</u>	46
<u>Cocconeis</u> <u>fluvialis</u>	62
<u>Cocconeis</u> <u>placentula</u>	52
<u>Navicula</u> <u>viridula</u> var. <u>rostellata</u>	114
<u>Navicula</u> sp.	23
<u>Nitzschia</u> <u>communis</u>	14
<u>Nitzschia</u> <u>frustulum</u>	50
<u>Nitzschia</u> <u>palea</u>	7
<u>Nitzschia</u> <u>tryblionella</u>	43
<u>Rhoicosphenia</u> <u>curvata</u>	114
<u>Synedra</u> <u>rumpens</u> var. <u>meneghiniana</u>	23

COLORADO RIVER BASIN

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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 downstream from bridge on Farm Road 109, 1.9 mi upstream from Cummins Creek, and 7.0 mi north of Columbus.

DRAINAGE AREA.--17.3 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1975, at datum 10.00 ft higher.

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

AVERAGE DISCHARGE.--22 years, 5.75 ft³/s (4.51 in/yr), 4,170 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,360 ft³/s May 22, 1979 (gage height, 27.19 ft), from rating curve extended above 2,170 ft³/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 in late June or early July 1940, from information by State Department of Highways and Public Transportation and local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,110 ft³/s May 19, time unknown (gage height 16.81 ft, from crest stage gage), no other peak above base of 1,000 ft³/s; minimum, 0.06 ft³/s Aug. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.54	.55	1.0	1.1	.88	1.3	.99	.50	.95	.92	.20	.18
2	.54	.59	1.1	1.0	.93	1.3	1.1	.48	.90	.51	.18	.11
3	.54	.59	53	.99	.96	1.4	1.1	.45	.85	.47	.17	.10
4	.54	.69	2.6	.99	.87	1.5	.88	.42	.80	.40	.16	.10
5	.54	1.8	1.7	.99	.78	2.0	.85	.40	1.5	.36	.16	.10
6	.54	9.3	1.4	.99	.76	1.4	.82	.38	12	.32	.15	.10
7	.47	1.7	1.2	1.2	.76	1.1	.80	.35	1.8	.30	.15	.11
8	.47	1.2	1.2	.93	.95	1.1	4.0	.32	1.2	.27	.14	.16
9	.47	1.1	1.2	4.9	1.2	1.1	1.5	.30	1.1	.25	.14	.12
10	.53	.99	1.3	1.3	.93	1.1	1.2	.30	.90	.25	.16	.11
11	.47	.93	1.5	1.1	.85	1.2	1.1	.30	.77	.25	.19	.11
12	.58	.93	1.2	1.1	4.1	1.3	1.0	.28	1.2	.24	.74	.11
13	.50	.93	1.1	.89	1.4	1.1	.95	.28	.79	.24	.46	.11
14	.47	.93	1.1	.88	1.1	1.1	.92	.28	.63	.24	.20	.13
15	.47	.88	1.1	.88	1.1	1.2	.90	.25	.58	.24	.18	.13
16	.66	.77	1.3	.88	1.0	1.1	.88	.25	.54	.23	.16	.19
17	.82	.82	1.1	.88	.99	1.1	.85	.25	.54	.23	.14	.12
18	.59	.88	1.1	.84	1.1	1.1	.82	2.0	.54	.23	.13	.11
19	.63	1.5	.99	.78	1.0	4.4	.80	200	.57	.22	.12	.11
20	.54	1.1	.99	.82	13	1.5	.78	20	.68	.22	.11	.11
21	1.6	.93	1.0	.80	3.0	1.2	.75	5.0	.67	.22	.10	.11
22	.63	.93	.93	.88	1.7	1.1	.72	2.1	.63	.22	.09	.11
23	.50	1.5	.99	2.3	1.5	9.0	.70	1.8	.63	.22	.08	.10
24	.63	.95	.88	1.3	1.4	5.2	.68	1.7	.59	1.4	.07	.10
25	.53	.88	.77	1.1	1.3	1.7	.65	1.6	.56	.49	.07	.10
26	.50	.92	.93	.99	8.6	1.4	.62	1.5	.50	.33	.07	.09
27	.50	1.2	1.2	.89	2.3	1.3	.60	1.4	.47	.97	.07	.09
28	.50	.99	1.2	.88	1.4	.97	.57	1.3	.43	.50	.06	.08
29	.50	.93	.93	.88	1.3	.88	.55	1.2	.43	.25	.06	.08
30	.50	1.0	.88	.91	---	.95	.52	1.1	1.5	.24	.06	.08
31	.50	---	1.0	.93	---	.99	---	1.0	---	.22	.14	---
TOTAL	17.80	38.41	87.89	35.30	57.16	53.09	28.60	247.49	35.25	11.45	4.91	3.36
MEAN	.57	1.28	2.84	1.14	1.97	1.71	.95	7.98	1.18	.37	.16	.11
MAX	1.6	9.3	53	4.9	13	9.0	4.0	200	12	1.4	.74	.19
MIN	.47	.55	.77	.78	.76	.88	.52	.25	.43	.22	.06	.08
CFSM	.03	.07	.16	.07	.11	.10	.06	.46	.07	.02	.009	.006
IN.	.04	.08	.19	.08	.12	.11	.06	.53	.08	.02	.01	.01
AC-FT	35	76	174	70	113	105	57	491	70	23	9.7	6.7

CAL YR 1983 TOTAL 1775.58 MEAN 4.86 MAX 309 MIN .22 CFSM .28 IN 3.82 AC-FT 3520
WTR YR 1984 TOTAL 620.71 MEAN 1.70 MAX 200 MIN .06 CFSM .10 IN 1.33 AC-FT 1230

NOTE.--No gage-height record Apr. 5 to May 21.

COLORADO RIVER BASIN

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 downstream from Texas and New Orleans Railroad Co. bridge, 2.6 mi downstream from Cummins Creek, and at mile 135.1.

DRAINAGE AREA.--41,640 mi², approximately, of which 11,403 mi² probably is noncontributing; 41,730 mi², approximately, at site "near Eagle Lake".

PERIOD OF REORD.--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 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 analyses: 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 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 lower. May 1, 1919, to Nov. 23, 1930, water-stage recorder at site about 300 ft downstream at datum 3.00-foot lower. Sept. 17, 1930, to June 12, 1939 (Oct. 1, 1930, to May 31, 1939, used herein), water-stage recorder at site 23 mi downstream at different datum. May 17 to Nov. 14, 1939, nonrecording gage at present site and datum. Gage-height telemeter located at station.

REMARKS.--Records good except those for period of no gage-height record, which are fair. 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 26,570 acre-ft was diverted from the river to Cedar Creek Reservoir during the current year. This reservoir is located 10 mi north of the river and 3.5 mi west of Fayetteville. Flow is also affected at times by discharge from flood-detention pools of 20 floodwater-retarding structures with a combined detention capacity of 25,570 acre-ft. These structures control runoff from 73.1 mi² 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 (2,760,000 acre-ft/yr); 48 years (water years 1937-84) regulated, 2,870 ft³/s (2,079,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 190,000 ft³/s June 18, 1935 (gage height, 38.5 ft), present site and datum, computed on basis of records for station near Eagle Lake; minimum, 93 ft³/s Sept. 1, 1918.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 41.6 ft, 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, 4,640 ft³/s May 19 at 1700 hours (gage height, 5.35 ft); minimum daily, 159 ft³/s Mar. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1580	420	600	550	369	281	816	1730	2130	2670	1540	1840
2	1370	400	560	440	357	246	931	1730	2280	2570	1460	1860
3	1490	390	560	430	346	252	1150	1670	2290	2470	1440	1940
4	1450	380	470	450	338	231	1180	1660	2310	2470	1420	2040
5	1410	370	470	400	329	216	1150	1620	2440	2480	1400	2150
6	1420	400	440	380	315	192	1120	1580	2620	2470	1240	2260
7	1360	640	450	370	311	159	1120	1560	2700	2330	1330	2330
8	1510	620	450	360	324	196	1290	1560	2800	2240	1200	2330
9	1560	780	380	500	350	181	1210	1550	2650	2260	1380	2360
10	1640	820	380	648	356	274	1240	1560	2530	2250	1420	2250
11	1620	740	350	577	364	237	1260	1550	2450	2170	1420	2110
12	2040	600	350	818	375	242	1200	1580	2360	2080	1450	2040
13	1790	520	300	777	343	265	1270	1840	2330	2110	1470	1900
14	1510	470	280	568	314	210	1340	1840	2290	2090	1480	1830
15	1390	440	360	473	306	219	1230	1730	2310	2020	1680	1750
16	1170	400	380	418	293	394	1250	1800	2400	1990	1730	1670
17	1040	360	390	388	280	438	1490	1810	2320	1850	1670	1680
18	950	360	380	369	284	363	1630	1940	2340	1670	1760	1800
19	890	400	400	1440	265	521	1570	3230	2400	1580	1670	1780
20	870	380	410	2730	354	878	1730	2840	2360	1590	1570	1780
21	1060	360	410	1660	402	431	1670	2380	2360	1560	1490	1840
22	1190	365	400	1000	314	340	1570	2200	2380	1490	1440	1890
23	970	370	420	764	276	340	1650	2060	2320	1450	1360	1840
24	1000	365	420	623	266	698	1720	1990	2250	1480	1320	1780
25	919	568	650	546	249	413	1710	1890	2250	1650	1280	1680
26	800	587	900	496	300	411	1760	1740	2260	1630	1340	1550
27	650	511	800	469	471	528	1700	1680	2240	1590	1540	1490
28	560	518	1300	450	495	662	1630	1650	2260	1740	1620	1480
29	500	468	1100	417	367	776	1810	1770	2390	1690	1680	1450
30	470	500	950	398	---	789	1690	2120	2440	1600	1790	1400
31	440	---	700	379	---	801	---	2150	---	1600	1810	---
TOTAL	36619	14502	16410	20288	9713	12184	42087	58010	71460	60840	46400	56100
MEAN	1181	483	529	654	335	393	1403	1871	2382	1963	1497	1870
MAX	2040	820	1300	2730	495	878	1810	3230	2800	2670	1810	2360
MIN	440	360	280	360	249	159	816	1550	2130	1450	1200	1400
AC-FT	72630	28760	32550	40240	19270	24170	83480	115100	141700	120700	92030	111300
CAL YR 1983	TOTAL	574712	MEAN	1575	MAX	21100	MIN	242	AC-FT	1140000		
WTR YR 1984	TOTAL	444613	MEAN	1215	MAX	3230	MIN	159	AC-FT	881900		

NOTE.--No gage-height record Oct. 17 to Nov. 23 and Nov. 30 to Jan. 9.

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 downstream from Texas and New Orleans Railroad Co. bridge, 12 mi upstream from Jones Creek, and at mile 66.6.

DRAINAGE AREA.--42,003 mi², approximately, of which 11,403 mi² 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 52.42 ft (revised) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1938, various types of recording and nonrecording gages 800 ft upstream at different datum. Oct. 1, 1938, to June 1, 1966, nonrecording gage 100 ft upstream at datum 13.00 ft higher. June 1, 1966, to Sept. 30, 1975, water-stage recorder at present site at datum 13 ft higher. Oct. 1, 1975, to Mar. 1, 1983, water-stage recorder at present site at datum 10.00 ft higher.

REMARKS.--Water-discharge records good. Many diversions above station for irrigation, municipal supply, cooling water for thermal-electric powerplant, and oilfield operations. For statement regarding upstream regulation, see station 08161000. Telemeter at station.

AVERAGE DISCHARGE.--5 years (water years 1920-25) unregulated, 3,680 ft³/s (2,666,000 acre-ft/yr); 46 years (water years 1939-84) regulated, 2,646 ft³/s (1,917,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 100,000 ft³/s July 3, 1940 (gage height, 38.99 ft); no flow Aug. 6, 1925 (result of pumping).
Flood of July 30, 1938, reached a stage of 50.4 ft, present datum, observed by Geological Survey engineers (discharge, 145,000 ft³/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1869, 51.9 ft (revised) 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 51.2 ft (revised), present datum, furnished by National Weather Service (discharge, 159,000 ft³/s), from rating curve defined by current-meter measurements below 145,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,140 ft³/s May 20 at 2000 hours (gage height, 16.19 ft); minimum daily, 228 ft³/s Aug. 27 (result of regulation and pumping).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	529	608	578	889	500	505	585	975	1070	1420	1220	677
2	837	583	587	759	496	417	620	940	1050	2300	1080	777
3	912	558	703	632	486	386	700	1010	1070	1950	928	892
4	909	593	1370	578	472	349	893	984	1120	1640	749	1080
5	985	837	1460	534	458	344	909	922	1140	1570	662	1210
6	936	1210	890	554	439	349	840	781	1430	1540	711	1290
7	855	1210	735	510	417	306	872	645	1700	1520	656	1340
8	897	1300	638	494	417	301	812	671	1900	1410	627	1350
9	1040	1110	636	716	421	271	1000	778	2200	1290	545	1340
10	1070	946	634	702	439	289	865	755	2120	1260	468	1280
11	1220	987	558	995	439	297	626	744	1990	1270	536	1130
12	1220	1000	590	859	486	349	695	697	1820	1260	626	961
13	1680	842	598	853	510	331	626	617	1530	1190	782	806
14	1660	726	553	970	534	327	510	785	1550	1180	1020	687
15	1400	617	510	846	515	325	574	875	1410	1270	1070	598
16	1650	608	518	723	491	295	630	768	1300	1280	1030	583
17	2250	558	534	631	486	292	573	755	1290	1250	1130	660
18	1430	529	534	582	439	412	634	1070	1250	1200	1090	759
19	1190	510	534	611	430	383	675	2040	1240	1110	992	853
20	1040	500	524	868	439	303	629	4150	1290	1000	961	885
21	1000	515	515	2870	558	574	747	4260	1300	979	863	1010
22	1030	510	512	2020	770	531	932	2950	1250	945	664	1240
23	1270	510	528	1410	629	361	848	2280	1230	889	502	1400
24	1170	505	543	1140	467	314	860	1800	1180	796	417	1370
25	1060	496	562	973	417	404	828	1440	1120	789	345	1270
26	1050	498	492	835	367	596	785	1160	1120	956	269	972
27	967	677	767	766	349	474	855	912	1120	1080	228	770
28	848	637	877	678	395	402	874	768	1100	1140	294	714
29	736	602	902	625	510	433	854	668	1070	1470	375	714
30	660	618	1140	579	---	508	1120	646	1140	1520	505	714
31	624	---	1010	530	---	578	---	898	---	1360	613	---
TOTAL	34125	21400	21532	26732	13776	12006	22971	38744	41100	39834	21958	29332
MEAN	1101	713	695	862	475	387	766	1250	1370	1285	708	978
MAX	2250	1300	1460	2870	770	596	1120	4260	2200	2300	1220	1400
MIN	529	496	492	494	349	271	510	617	1050	789	228	583
AC-FT	67690	42450	42710	53020	27320	23810	45560	76850	81520	79010	43550	58180
CAL YR 1983 TOTAL	562554			1541	MAX	22900	MIN 130	AC-FT	1116000			
WTR YR 1984 TOTAL	323510			884	MAX	4260	MIN 228	AC-FT	641700			

COLORADO RIVER BASIN

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. Radiochemical analyses: December 1973 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, 0.0°C Dec. 26, 1983.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 717 micromhos Mar. 17; minimum daily, 317 micromhos Dec. 6.

WATER TEMPERATURES: Maximum daily, 31.0°C June 25; minimum daily, 0.0°C Dec. 26.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
NOV 08...	1534	1270	406	7.5	22.5	40	58	9.2	107	1.7	550
FEB 02...	0905	496	626	7.8	12.0	<1	8.1	9.6	89	1.0	24
MAR 13...	1600	335	701	8.3	23.5	5	5.0	11.6	136	1.2	K4
APR 26...	1311	736	583	8.0	23.0	140	50	7.9	93	1.9	80
JUN 14...	0750	1530	538	8.5	28.0	40	33	7.9	101	.9	60
AUG 29...	1620	382	589	8.5	33.5	10	3.0	8.9	125	1.4	48

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- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 08...	980	150	23	42	12	23	.8	4.6	132	21	35
FEB 02...	120	250	41	67	20	37	1	3.6	210	40	58
MAR 13...	100	260	26	71	19	45	1	4.1	230	48	60
APR 26...	200	210	47	48	21	36	1	4.0	160	42	59
JUN 14...	36	200	46	46	20	32	1	4.0	152	35	55
AUG 29...	20	210	38	50	20	39	1	4.6	170	42	62

08162000 COLORADO RIVER AT WHARTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
NOV 08...	.20	8.2	231	230	11	4	.24	.060	.30	.28	.120
FEB 02...	.30	5.7	360	360	8	7	.49	.010	.50	.42	.030
MAR 13...	.20	3.3	393	390	12	<2	--	.010	<.10	<.10	.060
APR 26...	.40	8.0	338	320	97	2	.48	.020	.50	.54	.040
JUN 14...	.30	5.4	298	290	82	26	--	<.010	.40	.41	.010
AUG 29...	.40	6.7	328	330	14	12	--	<.010	<.10	<.10	<.010

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 08...	.100	1.1	1.2	.260	.160	.130	6.5	105	360	99
FEB 02...	.040	.27	.30	.140	.140	.120	2.6	13	17	94
MAR 13...	.040	.34	.40	.350	.350	.290	2.7	9	8.1	86
APR 26...	.070	.56	.60	.360	.340	.320	3.7	150	298	64
JUN 14...	<.010	.59	.60	.260	.190	.130	3.9	109	450	85
AUG 29...	.010	--	.40	.220	.180	.190	3.6	12	12	94

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 08...	1534	2	82	<.5	<1	<1	<3	2	54	<1
FEB 02...	0905	1	110	<.5	<1	<1	<3	10	3	<1
JUN 14...	0750	<1	86	1.0	<1	<1	<3	1	8	<1
AUG 29...	1620	2	96	<1.0	<1	2	<3	2	<3	2

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 08...	20	3	<.1	<10	5	<1	1	310	<6	16
FEB 02...	21	12	<.1	<10	<1	<1	<1	540	<6	7
JUN 14...	19	2	<.1	<10	1	<1	<1	440	<6	<3
AUG 29...	16	7	<.1	<10	<1	<1	<1	500	<6	<3

DATE	TIME	GROSS ALPHA, DIS- SOLVED TOTAL (PCI/L AS U-NAT)	GROSS ALPHA, DIS- SOLVED TOTAL (UG/L AS U-NAT)	GROSS ALPHA, DIS- SOLVED TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED TOTAL (PCI/L AS SR/ YT-90)	GROSS BETA, DIS- SOLVED TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)
NOV 08...	1534	2.9	<5.9	4.2	3.4	2.6	3.0	2.2	.10	--	.68
AUG 29...	1620	--	16	.8	<5.2	1.1	<4.5	.9	.42	1.4	--

COLORADO RIVER BASIN
08162000 COLORADO RIVER AT WHARTON, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	34125	573	314	28900	48	4460	39	3570	220
NOV. 1983	21400	579	317	18300	49	2830	39	2250	220
DEC. 1983	21532	572	313	18200	49	2820	38	2240	220
JAN. 1984	26732	608	333	24000	52	3730	41	2940	230
FEB. 1984	13776	621	339	12600	53	1960	41	1540	230
MAR. 1984	12006	669	365	11800	57	1860	44	1420	250
APR. 1984	22971	612	335	20800	52	3230	41	2540	230
MAY 1984	38744	496	273	28600	42	4360	34	3590	190
JUNE 1984	41100	544	299	33100	46	5080	37	4130	200
JULY 1984	39834	554	304	32700	47	5030	38	4060	210
AUG. 1984	21958	566	310	18400	48	2830	38	2280	210
SEPT 1984	29332	582	319	25300	49	3900	39	3110	220
TOTAL	323510	**	**	273000	**	42100	**	33700	**
WTD.AVG.	884	570	312	**	48	**	39	**	210

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	585	640	678	675	624	674	663	580	560	557	540	584
2	587	642	690	668	627	682	656	585	565	546	539	582
3	607	646	680	657	630	670	687	572	562	497	559	580
4	608	652	450	660	640	680	666	573	560	519	544	575
5	600	547	338	662	644	690	649	569	554	544	550	577
6	604	390	317	666	648	688	639	576	558	547	543	576
7	605	500	343	669	650	711	633	582	509	550	548	580
8	603	419	469	671	655	703	631	574	531	555	573	573
9	587	407	563	628	644	711	627	575	536	561	579	569
10	602	475	605	564	654	704	610	573	540	560	602	570
11	603	547	632	594	655	710	614	572	536	561	589	573
12	604	596	648	473	640	697	606	573	521	563	585	575
13	605	568	647	527	637	698	615	583	528	566	535	570
14	602	609	582	580	620	707	626	582	532	565	545	575
15	610	639	589	567	624	697	619	575	508	561	560	586
16	597	654	591	609	615	710	617	568	537	567	556	583
17	366	665	593	629	639	717	621	570	545	569	560	573
18	484	669	608	648	653	705	613	552	554	567	563	588
19	537	676	469	649	668	696	605	509	552	568	575	586
20	546	668	450	661	665	708	598	360	554	565	573	582
21	568	679	565	676	614	696	601	331	549	563	574	580
22	582	672	579	640	611	697	594	414	543	562	580	582
23	590	647	617	575	479	709	585	492	552	566	585	588
24	592	635	620	542	499	714	584	521	556	578	595	589
25	603	639	640	546	545	588	582	534	555	584	602	589
26	516	649	684	522	580	527	580	538	555	580	618	591
27	565	629	688	539	595	588	581	540	552	569	619	598
28	607	650	697	556	634	633	572	545	558	560	607	601
29	623	662	695	578	658	582	578	551	557	559	598	603
30	625	673	690	594	---	593	572	559	559	540	590	608
31	626	---	681	609	---	666	---	557	---	534	573	---
MEAN	582	605	584	608	622	676	614	541	546	558	573	583

COLORADO RIVER BASIN

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08162000 COLORADO RIVER AT WHARTON, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984												
DAY	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	22.0	15.0	---	11.0	11.0	19.0	22.0	23.5	28.0	27.0	28.0
2	24.0	23.0	16.5	8.5	13.0	13.0	20.0	24.0	24.5	28.0	28.5	---
3	24.0	23.0	19.0	9.0	11.5	16.5	20.0	24.0	24.5	28.0	29.0	---
4	24.5	24.0	---	10.0	12.0	---	---	24.0	25.0	29.0	30.0	26.5
5	26.0	23.0	19.5	11.5	11.5	16.0	17.0	25.0	26.0	29.5	28.0	25.0
6	26.5	21.5	14.5	12.0	9.0	11.0	18.5	26.0	26.5	29.5	28.0	25.0
7	25.0	22.0	12.0	13.0	9.0	11.5	20.0	27.0	26.0	30.0	28.0	27.0
8	25.0	20.0	13.0	14.0	11.5	14.0	21.0	23.5	27.0	30.0	28.0	27.0
9	24.5	21.0	16.0	15.0	13.0	16.0	21.0	21.5	27.0	29.5	29.0	28.5
10	23.0	16.0	20.0	11.5	12.0	17.0	22.0	22.0	---	29.5	29.0	28.5
11	24.0	15.0	18.0	8.0	19.0	17.0	21.0	27.0	27.5	30.0	29.0	28.0
12	22.0	15.0	15.0	8.0	---	18.0	23.0	25.0	27.5	30.0	29.0	27.5
13	20.0	18.5	16.0	8.0	15.5	20.5	23.0	25.0	28.0	29.0	29.0	29.5
14	21.0	21.0	13.0	8.0	16.0	21.5	23.0	25.0	28.0	30.0	29.0	27.0
15	21.0	19.5	12.0	7.0	17.0	21.5	19.5	25.0	28.0	30.0	29.0	28.0
16	23.0	16.0	12.0	7.0	16.5	23.5	19.0	25.0	28.0	29.0	29.0	25.0
17	22.5	16.0	10.0	8.0	16.5	22.5	18.0	---	---	29.0	---	23.0
18	25.0	19.5	11.0	6.5	19.0	23.5	21.0	24.0	29.0	30.0	29.0	24.0
19	26.0	21.5	7.0	3.0	15.0	21.5	23.0	24.0	29.0	29.0	29.0	24.0
20	26.0	16.5	6.0	4.0	12.0	16.0	24.0	24.0	29.0	29.0	30.0	25.0
21	24.5	16.0	9.0	4.0	10.0	16.5	24.5	24.5	29.0	29.0	29.0	---
22	22.5	22.0	4.0	6.0	12.0	16.5	21.5	26.0	29.5	29.0	29.0	26.0
23	21.0	19.0	3.0	---	14.0	20.0	20.0	27.0	30.0	28.5	28.0	26.0
24	21.0	15.0	---	9.0	15.0	18.0	22.0	27.5	30.0	29.0	29.0	25.0
25	21.0	15.0	---	9.0	14.5	18.0	22.0	28.0	31.0	27.0	29.0	27.0
26	19.5	15.0	.0	9.0	19.0	20.0	23.0	27.0	30.5	---	28.0	25.0
27	18.0	16.5	2.0	10.5	12.0	21.0	24.5	---	30.0	29.0	28.0	25.0
28	19.0	13.5	4.0	10.5	9.0	13.5	25.0	---	30.0	28.0	28.0	24.0
29	20.0	12.0	---	12.5	9.0	16.0	25.0	25.0	30.0	29.5	29.5	21.0
30	20.0	16.0	---	14.0	---	17.0	23.0	22.5	30.0	28.0	28.0	18.0
31	21.5	---	2.0	11.0	---	17.5	---	22.5	---	28.0	29.0	---
MEAN	22.5	18.5	11.0	9.0	13.5	17.5	21.5	25.0	28.0	29.0	28.5	25.5

COLORADO RIVER BASIN

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 downstream from bridge on State Highway 35, 7,100 ft downstream from Texas and New Orleans Railroad Co. bridge, 2.8 mi west of Bay City, and at mile 32.5.

DRAINAGE AREA.--42,240 mi², approximately, of which 11,403 mi² 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 upstream at datum 30.60 ft lower.

REMARKS.--Records fair. Diversions above station for irrigation and municipal supply. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08161000. Telemeter at station.

AVERAGE DISCHARGE.--36 years (water years 1949-84), 2,344 ft³/s (1,698,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 84,100 ft³/s June 26, 1960; maximum elevation, 48.2 ft, present datum, July 4, 1940, at site 6,300 ft upstream at bridge on State Highway 35, observed by Corps of Engineers, elevation 46.6 ft, 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 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; June 1929, 55.0 ft; June 22, 1935, 54.6 ft; Oct. 5, 1936, 52.2 ft; Aug. 2, 1938, 53.4 ft; Nov. 27, 1940, 47.6 ft. All above flood data from information by Texas and New Orleans Railroad Co. and adjusted to present site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,700 ft³/s Oct. 17 at 2000 hours (elevation, 16.02 ft); minimum daily, 3.1 ft³/s May 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	815	502	950	600	490	116	481.0	15	225	852.0	17
2	40	849	487	812	570	467	113	325.0	29	749	765.0	34
3	225	552	548	677	559	431	141	293.0	56	1450	692.0	564
4	341	525	618	582	547	400	196	296.0	81	1080	596.0	694
5	436	1050	1580	534	523	382	302	216.0	96	800	549.0	719
6	455	3360	1210	527	505	368	286	114.0	145	660	557.0	766
7	418	3260	829	539	498	367	254	21.0	667	610	516.0	774
8	467	1990	697	521	490	170	345	16.0	955	610	367.0	755
9	505	1440	629	603	488	70	301	21.0	1180	520	306.0	774
10	667	1060	624	907	499	248	380	37.0	1210	415	209.0	791
11	723	930	595	947	500	323	272	33.0	1150	400	216.0	713
12	881	982	525	981	526	345	151	28.0	1040	419	283.0	514
13	988	901	552	785	544	380	157	5.8	842	446	609.0	356
14	1430	752	543	841	572	376	128	3.3	680	411	708.0	235
15	1290	643	514	914	582	376	79	3.1	666	461	749.0	102
16	1130	578	494	773	552	331	84	3.7	538	557	769.0	137
17	7900	542	494	682	526	284	117	13.0	489	547	752.0	228
18	9430	508	499	612	508	283	67	428.0	461	501	756.0	271
19	6790	477	490	568	471	356	116	2860.0	404	502	652.0	245
20	3130	457	490	545	446	260	128	6090.0	392	475	560.0	297
21	1590	453	498	1520	481	162	45	5450.0	427	399	481.0	496
22	1010	462	486	2750	578	354	221	3360.0	407	404	333.0	907
23	938	462	494	2060	767	275	393	2280.0	362	430	162.0	1070
24	1060	443	492	1980	604	160	318	1570.0	323	428	52.0	1060
25	917	446	480	1690	513	155	340	1170.0	251	355	14.0	969
26	852	444	504	1250	455	199	325	831.0	162	464	12.0	757
27	800	465	491	973	395	254	354	545.0	197	659	10.0	441
28	711	566	779	833	373	161	460	272.0	249	668	9.5	320
29	727	528	767	741	410	143	390	104.0	190	765	9.0	283
30	665	512	935	686	---	121	389	49.0	114	929	8.7	332
31	613	---	1040	636	---	113	---	19.0	---	949	12.0	---
TOTAL	47204	26452	19886	29419	15082	8804	6968	26937.9	13778	18288	12566.2	15621
MEAN	1523	882	641	949	520	284	232	869	459	590	405	521
MAX	9430	3360	1580	2750	767	490	460	6090	1210	1450	852	1070
MIN	40	443	480	521	373	70	45	3.1	15	225	8.7	17
AC-FT	93630	52470	39440	58350	29920	17460	13820	53430	27330	36270	24930	30980
CAL YR 1983	TOTAL	611533.0	MEAN	1675	MAX	21400	MIN	38	AC-FT	1213000		
WTR YR 1984	TOTAL	241006.1	MEAN	658	MAX	9430	MIN	3.1	AC-FT	478000		

TRES PALACIOS RIVER BASIN

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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 downstream from Juanita Creek, and 2.4 mi southeast of Midfield.

DRAINAGE AREA.--145 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Ten known diversions above station (amounts unknown). An undetermined amount of water from irrigated ricefields enters river upstream at various points. Extensive channel cleaning upstream and downstream from gage was begun in the 1983 water year and completed this year. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years, 157 ft³/s (113,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft³/s Oct. 17, 1984 (gage height, 32.43 ft, from floodmark); minimum daily, 1.0 ft³/s Nov. 3-5, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1885, 37 ft in June 1960 and 35 ft in August 1945, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 17	1400	*17,000	a32.43
May 20	0300	3,180	23.67

a From floodmark.

Minimum daily discharge, 6.9 ft³/s May 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	31	28	12	25	11.0	16.0	8.1	14	31	36	10.0
2	83	26	37	12	22	11.0	9.8	12.0	15	38	31	9.3
3	80	26	33	11	26	11.0	14.0	16.0	15	45	33	18.0
4	76	23	27	11	23	11.0	14.0	15.0	17	42	33	27.0
5	73	47	23	11	20	11.0	25.0	19.0	17	43	39	27.0
6	60	873	19	11	17	11.0	23.0	15.0	18	46	46	23.0
7	45	550	16	11	15	9.2	16.0	13.0	19	45	49	20.0
8	35	215	15	11	14	8.9	12.0	13.0	20	32	38	19.0
9	33	111	15	224	14	9.6	12.0	17.0	20	38	34	19.0
10	31	68	15	364	15	11.0	12.0	26.0	20	42	28	17.0
11	30	49	14	163	14	10.0	11.0	19.0	21	36	26	18.0
12	30	38	14	69	14	12.0	15.0	12.0	26	31	37	15.0
13	30	32	14	42	22	14.0	22.0	8.2	23	29	113	12.0
14	31	27	12	30	32	13.0	18.0	7.1	20	29	123	11.0
15	26	24	13	23	22	13.0	31.0	6.9	20	29	72	12.0
16	26	21	14	19	17	11.0	20.0	7.2	20	29	51	16.0
17	12200	21	21	17	15	10.0	16.0	17.0	22	33	37	45.0
18	9800	20	22	15	14	9.8	17.0	481.0	21	29	26	37.0
19	5450	19	18	14	14	11.0	23.0	1690.0	19	23	20	25.0
20	3260	18	14	13	14	9.8	24.0	2750.0	18	25	15	22.0
21	1900	17	14	13	14	9.8	29.0	1190.0	19	24	14	32.0
22	872	16	13	13	19	11.0	22.0	298.0	21	26	11	41.0
23	358	17	12	121	16	10.0	29.0	104.0	20	25	21	38.0
24	200	17	12	351	14	9.2	20.0	54.0	20	28	23	30.0
25	132	17	15	394	13	9.2	21.0	31.0	21	41	16	24.0
26	96	17	11	172	12	9.3	21.0	19.0	22	51	13	21.0
27	72	61	13	89	12	9.6	16.0	15.0	23	73	14	17.0
28	57	73	12	54	11	8.6	24.0	14.0	25	70	15	14.0
29	45	45	12	36	12	9.6	28.0	14.0	27	48	13	16.0
30	37	30	11	40	---	8.3	19.0	13.0	27	35	14	17.0
31	33	---	12	34	---	8.5	---	13.0	---	33	13	---
TOTAL	35290	2549	521	2400	492	321.4	579.8	6917.5	610	1149	1054	652.3
MEAN	1138	85.0	16.8	77.4	17.0	10.4	19.3	223	20.3	37.1	34.0	21.7
MAX	12200	873	37	394	32	14	31	2750	27	73	123	45
MIN	26	16	11	11	11	8.3	9.8	6.9	14	23	11	9.3
AC-FT	70000	5060	1030	4760	976	637	1150	13720	1210	2280	2090	1290

CAL YR 1983	TOTAL	101952.5	MEAN	279	MAX	12200	MIN	3.5	AC-FT	202200
WTR YR 1984	TOTAL	52536.0	MEAN	144	MAX	12200	MIN	6.9	AC-FT	104200

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 downstream from bridge on U.S. Highway 77 in Hallettsville and 0.7 mi downstream from Campbell Branch.

DRAINAGE AREA.--108 mi².

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 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. Apr. 20, 1960, to June 2, 1961, movable nonrecording gage. All gages at same site and datum.

REMARKS.--Records fair prior to Jan. 10 and poor thereafter. No diversion above station. The Lavaca County Flood Control District No. 3 began channel rectification 1.6 mi downstream from gage in August 1983. This rectification reached the gage Jan. 26, 1984, and was completed in June 1984. The channel was previously rectified in 1959-60. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--45 years, 51.2 ft³/s (6.44 in/yr), 37,090 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 99,500 ft³/s Aug. 31, 1981 (gage height, 41.1 ft, from floodmark), from rating curve extended above 23,000 ft³/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 July 16, 1936, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 326 ft³/s Nov. 6 at 0830 hours (gage height, 12.95 ft), no peak above base of 2,300 ft³/s; minimum daily, 0.10 ft³/s July 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	3.5	3.5	3.9	5.0	10	3.3	3.0	1.1	1.2	.11	.30
2	2.0	3.6	3.8	3.9	10	7.0	3.4	3.0	1.1	1.0	.20	.30
3	1.9	3.6	4.2	3.9	7.5	5.5	3.8	2.9	1.1	.80	.12	2.0
4	1.9	3.9	4.0	3.9	6.5	5.2	4.3	2.9	1.1	1.0	.12	.60
5	1.8	7.8	4.1	3.8	6.0	5.0	5.0	2.9	1.1	1.4	.13	.60
6	1.8	89	3.8	3.7	5.5	4.8	4.5	2.8	2.0	.90	.13	.50
7	1.8	25	3.5	3.6	5.0	4.7	4.5	2.8	1.8	.70	.15	.50
8	1.8	10	3.5	3.9	4.8	4.6	4.8	2.8	1.6	.60	.15	.50
9	2.6	6.4	3.5	4.2	4.7	4.5	5.1	2.8	1.4	.50	.20	.50
10	2.1	4.6	3.8	25	4.5	4.5	5.4	2.8	1.3	.40	.30	.50
11	2.1	3.9	3.9	15	4.4	4.5	5.4	2.8	2.5	.40	.30	.50
12	2.5	3.6	3.9	10	4.3	15	5.4	2.8	2.2	.40	.30	.50
13	2.2	3.5	3.8	9.0	4.2	7.0	5.4	2.8	1.9	.40	.30	.50
14	2.3	3.2	3.5	8.0	4.1	6.5	5.3	2.8	1.6	.30	.30	.50
15	2.2	3.0	3.5	7.8	4.0	6.0	5.1	2.8	1.5	.30	.30	.60
16	2.5	2.9	3.5	7.5	3.9	5.8	4.8	2.8	1.4	.60	.30	.50
17	2.7	3.0	3.5	7.2	3.8	5.5	4.5	2.8	1.4	.40	.30	.60
18	2.4	3.0	3.7	7.1	3.7	5.2	4.3	5.0	1.3	.30	.30	.70
19	2.8	3.4	3.7	6.8	3.7	6.0	4.1	5.5	1.3	.20	.30	.60
20	3.0	3.2	3.5	6.7	50	5.0	3.8	3.2	1.2	.80	.30	.50
21	6.0	3.3	3.7	6.5	15	4.8	3.7	2.7	1.2	.60	.30	.50
22	3.2	3.4	3.7	6.3	10	4.6	3.6	2.3	1.2	.40	.30	.50
23	3.4	4.0	3.7	6.1	9.0	4.4	3.4	2.0	1.2	.60	.30	.70
24	3.5	3.2	3.8	6.0	8.5	4.3	3.3	1.9	1.2	.80	.30	.50
25	3.3	3.2	3.8	5.8	8.0	4.1	3.3	1.6	1.2	1.0	.30	.50
26	3.0	3.4	3.9	5.7	60	3.9	3.2	1.4	1.2	1.0	.30	.50
27	2.9	3.5	4.0	5.5	25	3.8	3.2	1.2	1.2	.60	.30	.60
28	2.9	3.4	3.9	5.4	15	3.7	3.1	1.1	1.2	.60	.30	.60
29	3.0	3.5	3.9	5.3	13	3.6	3.1	1.1	1.2	.60	.30	.60
30	3.2	3.5	3.9	5.2	---	3.5	3.0	1.1	1.6	.20	.30	.60
31	3.3	---	3.9	5.1	---	3.4	---	1.1	---	.10	.30	---
TOTAL	82.1	224.5	116.4	245.6	309.1	166.4	125.1	79.5	42.3	19.10	7.91	17.40
MEAN	2.65	7.48	3.75	7.92	10.7	5.37	4.17	2.56	1.41	.62	.26	.58
MAX	6.0	89	4.2	42	60	15	5.4	5.5	2.5	1.4	.30	2.0
MIN	1.8	2.9	3.5	3.6	3.7	3.4	3.0	1.1	1.1	.10	.11	.30
CFSM	.03	.07	.04	.07	.10	.05	.04	.02	.01	.006	.002	.005
IN.	.03	.08	.04	.08	.11	.06	.04	.03	.01	.01	.00	.01
AC-FT	163	445	231	487	613	330	248	158	84	38	16	35

CAL YR 1983 TOTAL 9396.42 MEAN 25.7 MAX 1830 MIN .43 CFSM .24 IN 3.24 AC-FT 18640
WTR YR 1984 TOTAL 1435.41 MEAN 3.92 MAX 89 MIN .10 CFSM .04 IN .49 AC-FT 2850

NOTE.--No gage-height record Jan. 27 to Feb. 26 and Feb. 28 to Apr. 9.

LAVACA RIVER BASIN

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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 upstream from Texas and New Orleans Railroad Co. bridge, and 2.8 mi southwest of Edna.

DRAINAGE AREA.--817 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 1923: 1955. WDR TX-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 13.88 ft 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 downstream; Apr. 4, 1957, to Mar. 21, 1961, nonrecording gage; all at same datum.

REMARKS.--Water-discharge records good. Small diversions above station for irrigation.

AVERAGE DISCHARGE.--46 years, 330 ft³/s (5.49 in/yr), 239,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft³/s July 1, 1940 (gage height, 32.51 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 33.8 ft May 25, 1936 (discharge, 83,400 ft³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,840 ft³/s Nov. 6 at 1500 hours (gage height, 21.13 ft), no other peak above base of 4,100 ft³/s; minimum daily, 8.0 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	50	71	49	77	88	62	46	37	22	17	9.2
2	48	49	63	48	77	83	62	45	37	27	16	9.3
3	45	47	83	48	77	79	63	45	36	28	14	10
4	42	47	268	48	75	78	61	42	36	26	15	10
5	42	1250	106	47	73	77	60	45	36	23	19	11
6	42	5120	80	46	70	76	58	44	40	21	19	22
7	40	3970	69	45	65	74	57	43	326	19	20	15
8	37	1100	64	45	65	72	58	43	132	18	17	12
9	37	456	62	1350	69	71	65	44	82	18	16	11
10	42	325	61	3240	72	69	75	41	58	18	14	10
11	38	232	60	1590	71	68	64	41	50	21	15	9.1
12	40	149	56	374	74	90	59	40	218	19	32	8.8
13	39	122	56	218	235	763	57	39	303	26	40	8.5
14	37	109	56	143	132	275	55	39	122	24	18	8.5
15	37	98	50	111	96	156	53	39	83	19	14	9.3
16	41	88	51	99	85	117	52	39	66	17	19	12
17	2110	83	56	90	79	102	50	41	46	16	19	9.9
18	768	80	54	85	77	94	50	86	41	15	16	8.8
19	250	78	52	80	75	90	51	364	37	14	14	8.2
20	106	74	50	76	135	103	50	436	35	14	13	8.5
21	623	69	50	72	291	110	52	141	34	17	11	11
22	916	69	50	72	221	118	52	88	31	17	11	16
23	352	71	50	232	135	92	50	67	30	16	19	12
24	181	77	49	368	108	83	48	58	29	18	12	10
25	115	69	49	465	94	78	48	53	27	19	11	15
26	89	65	47	416	89	76	47	49	25	16	10	17
27	74	63	48	206	89	74	49	46	25	15	9.2	14
28	66	60	49	125	91	69	47	43	23	15	9.0	11
29	60	59	50	101	91	66	46	41	21	29	8.8	8.5
30	56	70	49	89	---	64	45	39	21	25	8.5	8.0
31	52	---	49	80	---	62	---	37	---	19	8.6	---
TOTAL	6480	14199	2008	10058	2988	3517	1646	2264	2087	611	485.1	333.6
MEAN	209	473	64.8	324	103	113	54.9	73.0	69.6	19.7	15.6	11.1
MAX	2110	5120	268	3240	291	763	75	436	326	29	40	22
MIN	37	47	47	45	65	62	45	37	21	14	8.5	8.0
CFSM	.26	.58	.08	.40	.13	.14	.07	.09	.09	.02	.02	.01
IN.	.30	.65	.09	.46	.14	.16	.07	.10	.10	.03	.02	.02
AC-FT	12850	28160	3980	19950	5930	6980	3260	4490	4140	1210	962	662

CAL YR 1983 TOTAL 132349.0 MEAN 363 MAX 9020 MIN 33 CFSM .44 IN 6.03 AC-FT 262500
WTR YR 1984 TOTAL 46676.7 MEAN 128 MAX 5120 MIN 8.0 CFSM .16 IN 2.13 AC-FT 92580

LAVACA RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	
OCT 12...	1600	40	699	8.2	22.5	6.0	8.0	92	1.1	140	
JAN 17...	1530	109	537	7.6	8.0	21	10.8	91	1.6	390	
FEB 29...	1100	89	725	7.8	9.5	--	10.8	93	1.0	--	
APR 10...	1605	74	716	7.8	24.5	22	8.5	103	1.8	160	
JUL 10...	1530	18	688	--	31.0	9.5	7.8	--	1.1	460	
AUG 21...	1600	13	651	8.3	29.5	--	7.8	103	1.2	--	
DATE	100 ML)	STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT 12...	230	260	0	96	5.8	44	1	3.6	270	19	
JAN 17...	150	170	0	62	4.7	29	1	6.0	176	19	
FEB 29...	--	260	10	94	6.3	51	1	13	251	24	
APR 10...	130	280	0	99	6.7	58	2	3.1	277	25	
JUL 10...	200	260	0	94	7.1	56	2	2.7	281	16	
AUG 21...	--	250	0	89	6.4	63	2	6.2	277	18	
DATE	AS CL)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
OCT 12...	54	.30	23	440	410	--	<.020	<.10	<.10	.030	
JAN 17...	39	.20	15	293	280	.29	.010	.30	.27	.040	
FEB 29...	78	.30	14	--	430	--	<.010	.30	--	.010	
APR 10...	78	.50	19	472	460	--	<.010	.20	.18	.030	
JUL 10...	70	.30	23	421	440	--	<.010	<.10	<.10	.030	
AUG 21...	67	.40	20	--	440	--	.030	<.10	--	.070	

LAVACA RIVER BASIN

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08164000 LAVACA RIVER NEAR EDNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
DATE											
OCT 12...		.040	.77	.80	.120	.100	.100	47	5.1	76	
JAN 17...		.040	.36	.40	.150	.110	.120	33	9.7	96	
FEB 29...		--	.19	.20	.090	--	--	--	--	--	
APR 10...		.030	.37	.40	.150	.150	.080	112	22	45	
JUL 10...		.090	.17	.20	.100	.080	.050	86	4.2	25	
AUG 21...		--	.33	.40	.110	--	--	--	--	--	
	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	
OCT 12...	1600	4	330	<.5	<1	<1	<3	3	8	4	
JAN 17...	1530	3	240	<.5	<1	<1	<3	3	42	2	
APR 10...	1605	3	340	1.6	<1	1	<3	<1	6	<1	
JUL 10...	1530	3	340	<1.0	<1	1	<3	<1	<3	1	
DATE		LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 12...	17	24	<.1	<10	7	<1	<1	320	<6	6	
JAN 17...	14	16	.2	<10	3	<1	<1	210	<6	14	
APR 10...	19	19	<.1	<10	2	<1	<1	380	<6	15	
JUL 10...	23	32	<.1	<10	3	<1	<1	380	<6	15	

LAVACA RIVER BASIN

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 downstream from bridge on U.S. Highway 90-A, 0.8 mi downstream from Mixons Creek, 1.2 mi southwest of Sublime, and 8 mi northeast of Hallettsville.

DRAINAGE AREA.--332 mi².

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 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.--23 years, 153 ft³/s (6.26 in/yr), 110,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,500 ft³/s Sept. 13, 1974 (gage height, 36.05 ft); no flow Aug. 5-7, 22, Sept. 2-16, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, 40 ft in June 1940; flood in July 1936 reached a stage of 39 ft, from information by local residents and Southern Pacific Railroad Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,740 ft³/s Nov. 6 at 1500 hours (gage height, 17.71 ft), no peak above base of 2,500 ft³/s; minimum daily, 0.40 ft³/s Sept. 14, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	7.9	16	16	22	24	25	11	5.0	12	1.5	.57
2	9.0	7.9	16	16	22	23	25	11	4.8	11	1.2	.59
3	8.8	7.9	142	16	24	23	26	11	4.8	5.6	1.1	.91
4	8.7	7.9	29	15	22	23	22	11	4.8	3.9	1.1	1.2
5	8.5	16	19	15	22	25	22	10	5.3	3.3	1.2	.98
6	8.3	988	16	15	21	24	20	9.3	25	3.1	2.2	1.1
7	7.8	377	15	15	20	22	21	8.3	20	2.6	1.7	.97
8	9.0	53	15	14	21	22	35	7.9	9.0	2.2	1.2	.86
9	8.7	30	15	936	23	21	28	12	6.3	2.2	1.1	.68
10	8.5	23	16	493	24	21	23	9.3	5.4	1.9	1.1	.60
11	8.5	21	25	99	24	21	21	7.9	42	1.6	1.3	.59
12	8.5	19	19	51	25	25	19	7.8	101	1.5	1.2	.52
13	8.4	18	16	38	24	31	19	7.5	23	1.4	1.9	.43
14	7.9	18	15	32	23	26	18	7.2	15	1.3	6.1	.40
15	7.8	16	14	30	22	24	17	6.6	10	1.3	4.3	.86
16	7.9	15	14	29	22	23	16	6.5	8.7	1.2	2.1	.87
17	10	14	14	27	22	22	15	7.5	8.0	1.1	1.5	.79
18	9.3	15	14	27	22	22	15	12	8.1	1.1	1.2	.64
19	9.0	16	14	25	21	194	15	136	7.1	.96	.92	.52
20	8.5	16	14	24	67	410	15	62	6.3	.87	.90	.45
21	61	16	14	24	77	89	15	19	5.7	.98	.77	.45
22	123	15	14	24	43	56	14	14	5.2	1.1	.70	.45
23	27	16	14	42	33	46	13	12	4.7	1.0	.70	.45
24	16	16	14	38	29	64	12	10	4.1	.88	.63	.50
25	12	15	12	33	25	42	12	9.2	3.7	.87	.63	.51
26	10	15	14	30	28	36	12	8.1	3.6	1.2	.62	.52
27	8.8	16	15	27	36	33	14	7.2	3.8	1.9	.57	.45
28	8.4	16	16	25	27	30	12	6.5	3.2	6.6	.57	.43
29	8.2	16	16	24	23	27	12	6.0	3.1	8.8	.56	.40
30	8.2	16	14	27	---	26	11	5.5	2.9	2.8	.51	.40
31	7.9	---	14	24	---	25	---	5.3	---	1.8	.52	---
TOTAL	463.0	1843.6	615	2251	814	1500	544	464.6	359.6	88.06	41.60	19.09
MEAN	14.9	61.5	19.8	72.6	28.1	48.4	18.1	15.0	12.0	2.84	1.34	.64
MAX	123	988	142	936	77	410	35	136	101	12	6.1	1.2
MIN	7.8	7.9	12	14	20	21	11	5.3	2.9	.87	.51	.40
CFSM	.05	.19	.06	.22	.09	.15	.06	.05	.04	.009	.004	.002
IN.	.05	.21	.07	.25	.09	.17	.06	.05	.04	.01	.00	.00
AC-FT	918	3660	1220	4460	1610	2980	1080	922	713	175	83	38

CAL YR 1983 TOTAL 39595.90 MEAN 108 MAX 6720 MIN 4.3 CFSM .33 IN 4.44 AC-FT 78540
WTR YR 1984 TOTAL 9003.55 MEAN 24.6 MAX 988 MIN .40 CFSM .07 IN 1.01 AC-FT 17860

LAVACA RIVER BASIN

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08164350 NAVIDAD RIVER NEAR SPEAKS, TX

LOCATION.--29°19'18", long 96 42'32", Lavaca County, Hydrologic Unit 12100102, at right downstream end of bridge on Farm Road 530, 100 ft downstream from Ragsdale Creek, and 4.6 mi north of Speaks.

DRAINAGE AREA.--437 mi².

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 120.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. There are no known diversions above this station. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,300 ft³/s May 14, 1982 (gage height, 27.89 ft, from floodmark); minimum daily, 1.8 ft³/s Aug. 30, 31, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,210 ft³/s Nov. 5 at 2000 hours (gage height, 15.30 ft, from floodmark), no peak above base of 2,500 ft³/s; minimum daily, 1.8 ft³/s Aug. 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	41	21	18	48	31	33.0	9.7	8.0	5.9	5.2	3.0
2	28	40	21	19	45	31	33.0	8.9	7.6	13.0	3.9	4.4
3	23	39	633	20	46	31	33.0	8.6	6.7	13.0	3.6	6.0
4	21	40	229	19	45	31	32.0	8.4	7.1	10.0	3.6	8.0
5	17	720	71	19	41	33	28.0	8.0	7.6	6.7	3.5	6.5
6	16	1160	49	19	39	35	27.0	6.8	52.0	8.0	4.6	6.0
7	16	1660	49	18	38	31	26.0	5.9	182.0	8.4	3.7	5.5
8	15	261	47	18	38	28	32.0	4.9	30.0	6.7	4.9	5.8
9	14	110	42	918	47	27	48.0	4.5	15.0	5.6	5.1	6.0
10	13	88	42	1530	47	26	34.0	7.1	13.0	4.9	5.2	5.4
11	11	67	42	241	45	26	27.0	5.9	18.0	4.8	5.1	4.3
12	11	46	42	100	251	90	23.0	4.3	255.0	4.8	4.8	3.0
13	11	36	42	69	137	75	22.0	3.9	89.0	4.5	4.5	3.0
14	11	31	42	49	68	45	20.0	3.5	42.0	4.5	4.3	3.0
15	11	28	41	42	56	34	19.0	3.3	30.0	4.5	6.8	2.8
16	88	26	33	42	50	32	17.0	4.0	20.0	4.2	7.4	2.7
17	364	23	32	41	46	33	16.0	4.4	16.0	4.5	5.1	3.5
18	128	20	32	39	45	33	15.0	11.0	15.0	7.6	3.6	3.9
19	96	20	31	37	45	50	15.0	117.0	13.0	4.8	3.9	3.6
20	74	20	31	37	195	698	14.0	278.0	12.0	3.6	3.2	3.4
21	892	16	32	36	278	176	14.0	73.0	11.0	2.7	2.6	3.3
22	333	16	32	36	111	93	13.0	43.0	11.0	2.0	2.4	3.3
23	164	22	32	279	78	73	12.0	29.0	9.3	2.2	2.3	3.3
24	95	22	30	144	67	68	12.0	20.0	8.4	2.5	2.2	3.3
25	66	21	25	124	53	79	10.0	17.0	7.6	2.7	2.1	3.3
26	55	21	19	91	45	54	10.0	15.0	7.6	3.6	2.0	3.0
27	47	21	18	69	67	48	10.0	12.0	7.6	3.6	2.0	3.0
28	44	19	20	57	49	43	10.0	9.4	7.6	5.6	1.9	2.8
29	42	19	20	53	36	37	10.0	8.8	6.7	7.6	1.9	2.8
30	38	21	19	49	---	33	9.7	9.0	6.3	11.0	1.8	2.8
31	40	---	19	59	---	33	---	8.8	---	6.3	1.8	---
TOTAL	2821	4674	1838	4292	2156	2157	624.7	753.1	922.1	179.8	115.0	120.7
MEAN	91.0	156	59.3	138	74.3	69.6	20.8	24.3	30.7	5.80	3.71	4.02
MAX	892	1660	633	1530	278	698	48	278	255	13	7.4	8.0
MIN	11	16	18	18	36	26	9.7	3.3	6.3	2.0	1.8	2.7
AC-FT	5600	9270	3650	8510	4280	4280	1240	1490	1830	357	228	239
CAL YR 1983	TOTAL	65344.7	MEAN	179	MAX	5620	MIN	3.9	AC-FT	129600		
WTR YR 1984	TOTAL	20653.4	MEAN	56.4	MAX	1660	MIN	1.8	AC-FT	40970		

LAVACA RIVER BASIN

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 upstream from Goldenrod Creek, and 9.1 mi northwest of Louise.

DRAINAGE AREA.--289 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 59.72 ft 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.--7 years, 182 ft³/s (8.55 in/yr), 131,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s Sept. 14, 1978 (gage height, 23.03 ft), from rating curve extended above 7,800 ft³/s; no flow at times.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 22	0100	1,960	12.33	Jan. 10	0600	1,780	11.99
Nov. 7	1000	*2,350	13.18	May 20	1300	2,310	13.08
Dec. 4	0300	1,790	12.00				

Minimum, no flow Aug. 28 to Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	18	.97	.29	52	22	.66	5.2	.36	14	54	.00
2	100	15	.59	.29	35	16	.66	6.0	.15	39	47	3.0
3	80	11	242	.29	29	13	.66	2.0	.08	101	30	15
4	71	4.4	892	.29	26	11	1.9	.91	.08	121	25	25
5	72	87	200	.32	25	11	2.9	1.9	.08	104	28	36
6	69	940	103	.35	19	10	.19	3.8	70	91	33	35
7	68	2050	57	.35	15	10	.11	2.5	398	97	17	16
8	76	856	37	.38	11	9.5	.11	2.9	416	115	20	13
9	266	457	23	307	10	8.1	.08	.75	242	139	8.7	11
10	230	228	15	1250	15	6.7	.08	.39	119	206	1.0	9.0
11	135	134	19	401	24	5.3	.06	.18	50	236	.62	8.6
12	138	79	23	170	121	12	2.8	.16	36	207	2.0	5.8
13	124	54	24	111	411	25	.33	.01	628	157	1.9	1.2
14	95	37	13	76	137	16	.06	.69	218	130	9.1	1.1
15	74	25	7.9	55	73	10	3.4	4.3	76	134	24	1.1
16	72	16	5.2	38	48	9.2	4.8	1.5	45	83	27	14
17	915	10	4.3	28	35	6.4	.34	1.8	25	55	19	29
18	1260	6.7	3.2	22	28	5.2	.33	26	22	48	11	42
19	765	6.7	2.5	17	23	5.4	.29	516	20	38	6.5	52
20	400	6.2	1.7	12	107	5.8	.31	2050	14	37	3.5	71
21	981	5.4	1.1	9.2	810	10	4.8	1730	10	28	.64	73
22	1550	4.5	.74	8.7	318	6.2	16	1210	5.5	18	.72	86
23	846	5.5	.37	281	136	4.1	19	527	9.9	9.9	.18	104
24	440	6.8	.20	673	76	2.7	1.8	130	3.1	31	.11	88
25	237	13	.24	498	49	2.6	2.9	27	2.4	77	.10	70
26	163	9.4	.24	292	34	6.9	6.7	2.9	3.1	76	.07	84
27	115	5.8	.24	193	51	.87	4.6	.41	2.7	57	.02	76
28	86	3.4	.24	124	56	.66	9.8	.23	6.1	55	.00	61
29	62	2.9	.24	80	34	.66	8.6	.19	5.2	89	.00	67
30	41	2.1	.24	56	---	.66	5.0	.15	8.8	85	.00	61
31	29	---	.26	48	---	.66	---	.15	---	59	.00	---
TOTAL	9682	5099.8	1678.47	4752.46	2808	253.61	99.27	6255.02	2436.55	2736.9	370.16	1158.80
MEAN	312	170	54.1	153	96.8	8.18	3.31	202	81.2	88.3	11.9	38.6
MAX	1550	2050	892	1250	810	25	19	2050	628	236	54	104
MIN	29	2.1	.20	.29	10	.66	.06	.01	.08	9.9	.00	.00
CFSM	1.08	.59	.19	.53	.34	.03	.01	.70	.28	.31	.04	.13
IN.	1.25	.66	.22	.61	.36	.03	.01	.81	.31	.35	.05	.15
AC-FT	19200	10120	3330	9430	5570	503	197	12410	4830	5430	734	2300
CAL YR 1983	TOTAL	84877.66	MEAN 233	MAX 3960	MIN .01	CFSM .81	IN 10.93	AC-FT 168400				
WTR YR 1984	TOTAL	37331.04	MEAN 102	MAX 2050	MIN .00	CFSM .35	IN 4.81	AC-FT 74050				

LAVACA RIVER BASIN

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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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT 12...	1215	140	333	7.5	22.0	17	7.6	86	2.0	100	23
JAN 18...	1120	22	196	7.2	6.5	39	11.7	94	1.9	54	13
FEB 28...	1430	54	179	7.2	12.5	68	10.8	100	1.7	54	11
APR 11...	1500	.05	340	8.2	30.0	5.0	7.8	104	5.4	100	7
JUL 10...	1300	190	520	--	29.0	34	7.2	93	1.9	160	--
AUG 21...	1430	.20	670	8.0	33.0	2.2	7.8	2060	3.8	210	17

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 12...	26	9.7	23	1	5.1	82	17	46	.20	29
JAN 18...	15	4.0	13	.8	7.7	41	19	24	.10	8.0
FEB 28...	16	3.4	12	.7	4.2	43	11	20	.10	8.2
APR 11...	33	5.4	18	.8	3.7	98	5.6	31	.20	15
JUL 10...	40	15	34	1	3.1	--	25	65	.40	18
AUG 21...	50	20	48	1	15	190	24	95	.40	38

DATE	SOLIDS, SUM OF CONSTITUENTS, 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 12...	210	44	--	.020	<.10	.050	1.6	1.6	.150	8.8
JAN 18...	120	11	--	.030	<.10	.050	.55	.60	.090	12
FEB 28...	100	28	.15	.050	.20	.020	.78	.80	.050	12
APR 11...	170	7	--	<.010	<.10	.130	.37	.50	.080	6.9
JUL 10...	--	86	.19	.010	.20	.040	.76	.80	.160	8.6
AUG 21...	400	9	.07	.030	.10	.210	--	<.20	.460	14

LAVACA RIVER BASIN

08164450 SANDY CREEK NEAR LOUISE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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 12...	1215	2	96	<1	<10	2	360
JUL 10...	1300	3	120	<1	<10	<1	51

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 12...	4	4	.8	<1	<1	14
JUL 10...	4	7	<.1	<1	<1	10

LAVACA RIVER BASIN

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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 upstream from Middle Mustang Creek, and 3.6 mi east of Ganado.

DRAINAGE AREA.--178 mi².

WATER-DISCHARGE RECORDS

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

GAGE (revised).--Water-stage recorder. Datum of gage is 40.12 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for period of no gage-height record, which are fair. Much of low flow during the irrigation season (April to September) comes from drainage from ricefields irrigated by diversions originally from the Colorado River.

AVERAGE DISCHARGE.--7 years, 161 ft³/s (12.3 in/yr), 116,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s Jan. 21, 1980 (gage height, 24.49 ft, from floodmark), from rating curve extended above 8,800 ft³/s; minimum daily, 0.03 ft³/s Jan. 18, 19, 1981.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 18	0500	*6,020	19.21
May 20	1800	1,560	13.57

Minimum daily discharge, 1.5 ft³/s Dec. 30, 31, Mar. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	13	4.5	1.7	10	4.1	6.4	21	3.8	38	36	12
2	69	14	4.0	1.7	7.3	3.5	15	24	3.8	62	28	20
3	43	49	25	1.7	6.2	3.0	9.3	20	4.6	66	32	44
4	35	27	400	1.7	6.5	2.8	13	17	4.9	72	51	62
5	34	224	200	1.7	5.4	2.2	6.6	16	7.7	74	86	68
6	33	807	100	1.8	4.2	1.9	4.6	14	5.2	56	82	51
7	43	1050	50	1.9	3.4	2.0	9.6	18	81	110	76	34
8	134	644	25	2.0	2.9	2.0	22	17	161	119	74	27
9	840	261	13	250	2.8	1.7	30	19	121	119	55	20
10	306	123	7.0	600	2.9	1.5	24	18	78	130	40	14
11	132	70	8.0	300	3.0	1.7	13	21	50	131	54	11
12	82	46	10	75	17	2.0	8.2	13	36	124	43	18
13	78	36	13	42	68	2.3	19	8.0	41	114	39	13
14	51	24	9.0	25	36	2.8	19	9.2	38	116	38	7.6
15	37	15	7.0	18	19	3.8	24	9.0	30	87	47	10
16	83	10	5.0	13	11	3.5	28	12	29	87	54	141
17	3870	8.1	4.2	9.3	9.2	3.2	28	32	24	83	47	127
18	5270	6.8	3.5	6.6	4.9	3.6	29	109	24	75	34	105
19	2950	5.6	3.1	4.7	3.5	2.8	29	834	15	81	27	73
20	1110	4.5	2.8	3.5	48	2.1	26	1510	8.8	94	22	57
21	434	3.9	2.5	3.1	296	3.2	21	1190	13	106	14	48
22	531	3.8	2.3	3.1	145	3.5	24	579	17	92	6.9	51
23	362	3.6	2.1	225	55	3.5	41	185	17	80	5.8	55
24	186	3.5	2.0	495	26	2.4	17	59	15	94	6.8	52
25	118	3.8	1.9	289	13	2.5	25	30	14	180	5.8	49
26	97	5.4	1.8	142	15	2.7	37	13	12	188	5.9	33
27	65	6.3	1.7	74	21	3.0	45	7.3	17	143	13	24
28	40	5.7	1.6	50	9.0	2.1	22	4.7	10	122	16	22
29	31	5.6	1.6	29	6.0	1.9	22	4.1	9.2	110	14	21
30	23	5.2	1.5	17	---	2.2	35	3.9	14	63	11	27
31	18	---	1.5	14	---	8.4	---	4.2	---	55	13	---
TOTAL	17207	3484.8	914.6	2702.5	857.2	87.9	652.7	4821.4	905.0	3071	1077.2	1296.6
MEAN	555	116	29.5	87.2	29.6	2.84	21.8	156	30.2	99.1	34.7	43.2
MAX	5270	1050	400	600	296	8.4	45	1510	161	188	86	141
MIN	18	3.5	1.5	1.7	2.8	1.5	4.6	3.9	3.8	38	5.8	7.6
CFSM	3.12	.65	.17	.49	.17	.02	.12	.88	.17	.56	.20	.24
IN.	3.60	.73	.19	.56	.18	.02	.14	1.01	.19	.64	.23	.27
AC-FT	34130	6910	1810	5360	1700	174	1290	9560	1800	6090	2140	2570

CAL YR 1983	TOTAL	73740.70	MEAN 202	MAX 5270	MIN .64	CFSM 1.14	IN 15.41	AC-FT 146300
WTR YR 1984	TOTAL	37077.90	MEAN 101	MAX 5270	MIN 1.5	CFSM .57	IN 7.75	AC-FT 73540

LAVACA RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT											
12...	1420	79	386	7.6	23.0	35	7.2	84	2.4	120	30
18...	1250	5190	85	6.9	24.0	170	--	--	2.1	25	4
JAN											
18...	1030	7.2	368	7.6	6.0	300	10.2	81	2.6	100	34
FEB											
28...	1330	8.0	252	7.2	12.0	240	10.0	91	2.8	72	18
APR											
11...	1300	11	758	7.7	21.5	32	7.2	83	5.6	250	110
JUL											
10...	1200	130	586	--	28.0	170	6.6	84	1.5	180	--
AUG											
21...	1320	13	737	7.9	27.0	11	5.0	63	8.5	230	39

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT										
12...	37	7.7	28	1	5.3	94	11	53	.20	31
18...	7.4	1.5	4.6	.4	3.2	21	6.2	8.0	<.10	9.1
JAN										
18...	30	6.1	26	1	9.8	66	32	49	.20	14
FEB										
28...	22	4.2	18	1	5.0	54	21	28	.20	8.5
APR										
11...	82	12	59	2	12	149	42	140	.50	23
JUL										
10...	51	13	42	1	2.5	--	20	83	.40	24
AUG										
21...	62	19	59	2	26	194	37	130	.40	59

DATE	SOLIDS, SUM OF CONSTITUENTS, 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										
12...	230	61	--	.050	<.10	.050	1.4	1.4	.170	8.9
18...	53	118	.20	.100	.30	.100	2.6	2.7	.210	9.7
JAN										
18...	210	100	.93	.170	1.1	.180	.92	1.1	.280	6.3
FEB										
28...	140	178	.30	.200	.50	.090	1.3	1.4	.180	18
APR										
11...	460	68	--	<.010	1.4	1.40	1.5	2.9	.220	12
JUL										
10...	--	121	.17	.030	.20	.080	.92	1.0	.150	8.5
AUG										
21...	510	38	.15	.050	.20	.070	1.7	1.8	.510	--

LAVACA RIVER BASIN

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08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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							
12...	1420	3	120	<1	<10	2	120
18...	1250	1	27	<1	<10	2	85
JUL							
10...	1200	4	160	<1	<10	2	21

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						
12...	4	4	.6	<1	<1	17
18...	2	2	<.1	<1	<1	16
JUL						
10...	<1	1	<.1	<1	<1	11

GARCITAS CREEK BASIN

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 upstream from Southern Pacific Railroad bridge, 2.0 mi southwest of Inez, and 3.6 mi upstream from Casa Blanca Creek.

DRAINAGE AREA.--91.7 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 29.16 ft 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.--14 years, 56.7 ft³/s (8.40 in/yr), 41,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,700 ft³/s June 12, 1981 (gage height, 29.00 ft); no flow May 22, 23, and May 26 to June 17, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage during period 1903-70, 24.5 ft 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, from information by local resident.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 17	2300	1,800	14.96
Oct. 21	2300	*1,970	15.35

Minimum daily discharge, 0.03 ft³/s Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	11	4.4	2.7	11	5.6	2.7	1.8	.92	.60	1.9	.03
2	3.2	9.3	4.3	2.7	10	5.3	2.8	1.9	.91	.63	1.9	.07
3	2.9	8.3	4.4	2.7	9.9	5.0	2.8	2.1	.92	.57	1.7	.31
4	3.2	12	8.0	2.7	9.0	5.0	2.6	1.8	.92	.45	1.6	1.5
5	13	56	10	2.7	8.1	5.0	2.4	1.5	1.2	.39	5.9	2.1
6	8.9	608	8.1	2.7	7.1	4.7	2.4	1.5	1.4	.33	3.5	1.8
7	5.6	375	6.0	2.7	6.3	4.3	2.4	1.8	5.4	.39	1.9	1.8
8	4.2	150	5.0	3.2	5.9	4.2	2.5	4.5	2.8	.44	1.4	2.4
9	5.0	85	4.6	368	5.7	4.1	2.4	4.1	2.0	.40	1.1	2.1
10	7.9	53	4.4	446	5.2	4.1	2.5	2.2	1.7	.34	1.0	1.7
11	5.9	35	4.3	134	5.2	4.1	2.9	1.9	1.4	.37	1.1	1.5
12	5.1	25	3.9	71	8.3	4.4	2.8	1.6	1.3	.38	2.1	1.3
13	4.2	20	3.8	42	97	4.4	2.6	1.4	1.3	.45	2.4	1.0
14	3.5	17	3.5	28	46	4.3	2.4	1.3	1.3	.39	1.7	.79
15	3.0	13	3.4	20	22	4.5	2.2	1.2	1.1	.33	1.9	.75
16	20	11	4.1	16	14	4.3	2.1	1.3	.92	.29	1.8	1.1
17	1240	9.4	4.5	12	10	4.0	2.0	2.1	.90	.45	2.4	.80
18	715	8.6	7.4	10	8.4	3.8	2.0	15	.87	.38	1.5	.72
19	153	8.0	6.4	8.7	7.3	5.4	2.0	47	.91	.29	.98	.57
20	86	7.0	5.2	7.7	26	4.3	2.4	18	.90	.29	.72	.53
21	1210	6.4	4.5	6.5	97	3.7	2.3	7.0	.82	.40	.55	1.9
22	974	6.0	3.9	6.4	49	3.5	2.4	4.2	.66	.58	.41	2.0
23	195	6.8	3.5	13	25	3.7	2.2	2.9	.60	.80	.33	1.9
24	106	6.0	3.1	59	15	3.6	2.0	2.3	.56	.85	.30	1.8
25	64	5.4	2.9	150	11	3.4	1.8	2.0	.52	.93	.27	1.7
26	40	5.3	2.9	115	9.7	3.4	1.9	1.6	.46	1.1	.20	1.7
27	29	5.1	3.0	57	8.5	3.3	1.9	1.4	.47	1.2	.14	1.5
28	22	4.6	3.0	31	6.9	3.1	1.8	1.3	.40	1.7	.12	1.4
29	18	4.4	3.0	20	6.1	2.9	2.2	1.2	.46	2.5	.12	1.2
30	15	5.1	2.8	15	---	2.7	2.1	1.0	.49	2.2	.07	1.6
31	13	---	2.7	12	---	2.7	---	1.0	---	1.9	.04	---
TOTAL	4979.2	1576.7	141.0	1670.4	550.6	126.8	69.5	139.9	34.51	22.32	41.05	39.57
MEAN	161	52.6	4.55	53.9	19.0	4.09	2.32	4.51	1.15	.72	1.32	1.32
MAX	1240	608	10	446	97	5.6	2.9	47	5.4	2.5	5.9	2.4
MIN	2.9	4.4	2.7	2.7	5.2	2.7	1.8	1.0	.40	.29	.04	.03
CFSM	1.76	.57	.05	.59	.21	.05	.03	.05	.01	.008	.01	.01
IN.	2.02	.64	.06	.68	.22	.05	.03	.06	.01	.01	.02	.02
AC-FT	9880	3130	280	3310	1090	252	138	277	68	44	81	78

CAL YR 1983	TOTAL	20696.31	MEAN	56.7	MAX	2980	MIN	.60	CFSM	.62	IN	8.40	AC-FT	41050
WTR YR 1984	TOTAL	9391.55	MEAN	25.7	MAX	1240	MIN	.03	CFSM	.28	IN	3.81	AC-FT	18630

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 12...	1305	4.7	575	7.8	23.0	5.2	7.6	88	1.2	--	--
JAN 11...	1600	120	123	7.4	10.0	60	10.8	94	4.8	K6100	7200
FEB 28...	1600	6.9	431	7.6	14.0	56	10.6	101	1.6	--	--
APR 10...	1745	2.4	665	7.6	27.0	5.3	8.8	112	1.2	--	--
JUL 11...	1030	.31	498	8.0	28.5	1.2	8.0	103	.7	--	--
AUG 21...	1145	.60	575	8.3	28.5	1.1	7.3	94	1.1	--	--

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 12...	170	0	53	8.3	48	2	3.1	172	23	55	.20
JAN 11...	35	9	11	1.9	8.2	.6	5.7	26	17	13	<.10
FEB 28...	160	13	54	6.7	23	.8	2.6	150	26	31	.20
APR 10...	260	26	85	12	43	1	1.6	236	46	56	.30
JUL 11...	130	11	37	10	50	2	1.4	123	38	62	.30
AUG 21...	120	0	32	10	82	3	2.9	154	31	93	.30

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	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 12...	33	330	10	<.020	<.10	.040	1.2	1.2	.030	7.7
JAN 11...	8.3	81	48	.080	<.10	.050	.75	.80	.070	15
FEB 28...	19	250	25	.040	<.10	.020	.78	.80	.030	10
APR 10...	22	410	15	.030	<.10	.080	.12	.20	.010	3.9
JUL 11...	35	310	4	.010	<.10	.110	.29	.40	.020	4.4
AUG 21...	30	370	1	.020	<.10	.040	.46	.50	<.010	7.1

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 11...	1600	<1	53	<1	<10	3	150
JUL 11...	1030	4	170	<1	<10	2	15

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 11...	<1	9	<.1	<1	<1	15
JUL 11...	<1	14	<.1	<1	<1	11

PLACEDO CREEK BASIN

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 downstream from confluence of Lone Tree Creek and Arroyo Palo Alto, 1.2 mi upstream from Ninemile Creek, and 4.4 mi northeast of Placedo.

DRAINAGE AREA.--68.3 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 5.58 ft National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--14 years, 71.2 ft³/s (51,580 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,300 ft³/s Oct. 31, 1981 (gage height, 30.8 ft); no flow at times in 1971, and 1981-84.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1930, 31.9 ft in September 1967 and 30.4 ft in 1960 (probably October), from information by local resident.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 17	2000	1,860	19.50	Jan. 9	1800	2,230	20.20
Oct. 21	2100	2,290	20.31	Mar. 12	1800	*2,980	21.38

Minimum discharge, no flow June 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	9.9	1.90	1.9	15.0	5.0	4.50	1.20	.45	4.0	4.0	2.2
2	3.0	9.8	2.20	1.9	14.0	5.2	4.60	1.10	.37	12.0	3.0	2.5
3	2.8	9.8	8.40	1.9	14.0	5.0	4.50	1.10	.29	5.7	3.0	4.3
4	2.5	10.0	3.90	1.9	13.0	4.8	4.10	.90	.26	3.8	8.8	5.6
5	2.5	25.0	2.40	1.9	13.0	4.6	3.90	.77	.26	3.6	10.0	6.8
6	2.5	316.0	1.70	1.8	13.0	4.5	3.70	.77	.26	3.4	5.4	6.9
7	2.7	251.0	1.30	1.7	13.0	4.2	3.70	.82	.26	3.2	2.5	11.0
8	2.8	90.0	1.40	1.7	12.0	4.1	3.80	1.70	.26	3.0	2.2	20.0
9	5.2	50.0	1.50	1300.0	12.0	4.1	3.50	13.00	.23	2.6	2.0	11.0
10	8.0	100.0	1.50	634.0	12.0	4.0	3.20	6.40	.20	2.2	1.8	8.5
11	6.3	32.0	1.50	100.0	12.0	4.0	2.90	3.30	.18	2.0	2.4	7.0
12	6.3	18.0	1.30	43.0	13.0	1700.0	2.50	1.10	.18	2.0	2.8	4.6
13	4.1	11.0	1.20	29.0	20.0	694.0	2.40	.45	.14	1.9	2.9	4.2
14	3.7	6.5	.86	21.0	22.0	79.0	2.00	.27	.11	1.9	6.4	3.2
15	4.8	3.6	.83	18.0	14.0	34.0	1.30	.17	.07	1.9	21.0	2.5
16	6.6	2.2	.83	15.0	11.0	22.0	1.10	.21	.07	1.7	11.0	5.5
17	1040.0	1.7	.83	13.0	9.0	14.0	.80	2.20	.15	1.6	5.6	5.6
18	936.0	1.7	.83	13.0	8.6	10.0	.97	264.00	.14	1.5	3.5	4.7
19	415.0	1.8	.83	12.0	8.2	222.0	.86	505.00	.13	1.4	2.7	4.0
20	144.0	1.5	.83	12.0	11.0	64.0	.71	664.00	.15	1.4	2.4	3.4
21	1330.0	1.6	.89	12.0	27.0	19.0	1.20	52.00	.14	1.4	2.1	14.0
22	1040.0	1.8	.94	12.0	23.0	9.8	1.10	19.00	.08	1.4	1.7	14.0
23	197.0	2.0	1.10	18.0	13.0	7.1	1.00	8.20	.02	1.3	1.9	10.0
24	79.0	2.1	1.10	186.0	8.9	5.9	.51	3.00	.00	6.6	2.2	7.2
25	43.0	1.5	1.10	368.0	7.0	5.2	.48	.94	.00	13.0	1.9	5.6
26	31.0	1.6	1.40	145.0	6.3	5.2	3.90	2.00	.31	7.6	1.9	4.5
27	25.0	1.9	1.70	61.0	5.9	5.2	1.80	2.00	.32	6.2	2.0	3.5
28	20.0	1.9	1.80	36.0	5.3	4.6	1.20	.84	.94	8.3	2.0	3.2
29	18.0	1.7	1.70	26.0	5.0	4.4	1.50	.71	1.70	12.0	2.1	4.0
30	14.0	1.8	1.70	20.0	---	4.5	1.50	.60	2.10	18.0	2.1	7.1
31	11.0	---	1.70	17.0	---	4.4	---	.54	---	9.0	2.2	---
TOTAL	5409.9	969.4	51.17	3125.7	361.2	2963.8	69.23	1558.29	9.77	145.6	125.5	196.6
MEAN	175	32.3	1.65	101	12.5	95.6	2.31	50.3	.33	4.70	4.05	6.55
MAX	1330	316	8.4	1300	27	1700	4.6	664	2.1	18	21	20
MIN	2.5	1.5	.83	1.7	5.0	4.0	.48	.17	.00	1.3	1.7	2.2
AC-FT	10730	1920	101	6200	716	5880	137	3090	19	289	249	390

CAL YR 1983 TOTAL 32879.43 MEAN 90.1 MAX 5630 MIN .10 AC-FT 65220
WTR YR 1984 TOTAL 14986.16 MEAN 40.9 MAX 1700 MIN .00 AC-FT 29730

NOTE.--No gage-height record June 30 to Sept. 11.

GUADALUPE RIVER BASIN

233

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 downstream from Ranch Road 1340, 1.3 mi downstream from Bear Creek, 3.7 mi west of Hunt, and 4.1 mi upstream from Honey Creek.

DRAINAGE AREA.--168 mi².

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 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 of water on a game preserve upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years, 37.0 ft³/s (2.99 in/yr), 26,810 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,300 ft³/s Aug. 3, 1978 (gage height, 26.80 ft, from high-water mark), from rating curve extended above 170 ft³/s on basis of slope-area measurements of 7,460 and 38,400 ft³/s; minimum, 0.68 ft³/s May 30, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900 occurred July 1, 1932 (gage height, 37.3 ft), discharge 140,000 ft³/s, by slope-area measurements, combined flow of North Fork Guadalupe River 5 mi upstream and Bear Creek 2 mi upstream from mouth, and adjusted for difference in drainage area.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 21 ft³/s Jan. 9 (gage height not determined), no peak above base of base of 500 ft³/s; minimum, 9.3 ft³/s Aug. 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	11	18	18	14	16	15	14	12	12	12	13
2	13	10	19	19	14	16	15	14	12	11	12	11
3	12	10	19	19	14	17	15	13	12	10	12	11
4	12	10	19	19	14	16	15	13	12	10	11	11
5	12	15	19	19	14	16	15	13	13	10	11	11
6	12	15	19	19	13	16	14	12	13	10	11	10
7	13	12	19	18	13	15	15	12	14	10	11	10
8	13	12	19	19	13	15	15	12	13	10	10	10
9	14	12	19	21	13	15	15	12	13	10	10	10
10	15	13	19	18	13	15	15	12	13	9.9	10	10
11	13	14	19	17	13	15	15	12	12	9.8	10	10
12	12	14	19	16	13	15	14	12	12	10	10	9.9
13	12	15	19	16	13	15	14	12	12	9.9	10	10
14	12	15	19	16	13	14	14	12	12	9.7	11	10
15	12	14	19	16	13	14	14	13	12	9.9	11	10
16	12	15	19	16	13	14	14	13	12	10	11	9.6
17	13	15	19	16	13	14	14	14	11	10	10	9.7
18	13	15	19	16	13	14	13	15	11	10	10	9.8
19	12	17	18	15	13	12	13	15	11	10	9.7	9.8
20	15	16	18	15	13	11	13	14	11	11	9.7	9.8
21	16	16	19	15	13	11	13	13	11	11	9.5	15
22	13	16	19	15	13	11	12	13	11	11	9.3	15
23	12	17	19	15	13	12	13	13	11	11	9.3	12
24	12	17	18	15	12	12	13	13	11	13	9.4	11
25	12	17	17	15	12	12	13	13	10	15	10	11
26	12	18	17	15	13	12	13	13	10	14	12	11
27	11	18	18	14	15	12	13	13	10	13	11	11
28	11	18	18	14	15	12	13	13	14	14	10	11
29	11	18	17	14	16	13	13	13	15	13	10	11
30	11	18	17	14	---	13	13	13	12	12	11	11
31	11	---	18	14	---	15	---	12	---	12	15	---
TOTAL	387	443	574	508	387	430	416	401	358	342.2	328.9	324.6
MEAN	12.5	14.8	18.5	16.4	13.3	13.9	13.9	12.9	11.9	11.0	10.6	10.8
MAX	16	18	19	21	16	17	15	15	15	15	15	15
MIN	11	10	17	14	12	11	12	12	10	9.7	9.3	9.6
CFSM	.07	.09	.11	.10	.08	.08	.08	.08	.07	.07	.06	.06
IN.	.09	.10	.13	.11	.09	.10	.09	.09	.08	.08	.07	.07
AC-FT	768	879	1140	1010	768	853	825	795	710	679	652	644
CAL YR 1983	TOTAL	7212.0	MEAN	19.8	MAX	66	MIN	10	CFSM	.12	IN	1.60
WTR YR 1984	TOTAL	4899.7	MEAN	13.4	MAX	21	MIN	9.3	CFSM	.08	IN	1.08
									AC-FT	14300		
									AC-FT	9720		

GUADALUPE RIVER BASIN

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 upstream and 137 ft right of right end of bridge on State Highway 39, 0.6 mi downstream from confluence of North and South Forks, 0.8 mi east of Hunt, and at mile 430.9.

DRAINAGE AREA.--288 mi².

PERIOD OF RECORD.--October 1941 to September 1949, discharge not computed above 600 ft³/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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period Apr. 10 to May 2, which are fair. 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.--19 years, 70.8 ft³/s (3.34 in/yr), 51,290 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,900 ft³/s Aug. 2, 1978 (gage height, 23.5 ft, from floodmark), from rating curve extended above 3,700 ft³/s on basis of channel geometry and flow-over-dam measurement of peak flow; minimum, 6.9 ft³/s June 17, 1948.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 36.6 ft July 2, 1932, from information by local resident (discharge, 206,000 ft³/s, determined by slope-area measurement 4.5 mi downstream from gage).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 79 ft³/s May 28 at 1645 hours (gage height, 1.56 ft), no peak above base of 1,000 ft³/s; minimum daily, 8.2 ft³/s July 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	33	39	35	36	39	22	25	17	15	17	23
2	27	33	40	37	37	41	33	24	17	13	16	19
3	27	32	42	39	37	40	24	22	19	12	17	17
4	28	34	40	38	36	41	22	19	18	11	16	16
5	27	49	38	37	36	41	19	18	19	11	15	16
6	27	54	39	37	37	43	9.4	18	23	11	15	15
7	27	45	37	37	38	42	16	20	23	11	14	14
8	29	41	37	38	38	42	28	32	22	15	14	15
9	37	39	38	60	39	42	58	16	22	13	13	17
10	39	35	39	48	40	43	54	15	23	11	14	16
11	33	35	39	41	40	42	40	14	23	11	14	14
12	31	36	36	37	41	44	37	11	24	9.9	14	14
13	29	36	36	36	41	44	32	11	21	9.4	14	13
14	29	36	37	35	41	42	25	13	19	9.6	17	13
15	30	34	37	35	40	39	25	15	18	10	16	13
16	31	33	36	35	39	42	29	15	16	9.2	15	14
17	34	33	36	35	40	40	30	22	15	8.2	14	12
18	41	33	36	34	41	38	33	31	13	9.6	14	13
19	35	35	36	34	39	34	31	34	14	19	13	13
20	54	37	35	33	37	30	34	35	14	17	13	13
21	53	34	35	34	39	29	33	27	13	15	13	19
22	41	39	36	34	38	28	27	22	11	15	12	33
23	36	45	36	36	38	29	25	20	11	15	13	25
24	34	40	34	38	38	28	18	19	12	16	12	20
25	34	39	33	37	39	26	23	18	11	25	13	22
26	34	37	34	36	40	25	30	19	10	26	15	19
27	33	39	37	36	37	24	27	18	11	22	18	18
28	32	40	37	35	36	22	26	28	15	27	14	18
29	33	39	35	35	37	21	24	33	19	25	13	19
30	34	39	33	35	---	21	24	24	17	21	14	21
31	33	---	33	35	---	22	---	16	---	18	20	---
TOTAL	1039	1134	1136	1152	1115	1084	858.4	654	510	460.9	452	514
MEAN	33.5	37.8	36.6	37.2	38.4	35.0	28.6	21.1	17.0	14.9	14.6	17.1
MAX	54	54	42	60	41	44	58	35	24	27	20	33
MIN	27	32	33	33	36	21	9.4	11	10	8.2	12	12
CFSM	.12	.13	.13	.13	.13	.12	.10	.07	.06	.05	.05	.06
IN.	.13	.15	.15	.15	.14	.14	.11	.08	.07	.06	.06	.07
AC-FT	2060	2250	2250	2280	2210	2150	1700	1300	1010	914	897	1020

CAL YR 1983	TOTAL	14148.0	MEAN	38.8	MAX	143	MIN	19	CFSM	.14	IN	1.83	AC-FT	28060
WTR YR 1984	TOTAL	10109.3	MEAN	27.6	MAX	60	MIN	8.2	CFSM	.10	IN	1.31	AC-FT	20050

GUADALUPE RIVER BASIN

235

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 upstream from Henderson Branch, 3.4 mi northwest of Ingram, 3.8 mi upstream from mouth, and 9.2 mi northwest of Kerrville.

DRAINAGE AREA.--114 mi².

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 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.--41 years (water years 1942-59, 1962-84), 19.5 ft³/s (2.32 in/yr), 14,130 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,900 ft³/s Oct. 4, 1959 (gage height, 24.25 ft), from rating curve extended above 4,400 ft³/s on basis of slope-area measurements of 9,100 and 16,000 ft³/s and conveyance study; minimum daily, 0.4 ft³/s July 26, 27, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 35 ft July 2, 1932, from information by local resident; discharge, 138,000 ft³/s, by slope-area measurement at point 0.5 mi downstream from State fish hatchery and 6 or 7 mi upstream from gage. Flood of June 14, 1935, reached a stage of 31 or 32 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 85 ft³/s May 28 at 2030 hours (gage height, 1.63 ft), no peak above base of 500 ft³/s; minimum daily, 2.8 ft³/s July 14, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	10	11	15	15	9.2	9.6	11	13	4.0	8.6	8.7
2	9.6	11	11	14	15	9.2	11	11	9.7	3.4	7.5	7.9
3	9.7	11	12	14	16	11	10	10	7.5	4.1	8.5	6.6
4	9.2	9.6	11	16	15	11	10	11	8.1	3.7	11	8.2
5	9.7	26	11	14	13	10	11	12	11	3.5	7.4	7.2
6	9.2	24	12	12	12	11	12	9.8	9.8	3.5	6.2	7.6
7	9.2	18	12	12	18	11	14	9.4	10	3.4	7.4	6.7
8	9.2	16	12	14	18	11	12	9.6	9.2	3.1	7.4	7.2
9	14	13	12	22	14	11	12	9.2	9.2	3.0	6.8	6.7
10	11	13	12	16	13	13	12	9.0	9.2	4.1	6.4	7.0
11	9.9	11	11	14	12	13	10	9.5	9.2	3.7	9.2	9.1
12	11	11	12	14	12	11	10	10	9.9	3.5	7.6	12
13	11	11	11	14	12	13	9.9	8.1	9.3	2.9	6.5	7.4
14	10	10	11	14	12	13	10	8.8	9.5	2.8	8.4	6.0
15	9.7	11	12	14	11	14	8.9	8.7	9.0	2.9	8.5	4.8
16	11	14	12	14	11	11	9.2	8.7	8.4	2.8	8.2	4.9
17	11	14	15	15	11	11	11	11	7.5	3.4	6.7	4.8
18	11	13	12	14	9.8	11	10	13	6.9	8.4	6.6	4.8
19	12	10	12	14	7.9	9.6	11	23	6.7	28	6.3	6.9
20	22	9.9	13	13	7.9	9.6	11	18	6.7	12	5.8	6.7
21	17	12	13	12	7.9	11	11	16	6.6	7.9	5.7	8.0
22	13	12	12	14	7.8	12	8.4	16	6.5	8.6	5.5	9.7
23	11	13	12	14	9.5	12	9.1	13	6.8	6.7	4.4	8.6
24	11	11	11	15	15	9.8	10	14	8.4	7.6	5.0	8.2
25	11	12	11	15	16	9.9	9.9	11	7.3	13	4.7	10
26	11	11	12	15	10	11	11	10	6.6	12	5.5	9.4
27	9.7	12	13	13	6.8	12	9.5	9.4	6.0	15	5.8	7.9
28	9.2	11	13	12	7.7	11	9.2	25	5.0	16	6.4	8.2
29	9.2	12	13	12	8.5	8.9	9.3	25	5.7	13	5.9	10
30	9.2	13	13	13	---	10	11	15	7.3	11	5.6	8.0
31	9.2	---	13	14	---	9.2	---	13	---	12	7.5	---
TOTAL	339.9	385.5	373	438	344.8	340.4	313.0	388.2	246.0	229.0	213.0	229.2
MEAN	11.0	12.9	12.0	14.1	11.9	11.0	10.4	12.5	8.20	7.39	6.87	7.64
MAX	22	26	15	22	18	14	14	25	13	28	11	12
MIN	9.2	9.6	11	12	6.8	8.9	8.4	8.1	5.0	2.8	4.4	4.8
CFSM	.10	.11	.11	.12	.10	.10	.09	.11	.07	.07	.06	.07
IN.	.11	.13	.12	.14	.11	.11	.10	.13	.08	.07	.07	.07
AC-FT	674	765	740	869	684	675	621	770	488	454	422	455

CAL YR 1983 TOTAL 5429.9 MEAN 14.9 MAX 70 MIN 4.1 CFSM .13 IN 1.77 AC-FT 10770
WTR YR 1984 TOTAL 3840.0 MEAN 10.5 MAX 28 MIN 2.8 CFSM .09 IN 1.25 AC-FT 7620

GUADALUPE RIVER BASIN

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 downstream from Goat Creek, 900 ft upstream from Bear Creek and Bear Creek Crossing, and 2.4 mi east of intersection of State Highways 27 and 39 in Ingram.

DRAINAGE AREA.--494 mi².

PERIOD OF RECORD.--April 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,623.20 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period Nov. 16 to Jan. 23, which are fair. Discharge not computed above 400 ft³/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 Aug. 3 1978 (discharge not known); minimum daily discharge, 13 ft³/s July 10, 14-18, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 34.1 ft July 2, 1932, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 120 ft³/s May 19 at 0730 hours (gage height, 3.22 ft); minimum daily, 13 ft³/s July 10, 14-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	43	52	49	51	40	38	28	36	24	34	22
2	32	43	51	50	50	42	41	28	33	20	30	24
3	31	45	53	51	50	45	53	28	30	19	25	24
4	32	46	50	53	50	48	41	28	31	17	27	23
5	30	62	49	49	49	50	39	26	29	18	26	22
6	29	92	49	47	49	48	35	25	42	16	23	20
7	30	75	50	47	49	47	28	25	34	18	21	17
8	30	61	49	49	52	46	33	27	34	16	21	19
9	44	56	49	78	53	46	62	32	32	14	20	18
10	48	52	50	75	50	47	57	24	34	13	19	19
11	44	49	49	69	50	48	43	21	39	16	18	20
12	39	48	47	60	49	50	40	20	31	14	20	19
13	34	48	47	52	50	47	35	23	27	14	23	17
14	35	48	48	51	49	48	27	19	26	13	21	15
15	34	47	48	51	47	47	27	23	24	13	21	15
16	34	46	47	51	45	49	31	23	23	13	22	14
17	40	47	50	53	45	48	32	25	23	13	20	15
18	44	47	48	51	45	48	35	40	24	13	19	14
19	45	47	48	50	45	44	33	78	22	23	18	14
20	66	49	48	49	44	43	36	66	19	37	18	15
21	86	46	47	48	43	42	35	53	19	27	16	17
22	63	49	48	50	44	43	30	42	19	24	16	22
23	51	56	48	51	44	45	28	35	18	24	14	33
24	47	55	46	52	45	45	21	31	18	24	14	29
25	44	53	45	51	49	45	26	31	19	30	14	24
26	45	49	45	51	50	43	33	28	19	38	18	27
27	44	51	49	49	41	43	30	28	18	44	18	25
28	42	53	50	48	39	38	29	26	18	50	18	23
29	41	53	49	47	39	38	27	64	23	41	18	24
30	41	52	47	49	---	38	27	51	25	39	16	27
31	43	---	46	49	---	38	---	43	---	35	17	---
TOTAL	1299	1568	1502	1630	1366	1389	1052	1041	789	720	625	617
MEAN	41.9	52.3	48.5	52.6	47.1	44.8	35.1	33.6	26.3	23.2	20.2	20.6
MAX	86	92	53	78	53	50	62	78	42	50	34	33
MIN	29	43	45	47	39	38	21	19	18	13	14	14
AC-FT	2580	3110	2980	3230	2710	2760	2090	2060	1560	1430	1240	1220
CAL YR 1983	TOTAL	22787	MEAN 62.4	MAX 225	MIN 29	AC-FT 45200						
WTR YR 1984	TOTAL	13598	MEAN 37.2	MAX 92	MIN 13	AC-FT 26970						

GUADALUPE RIVER BASIN

237

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 downstream from Cypress Creek, and at mile 396.2.

DRAINAGE AREA.--839 mi².

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 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 upstream at datum 0.22 ft higher (revised).

REMARKS.--Records good except those for periods of no gage-height record, which are fair. Many small diversions above station for irrigation. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--45 years (water years 1940-84), 183 ft³/s (132,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 240,000 ft³/s Aug. 2, 1978 (gage height, 40.90 ft), from high-water mark in well, from rating curve extended above 74,000 ft³/s on basis of current-meter measurement of 124,000 ft³/s at gage height 32.47 ft and slope-area measurement of 182,000 ft³/s at gage height 38.4 ft, made at former gaging station "near Comfort" 5 mi 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, from report by Corps of Engineers. Flood of July 1, 1932, reached a stage of 38.4 ft, 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.--Maximum discharge, 243 ft³/s May 20 at 0300 hours (gage height, 1.58 ft), no peak above base of 2,600 ft³/s; minimum daily, 1.8 ft³/s July 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	63	77	80	39	55	52	32	48	13.0	30.0	13.0
2	55	64	79	80	40	57	52	31	42	12.0	27.0	13.0
3	55	63	82	82	41	59	57	33	36	11.0	26.0	13.0
4	57	73	79	80	41	60	61	33	33	11.0	24.0	20.0
5	56	93	77	77	59	64	59	29	31	10.0	21.0	21.0
6	59	100	74	77	67	70	50	28	47	9.9	19.0	19.0
7	56	116	74	80	67	65	54	27	48	8.8	19.0	17.0
8	52	100	74	97	68	64	52	25	70	7.8	18.0	16.0
9	85	85	74	163	73	64	52	24	55	7.2	14.0	14.0
10	110	79	76	112	77	63	59	23	45	6.3	12.0	12.0
11	85	76	74	92	77	64	70	26	42	5.8	12.0	11.0
12	80	74	73	93	77	68	55	24	37	5.4	9.9	11.0
13	74	71	104	106	76	68	46	22	34	4.9	9.8	9.9
14	70	71	134	118	73	67	43	24	30	4.4	12.0	8.3
15	64	68	130	118	73	67	41	21	29	3.8	13.0	9.3
16	59	65	99	112	71	67	35	21	26	3.0	18.0	9.9
17	55	65	80	84	68	68	35	23	23	2.5	20.0	8.3
18	55	68	74	56	68	68	34	30	23	1.8	19.0	7.2
19	59	70	74	61	70	65	38	68	23	1.8	17.0	5.8
20	84	71	73	77	68	61	42	159	17	2.0	14.0	6.3
21	143	64	73	80	70	55	39	82	17	7.8	11.0	5.8
22	102	67	73	80	68	57	37	69	16	23.0	9.5	8.3
23	84	93	73	82	65	56	34	59	14	22.0	8.3	12.0
24	76	92	73	82	65	60	33	52	25	19.0	5.8	14.0
25	70	82	71	79	65	57	32	46	27	24.0	7.2	21.0
26	65	76	71	92	68	57	49	42	17	29.0	7.2	21.0
27	63	79	73	99	84	56	44	39	17	28.0	5.8	19.0
28	61	77	74	76	61	64	39	35	15	34.0	6.3	19.0
29	60	77	79	50	48	57	37	33	14	43.0	9.3	20.0
30	60	77	77	45	---	46	33	41	14	40.0	9.3	20.0
31	61	---	77	40	---	51	---	54	---	35.0	9.3	---
TOTAL	2170	2319	2495	2650	1887	1900	1364	1255	915	437.2	443.7	405.1
MEAN	70.0	77.3	80.5	85.5	65.1	61.3	45.5	40.5	30.5	14.1	14.3	13.5
MAX	143	116	134	163	84	70	70	159	70	43	30	21
MIN	52	63	71	40	39	46	32	21	14	1.8	5.8	5.8
AC-FT	4300	4600	4950	5260	3740	3770	2710	2490	1810	867	880	804

CAL YR 1983	TOTAL	34185.0	MEAN	93.7	MAX	414	MIN	32	AC-FT	67810
WTR YR 1984	TOTAL	18241.0	MEAN	49.8	MAX	163	MIN	1.8	AC-FT	36180

GUADALUPE RIVER BASIN

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX

LOCATION (revised).--Lat 29°51'38", long 98°22'58", Comal County, Hydrologic Unit 12100201, on downstream side of bridge on Ranch Road 311, 1.9 mi southeast of Spring Branch Post Office, 7.5 mi downstream from Curry Creek, and at mile 334.4.

DRAINAGE AREA.--1,315 mi².

PERIOD OF RECORD.--June 1922 to current year.

Water-quality records.--Chemical Biochemical analyses: October 1980 to September 1982.

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 National Geodetic Vertical Datum of 1929. Prior to Jan. 14, 1981, at site 220 ft downstream at same datum.

REMARKS.--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.--62 years, 307 ft³/s (222,400 acre-ft).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 160,000 ft³/s Aug. 3, 1978 (gage height, 45.25 ft, from floodmark), from rating curve extended above 55,600 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1951-52, 1954-56, and 1963-64.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, about 53 ft in 1869; flood in July 1900 reached a stage of about 49 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,300 ft³/s Oct. 9 at 1300 hours (gage height, 7.01 ft), no peak above base of 4,000 ft³/s; minimum daily, 1.1 ft³/s July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	91	110	104	73	91	65	42	35	14.0	30.0	8.5
2	58	91	111	111	71	81	69	41	47	12.0	29.0	9.7
3	57	93	121	111	68	88	69	45	46	10.0	26.0	8.5
4	56	93	119	111	67	89	68	40	43	7.4	24.0	17.0
5	55	171	116	108	66	90	70	38	47	6.4	22.0	26.0
6	55	859	112	106	64	90	73	39	55	7.7	21.0	21.0
7	54	254	107	104	83	91	73	38	60	12.0	20.0	16.0
8	54	208	106	107	97	91	72	35	72	11.0	18.0	18.0
9	975	180	103	135	100	88	74	32	54	9.3	16.0	19.0
10	316	151	107	209	100	88	68	31	66	8.1	15.0	19.0
11	154	136	106	172	106	87	64	30	59	7.0	15.0	18.0
12	129	128	104	136	113	90	65	30	50	6.4	14.0	16.0
13	119	122	103	126	108	90	74	29	47	5.2	43.0	14.0
14	98	118	108	121	108	90	64	31	42	4.4	50.0	12.0
15	91	113	161	143	106	91	57	29	37	3.4	26.0	11.0
16	84	108	163	145	104	88	54	28	35	3.0	19.0	9.7
17	82	107	152	145	101	87	52	30	31	2.6	38.0	8.5
18	81	108	121	135	103	89	50	34	29	2.1	33.0	7.7
19	81	107	108	102	99	89	49	37	28	1.4	22.0	6.7
20	94	104	104	85	100	86	50	38	26	1.4	19.0	6.0
21	139	104	105	90	99	84	47	103	24	1.1	18.0	8.9
22	199	109	101	105	99	82	47	105	22	1.4	17.0	9.7
23	161	108	101	114	101	78	49	75	22	2.8	16.0	9.3
24	139	106	100	112	99	77	46	66	20	3.0	14.0	8.5
25	119	139	97	110	96	76	45	58	19	2.2	12.0	8.0
26	106	125	98	106	98	79	45	52	16	1.8	9.7	7.2
27	100	119	100	105	94	78	44	47	15	4.6	8.5	6.0
28	96	112	101	119	93	71	44	43	21	16.0	8.1	6.5
29	94	112	98	120	110	69	49	40	20	48.0	7.4	15.0
30	93	113	98	94	---	75	45	39	18	34.0	6.0	17.0
31	92	---	101	77	---	75	---	36	---	27.0	6.0	---
TOTAL	4090	4489	3442	3668	2726	2618	1741	1361	1106	276.7	622.7	368.4
MEAN	132	150	111	118	94.0	84.5	58.0	43.9	36.9	8.93	20.1	12.3
MAX	975	859	163	209	113	91	74	105	72	48	50	26
MIN	54	91	97	77	64	69	44	28	15	1.1	6.0	6.0
AC-FT	8110	8900	6830	7280	5410	5190	3450	2700	2190	549	1240	731

CAL YR 1983 TOTAL 59199.0 MEAN 162 MAX 1890 MIN 47 AC-FT 117400
WTR YR 1984 TOTAL 26508.8 MEAN 72.4 MAX 975 MIN 1.1 AC-FT 52580

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 northwest of New Braunfels, and at mile 303.0.

DRAINAGE AREA.--1,432 mi².

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 long, consisting of the main dam 4,410 ft long, an earthen dike 210 ft long, a 1,260-foot-long uncontrolled broad-crested-type spillway, and a 950-foot 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 conduit controlled by two 5.7 by 10.0-foot 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 Aug. 4, 1978 (elevation, 930.61 ft); minimum observed since conservation pool first reached in April 1968, 314,500 acre-ft Sept. 30, 1984 (elevation, 900.31 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 349,200 acre-ft Nov. 6 at 2400 hours (elevation, 904.91 ft); minimum daily, 314,500 acre-ft Sept. 30 at 2400 hours (elevation, 900.31 ft).

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

900.0	312,300	902.0	327,000	904.0	342,200
901.0	319,500	903.0	334,500	905.0	349,900

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	346400	347200	342600	341900	344200	342400	341100	337400	333800	331000	325400	320000
2	346400	347200	342900	342100	344200	342300	341200	337400	333700	330700	325300	319600
3	346300	347200	343200	342200	344000	342300	341000	337300	333600	330400	325200	319500
4	346300	347200	343200	342300	343900	342500	340900	337100	333700	330200	324800	319300
5	346200	348100	343200	342500	343800	342400	340700	336900	334100	330000	324700	319000
6	346100	349200	343000	342600	343600	342200	340600	336800	334200	329900	324400	318500
7	346000	349200	342900	342600	343400	342000	340700	336800	334100	329400	324200	318400
8	346000	348900	342900	343200	343500	341900	340700	336400	334100	329300	324000	318200
9	347500	348400	343100	343700	343600	341800	340600	336000	334100	329000	323800	318000
10	348000	347800	343200	343700	343600	341800	340500	335700	334000	328800	323600	317900
11	348300	347300	343200	343900	343600	341800	340400	335500	333900	328600	323500	317700
12	348100	346900	343000	344100	343800	341800	340300	335300	333900	328500	323300	317500
13	347900	346600	342900	344100	343700	341800	340200	335100	333900	328200	323400	317400
14	347700	346300	342900	344200	343700	341900	340000	335000	333800	327900	323600	317300
15	347700	345500	342800	344300	343700	341900	339900	334800	333700	327600	323800	317100
16	347600	345000	342900	344500	343600	342000	339600	334700	333500	327400	323600	316800
17	347600	344600	342900	344500	343600	342100	339400	335000	333200	327300	323400	316400
18	347600	344200	342900	344600	343600	342300	339300	335200	333100	327200	323300	316300
19	347500	343600	342600	344300	343500	342200	339200	335400	332900	327100	323100	316100
20	348000	342900	342600	344200	343500	342100	339200	335400	332700	327000	322900	316100
21	347800	342800	342600	344000	343300	341900	339100	335400	332500	326600	322700	316000
22	347800	343200	342300	344300	343200	341900	338800	335400	332200	326600	322400	315900
23	347800	342900	342300	344400	343200	342100	338600	335500	332000	326400	322200	315800
24	347800	342900	342000	344400	343000	341900	338400	335600	331900	326400	322100	315700
25	347800	342700	341700	344300	343000	341800	338300	335400	331800	326300	321900	315700
26	347700	342900	341800	344300	343100	341800	338300	335300	331600	326100	321800	315600
27	347500	342900	341700	344300	342800	341800	338100	335100	331400	326400	321500	315300
28	347400	342700	341900	344300	342600	341600	337900	335000	331300	326000	321300	315100
29	347400	342700	341600	344300	342400	341200	337900	334700	331300	325800	321100	314700
30	347400	342800	341600	344300	---	341200	337700	334400	331100	325700	320900	314500
31	347200	---	341600	344200	---	341000	---	334100	---	325500	320700	---
MAX	348300	349200	343200	344600	344200	342500	341200	337400	334200	331000	325400	320000
MIN	346000	342700	341600	341900	342400	341000	337700	334100	331100	325500	320700	314500
(†)	904.65	904.08	903.93	904.26	904.03	903.85	903.42	902.95	902.55	901.80	901.16	900.31
(‡)	+600	-4400	-1200	+2600	-1800	-1400	-3300	-3600	-3000	-5600	-4800	-6200

CAL YR 1983 MAX 365800 MIN 341600 † -22200
WTR YR 1984 MAX 349200 MIN 314500 ‡ -32100

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

GUADALUPE RIVER BASIN

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 upstream from Horseshoe Falls, 0.8 mi north of Sattler, 1.8 mi downstream from Canyon Dam, 2.3 mi upstream from Heiser Hollow, 11.2 mi north of New Braunfels, and at mile 301.2.

DRAINAGE AREA.--1,436 mi², of which 1,432 mi² is above Canyon Dam.

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

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 742.24 ft National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Records good. Flow completely regulated since July 21, 1962, by Canyon Lake (station 08167700) 1.8 mi upstream. Small diversions above station for irrigation. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--22 years (water years 1962-84) since regulation began at Canyon Lake, 380 ft³/s (275,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft³/s Oct. 29, 1960 (gage height, 12.20 ft). Maximum discharge since closure of Canyon Dam on July 21, 1962, 5,850 ft³/s Aug. 5, 1978 (gage height, 8.31 ft); 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; maximum stage since at least 1904, 39 ft in July 1932 and June 1935, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 355 ft³/s Sept. 1 at 0100 hours (gage height, 5.28 ft); minimum daily, 1.1 ft³/s Sept. 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	98	82	55	114	116	76	79	40	18.0	8.7	313.0
2	45	97	82	55	114	116	76	79	40	18.0	14.0	119.0
3	45	91	84	55	114	116	76	78	40	18.0	40.0	42.0
4	45	95	83	55	114	116	76	77	40	18.0	71.0	42.0
5	45	98	82	55	114	116	76	77	40	18.0	36.0	42.0
6	45	97	82	55	114	116	76	77	40	18.0	33.0	42.0
7	45	154	82	55	114	116	76	78	40	83.0	30.0	34.0
8	45	275	82	55	114	116	76	79	40	45.0	26.0	22.0
9	45	275	81	55	115	116	76	79	40	14.0	21.0	22.0
10	45	275	80	55	114	116	76	79	40	14.0	20.0	22.0
11	45	275	80	55	114	116	76	78	40	14.0	20.0	22.0
12	45	275	80	56	114	116	76	79	40	14.0	20.0	22.0
13	45	277	80	56	114	104	76	80	40	38.0	19.0	22.0
14	45	279	80	56	114	80	76	70	40	81.0	13.0	22.0
15	50	279	80	56	114	80	76	48	47	16.0	18.0	22.0
16	92	279	80	74	114	80	75	48	52	15.0	44.0	22.0
17	92	279	80	110	114	80	75	49	52	10.0	45.0	15.0
18	92	279	80	111	114	80	76	47	52	1.9	44.0	2.6
19	92	279	80	112	114	80	76	47	52	1.4	42.0	1.8
20	95	279	80	112	114	79	76	47	52	29.0	42.0	1.5
21	93	216	80	112	114	79	74	45	52	57.0	42.0	1.5
22	93	83	80	112	114	79	74	45	52	8.3	42.0	1.5
23	93	82	80	112	116	71	74	45	52	11.0	42.0	1.4
24	61	82	76	112	116	75	72	51	52	9.1	42.0	1.4
25	56	82	76	112	116	76	76	63	47	6.0	42.0	1.3
26	101	82	76	112	117	76	76	64	24	5.8	42.0	1.2
27	106	82	68	112	116	76	76	64	19	32.0	42.0	1.1
28	91	82	56	112	116	76	77	63	18	57.0	42.0	1.1
29	87	82	56	114	116	76	79	62	18	7.6	42.0	1.1
30	88	82	56	114	---	76	79	62	18	6.4	42.0	1.1
31	69	---	55	113	---	76	---	55	---	6.3	61.0	---
TOTAL	2081	5290	2379	2585	3322	2891	2275	1994	1219	690.8	1087.7	865.6
MEAN	67.1	176	76.7	83.4	115	93.3	75.8	64.3	40.6	22.3	35.1	28.9
MAX	106	279	84	114	117	116	79	80	52	83	71	313
MIN	45	82	55	55	114	71	72	45	18	1.4	8.7	1.1
AC-FT	4130	10490	4720	5130	6590	5730	4510	3960	2420	1370	2160	1720
CAL YR 1983	TOTAL	70370.0	MEAN	193	MAX	512	MIN	45	AC-FT	139600		
WTR YR 1984	TOTAL	26680.1	MEAN	72.9	MAX	313	MIN	1.1	AC-FT	52920		

GUADALUPE RIVER BASIN

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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 upstream from Comal River, 21.9 mi downstream from Canyon Lake, and at mile 281.1.

DRAINAGE AREA.--1,518 mi².

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 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 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 (269,500 acre-ft/yr); 22 years (water years 1963-84) regulated, 466 ft³/s (337,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 101,000 ft³/s June 15, 1935 (gage height, 32.95 ft); no flow July 8, 9, July 17 to Aug. 20, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 38 ft July 8, 1869, and in December 1913, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 358 ft³/s Sept. 1 at 1500 hours (gage height, 2.39 ft); minimum daily, 2.6 ft³/s Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	115	97	62	130	127	84	78	63	18.0	12	196.0
2	78	136	98	64	130	127	86	80	44	17.0	17	221.0
3	77	105	108	63	130	127	85	79	42	16.0	17	115.0
4	77	132	100	62	130	128	83	75	42	17.0	39	65.0
5	76	146	100	62	130	138	83	76	45	16.0	80	51.0
6	75	144	100	62	130	130	85	79	58	16.0	45	50.0
7	74	132	99	61	130	129	87	78	48	16.0	41	49.0
8	73	291	98	62	130	128	88	77	42	71.0	39	47.0
9	81	309	100	83	143	127	84	76	42	50.0	35	33.0
10	82	312	101	68	134	130	83	78	41	25.0	31	29.0
11	76	312	99	64	134	130	82	78	41	16.0	27	28.0
12	78	312	97	64	137	132	82	78	41	13.0	27	28.0
13	72	314	97	63	134	130	80	78	42	13.0	28	28.0
14	71	316	94	63	134	105	79	76	43	36.0	29	28.0
15	90	312	96	63	131	90	78	64	43	74.0	28	27.0
16	116	312	98	64	130	90	77	43	56	29.0	26	27.0
17	118	317	97	99	131	87	76	49	62	18.0	46	27.0
18	118	318	96	127	132	85	78	59	60	16.0	54	28.0
19	118	316	94	126	127	90	78	55	60	18.0	52	24.0
20	121	317	96	126	130	82	78	51	61	12.0	45	18.0
21	125	317	97	125	127	83	78	45	61	8.2	49	8.2
22	121	138	93	129	127	84	75	45	61	48.0	48	5.0
23	121	104	92	132	127	85	76	44	61	30.0	49	4.1
24	121	95	91	126	127	76	74	43	60	16.0	49	3.4
25	74	94	91	125	127	83	76	49	59	12.0	50	3.1
26	100	97	92	124	128	84	86	71	54	16.0	50	2.8
27	136	102	94	127	124	84	84	71	31	10.0	50	2.7
28	137	97	81	126	124	79	82	70	22	14.0	48	2.6
29	97	97	66	127	127	80	80	69	19	63.0	47	2.6
30	120	98	66	127	---	82	78	69	18	31.0	47	2.6
31	118	---	64	127	---	83	---	70	---	15.0	47	---
TOTAL	3019	6207	2892	2903	3775	3215	2425	2053	1422	770.2	1252	1156.1
MEAN	97.4	207	93.3	93.6	130	104	80.8	66.2	47.4	24.8	40.4	38.5
MAX	137	318	108	132	143	138	88	80	63	74	80	221
MIN	71	94	64	61	124	76	74	43	18	8.2	12	2.6
AC-FT	5990	12310	5740	5760	7490	6380	4810	4070	2820	1530	2480	2290
CAL YR 1983	TOTAL	89557.0	MEAN	245	MAX 659	MIN 64	AC-FT	177600				
WTR YR 1984	TOTAL	31089.3	MEAN	84.9	MAX 318	MIN 2.6	AC-FT	61670				

GUADALUPE RIVER BASIN

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 upstream from San Antonio Street viaduct in New Braunfels and 1.1 mi upstream from mouth.

DRAINAGE AREA.--130 mi². 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 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 upstream. Flow is affected at times by cleanup operations by the city of New Braunfels at Landa Park Lake and at times by discharge from the flood-detention pools of five floodwater-retarding structures with a combined detention capacity of 17,580 acre-ft. These structures control runoff from 74.6 mi². Several observation of water temperature were made during the year.

AVERAGE DISCHARGE.--52 years (water years 1933-84), 295 ft³/s (213,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,800 ft³/s May 11, 1972 (gage height, 36.55 ft, from floodmark), from rating curve extended above 13,000 ft³/s on basis of contracted-opening measurements on Blieders and Dry Comal Creeks and unit rainfall-runoff studies; no flow from Comal Springs from June 13 to Nov. 3, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood information begins with flood of July 8, 1869, which reached a stage of 36.91 ft, from painted and dated marks in old Remmert Brewery 0.5 mi downstream; the flood of Oct. 17, 1870, reached a stage of 37.65 ft at same site (probably some backwater from Guadalupe River).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 578 ft³/s Feb. 9 at 0300 hours (gage height, 4.78 ft), no peak above base of 1,100 ft³/s; minimum daily, 26 ft³/s July 18, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	208	226	219	222	211	184	112	88	49	34	27
2	201	208	226	219	222	211	180	115	90	55	32	30
3	199	211	234	219	229	208	174	112	88	51	28	40
4	194	211	230	219	219	208	165	91	90	49	29	44
5	191	222	230	219	222	208	168	92	84	49	29	47
6	191	237	226	215	219	204	165	98	102	39	29	48
7	194	222	226	215	219	201	165	92	94	40	28	49
8	197	219	226	219	219	201	168	98	96	34	28	52
9	201	219	226	230	270	201	168	98	92	39	28	54
10	204	219	226	222	222	201	159	94	92	33	28	54
11	204	219	230	219	219	204	153	90	92	33	29	52
12	208	222	230	222	219	208	153	86	86	34	28	51
13	204	219	226	222	215	204	150	84	88	27	32	45
14	208	226	226	222	215	204	147	88	92	32	35	41
15	208	219	222	222	215	204	147	80	88	33	39	39
16	211	219	222	226	215	201	147	82	92	34	45	39
17	211	219	222	226	215	204	144	98	90	27	47	41
18	208	222	226	222	215	204	144	103	90	26	47	40
19	208	222	226	226	215	204	139	117	80	28	47	40
20	208	222	226	226	219	201	133	115	78	27	48	40
21	211	222	226	226	215	201	133	120	78	28	44	41
22	211	222	226	234	215	201	128	120	67	30	41	44
23	211	226	222	230	215	201	141	115	67	32	40	45
24	211	222	222	230	215	197	130	110	60	26	45	42
25	211	226	222	230	215	194	125	110	57	32	40	41
26	211	226	222	234	215	194	117	107	48	35	40	41
27	215	226	222	230	215	187	112	105	47	32	42	42
28	211	226	219	234	211	184	112	103	48	35	39	42
29	215	226	219	230	214	184	117	105	45	35	37	48
30	215	226	219	222	---	184	120	98	47	37	37	52
31	215	---	219	222	---	180	---	96	---	36	32	---
TOTAL	6384	6633	6970	6951	6355	6199	4388	3134	2356	1097	1127	1311
MEAN	206	221	225	224	219	200	146	101	78.5	35.4	36.4	43.7
MAX	215	237	234	234	270	211	184	120	102	55	48	54
MIN	191	208	219	215	211	180	112	80	45	26	28	27
AC-FT	12660	13160	13820	13790	12610	12300	8700	6220	4670	2180	2240	2600

CAL YR 1983 TOTAL 86736 MEAN 238 MAX 471 MIN 171 AC-FT 172000
WTR YR 1984 TOTAL 52905 MEAN 145 MAX 270 MIN 26 AC-FT 104900

GUADALUPE RIVER BASIN

08169580 GUADALUPE RIVER BELOW NEW BRAUNFELS, TX

LOCATION.--Lat 29°40'00", long 98°04'14", Comal County, Hydrologic Unit 12100202, in Lake Dınlap, 8 mi southeast of New Braunfels, and 15 mi 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 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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 AS CACO3)
OCT 17...	1355	561	7.8	25.0	6.9	86	1.8	250	33
DEC 02...	1110	540	7.9	16.5	7.8	82	1.2	250	18
MAR 01...	1050	534	8.1	15.5	8.6	88	.8	240	19
APR 17...	1110	582	8.1	22.0	7.6	89	.5	250	27
SEP 05...	1010	539	7.8	27.5	3.6	46	2.7	220	15

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 17...	73	17	19	.5	1.6	220	23	28	.20
DEC 02...	71	17	17	.5	1.7	230	18	23	.20
MAR 01...	66	18	18	.5	1.8	220	25	25	.20
APR 17...	69	18	22	.6	1.9	220	27	30	.30
SEP 05...	59	17	27	.8	2.4	203	24	35	.30

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
OCT 17...	12	310	.98	.020	1.0	.060	.84	.90	.160
DEC 02...	12	300	1.1	.010	1.1	.160	.84	1.0	.060
MAR 01...	11	300	1.1	.010	1.1	.130	.87	1.0	.090
APR 17...	11	310	.97	.030	1.0	.210	.19	.40	.110
SEP 05...	13	300	.50	.100	.60	.190	.51	.70	.220

GUADALUPE RIVER BASIN

08170000 SAN MARCOS RIVER SPRINGFLOW AT SAN MARCOS, TX

LOCATION.--Lat 29°52'06", long 97°55'38", Hays County, Hydrologic Unit 12100203, on left bank 0.7 mi downstream from bridge on Interstate Highway 35 and U.S. Highway 81, 1.2 mi southeast of courthouse in San Marcos, and 2.1 mi upstream from Blanco River.

DRAINAGE AREA.--93.0 mi². 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 springflow 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 National Geodetic Vertical Datum of 1929. June 10, 1915, to Jan. 19, 1916, nonrecording gage at site 1.2 mi 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 upstream. Flow is affected at times by discharge from flood-detention pool of a floodwater-retarding structure with detention capacity of 8,580 acre-ft. This structure controls runoff from 33.6 mi². Entire flow of river is from San Marcos Springs, about 1.8 mi 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.--28 years (water years 1957-84), 164 ft³/s (118,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily spring discharge (estimated), 350 ft³/s June 20, 1981; maximum discharge, 76,600 ft³/s May 15, 1970 (gage height, 35.12 ft); minimum daily spring discharge, 46 ft³/s Aug. 15, 16, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1913, 38.6 ft Sept. 10, 1921 (from floodmark, backwater from Blanco River), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum daily spring discharge, 144 ft³/s Oct. 10; maximum gage height, 4.23 ft Aug. 14 at 2300 hours (flood runoff); minimum daily spring discharge, 64 ft³/s Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	129	128	132	129	112	111	101	99	94	73	74
2	140	129	131	131	129	115	113	103	101	93	73	72
3	137	130	135	130	129	116	111	104	101	91	75	76
4	137	131	132	131	129	114	108	104	100	92	75	74
5	138	138	133	131	129	119	105	105	98	92	76	74
6	138	139	130	132	126	119	107	102	102	89	72	74
7	137	138	130	131	125	117	111	101	101	89	69	74
8	137	132	131	132	126	114	111	98	101	90	69	74
9	141	130	132	135	127	118	107	94	104	90	68	72
10	144	130	132	129	126	117	104	95	106	88	69	72
11	141	133	131	130	122	116	104	93	104	88	71	72
12	140	133	133	128	120	119	106	97	105	86	74	72
13	138	132	131	127	118	116	102	99	107	85	71	71
14	136	134	131	129	118	118	103	97	107	87	72	71
15	137	133	133	129	117	116	106	94	106	87	85	71
16	137	132	132	128	117	116	107	95	106	84	79	70
17	135	132	132	129	118	115	106	98	104	83	81	69
18	133	131	131	126	119	111	105	99	101	84	80	64
19	133	133	133	126	117	112	107	102	100	85	80	66
20	135	134	132	125	119	112	106	103	96	87	81	70
21	132	134	133	125	120	110	106	101	94	88	76	74
22	133	133	132	127	120	110	105	98	95	88	76	75
23	135	135	132	130	120	111	104	98	97	84	75	75
24	134	132	128	126	119	109	102	98	97	83	75	72
25	134	133	129	127	118	110	101	99	97	83	74	71
26	135	135	131	126	119	109	100	102	96	81	74	72
27	135	138	129	126	117	109	100	101	94	76	74	71
28	132	132	128	127	116	106	104	100	91	74	74	71
29	132	130	127	128	113	108	103	99	96	76	74	76
30	132	127	128	127	---	108	100	99	95	77	74	76
31	131	---	129	126	---	107	---	98	---	76	74	---
TOTAL	4219	3982	4059	3986	3522	3509	3165	3077	3001	2650	2313	2165
MEAN	136	133	131	129	121	113	106	99.3	100	85.5	74.6	72.2
MAX	144	139	135	135	129	119	113	105	107	94	85	76
MIN	131	127	127	125	113	106	100	93	91	74	68	64
AC-FT	8370	7900	8050	7910	6990	6960	6280	6100	5950	5260	4590	4290

CAL YR 1983 TOTAL 53573 MEAN 147 MAX 218 MIN 108 AC-FT 106300
WTR YR 1984 TOTAL 39648 MEAN 108 MAX 144 MIN 64 AC-FT 78640

GUADALUPE RIVER BASIN

245

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 southeast of Wimberley, 2,200 ft downstream from Cypress Creek, and at mile 29.0.

DRAINAGE AREA.--355 mi².

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 National Geodetic Vertical Datum of 1929. Aug. 6, 1924, to Sept. 30, 1926, nonrecording gage at site 1,030 ft upstream at datum 5.00 ft higher. Recording gage from June 6, 1928, to June 12, 1975, at site 1,000 ft upstream at datum 5.00 ft higher.

REMARKS.--Records good. Numerous small diversions above station. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--58 years (water years 1925-26, 1929-84), 121 ft³/s (4.63 in/yr), 87,660 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 113,000 ft³/s May 28, 1929 (gage height, 33.3 ft, from floodmark), present site and datum, from rating curve extended above 30,000 ft³/s on basis of slope-area measurements of 95,000 and 113,000 ft³/s; minimum, 0.6 ft³/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 25 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,910 ft³/s Oct. 9 at 1530 hours (gage height, 7.52 ft), no other peak above base of 1,800 ft³/s; minimum daily, 10 ft³/s Sept. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	37	45	39	46	34	31	18	16	23	13	11
2	38	37	45	40	47	36	32	17	16	23	14	13
3	37	36	55	39	46	37	30	17	16	21	13	15
4	38	36	48	40	44	38	30	15	16	18	13	17
5	37	53	49	40	44	39	30	15	53	17	13	14
6	37	50	45	42	43	35	29	15	65	17	13	13
7	37	71	44	41	44	34	30	15	99	17	14	12
8	37	74	44	41	43	35	31	13	79	16	12	13
9	552	65	45	54	41	34	29	12	57	16	12	14
10	288	58	45	44	41	34	30	13	49	16	11	13
11	111	58	43	51	42	33	32	12	42	15	11	13
12	76	57	42	53	43	34	31	13	42	15	11	12
13	57	55	41	50	40	35	29	13	35	15	12	13
14	55	55	45	49	41	35	29	13	37	14	12	13
15	52	53	44	48	43	36	27	12	30	14	27	11
16	57	51	45	45	40	37	28	11	29	13	20	10
17	50	52	41	45	40	35	25	14	26	13	15	11
18	45	52	41	43	42	37	23	22	24	14	14	14
19	45	51	41	43	39	39	23	24	22	19	13	14
20	58	47	41	43	39	35	22	46	22	17	13	13
21	54	49	40	43	38	39	21	85	21	15	13	15
22	44	50	39	45	38	40	21	57	20	14	13	17
23	47	50	40	47	40	41	22	47	20	16	13	16
24	46	46	39	45	41	37	20	38	20	16	12	14
25	44	46	48	45	38	36	20	32	19	15	12	13
26	42	47	37	45	41	39	21	27	18	14	13	11
27	41	49	38	45	35	35	20	24	17	13	13	11
28	40	44	41	45	35	31	18	22	20	14	11	12
29	38	46	39	48	35	33	19	21	25	13	11	13
30	38	47	37	49	---	33	18	17	28	12	11	13
31	37	---	38	45	---	32	---	17	---	11	11	---
TOTAL	2217	1522	1325	1392	1189	1108	771	717	983	486	409	394
MEAN	71.5	50.7	42.7	44.9	41.0	35.7	25.7	23.1	32.8	15.7	13.2	13.1
MAX	552	74	55	54	47	41	32	85	99	23	27	17
MIN	37	36	37	39	35	31	18	11	16	11	11	10
CFSM	.20	.14	.12	.13	.12	.10	.07	.07	.09	.04	.04	.04
IN.	.23	.16	.14	.15	.12	.12	.08	.08	.10	.05	.04	.04
AC-FT	4400	3020	2630	2760	2360	2200	1530	1420	1950	964	811	781

CAL YR 1983	TOTAL	31707	MEAN 86.9	MAX	1210	MIN 24	CFSM .25	IN 3.32	AC-FT	62890
WTR YR 1984	TOTAL	12513	MEAN 34.2	MAX	552	MIN 10	CFSM .10	IN 1.31	AC-FT	24820

GUADALUPE RIVER BASIN

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 downstream from Tarbutton Ranch House (Hatchett Ranch), 2.2 mi southwest of Kyle, 4.2 mi downstream from Halifax Creek, and 6.3 mi upstream from bridge on U.S. Highway 81.

DRAINAGE AREA.--412 mi².

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 Corps of Engineers datum.

REMARKS.--Records good. Small diversions above station for irrigation. Most of the low flow of the Blanco River enters the Edwards and associated limestones in the Balcones Fault Zone which crosses the basin upstream from this station and below the station at Wimberley. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--28 years, 143 ft³/s (4.71 in/yr), 103,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,000 ft³/s May 2, 1958 (gage height, 36.3 ft, from floodmark), from rating curve extended above 37,000 ft³/s on basis of slope-area measurement of 139,000 ft³/s and slope-conveyance study; no flow at times in 1956-57, 1963-65, 1967, 1971, 1978, and 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 40 ft in May 1929, from information by local residents (discharge, 139,000 ft³/s). Flood of Sept. 11, 1952, reached a stage of 38.0 ft (discharge, 115,000 ft³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,870 ft³/s Oct. 9 at 2100 hours (gage height, 9.82 ft), no peak above base of 2,500 ft³/s; no flow July 10 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	23	32	26	31	23	16	4.8	3.7	2.8	.00	.00
2	17	23	32	27	32	22	16	4.7	3.3	2.0	.00	.00
3	16	23	43	28	32	22	15	5.9	3.1	2.6	.00	.00
4	16	23	38	27	30	22	13	4.7	3.2	1.5	.00	.00
5	15	29	35	27	30	24	13	3.6	5.7	.65	.00	.00
6	15	41	34	27	29	24	13	3.0	23	.39	.00	.00
7	14	41	32	26	29	21	13	2.8	34	.29	.00	.00
8	14	50	31	27	29	21	15	2.6	41	.22	.00	.00
9	271	50	32	41	31	20	14	1.9	21	.08	.00	.00
10	429	42	32	33	30	20	12	1.5	15	.00	.00	.00
11	116	39	31	30	29	20	12	1.3	13	.00	.00	.00
12	75	39	29	35	29	21	12	1.1	11	.00	.00	.00
13	44	39	29	35	28	21	12	1.0	10	.00	.00	.00
14	38	38	29	34	27	20	11	.91	7.5	.00	.00	.00
15	35	36	28	34	27	20	11	.84	7.7	.00	.00	.00
16	34	34	30	33	26	21	10	.79	5.6	.00	.00	.00
17	36	34	29	33	26	20	10	.97	4.7	.00	.00	.00
18	30	34	27	33	27	19	9.9	4.7	4.0	.00	.00	.00
19	28	34	27	32	26	27	9.1	9.5	3.5	.00	.00	.00
20	29	32	28	31	26	21	8.7	10	3.2	.00	.00	.00
21	47	32	29	31	26	19	8.0	27	2.5	.00	.00	.00
22	30	34	28	32	24	20	6.4	34	1.9	.00	.00	.00
23	28	40	28	37	25	21	6.1	23	1.5	.00	.00	.00
24	29	33	26	35	25	21	6.9	19	1.1	.00	.00	.00
25	28	32	24	34	25	18	6.4	15	.91	.00	.00	.00
26	26	33	28	33	28	19	6.6	12	.87	.00	.00	.00
27	25	36	28	32	26	19	6.7	9.3	.70	.00	.00	.00
28	24	35	28	32	23	16	5.6	7.4	.54	.00	.00	.00
29	24	33	26	33	22	14	5.3	6.1	1.5	.00	.00	.00
30	24	33	25	32	---	16	5.1	5.3	1.9	.00	.00	.00
31	23	---	26	32	---	16	---	4.3	---	.00	.00	---
TOTAL	1597	1045	924	982	798	628	308.8	229.01	236.62	10.53	.00	.00
MEAN	51.5	34.8	29.8	31.7	27.5	20.3	10.3	7.39	7.89	.34	.000	.000
MAX	429	50	43	41	32	27	16	34	41	2.8	.00	.00
MIN	14	23	24	26	22	14	5.1	.79	.54	.00	.00	.00
CFSM	.13	.08	.07	.08	.07	.05	.03	.02	.02	.001	.000	.000
IN.	.14	.09	.08	.09	.07	.06	.03	.02	.02	.00	.00	.00
AC-FT	3170	2070	1830	1950	1580	1250	613	454	469	21	.00	.00

CAL YR 1983 TOTAL 26846.00 MEAN 73.6 MAX 1580 MIN 14 CFSM .18 IN 2.42 AC-FT 53250
WTR YR 1984 TOTAL 6758.96 MEAN 18.5 MAX 429 MIN .00 CFSM .05 IN .61 AC-FT 13410

GUADALUPE RIVER BASIN

247

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 downstream from bridge on State Highway 80, 1.0 mi south of U.S. Post Office at Luling, and 9.4 mi upstream from Plum Creek.

DRAINAGE AREA.--838 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is affected at times by discharge from flood-detention pools of 18 floodwater-retarding structures with a combined detention capacity of 26,830 acre-ft. These structures control runoff from 105 mi² in the Town and York Creeks drainage basins. Rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--45 years, 364 ft³/s (263,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft³/s Sept. 12, 1952 (gage height, 34.95 ft); minimum daily, 43 ft³/s Aug. 12, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, 40.4 ft 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 and is the second highest known.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 680 ft³/s Nov. 6 at 0100 hours (gage height, 7.06 ft), no peak above base of 4,000 ft³/s; minimum daily, 56 ft³/s Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	159	148	145	147	131	110	93	80	76	65	56
2	158	156	155	146	148	132	113	94	79	73	64	59
3	157	156	170	145	148	134	114	94	80	73	65	63
4	157	158	165	145	148	134	111	93	84	72	68	66
5	155	239	166	143	147	137	109	92	86	72	66	69
6	155	462	163	142	146	145	106	93	89	71	66	67
7	154	389	159	141	145	133	107	94	98	69	65	67
8	153	221	156	144	144	132	109	91	88	70	65	66
9	160	190	156	193	259	130	109	87	85	70	65	63
10	217	185	157	190	203	129	109	85	89	69	64	64
11	537	178	158	157	161	129	105	85	99	68	64	64
12	324	175	157	150	148	140	106	84	96	67	64	63
13	237	129	157	145	144	136	106	83	99	67	66	61
14	206	161	152	145	141	130	102	84	94	66	65	61
15	188	161	150	148	139	131	101	85	90	65	66	61
16	182	159	150	149	138	130	101	84	90	65	69	66
17	179	158	150	149	136	129	102	88	88	65	70	65
18	176	159	151	148	137	130	101	91	86	63	68	65
19	175	159	152	147	136	233	102	101	85	64	66	65
20	185	156	152	146	139	168	102	100	81	63	66	64
21	190	155	152	146	141	134	102	96	80	63	64	60
22	175	157	153	149	139	127	100	94	78	64	62	63
23	178	165	151	156	137	123	99	90	76	67	60	69
24	170	167	149	156	135	122	99	90	75	80	59	68
25	168	162	147	155	135	120	96	87	74	73	59	66
26	166	160	147	151	146	121	95	85	73	69	59	66
27	165	161	147	149	140	120	96	86	71	68	59	66
28	163	163	150	149	134	117	93	87	72	69	60	66
29	160	167	146	148	132	114	94	86	73	68	59	67
30	159	159	145	148	---	114	93	84	74	66	59	67
31	159	---	144	146	---	112	---	83	---	65	58	---
TOTAL	5867	5526	4755	4671	4293	4117	3092	2769	2512	2120	1975	1933
MEAN	189	184	153	151	148	133	103	89.3	83.7	68.4	63.7	64.4
MAX	537	462	170	193	259	233	114	101	99	80	70	69
MIN	153	129	144	141	132	112	93	83	71	63	58	56
AC-FT	11640	10960	9430	9260	8520	8170	6130	5490	4980	4210	3920	3830
CAL YR 1983	TOTAL	99581	MEAN 273	MAX 3170	MIN 128	AC-FT 197500						
WTR YR 1984	TOTAL	43630	MEAN 119	MAX 537	MIN 56	AC-FT 86540						

GUADALUPE RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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...	1533	155	602	8.0	25.5	290	48	84	19
NOV									
22...	1528	159	611	8.2	18.5	290	41	85	19
JAN									
05...	1110	144	610	8.5	12.5	280	26	79	19
FEB									
28...	1618	133	602	8.6	14.0	280	28	80	19
APR									
12...	1436	105	625	8.3	22.0	280	26	79	19
MAY									
23...	1330	90	621	8.2	26.0	280	33	82	19
JUL									
11...	1005	68	574	8.2	29.0	--	--	--	--
AUG									
22...	1609	62	580	8.1	29.0	270	36	75	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 CONSTITUENTS, DIS- SOLVED (MG/L)
OCT									
05...	19	.5	1.9	240	31	30	.20	11	340
NOV									
22...	19	.5	1.9	250	30	30	.20	11	350
JAN									
05...	21	.6	1.8	250	28	35	.20	6.3	340
FEB									
28...	21	.6	2.0	250	32	33	.20	4.4	340
APR									
12...	22	.6	2.0	250	31	39	.30	9.1	350
MAY									
23...	20	.5	2.0	250	28	35	.30	12	350
JUL									
11...	--	--	--	225	--	--	--	--	--
AUG									
22...	21	.6	2.5	230	29	33	.30	14	330

GUADALUPE RIVER BASIN

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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 upstream from bridge on U.S. Highway 183, 2.7 mi north of Lockhart, 3.7 mi upstream from Town Creek, 5.0 mi downstream from Brushy Creek, and 30.4 mi upstream from mouth.

DRAINAGE AREA.--112 mi².

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 National Geodetic Vertical Datum of 1929. Apr. 30, 1959, to July 25, 1968, at site 548 ft 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 a combined detention capacity of 24,850 acre-ft. These structures control runoff from 67.8 mi² above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years, 45.9 ft³/s (33,250 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft³/s Oct. 29, 1960 (gage height, 20.62 ft); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1905, 22 ft in June 1936 at present site; flood in 1951 reached a stage of 20 ft at present site, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 130 ft³/s Jan. 9 at 1230 hours (gage height, 5.42 ft), no peak above base of 2,000 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.28	.07	3.6	1.4	2.6	1.90	.96	0	0	0	0	0
2	.24	.03	3.7	1.5	2.7	1.60	.96	0	0	0	0	0
3	.15	.02	4.6	1.6	2.6	1.50	.95	0	0	0	0	0
4	.08	.01	4.6	1.8	2.4	1.60	.88	0	0	0	0	0
5	.02	2.60	4.9	2.0	2.4	2.70	.75	0	0	0	0	0
6	.00	22.00	4.0	2.0	2.2	3.10	.67	0	0	0	0	0
7	.00	39.00	3.5	2.0	2.1	2.20	.67	0	0	0	0	0
8	.00	12.00	2.9	1.9	2.0	1.90	.61	0	0	0	0	0
9	.00	7.20	2.5	54.0	20.0	1.60	.43	0	0	0	0	0
10	.03	4.90	2.4	14.0	8.1	1.50	.25	0	0	0	0	0
11	.29	3.10	2.4	8.7	4.9	1.50	.16	0	0	0	0	0
12	1.40	1.90	2.2	6.1	4.1	1.60	.12	0	0	0	0	0
13	1.00	1.30	2.0	4.5	3.9	1.80	.09	0	0	0	0	0
14	1.40	1.10	1.8	4.0	3.6	1.80	.08	0	0	0	0	0
15	.88	1.10	1.5	3.6	3.1	1.90	.06	0	0	0	0	0
16	.72	.86	1.5	3.3	2.6	1.90	.03	0	0	0	0	0
17	.59	.86	1.4	3.2	2.5	1.80	.02	0	0	0	0	0
18	.44	.82	1.3	2.9	2.4	2.00	.00	0	0	0	0	0
19	.29	.79	1.6	2.6	2.2	2.50	.00	0	0	0	0	0
20	.28	.67	1.5	2.6	2.4	3.20	.00	0	0	0	0	0
21	1.90	.88	1.5	2.5	2.4	3.40	.00	0	0	0	0	0
22	3.00	1.20	1.6	2.4	2.4	2.60	.00	0	0	0	0	0
23	1.20	1.80	1.5	2.9	2.3	2.30	.00	0	0	0	0	0
24	.78	2.10	1.3	3.9	2.2	2.00	.00	0	0	0	0	0
25	.49	3.00	1.1	4.2	2.1	1.60	.00	0	0	0	0	0
26	.31	2.50	1.1	4.0	2.0	1.60	.00	0	0	0	0	0
27	.24	2.30	1.2	3.7	1.9	1.50	.00	0	0	0	0	0
28	.25	8.90	1.6	3.5	1.8	1.20	.00	0	0	0	0	0
29	.26	6.30	1.5	3.2	1.9	.97	.00	0	0	0	0	0
30	.19	4.40	1.4	3.0	---	1.00	.00	0	0	0	0	0
31	.10	---	1.3	2.7	---	.92	---	0	---	0	0	---
TOTAL	16.81	133.71	69.0	159.7	97.8	58.69	7.69	0	0	0	0	0
MEAN	.54	4.46	2.23	5.15	3.37	1.89	.26	.000	.000	.000	.000	.000
MAX	3.0	39	4.9	54	20	3.4	.96	.00	.00	.00	.00	.00
MIN	.00	.01	1.1	1.4	1.8	.92	.00	.00	.00	.00	.00	.00
AC-FT	33	265	137	317	194	116	15	.00	.00	.00	.00	.00

CAL YR 1983 TOTAL 13648.30 MEAN 37.4 MAX 2210 MIN .00 AC-FT 27070
WTR YR 1984 TOTAL 543.40 MEAN 1.48 MAX 54 MIN .00 AC-FT 1080

GUADALUPE RIVER BASIN

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 upstream from West Fork, 1.9 mi upstream from Southern Pacific Railroad Co. bridge, 2.2 mi upstream from McNeil Creek, 2.9 mi northeast of Luling, and at mile 7.5.

DRAINAGE AREA.--309 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Aug. 18, 1976, at datum 5 ft higher.

REMARKS.--Water-discharge records good. Low flow is slightly regulated by oilfield operation above station. At end of year, flow from 119 mi² above this station was partly controlled by 27 floodwater-retarding structures with a combined detention capacity of 41,840 acre-ft. No other known diversion above station.

AVERAGE DISCHARGE.--54 years, 101 ft³/s (73,170 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,500 ft³/s July 1, 1936 (gage height, 30.7 ft, from floodmarks), present datum, from rating curve extended above 37,500 ft³/s; no flow at times.
Maximum stage since at least 1868, that of July 1, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1913 reached about same stage, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 837 ft³/s Nov. 7 at 1100 hours (gage height, 12.49 ft), no peak above base of 2,300 ft³/s; minimum daily, 0.36 ft³/s Aug. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	7.6	15.0	9.9	11	10	12.0	3.8	1.30	3.50	3.30	.63
2	6.9	7.7	13.0	11.0	11	12	12.0	4.2	.94	3.70	3.00	.99
3	6.4	6.5	17.0	11.0	12	12	13.0	5.1	1.00	3.00	3.00	2.10
4	5.8	8.9	25.0	11.0	12	12	12.0	4.3	2.90	1.70	2.80	3.00
5	5.8	36.0	18.0	12.0	12	12	9.4	4.0	11.00	1.50	2.80	3.60
6	5.3	171.0	14.0	12.0	12	11	8.2	3.2	34.00	.78	2.80	2.30
7	4.9	464.0	13.0	12.0	12	13	8.5	2.9	41.00	.84	6.00	.80
8	4.8	125.0	12.0	13.0	12	12	8.3	1.9	13.00	.95	4.60	.54
9	6.1	59.0	11.0	92.0	65	12	8.5	1.7	8.20	.94	3.40	.46
10	27.0	40.0	11.0	130.0	106	12	9.5	2.2	6.20	1.00	3.00	.48
11	17.0	31.0	12.0	45.0	35	12	8.1	2.2	5.60	.94	2.90	.48
12	14.0	25.0	17.0	27.0	24	14	7.3	5.1	7.30	1.40	2.70	.52
13	16.0	22.0	13.0	21.0	23	15	7.4	2.6	19.00	1.60	2.80	.48
14	12.0	20.0	10.0	15.0	20	15	6.6	2.5	12.00	.48	9.80	.95
15	9.8	17.0	10.0	14.0	19	14	5.9	2.5	7.30	.82	2.90	.92
16	9.4	14.0	9.6	13.0	18	14	5.5	2.5	5.90	.86	1.60	.88
17	8.0	13.0	9.3	12.0	18	14	5.7	2.8	4.90	.84	1.40	.79
18	8.0	12.0	8.7	11.0	17	14	6.3	6.2	4.60	.75	1.40	.73
19	7.4	11.0	8.5	11.0	16	32	6.7	11.0	4.50	.68	1.20	.55
20	12.0	10.0	8.2	10.0	16	24	6.0	21.0	4.20	.69	.58	.55
21	34.0	9.2	8.7	9.7	20	17	5.6	8.8	4.20	.85	.74	.37
22	12.0	9.1	9.5	10.0	18	17	4.9	6.0	3.60	.97	.36	.93
23	11.0	11.0	9.4	12.0	17	18	4.4	4.9	3.70	1.00	1.30	3.70
24	11.0	17.0	9.0	15.0	16	17	3.7	4.6	3.60	3.30	1.50	1.90
25	9.2	12.0	9.0	13.0	15	16	3.7	3.9	3.30	23.00	.73	1.40
26	7.8	10.0	8.9	13.0	31	15	3.9	3.6	2.90	13.00	.70	1.10
27	8.1	11.0	9.1	13.0	21	16	4.0	2.8	2.80	7.60	.76	.92
28	7.5	11.0	9.5	13.0	12	15	4.7	2.7	2.60	5.30	.67	.88
29	7.5	12.0	9.5	13.0	11	14	4.9	1.4	2.90	5.00	.66	.83
30	7.4	17.0	8.6	12.0	---	13	4.0	2.2	3.00	4.30	.49	1.00
31	7.5	---	9.4	11.0	---	12	---	1.4	---	3.70	.38	---
TOTAL	317.3	1220.0	355.9	627.6	632	456	210.7	134.0	227.44	94.99	70.27	34.78
MEAN	10.2	40.7	11.5	20.2	21.8	14.7	7.02	4.32	7.58	3.06	2.27	1.16
MAX	34	464	25	130	106	32	13	21	41	23	9.8	3.7
MIN	4.8	6.5	8.2	9.7	11	10	3.7	1.4	.94	.48	.36	.37
AC-FT	629	2420	706	1240	1250	904	418	266	451	188	139	69
CAL YR 1983	TOTAL	28192.39	MEAN	77.2	MAX	3610	MIN	.61	AC-FT	55920		
WTR YR 1984	TOTAL	4380.98	MEAN	12.0	MAX	464	MIN	.36	AC-FT	8690		

GUADALUPE RIVER BASIN

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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, 100 micromhos Feb. 10, 1983.

WATER TEMPERATURES: Maximum daily, 35.0°C July 24, 1969; minimum daily, 0.5°C Dec. 24, 26, 27, 30, 31, 1983.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,860 micromhos Jan. 7; minimum daily, 490 micromhos June 6.

WATER TEMPERATURES: Maximum daily, 31.0°C July 14; minimum daily, 0.5°C Dec. 24, 26, 27, 30, 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
DATE	TIME								
OCT 06...	1232	5.2	1220	8.0	24.0	320	61	110	11
NOV 28...	1510	12	1140	8.0	12.5	340	66	120	11
JAN 05...	1600	13	1280	8.4	10.5	380	99	130	13
FEB 28...	0932	12	1120	8.0	10.0	280	90	94	11
APR 13...	1100	7.2	1570	8.1	19.0	410	88	140	14
MAY 24...	1130	4.3	1220	7.9	25.0	290	21	100	10
JUL 11...	1502	.90	1670	8.2	29.5	--	--	--	--
AUG 23...	1255	1.5	1490	8.2	28.0	330	0	110	13
		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)
DATE	SODIUM, DIS- SOLVED (MG/L AS NA)								
OCT 06...	130	3	6.5	260	81	200	.50	19	710
NOV 28...	110	3	5.3	280	89	170	.50	20	690
JAN 05...	120	3	3.9	280	100	190	.50	11	740
FEB 28...	110	3	5.8	190	83	200	.40	9.4	630
APR 13...	170	4	4.6	320	110	260	.60	20	910
MAY 24...	140	4	5.1	270	79	190	.50	22	710
JUL 11...	--	--	--	376	--	--	--	--	--
AUG 23...	190	5	6.6	343	89	240	.70	22	880

GUADALUPE RIVER BASIN

08173000 PLUM CREEK NEAR LULING, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	317.3	1140	661	566	170	148	97	83	320
NOV. 1983	1220.0	820	475	1570	110	375	74	245	240
DEC. 1983	355.9	1350	784	754	220	209	110	105	370
JAN. 1984	627.6	1200	694	1180	190	322	98	166	330
FEB. 1984	632	1070	622	1060	160	272	93	158	310
MAR. 1984	456	1440	838	1030	240	291	120	142	400
APR. 1984	210.7	1590	925	526	270	155	120	70	430
MAY 1984	134.0	1440	834	302	240	85	110	41	390
JUNE 1984	227.44	1190	692	425	180	113	100	61	340
JULY 1984	94.99	1440	838	215	240	61	110	29	400
AUG. 1984	70.27	1400	811	154	230	43	110	21	390
SEPT 1984	34.78	1520	883	83	250	24	120	11	410
TOTAL	4380.98	**	**	7900	**	2100	**	1130	**
WTD.AVG.	12	1140	664	**	180	**	96	**	320

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	1200	1090	1130	1290	1230	1270	1160	1140	1150	1240	1200	1220
2	1120	1080	1100	1260	1230	1240	1150	1140	1150	1220	1210	1210
3	1150	1120	1140	1230	1210	1220	1900	1140	1210	1220	1200	1210
4	1130	1120	1130	1210	1200	1210	2180	1390	1640	1220	1200	1210
5	1180	1120	1150	1200	890	1150	1440	1340	1390	1220	1210	1220
6	1210	1170	1200	1880	560	740	2120	1300	1500	1290	1210	1230
7	1180	1150	1160	720	570	650	2110	1890	2010	2860	1340	2500
8	1270	1180	1240	890	720	789	1880	1660	1770	2730	2470	2610
9	1240	1190	1210	900	860	875	1650	1530	1600	2450	710	1660
10	1240	1060	1140	980	860	902	1520	1400	1460	820	610	708
11	1220	1010	1120	1000	980	988	1390	1310	1340	930	750	860
12	1190	1130	1150	980	950	962	1310	1220	1270	1250	860	978
13	1990	1060	1250	970	950	959	1220	1180	1200	---	---	1130
14	2010	1680	1900	990	960	974	1180	1160	1170	---	---	1190
15	1620	1330	1460	1000	980	993	1310	1180	1260	---	---	1210
16	1300	1120	1190	1020	1000	1010	1290	1240	1260	---	---	1220
17	1110	1040	1060	1030	1010	1020	1300	1240	1270	---	---	1230
18	1260	1090	1230	1040	1020	1030	1300	1250	1280	---	---	1250
19	1250	1210	1240	1060	1040	1050	1320	1230	1270	---	---	1250
20	1220	1110	1170	1070	1050	1060	1320	1260	1280	---	---	1270
21	1110	720	904	1080	1060	1070	1260	1220	1240	---	---	1270
22	730	590	649	1090	1070	1080	1340	1230	1300	---	---	1270
23	1100	760	972	1100	1090	1090	1290	1250	1260	---	---	1230
24	1170	1110	1130	1110	1100	1100	1250	1230	1240	---	---	1190
25	1140	1100	1120	1110	1100	1110	1260	1240	1250	---	---	1220
26	1100	1060	1070	1120	1110	1120	1330	1250	1310	---	---	1220
27	1060	1020	1040	1130	1120	1120	1290	1250	1260	---	---	1220
28	1120	1030	1080	1130	1120	1130	1250	1230	1240	---	---	1230
29	1230	1030	1160	1140	1130	1130	1240	1220	1230	---	---	1220
30	1230	1190	1210	1150	1130	1140	1230	1210	1220	---	---	1230
31	1220	1160	1180	---	---	---	1230	1200	1210	---	---	1250
MONTH	2010	590	1160	1880	560	1040	2180	1140	1330	2860	610	1290

GUADALUPE RIVER BASIN

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08173000 PLUM CREEK NEAR LULING, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	1240	1500	1450	1480	1510	1430	1460	1610	1590	1600
2	---	---	1250	1530	1480	1510	2220	1470	1760	1620	1600	1610
3	---	---	1230	1620	1520	1590	2140	1570	1790	1620	1590	1600
4	---	---	1220	1940	1570	1670	1560	1500	1530	1600	1580	1590
5	---	---	1240	1770	1520	1620	1500	1410	1450	1600	1580	1590
6	---	---	1230	1510	1460	1490	1440	1380	1410	1590	1570	1580
7	---	---	1220	1470	1400	1440	1480	1410	1450	1580	1570	1570
8	---	---	1230	1450	1390	1410	1470	1410	1440	1610	1580	1600
9	---	---	895	1400	1370	1390	1460	1410	1440	1630	1610	1620
10	---	---	792	1580	1390	1460	1450	1400	1430	1650	1630	1650
11	---	---	1030	1520	1460	1490	1440	1380	1410	1670	1650	1660
12	---	---	1100	1460	1410	1430	1430	1360	1400	1660	1640	1650
13	---	---	1110	1460	1400	1420	1550	1410	1480	1660	1640	1650
14	---	---	1140	1480	1370	1410	1550	1530	1540	1660	1650	1660
15	---	---	1150	1470	1380	1420	1570	1540	1560	1660	1640	1650
16	---	---	1160	1400	1380	1390	1600	1570	1590	1650	1630	1640
17	---	---	1160	1450	1360	1400	1610	1570	1590	1640	1610	1620
18	---	---	1170	1460	1360	1420	1610	1570	1590	1620	1560	1600
19	---	---	1180	2760	1330	1670	1630	1590	1610	1560	1370	1450
20	---	---	1180	1300	1180	1230	1960	1640	1820	1390	1220	1290
21	---	---	1140	1430	1300	1360	2130	1830	2010	1210	1180	1190
22	---	---	1160	1380	1350	1370	1820	1690	1750	1250	1190	1230
23	---	---	1170	1430	1370	1400	1710	1650	1670	1260	1190	1220
24	---	---	1180	1380	1340	1360	2230	1720	2070	1230	1190	1200
25	---	---	1190	1390	1350	1370	2170	1860	1990	1260	1230	1250
26	---	---	1050	1430	1370	1410	1850	1740	1770	1230	1110	1180
27	---	---	1130	1420	1380	1400	1740	1670	1700	1210	1100	1130
28	---	---	1230	1430	1390	1420	1760	1680	1730	1460	1220	1370
29	1460	1390	1440	1470	1410	1440	1660	1600	1620	1490	1460	1470
30	---	---	---	1450	1420	1430	1610	1580	1590	1500	1470	1490
31	---	---	---	1460	1430	1450	---	---	---	1670	1500	1580
MONTH	1460	1390	1160	2760	1180	1440	2230	1360	1620	1670	1100	1490

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1770	1680	1730	1590	1570	1580	1320	1250	1280	1500	1470	1490
2	1740	1700	1720	1590	1570	1580	1310	1260	1290	1510	1490	1500
3	1700	1640	1670	1580	1540	1560	1340	1310	1330	1550	1500	1530
4	1640	1570	1610	1550	1530	1540	1390	1340	1370	1560	1510	1540
5	1600	1420	1520	1530	1520	1530	1360	1310	1320	1510	1460	1490
6	1410	490	1200	1540	1520	1530	1340	1310	1330	1460	1410	1430
7	1100	860	974	1590	1540	1570	1390	1340	1360	1420	1400	1410
8	940	850	886	1600	1580	1590	1400	1380	1390	1410	1390	1400
9	1040	920	990	1610	1580	1590	1380	1300	1330	1400	1390	1390
10	1140	1020	1060	1640	1590	1620	1400	1300	1350	1410	1390	1400
11	1210	1150	1190	1660	1630	1650	1500	1400	1460	1430	1400	1420
12	1200	1100	1170	1680	1640	1660	1510	1490	1500	1460	1420	1440
13	1150	1010	1110	1650	1630	1640	1510	1500	1500	1490	1460	1470
14	1110	970	1050	1640	1620	1630	1500	1450	1480	1530	1490	1510
15	1180	1110	1140	1660	1630	1650	1450	1370	1410	1540	1510	1530
16	1250	1180	1220	1670	1620	1650	1360	1300	1330	1550	1520	1540
17	1260	1240	1250	1690	1650	1670	1330	1300	1310	1560	1530	1550
18	1250	1180	1230	1690	1520	1660	1360	1320	1340	1570	1550	1560
19	1180	1120	1150	1720	1500	1660	1410	1360	1380	1580	1560	1570
20	1330	1120	1210	1710	1590	1690	1430	1400	1410	1600	1570	1590
21	1490	1340	1430	1710	1540	1680	1460	1430	1450	1600	1580	1590
22	1580	1490	1530	1690	1490	1670	1470	1450	1460	1610	1590	1600
23	1630	1580	1610	1700	1610	1670	1500	1470	1480	1670	1590	1620
24	1620	1610	1620	1690	1500	1640	1530	1480	1500	1680	1590	1640
25	1610	1590	1600	1610	1230	1460	1570	1530	1550	1580	1490	1530
26	1600	1580	1590	1260	1150	1230	1570	1510	1550	1490	1450	1470
27	1590	1560	1580	1430	1270	1360	1500	1420	1470	1450	1420	1440
28	1590	1560	1580	1320	1220	1260	1430	1390	1410	1470	1430	1450
29	1580	1560	1570	1290	1170	1270	1410	1380	1400	1510	1470	1490
30	1580	1560	1570	1380	1190	1330	1440	1410	1420	1520	1500	1510
31	---	---	---	1390	1330	1370	1470	1440	1450	---	---	---
MONTH	1770	490	1360	1720	1150	1550	1570	1250	1410	1680	1390	1500

GUADALUPE RIVER BASIN

08173000 PLUM CREEK NEAR LULING, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	22.0	21.0	21.5	20.0	18.5	19.5	13.5	12.0	12.5	4.5	2.0	3.5
2	22.5	21.0	21.5	21.0	20.0	20.5	12.5	12.0	12.0	7.0	4.5	6.0
3	23.0	21.5	22.0	21.5	20.5	21.0	14.5	12.5	14.0	8.0	7.0	7.5
4	24.0	22.5	23.0	22.0	21.5	21.5	14.5	13.5	14.0	9.5	7.5	8.5
5	24.5	23.0	24.0	21.5	21.0	21.5	15.5	14.0	15.0	10.5	9.0	9.5
6	25.0	23.5	24.0	21.0	20.0	20.5	15.0	12.5	13.5	11.0	9.5	10.5
7	24.5	23.5	24.0	21.0	19.5	20.0	12.0	10.5	11.0	12.0	11.0	11.5
8	24.0	23.5	24.0	20.0	19.5	19.5	11.5	10.0	11.0	12.0	11.5	12.0
9	24.0	22.5	23.5	20.0	19.0	19.5	13.5	12.0	12.5	13.5	12.0	12.5
10	22.5	21.5	22.0	19.0	15.5	17.0	16.0	14.0	15.0	13.0	10.0	11.5
11	22.0	21.5	22.0	15.5	14.5	14.5	16.0	14.5	15.5	10.0	8.0	9.0
12	22.0	19.5	21.0	14.5	13.0	14.0	14.5	13.5	14.0	8.5	7.5	8.0
13	19.0	18.0	18.5	16.0	14.5	15.0	14.0	13.0	13.5	8.0	7.0	7.5
14	18.5	17.5	18.0	17.0	15.5	16.5	13.5	12.5	13.0	7.0	6.0	6.5
15	19.0	17.5	18.5	17.0	15.5	16.5	12.0	11.0	11.5	6.0	5.5	5.5
16	20.5	19.0	20.0	15.5	14.0	14.5	11.5	9.5	10.5	6.0	5.5	6.0
17	21.5	20.5	21.0	15.0	13.5	14.0	9.5	9.0	9.5	6.5	6.0	6.5
18	22.5	21.5	22.0	17.0	15.0	16.0	9.0	7.5	8.5	6.5	5.5	6.0
19	23.5	22.5	23.0	19.0	17.5	18.0	7.5	6.0	6.5	5.5	4.0	4.5
20	23.5	23.0	23.5	17.5	15.5	16.5	5.5	5.0	5.5	4.0	3.5	4.0
21	23.0	21.5	22.0	16.0	15.0	15.5	5.5	5.0	5.5	4.0	3.0	3.5
22	21.5	20.0	20.5	19.0	16.0	17.5	4.5	3.0	4.0	5.5	4.0	4.5
23	20.0	19.0	19.5	19.0	17.0	18.0	3.0	2.0	2.5	7.0	5.5	6.5
24	19.5	18.5	19.0	17.0	14.5	15.5	2.0	.5	1.0	7.5	7.0	7.5
25	19.5	18.0	18.5	14.5	13.5	14.0	---	---	---	8.5	7.5	8.0
26	18.5	17.5	18.0	16.0	14.0	15.0	.5	.5	.5	9.0	7.0	8.0
27	17.5	16.0	16.5	16.0	14.5	15.0	1.5	.5	1.0	9.5	8.0	9.0
28	16.5	15.5	16.0	14.0	12.5	13.0	3.5	1.5	2.5	10.0	8.5	9.5
29	17.0	16.0	16.5	12.0	11.0	11.5	2.0	1.0	1.5	11.5	9.5	10.5
30	18.5	17.0	17.5	13.5	11.5	12.5	1.5	.5	1.0	12.0	11.0	11.5
31	19.0	18.0	18.5	---	---	---	2.0	.5	1.0	11.0	10.0	10.5
MONTH	25.0	15.5	20.5	22.0	11.0	17.0	16.0	.5	8.5	13.5	2.0	8.0

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

GUADALUPE RIVER BASIN

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08173000 PLUM CREEK NEAR LULING, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	23.0	20.5	21.5	28.5	26.0	27.0	26.5	24.0	25.0	28.0	25.5	26.5
2	24.0	21.0	22.0	28.0	26.5	27.0	26.5	24.5	25.5	27.0	25.5	26.0
3	24.0	21.5	22.5	28.5	26.5	27.5	27.0	25.0	25.5	26.5	25.0	25.5
4	23.5	22.5	23.0	29.0	26.5	27.5	26.5	25.0	25.5	26.0	24.5	25.0
5	24.5	23.0	24.0	29.0	26.5	27.5	27.0	25.0	26.0	25.0	23.5	24.0
6	24.5	23.5	24.0	30.5	26.5	28.0	28.0	25.5	26.5	25.0	22.5	23.5
7	25.0	23.5	24.5	29.5	26.5	28.0	27.5	26.0	26.5	25.5	22.5	23.5
8	26.0	25.0	25.5	29.5	26.5	27.5	28.0	26.0	27.0	26.0	24.0	24.5
9	26.5	25.0	25.5	29.5	26.5	27.5	28.0	26.0	27.0	27.5	24.5	25.5
10	26.5	25.0	26.0	29.5	27.0	28.0	28.0	26.0	27.0	28.5	25.0	26.0
11	26.5	25.0	26.0	29.5	27.0	28.0	28.5	26.0	27.0	28.0	25.0	26.0
12	26.5	25.5	25.5	28.5	26.5	27.5	28.0	26.5	27.0	28.0	25.0	26.5
13	26.0	25.0	25.5	28.5	26.0	27.0	27.5	25.5	26.5	28.5	25.0	26.5
14	26.5	25.0	25.5	31.0	26.0	27.5	27.0	25.5	26.0	27.5	25.0	26.0
15	27.0	25.0	26.0	29.0	26.0	27.5	27.0	25.5	26.0	27.5	25.0	26.0
16	27.0	25.5	26.0	29.5	26.0	27.5	27.5	25.0	26.0	26.5	23.5	24.5
17	27.0	25.5	26.0	29.0	25.5	27.0	28.0	25.0	26.5	25.5	22.5	23.5
18	27.0	25.5	26.0	29.0	26.5	27.5	28.5	25.0	26.5	24.5	22.0	23.0
19	26.5	25.5	26.0	29.0	25.5	27.0	29.0	25.5	27.0	24.5	22.0	23.0
20	27.0	25.5	26.0	28.5	25.5	26.5	30.0	26.0	27.5	24.0	22.0	23.0
21	27.5	25.5	26.5	28.5	26.0	27.0	29.0	26.0	27.5	22.5	21.5	22.0
22	28.0	26.0	27.0	28.5	26.0	27.0	30.5	26.0	27.5	25.0	22.5	23.5
23	28.0	26.5	27.0	28.0	25.5	27.0	29.0	26.0	27.5	25.0	23.5	24.0
24	29.0	26.5	27.5	27.0	25.5	26.5	29.0	26.5	27.5	26.5	24.5	25.0
25	29.0	27.0	28.0	26.0	25.0	25.5	28.5	26.5	27.0	26.0	25.0	25.5
26	29.0	27.0	28.0	27.0	25.0	25.5	28.5	25.5	26.5	25.0	22.5	24.0
27	28.5	27.0	27.5	27.0	25.5	26.0	29.0	26.0	27.0	24.0	22.0	22.5
28	27.5	26.5	27.0	26.5	25.5	26.0	29.0	26.5	27.5	22.5	20.5	21.5
29	28.5	26.5	27.5	27.0	25.5	26.0	29.5	26.5	27.5	20.5	18.5	19.5
30	29.0	27.0	27.5	26.5	24.5	25.5	29.5	26.5	27.5	20.0	17.5	18.5
31	---	---	---	26.5	24.0	25.0	29.0	26.0	27.0	---	---	---
MONTH	29.0	20.5	25.5	31.0	24.0	27.0	30.5	24.0	26.5	28.5	17.5	24.0

GUADALUPE RIVER BASIN

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 downstream from bridge on county highway, 1.9 mi upstream from Birds Creek, 2.0 mi northeast of Westhoff, and 20.4 mi upstream from mouth.

DRAINAGE AREA.--549 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Nov. 9, 1934, water-stage recorder at site 150 ft upstream at datum 0.86 ft higher. Aug. 10, 1959, to Feb. 2, 1960, non-recording gage at present site and datum.

REMARKS.--Water-discharge records good. No known diversion above station.

AVERAGE DISCHARGE.--29 years (water years 1931-34, 1960-84), 128 ft³/s (3.17 in/yr), 92,740 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,700 ft³/s Sept. 22, 1967 (gage height, 32.34 ft), from rating curve extended above 21,000 ft³/s on basis of slope-area measurement of 92,700 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1864, 92,700 ft³/s July 2, 1936 (gage height, 33.1 ft, 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, present site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 993 ft³/s Nov. 8 at 1100 hours (gage height, 13.67 ft), no peak above base of 2,000 ft³/s; minimum daily, 0.80 ft³/s Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	6.4	11	11	13	10	11	4.6	2.7	1.6	1.1	.92
2	10	6.3	10	11	13	10	10	4.8	2.7	1.6	1.1	.80
3	8.9	6.1	11	11	12	10	10	5.0	2.6	1.5	1.1	1.9
4	8.1	6.1	11	11	11	10	10	4.8	2.7	1.5	1.1	5.1
5	7.3	98	13	11	11	10	10	4.7	2.8	1.4	1.1	2.7
6	7.1	418	14	11	10	10	9.9	4.8	7.5	1.4	1.1	2.1
7	6.9	683	13	11	10	9.9	20	4.9	5.8	1.3	1.1	1.3
8	6.6	942	12	11	8.6	9.7	23	4.7	5.8	1.2	1.1	1.1
9	58	665	12	133	8.2	9.5	18	4.4	5.1	1.2	1.3	1.0
10	16	249	11	193	8.9	9.4	18	4.8	4.5	1.2	1.5	1.0
11	12	74	11	122	11	9.4	18	5.4	4.3	1.2	1.3	1.2
12	12	40	10	71	11	47	17	5.2	4.1	1.1	1.3	1.2
13	11	26	10	41	11	401	12	5.0	3.8	1.1	1.3	1.2
14	12	20	10	24	11	647	9.7	4.4	3.5	1.0	1.2	1.1
15	18	17	10	18	11	501	8.3	4.2	3.2	.90	1.1	1.0
16	12	15	10	15	11	104	7.5	4.1	3.0	.88	1.0	2.3
17	9.4	13	9.7	13	11	46	7.1	4.0	2.9	.83	2.3	5.5
18	8.5	13	9.6	12	11	30	6.9	4.0	3.1	.84	2.0	6.0
19	7.8	13	9.4	12	11	27	6.5	4.4	3.4	1.0	1.6	3.9
20	7.7	12	9.6	12	12	27	6.0	5.3	3.3	1.1	1.4	2.9
21	57	11	9.6	11	12	25	5.9	6.1	3.1	1.1	1.4	2.8
22	28	11	9.9	11	11	29	5.8	6.8	3.3	1.1	1.3	2.7
23	27	11	9.7	14	11	25	5.6	5.7	3.2	1.1	1.1	2.6
24	29	11	9.5	25	12	20	5.6	4.8	2.9	1.1	.98	2.5
25	15	11	9.5	53	12	28	5.5	4.2	2.7	1.1	1.3	2.4
26	9.7	11	9.5	42	12	23	5.1	3.8	2.6	1.1	1.2	2.4
27	8.0	11	9.6	38	11	19	4.9	3.6	2.5	1.1	1.0	2.3
28	6.8	11	9.6	34	11	18	4.7	3.4	2.0	1.1	.94	2.2
29	6.7	10	9.7	23	10	15	4.7	3.2	1.8	1.1	1.1	2.2
30	6.7	11	10	17	---	13	4.6	3.0	1.7	1.1	1.2	2.1
31	6.4	---	11	14	---	11	---	3.0	---	1.1	1.1	---
TOTAL	451.6	3431.9	324.9	1036	318.7	2163.9	291.3	141.1	102.6	35.95	38.72	68.42
MEAN	14.6	114	10.5	33.4	11.0	69.8	9.71	4.55	3.42	1.16	1.25	2.28
MAX	58	942	14	193	13	647	23	6.8	7.5	1.6	2.3	6.0
MIN	6.4	6.1	9.4	11	8.2	9.4	4.6	3.0	1.7	.83	.94	.80
CFSM	.03	.21	.02	.06	.02	.13	.02	.008	.006	.002	.002	.004
IN.	.03	.23	.02	.07	.02	.15	.02	.01	.01	.00	.00	.00
AC-FT	896	6810	644	2050	632	4290	578	280	204	71	77	136
CAL YR 1983 TOTAL	18121.80		MEAN 49.6	MAX 1290	MIN 3.5	CFSM .09	IN 1.23	AC-FT 35940				
WTR YR 1984 TOTAL	8405.09		MEAN 23.0	MAX 942	MIN .80	CFSM .04	IN .57	AC-FT 16670				

GUADALUPE RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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...	1335	11	793	--	19.0	80	0	24	4.9
DEC 01...	1455	10	992	--	14.0	170	0	50	11
JAN 19...	1250	10	955	7.9	5.0	160	0	45	11
MAR 01...	1500	9.8	1530	--	12.0	220	0	64	14
APR 12...	1630	17	1460	--	22.0	130	0	39	8.9
MAY 24...	1535	4.7	970	--	23.5	120	0	35	7.8
JUL 12...	1100	1.1	1940	8.3	27.0	220	0	33	33
AUG 23...	1245	1.1	2630	--	27.0	90	0	27	5.4

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 14...	140	7	11	224	34	100	.40	17	470
DEC 01...	130	5	11	180	79	160	.30	20	570
JAN 19...	140	5	12	180	97	140	.40	15	570
MAR 01...	240	7	11	295	130	250	.60	12	900
APR 12...	260	10	12	367	50	230	.70	14	830
MAY 24...	280	12	11	415	34	200	.90	16	830
JUL 12...	390	12	11	641	28	250	1.3	20	1200
AUG 23...	660	32	12	725	30	550	1.6	20	1700

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 77A, 87, and 183, 2.1 mi upstream from Gohlke Creek, 2.4 mi southwest of Cuero, 4.2 mi downstream from Sandies Creek, and at mile 100.6.

DRAINAGE AREA.--4,934 mi², of which 1,432 mi² 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 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 National Geodetic Vertical Datum of 1929. Dec. 26, 1902, to June 1903, nonrecording gage at site 7.1 mi upstream at different datum, gage heights moved to site 3.3 mi upstream from present site before computation; July 1903 to December 1906 nonrecording gage 3.3 mi upstream at different datum; Aug. 19, 1916, to Dec. 16, 1935, water-stage recorder at site 5.0 mi downstream at datum 3.19 ft lower.

REMARKS.--Water-discharge records good to July and fair thereafter. Since July 21, 1962, flow is regulated by Canyon Lake (station 08167700) 202.4 mi 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. Flow is affected at times by discharge from the flood-detention pools of 53 floodwater-retarding structures with a combined detention capacity of 87,200 acre-ft. These structures control runoff from 302 mi² in the Comal, San Marcos, and Plum Creek drainage basins. Many small diversions above station. Gage-height telemeter and data collection platform at station.

AVERAGE DISCHARGE.--20 years (water years 1904-6, 1917-18, 1921-35) prior to regulation by Canyon Lake, 1,303 ft³/s (944,000 acre-ft/yr); 20 years (water years 1965-84) regulated, 1,988 ft³/s (1,440,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 132,000 ft³/s Sept. 1, 1981 (gage height, 41.83 ft); minimum daily, 28 ft³/s July 22, 1984.

Floods at this station since at least 1900 occurred Mar. 1, 1903, 43.0 ft, at different site and datum; Oct. 20, 1919, 32.2 ft, site and datum then in use; May 30, 1929, 35.2 ft, 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, present site and datum, from information by State Department of Highways and Public Transportation. Other floods at this station occurred Oct. 4, 1913, 37.57 ft, at different site and datum; Dec. 6, 1913, 34.57 ft, at different site and datum; June 21, 1961, 37.0 ft, present site and datum; all from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,520 ft³/s Nov. 9 at 0700 hours (gage height, 8.53 ft); minimum daily, 28 ft³/s July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	580	589	587	568	550	588	481	360	258	177	75	73
2	568	563	598	518	542	579	489	359	255	173	75	195
3	561	586	559	556	557	559	473	356	252	159	70	258
4	549	580	598	565	551	581	447	352	253	157	90	192
5	540	599	613	544	568	567	505	352	250	145	88	154
6	533	904	608	595	528	545	475	351	249	132	85	140
7	517	1850	601	499	546	558	452	347	252	128	88	94
8	517	2400	591	547	538	524	466	334	250	114	80	91
9	519	2350	591	1240	526	605	460	324	259	101	78	207
10	522	1400	587	1620	545	531	469	303	274	99	71	163
11	530	941	584	1350	767	545	483	279	273	90	65	151
12	575	835	583	948	907	681	473	289	266	89	89	135
13	808	788	557	654	695	1240	432	300	259	76	118	132
14	731	777	583	533	697	1340	437	293	257	71	100	122
15	659	681	570	502	521	1470	436	288	257	72	81	116
16	607	750	584	505	455	825	426	279	255	71	153	127
17	601	728	565	499	468	585	413	284	250	65	160	135
18	596	707	545	505	579	552	410	282	249	64	119	135
19	639	722	555	502	554	563	403	294	246	45	178	132
20	595	669	552	505	591	580	404	304	240	44	183	127
21	589	687	567	511	600	624	401	314	238	42	178	100
22	676	756	579	516	620	668	404	322	239	28	213	100
23	665	736	549	533	554	619	415	319	236	30	81	81
24	635	658	563	581	577	599	403	310	228	60	122	59
25	621	692	563	634	561	555	388	300	224	65	175	77
26	608	637	539	599	585	548	383	292	218	160	103	88
27	649	602	565	581	571	502	380	286	208	130	142	100
28	599	593	545	563	586	509	379	282	195	120	127	73
29	549	591	548	554	580	488	368	278	184	100	116	81
30	607	584	549	550	---	500	361	276	172	85	91	86
31	594	---	538	558	---	489	---	267	---	76	71	---
TOTAL	18539	25955	17716	19935	16919	20119	12916	9576	7246	2968	3465	3724
MEAN	598	865	571	643	583	649	431	309	242	95.7	112	124
MAX	808	2400	613	1620	907	1470	505	360	274	177	213	258
MIN	517	563	538	499	455	488	361	267	172	28	65	59
AC-FT	36770	51480	35140	39540	33560	39910	25620	18990	14370	5890	6870	7390
CAL YR 1983	TOTAL	380532	MEAN	1043	MAX	7730	MIN	508	AC-FT	754800		
WTR YR 1984	TOTAL	159078	MEAN	435	MAX	2400	MIN	28	AC-FT	315500		

GUADALUPE RIVER BASIN

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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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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...	1025	754	545	--	22.0	220	22	63	16
DEC 01...	1035	581	585	--	15.0	250	34	72	17
JAN 18...	1705	485	676	8.2	8.0	260	31	77	16
MAR 01...	1215	575	610	--	13.5	250	39	72	18
APR 11...	1220	490	637	--	23.0	250	28	72	18
MAY 24...	1130	321	645	--	26.5	230	17	63	18
JUL 11...	1545	90	660	8.0	28.5	240	17	63	19
AUG 23...	1100	82	695	--	--	230	7	62	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 14...	27	.8	3.3	202	33	37	.30	12	310
DEC 01...	28	.8	2.5	216	29	37	.20	12	330
JAN 18...	43	1	3.8	228	43	59	.30	8.6	390
MAR 01...	32	.9	2.5	215	35	46	.30	4.7	340
APR 11...	44	1	3.1	226	37	59	.30	10	380
MAY 24...	39	1	2.9	215	34	54	.30	14	350
JUL 11...	45	1	3.0	219	34	58	.30	18	370
AUG 23...	56	2	3.0	226	39	68	.30	17	400

GUADALUPE RIVER BASIN

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 upstream from Southern Pacific Railroad Co. bridge, 15 mi upstream from Coletto Creek, and at mile 50.7.

DRAINAGE AREA.--5,198 mi², of which 1,432 mi² 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, 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 upstream. Many diversions above station. Records furnished by the city of Victoria show a discharge of about 7,540 acre-ft 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 (1,178,000 acre-ft/yr); 22 years (water years 1963-84) regulated, 1,958 ft³/s (1,419,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 179,000 ft³/s July 3, 1936, (gage height, 31.22 ft); minimum daily, 14 ft³/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, present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,280 ft³/s Oct. 21 at 0700 hours (gage height, 11.70 ft); minimum daily, 63 ft³/s Sept. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	565	504	543	482	666	625	499	399	326	179	113	102
2	552	497	561	517	634	635	493	399	311	174	97	106
3	547	485	574	455	637	611	502	401	308	166	91	130
4	540	499	514	519	634	599	467	398	311	148	114	258
5	529	569	565	520	637	630	439	391	311	140	110	243
6	522	841	571	502	639	607	527	389	330	130	93	152
7	512	1650	577	558	603	586	481	403	330	125	86	134
8	482	2530	561	444	622	595	452	451	311	113	104	109
9	507	2650	552	956	619	569	465	386	303	113	99	79
10	509	1990	555	1810	590	643	460	370	297	110	85	84
11	497	1180	542	1800	611	568	502	350	330	100	87	171
12	535	916	536	1470	1010	2090	517	323	352	93	104	140
13	668	850	531	1040	1050	1560	508	320	322	91	104	122
14	811	818	500	781	786	1430	453	341	303	90	103	108
15	678	760	532	647	812	1530	461	333	300	76	99	132
16	633	683	542	598	575	1490	462	327	297	71	94	149
17	1450	748	545	603	482	802	453	337	294	76	72	142
18	882	719	514	595	480	638	437	412	294	75	109	142
19	669	727	483	594	629	646	436	396	292	87	120	155
20	700	711	498	588	630	641	430	352	292	115	97	156
21	2650	647	497	584	701	638	430	355	286	107	131	148
22	1160	708	514	609	655	731	427	365	278	96	146	98
23	775	787	527	647	685	704	431	383	281	87	170	87
24	646	686	489	682	594	574	448	375	278	75	146	80
25	588	682	505	897	625	553	437	369	275	76	74	71
26	551	651	515	857	610	572	422	358	243	75	83	63
27	557	591	484	768	634	552	417	352	232	74	135	87
28	568	556	512	717	613	515	412	347	224	178	88	100
29	490	545	487	669	650	531	412	336	213	154	108	110
30	475	574	497	649	---	504	405	339	195	141	98	95
31	527	---	495	636	---	514	---	330	---	121	87	---
TOTAL	21775	26754	16318	23194	19113	23883	13685	11387	8719	3456	3247	3753
MEAN	702	892	526	748	659	770	456	367	291	111	105	125
MAX	2650	2650	577	1810	1050	2090	527	451	352	179	170	258
MIN	475	485	483	444	480	504	405	320	195	71	72	63
AC-FT	43190	53070	32370	46010	37910	47370	27140	22590	17290	6850	6440	7440
CAL YR 1983	TOTAL	404490	MEAN	1108	MAX	7650	MIN	455	AC-FT	802300		
WTR YR 1984	TOTAL	175284	MEAN	479	MAX	2650	MIN	63	AC-FT	347700		

GUADALUPE RIVER BASIN

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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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
OCT 12...	1820	529	550	8.2	24.0	11	7.9	94	.9	100	110	210
JAN 17...	1800	572	586	8.0	8.0	15	10.8	91	1.2	38	21	200
APR 11...	0915	502	628	7.6	22.0	23	7.2	83	1.0	K9	K22	250
JUL 11...	1145	98	642	7.9	29.5	9.0	7.2	95	1.1	44	160	240

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 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 12...	15	61	15	29	.9	2.5	200	25	38	.30	13
JAN 17...	10	60	13	38	1	5.2	194	33	45	.20	11
APR 11...	22	73	17	38	1	2.8	231	34	53	.30	12
JUL 11...	8	67	17	45	1	2.8	230	31	59	.30	21

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, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHOS- PHOS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHOS- PHOS, DIS- SOLVED (MG/L AS P)	SEDIM- ENT, DIS- SUS- PENDE (MG/L)	SEDIM- ENT, DIS- SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 12...	309	300	.54	.040	.90	.070	.050	.050	21	30	89
JAN 17...	326	320	.94	.140	.60	.190	.160	.150	26	40	88
APR 11...	385	370	.86	.030	.40	.110	.060	.050	73	99	67
JUL 11...	383	380	<.10	.110	.40	.080	.070	.060	62	31	47

GUADALUPE RIVER BASIN

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 12...	1820	2	81	<.5	<1	<1	<3	2	6	4
JAN 17...	1800	3	80	<.5	<1	<1	<3	4	40	5
APR 11...	0915	2	100	.7	<1	1	<3	1	5	<1
JUL 11...	1145	4	130	<1	<1	<1	<3	2	3	<1
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 12...	16	4	<.1	<10	15	<1	<1	460	<6	7
JAN 17...	21	6	.1	<10	8	<1	<1	420	<6	7
APR 11...	21	4	<.1	<10	<1	<1	<1	560	<6	15
JUL 11...	31	19	<.1	<10	6	1	<1	530	6	21

GUADALUPE RIVER BASIN

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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 downstream from confluence of Twelvemile and Fifteenmile Creeks, 3.2 mi north of Schroeder, 12.8 mi upstream from Coletto Creek Reservoir, and 26.0 mi upstream from mouth.

DRAINAGE AREA.--357 mi².

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 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.

AVERAGE DISCHARGE.--6 years, 92.4 ft³/s (66,940 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft³/s Aug. 31, 1981 (gage height, 17.78 ft); minimum daily, 2.6 ft³/s July 18, 19, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharges since at least 1872 at site 3.5 mi downstream, 122,000 ft³/s Sept. 21, 1967 (slope-area measurement of peak flow), 63,700 ft³/s Oct. 16, 1946, and 46,700 ft³/s in October 1925, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,690 ft³/s Mar. 12 at 0900 hours (gage height, 11.44 ft), no other peak above base of 4,000 ft³/s; minimum daily, 2.6 ft³/s July 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	25	18	16	23	19	21	15.0	9.4	7.1	4.5	3.5
2	15	24	18	16	22	19	22	15.0	9.3	7.9	3.8	3.3
3	15	24	18	16	22	19	22	15.0	9.3	7.4	3.3	4.2
4	14	26	17	16	21	19	21	15.0	10.0	6.4	3.6	5.5
5	14	45	17	16	20	19	22	14.0	11.0	6.1	3.7	4.5
6	14	367	16	16	20	19	22	14.0	16.0	6.0	3.0	4.0
7	14	249	16	17	20	19	23	15.0	11.0	5.7	3.1	3.8
8	14	98	17	18	20	18	23	28.0	10.0	6.0	3.0	3.6
9	17	53	16	106	20	18	23	23.0	9.9	4.9	3.1	3.3
10	19	39	17	153	19	18	22	18.0	9.8	4.5	4.5	3.2
11	17	33	16	59	18	19	21	16.0	35.0	3.9	9.0	3.1
12	24	30	16	40	32	3220	20	15.0	22.0	3.6	8.0	3.1
13	32	28	15	32	27	620	20	14.0	20.0	3.4	17.0	3.0
14	25	26	16	28	23	124	19	13.0	15.0	3.3	11.0	3.0
15	21	24	16	26	21	70	17	13.0	12.0	3.3	8.2	3.6
16	19	23	19	24	20	52	16	13.0	11.0	3.0	36.0	4.2
17	49	22	20	23	19	43	16	15.0	11.0	2.8	15.0	3.5
18	34	22	18	22	19	38	17	21.0	10.0	2.6	8.9	3.3
19	26	21	17	21	19	37	17	20.0	10.0	2.6	7.4	3.3
20	22	20	17	20	23	36	16	17.0	11.0	3.9	6.0	3.5
21	1570	20	16	19	23	34	17	15.0	11.0	3.4	5.4	4.1
22	381	20	17	20	22	31	16	14.0	9.9	4.0	4.7	4.2
23	107	22	17	24	20	29	16	13.0	9.2	3.2	4.3	3.9
24	67	20	16	27	19	27	16	13.0	8.7	3.0	4.1	3.5
25	49	19	15	88	19	26	16	13.0	8.1	2.7	4.2	3.5
26	39	19	18	59	19	25	17	12.0	7.8	2.7	4.0	3.3
27	34	18	18	38	19	25	16	11.0	7.1	3.3	3.9	3.2
28	31	18	18	30	19	23	16	11.0	7.0	27.0	3.8	3.2
29	29	18	17	26	18	22	16	10.0	6.9	11.0	3.5	3.2
30	28	19	17	24	---	22	15	9.6	6.5	7.1	3.3	3.4
31	26	---	16	23	---	21	---	9.6	---	5.5	3.3	---
TOTAL	2782	1392	525	1063	606	4731	561	460.2	344.9	167.3	206.6	108.0
MEAN	89.7	46.4	16.9	34.3	20.9	153	18.7	14.8	11.5	5.40	6.66	3.60
MAX	1570	367	20	153	32	3220	23	28	35	27	36	5.5
MIN	14	18	15	16	18	18	15	9.6	6.5	2.6	3.0	3.0
AC-FT	5520	2760	1040	2110	1200	9380	1110	913	684	332	410	214
CAL YR 1983	TOTAL	17555.5	MEAN	48.1	MAX	2050	MIN	6.7	AC-FT	34820		
WTR YR 1984	TOTAL	12947.0	MEAN	35.4	MAX	3220	MIN	2.6	AC-FT	25680		

GUADALUPE RIVER BASIN

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 upstream from Coleta Creek and 2.6 mi 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 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 Coleta Creek Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 36 ft³/s Apr. 2, 11, Sept. 11, 1980; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 34 ft³/s June 26; no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	.00	0	.00	0	0	.00	.00	31	31	.00
2	0	0	.00	0	.00	0	0	.00	.00	30	31	.00
3	0	0	.00	0	.00	0	0	.00	.00	30	31	22.00
4	0	0	.00	0	.00	0	0	.00	.00	30	30	32.00
5	0	0	.00	0	.00	0	0	.00	.00	30	30	32.00
6	0	0	.00	0	.00	0	0	.00	.00	29	30	33.00
7	0	0	.00	0	.00	0	0	9.00	.00	29	30	33.00
8	0	0	.00	0	.00	0	0	.22	.00	29	30	33.00
9	0	0	.00	0	.00	0	0	.00	.00	29	30	33.00
10	0	0	.00	0	.00	0	0	.00	.00	29	30	33.00
11	0	0	.00	0	.00	0	0	.00	.00	29	30	32.00
12	0	0	.00	0	.00	0	0	.00	.00	29	25	32.00
13	0	0	9.40	0	.00	0	0	.00	9.80	29	20	32.00
14	0	0	.22	0	.00	0	0	.00	.25	29	31	20.00
15	0	0	.00	0	.00	0	0	.00	.00	29	31	.47
16	0	0	.00	0	.00	0	0	.00	.00	29	29	.00
17	0	0	.00	0	.00	0	0	.00	.00	29	31	.00
18	0	0	.00	0	.00	0	0	.00	.48	29	31	.00
19	0	0	.00	0	.00	0	0	.00	.02	28	31	.00
20	0	0	.00	0	.00	0	0	.00	.00	28	31	14.00
21	0	0	.00	0	.00	0	0	.00	.00	27	31	33.00
22	0	0	.00	0	.00	0	0	.00	.00	27	31	33.00
23	0	0	.00	0	.00	0	0	.00	.00	26	31	33.00
24	0	0	.00	0	10.00	0	0	.00	.00	27	32	33.00
25	0	0	.00	0	.18	0	0	.00	15.00	30	32	23.00
26	0	0	.00	0	.00	0	0	.00	34.00	30	31	.51
27	0	0	.00	0	.00	0	0	.00	33.00	28	32	.31
28	0	0	.00	0	.00	0	0	.00	33.00	21	31	.00
29	0	0	.00	0	.00	0	0	.00	32.00	31	31	.00
30	0	0	.00	0	---	0	0	.00	32.00	31	31	.00
31	0	---	.00	0	---	0	---	.00	---	31	15	---
TOTAL	0	0	9.62	0	10.18	0	0	9.22	189.55	893	921	537.29
MEAN	.000	.000	.31	.000	.35	.000	.000	.30	6.32	28.8	29.7	17.9
MAX	.00	.00	9.4	.00	10	.00	.00	9.0	34	31	32	33
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	21	15	.00
AC-FT	.00	.00	19	.00	20	.00	.00	18	376	1770	1830	1070
CAL YR 1983	TOTAL	629.50	MEAN 1.72	MAX 34	MIN .00	AC-FT 1250						
WTR YR 1984	TOTAL	2569.86	MEAN 7.02	MAX 34	MIN .00	AC-FT 5100						

GUADALUPE RIVER BASIN

265

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 downstream from Farmer Creek, 3.1 mi upstream from Kilgore Creek, and 6.1 mi northwest of Fannin.

DRAINAGE AREA.--28.0 mi².

PERIOD OF RECORD.--June 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 134.66 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversion above gage. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--6 years, 6.82 ft³/s (3.31 in/yr), 4,940 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,600 ft³/s May 29, 1981 (gage height, 13.80 ft, from floodmark), from rating curve extended above 1,160 ft³/s; maximum gage height, 14.60 ft Oct. 31, 1981; minimum daily discharge, 0.04 ft³/s July 7, 8, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 20, 1976, reached a stage of 26.28 ft, and flood of Sept. 15, 16, 1967, reached a stage of 26.08 ft, from information by the State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	0130	*2,640	9.6
Nov. 6	0800	522	6.88

Minimum daily discharge, 0.09 ft³/s July 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	.11	.74	.33	.84	.67	.86	.54	.25	.32	.28	.28
2	.17	.11	.73	.28	.82	.68	.98	.56	.26	.21	.28	.32
3	.16	.11	1.1	.28	.76	.67	.84	.54	.25	.17	.28	.41
4	.16	.10	.71	.28	.66	.76	.74	.52	.63	.16	2.1	.30
5	.15	53	.62	.28	.63	.74	.79	.52	.37	.17	.46	.22
6	.15	162	.51	.28	.70	.61	.80	.53	.35	.17	.55	.20
7	.15	24	.49	.24	.70	.58	.85	.62	.27	.22	.32	.20
8	.15	5.1	.53	.42	.81	.58	.80	.61	.25	.18	.23	.19
9	2.0	3.0	.56	2.9	.81	.60	.71	.49	.26	.17	.39	.18
10	1.5	1.9	.59	.47	.70	.63	.70	.50	.25	.15	.29	.18
11	.60	1.5	.55	.33	.70	.69	.72	.51	3.1	.14	.24	.17
12	.20	1.5	.43	.33	1.1	18	.72	.53	.87	.12	3.0	.17
13	.16	1.4	.42	.33	.82	3.1	.72	.56	.56	.12	1.1	.17
14	.15	1.2	.33	.33	.72	2.0	.67	.49	.43	.14	.41	.17
15	.15	1.1	.35	.33	.74	1.7	.63	.51	.38	.16	1.0	.21
16	.15	.98	.56	.28	.72	1.4	.59	.68	.34	.12	.69	.25
17	5.0	1.0	.40	.28	.72	1.2	.75	1.3	.35	.11	.42	.17
18	1.0	1.1	.38	.31	.77	1.2	.74	1.5	.30	.11	.38	.19
19	.25	.94	.28	.28	.67	1.6	.74	.76	.29	.21	.36	.19
20	.23	.82	.28	.28	1.3	1.0	.72	.46	.28	.16	.35	.25
21	330	.89	.34	.28	.89	.95	.72	.34	.26	.12	.32	.37
22	10	.99	.30	.63	.77	.95	.72	.35	.26	.12	.28	.29
23	1.0	1.2	.28	.75	.65	.94	.70	.34	.25	.17	.28	.17
24	.20	.76	.49	2.6	.63	.86	.70	.31	.24	.14	.32	.16
25	.15	.72	.55	4.2	.67	.87	.70	.29	.22	.11	.32	.16
26	.14	.80	.29	1.4	.83	.89	.66	.28	.20	.09	.31	.15
27	.13	.75	.30	.74	.62	.86	.60	.26	.20	.86	.29	.14
28	.13	.67	.31	.61	.61	.75	.61	.27	.20	7.3	.28	.15
29	.12	.70	.38	.59	.63	.77	.63	.25	.21	.47	.27	.18
30	.12	1.5	.33	.80	---	.84	.61	.25	.40	.31	.26	.18
31	.11	---	.33	.76	---	.86	---	.26	---	.29	.29	---
TOTAL	354.75	269.95	14.46	22.20	21.99	47.95	21.72	15.93	12.48	13.29	16.35	6.37
MEAN	11.4	9.00	.47	.72	.76	1.55	.72	.51	.42	.43	.53	.21
MAX	330	162	1.1	4.2	1.3	18	.98	1.5	3.1	7.3	3.0	.41
MIN	.11	.10	.28	.24	.61	.58	.59	.25	.20	.09	.23	.14
CFSM	.41	.32	.02	.03	.03	.06	.03	.02	.02	.02	.02	.008
IN.	.47	.36	.02	.03	.03	.06	.03	.02	.02	.02	.02	.01
AC-FT	704	535	29	44	44	95	43	32	25	26	32	13
CAL YR 1983	TOTAL	1721.90	MEAN 4.72	MAX 431	MIN .10	CFSM .17	IN 2.29	AC-FT 3420				
WTR YR 1984	TOTAL	817.44	MEAN 2.23	MAX 330	MIN .09	CFSM .08	IN 1.09	AC-FT 1620				

GUADALUPE RIVER BASIN

08177360 COLETO CREEK RESERVOIR (CONDENSER NO. 1) NEAR FANNIN, TX

LOCATION.--Lat 28°43'24", long 97°12'16", Goliad County, Hydrologic Unit 12100204, on right bank of discharge canal 4,000 ft below Central Power and Light powerplant, 2.7 mi northeast of Fannin, and 13.3 mi southwest of Victoria.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1980 to current year.

INSTRUMENTATION.--Beginning May 1980, water temperature is recorded continuously at this station.

REMARKS.--Prior to Feb. 19, 1982, water temperature recording site was 4,000 ft upstream at Condensor No. 1 cooling water outlet.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum daily, 40.5°C on several days during July, August, and September 1983; minimum daily, 4.5°C Dec. 26, 1983.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum daily, 40.0°C on several days during June and July; minimum daily, 4.5°C Dec. 26.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	35.5	34.5	35.0	23.5	23.0	23.0	32.0	29.0	31.0	14.0	13.0	13.5
2	35.5	34.5	35.0	25.0	23.0	24.0	32.0	31.0	31.5	14.5	12.0	13.5
3	35.5	34.5	35.0	25.5	23.0	25.0	32.5	31.0	32.0	15.5	14.0	14.5
4	35.5	34.5	35.0	32.0	25.5	30.0	32.5	29.5	31.5	16.0	15.0	15.5
5	36.5	34.5	35.5	36.5	29.5	32.5	32.5	30.5	32.0	16.5	14.5	16.0
6	36.0	35.5	36.0	35.5	25.0	30.0	32.5	27.5	31.0	11.5	9.5	10.0
7	36.0	31.0	32.5	36.0	29.5	31.5	31.5	30.5	31.0	19.0	10.0	14.0
8	28.0	26.5	27.5	36.5	28.5	32.0	31.5	28.5	30.5	20.0	17.5	19.0
9	27.5	26.5	27.0	37.0	32.5	36.0	31.5	28.0	30.5	21.0	18.5	20.0
10	26.5	26.0	26.0	36.0	30.5	33.5	33.0	31.0	32.0	20.5	19.0	20.0
11	26.5	25.5	26.5	35.5	32.5	34.5	33.0	31.5	32.5	19.5	19.0	19.0
12	26.5	24.5	25.5	34.5	30.5	32.0	33.0	29.5	31.5	19.0	18.5	19.0
13	24.5	23.5	24.0	35.0	30.5	33.5	32.0	25.5	28.5	19.0	18.0	18.5
14	25.0	24.0	24.5	35.5	32.0	34.5	26.0	24.5	25.5	18.0	17.5	18.0
15	24.5	24.5	24.5	33.5	30.5	31.5	25.5	24.0	25.0	17.5	17.5	17.5
16	25.0	24.5	24.5	33.5	31.5	33.0	25.0	24.0	24.5	17.5	17.0	17.5
17	25.5	24.5	24.5	33.5	31.5	32.5	24.0	23.0	23.5	17.5	16.5	17.5
18	24.5	24.5	24.5	33.5	30.5	32.0	23.0	22.0	22.5	17.5	17.0	17.5
19	25.0	24.5	24.5	35.0	30.5	33.5	21.5	20.5	21.0	17.0	16.0	16.5
20	25.5	24.5	25.0	33.5	31.5	33.0	20.5	19.5	20.0	16.5	16.0	16.5
21	25.5	24.5	25.0	33.0	32.0	32.5	20.5	11.5	18.5	16.5	16.0	16.0
22	25.0	24.5	24.5	33.0	30.5	32.0	11.5	10.5	11.0	16.5	16.0	16.0
23	25.0	24.0	24.5	34.5	31.5	33.5	10.5	9.5	10.0	17.5	16.5	17.0
24	24.5	24.0	24.0	33.0	29.5	31.5	9.5	6.5	7.5	18.0	17.0	17.5
25	25.0	23.5	24.0	33.5	28.5	31.5	6.5	5.5	6.0	19.5	18.0	18.5
26	24.5	23.5	24.0	33.5	30.5	32.0	10.5	4.5	7.0	20.5	18.5	19.5
27	24.0	22.5	23.5	33.5	30.5	32.5	7.5	5.5	6.0	21.0	19.5	20.0
28	22.5	22.0	22.5	33.0	29.5	31.5	7.0	6.0	6.5	21.0	20.0	20.5
29	23.0	22.0	22.5	32.5	31.0	32.0	6.5	5.5	6.0	21.0	19.5	20.0
30	23.5	22.5	23.0	33.0	31.5	32.5	13.5	5.0	8.5	---	---	---
31	23.5	22.5	23.0	---	---	---	13.5	11.5	13.0	---	---	---
MONTH	36.5	22.0	27.0	37.0	23.0	31.5	33.0	4.5	21.5	21.0	9.5	17.0

08177360 COLETO CREEK RESERVOIR (CONDENSER NO. 1) NEAR FANNIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	21.0	20.0	21.0	22.5	22.0	22.5	30.0	27.5	29.5	31.5	29.5	31.0
2	21.5	20.0	21.0	24.0	22.5	23.5	31.0	28.0	30.0	31.5	31.0	31.5
3	22.0	20.0	21.5	25.0	23.5	24.5	31.5	29.0	30.5	32.0	29.0	31.0
4	23.0	20.5	22.0	25.5	24.5	25.0	31.0	28.0	30.0	33.5	30.0	32.5
5	23.5	21.0	22.5	25.5	23.5	24.5	31.0	27.0	29.5	34.5	29.0	32.0
6	23.0	21.0	22.0	24.0	23.0	23.5	30.5	27.0	29.5	34.5	33.0	34.0
7	22.0	21.0	21.5	24.5	23.5	24.0	30.0	28.0	29.5	35.0	33.5	34.5
8	21.5	21.0	21.5	25.0	23.5	24.0	31.5	28.0	30.0	34.0	29.0	32.0
9	23.5	20.5	22.0	25.5	24.0	25.0	32.0	27.5	30.5	33.5	29.0	31.5
10	24.0	20.5	23.0	26.0	25.0	25.5	32.0	29.0	31.0	33.0	29.0	31.5
11	24.0	22.5	23.5	26.0	25.5	26.0	32.0	29.0	31.0	33.5	30.0	32.0
12	24.5	23.5	24.0	27.5	24.5	26.5	32.5	29.0	31.5	34.0	29.0	32.5
13	25.0	24.0	24.5	28.5	26.5	28.0	33.0	31.5	32.5	34.5	29.0	33.0
14	25.0	24.0	24.5	29.0	28.5	29.0	32.5	29.5	32.0	34.5	33.0	34.0
15	26.5	23.5	25.0	30.0	29.0	29.5	25.0	24.0	24.0	34.5	30.0	33.5
16	26.5	25.5	26.0	30.0	29.0	29.5	24.0	23.0	23.5	34.0	30.5	33.0
17	27.0	26.0	26.5	29.5	29.5	29.5	23.5	22.5	23.0	33.5	29.0	32.0
18	27.0	26.0	27.0	30.5	29.0	29.5	24.0	22.5	23.5	33.0	29.0	30.5
19	26.5	24.5	25.5	30.0	29.0	29.5	24.0	23.5	23.5	33.0	29.0	31.0
20	25.0	24.0	24.0	29.5	28.5	29.0	25.0	23.5	24.5	---	---	---
21	24.0	23.5	24.0	29.5	27.0	28.5	26.0	24.0	24.5	---	---	---
22	24.5	22.0	24.0	29.5	28.5	29.0	25.5	23.5	24.0	33.5	32.5	33.0
23	25.0	23.5	24.5	30.0	23.0	28.0	24.0	23.5	24.0	34.5	28.0	32.0
24	25.5	24.0	24.5	30.5	28.5	29.5	24.0	23.5	24.0	35.0	34.0	34.5
25	25.5	24.5	25.0	31.0	27.5	29.5	23.5	23.5	23.5	35.0	34.0	34.5
26	26.0	24.5	25.5	31.5	28.5	30.5	30.5	23.5	27.0	35.5	34.0	35.0
27	24.5	23.0	24.0	32.0	30.5	31.5	32.0	25.5	28.0	36.0	34.5	35.0
28	23.5	22.5	23.0	31.5	29.5	30.0	32.0	29.0	31.0	36.0	34.5	35.0
29	23.0	20.5	22.5	30.0	27.0	29.0	32.0	29.0	31.0	35.5	34.5	35.0
30	---	---	---	30.0	27.0	29.0	32.0	30.5	31.5	34.5	29.0	33.0
31	---	---	---	30.0	27.5	29.0	---	---	---	34.0	30.5	33.0
MONTH	27.0	20.0	23.5	32.0	22.0	27.5	33.0	22.5	28.0	36.0	28.0	33.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	34.0	30.0	33.0	39.5	38.0	38.5	39.0	37.5	38.0	38.5	36.0	37.5
2	34.5	29.0	33.5	40.0	37.0	39.0	39.5	38.0	38.5	38.0	36.5	37.5
3	34.5	28.5	33.0	40.0	38.5	39.5	39.5	38.0	38.5	37.0	34.5	36.5
4	34.5	33.5	34.0	40.0	38.5	39.0	39.0	37.5	38.0	36.5	35.0	36.0
5	34.5	33.5	34.0	40.0	38.5	39.0	38.5	37.5	38.0	36.0	34.0	35.5
6	35.0	34.0	34.5	39.0	37.5	38.5	38.5	37.5	38.0	36.0	33.5	35.5
7	35.0	34.5	35.0	38.5	38.0	38.0	38.5	36.5	38.0	36.5	35.0	36.0
8	35.0	34.5	35.0	39.0	37.5	38.5	38.5	37.5	38.0	37.0	30.0	35.5
9	35.0	34.5	34.5	39.0	38.0	38.5	38.5	37.0	38.0	37.0	30.0	35.5
10	35.0	34.5	35.0	39.0	37.5	38.5	38.0	37.0	37.5	37.0	36.0	36.5
11	35.0	34.5	35.0	39.5	38.0	38.5	38.0	37.0	37.5	37.5	36.0	36.5
12	35.5	34.0	35.0	39.5	38.0	38.5	38.0	37.0	37.5	37.0	36.0	36.5
13	36.0	34.5	35.5	38.5	38.0	38.5	38.0	37.5	37.5	36.5	35.5	36.0
14	36.0	35.0	35.5	39.0	37.5	38.0	38.0	37.0	37.5	37.0	35.5	36.0
15	36.5	35.5	36.0	38.5	35.5	38.0	38.0	37.0	37.5	36.5	36.0	36.0
16	37.0	35.0	36.5	39.5	38.0	38.5	38.0	37.0	37.5	36.0	35.5	35.5
17	37.5	35.0	36.5	38.5	37.5	38.0	38.5	37.5	38.0	35.5	30.0	34.0
18	37.5	36.0	37.0	38.5	37.5	38.0	39.0	37.5	38.0	34.5	30.0	34.0
19	38.0	36.5	37.0	39.0	37.5	38.0	39.0	37.5	38.0	34.5	30.0	33.0
20	37.5	34.5	37.0	39.5	38.0	38.5	39.0	37.5	38.0	34.0	30.5	33.5
21	38.5	37.0	37.5	39.5	38.5	39.0	39.0	37.5	38.0	33.5	30.5	33.0
22	38.5	37.0	37.5	39.5	38.5	39.0	39.0	37.5	38.5	34.5	29.0	33.5
23	38.5	35.0	37.0	39.5	38.5	39.0	39.0	37.5	38.5	35.5	34.0	34.5
24	39.0	37.0	38.0	39.0	38.5	38.5	39.0	37.5	38.5	35.5	34.5	35.0
25	39.5	38.0	38.5	38.5	38.0	38.5	39.0	38.0	38.0	35.5	34.5	35.0
26	40.0	38.0	39.0	39.0	38.0	38.5	39.0	38.0	38.5	35.5	34.5	35.0
27	40.0	38.0	39.0	39.5	38.0	38.5	39.0	38.0	38.5	35.0	34.0	34.0
28	40.0	38.0	39.0	38.5	38.0	38.5	39.0	37.5	38.5	34.0	29.0	32.5
29	39.5	38.5	39.0	39.0	38.0	38.5	39.0	38.0	38.5	33.5	29.0	31.0
30	39.5	38.5	39.0	38.5	37.5	38.0	39.0	37.5	38.5	31.0	28.0	29.5
31	---	---	---	39.0	38.0	38.0	38.5	37.5	38.0	---	---	---
MONTH	40.0	28.5	36.0	40.0	35.5	38.5	39.5	36.5	38.0	38.5	28.0	35.0

GUADALUPE RIVER BASIN

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 upstream from right end of spillway of dam on Coleta Creek, 1.6 mi upstream from U.S. Highway 59, 11.6 mi west of Victoria, and 12.8 mi upstream from mouth. Record includes contents of station 08177240 Coleta Creek Reservoir (Turkey Creek Arm) near Schroeder, and station 08177380 Coleta Creek Reservoir (Sulphur Creek Arm) near Fannin.

DRAINAGE AREA.--494 mi².

PERIOD OF RECORD.--February 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage 80.00 ft National Geodetic Vertical Datum of 1929.

Supplementary gage (Turkey Creek Arm).--Water-stage recorder 2.7 mi upstream at datum 90.00 ft National Geodetic Vertical Datum of 1929. Station 08177240 Coleta 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 upstream at datum 90.00 ft National Geodetic Vertical Datum of 1929. Station 08177380 Coleta 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 long, including a 2,000-foot uncontrolled spillway and a 403-foot wide concrete outlet structure with seven 40- x 28-foot spillway gates. Low-flow releases are made through the dam by a controlled 8-inch pipe. Turkey Creek Arm is formed by a compacted earthfill dam 2,250 ft long, including a 186-foot wide concrete outlet structure with two 40- x 11-foot spillway gates. Sulphur Creek Arm is formed by a compacted earthfill dam 1,030 ft long, including a 186-foot wide concrete outlet structure with two 40- by 11-foot spillway gates. Data regarding the dams and reservoirs are given in the following table:

	Coleta Creek Reservoir		Turkey Creek Arm		Sulphur Creek Arm	
	Gage height (feet)	Contents (acre-feet)	Gage height (feet)	Contents (acre-feet)	Gage height (feet)	Contents (acre-feet)
Top of dam	39.0	140,200	17.0	7,330	17.0	2,550
Spillway	27.3	63,560	--	--	--	--
Top of spillway gates	19.0	34,000	12.9	4,950	12.9	1,640
Crest of spillway	-9.0	954	1.89	1,400	1.91	306

COOPERATION.--Elevations and capacity tables were furnished by Forrest and Cotton Engineers, Consulting Engineers for the Guadalupe-Blanco River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 40,330 acre-ft Feb. 25, 1982; no appreciable storage prior to Feb. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 38,140 acre-ft Oct. 20; minimum daily, 33,990 acre-ft Sept. 30.

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34870	35040	37320	37270	37210	37600	37430	37010	36440	36520	36570	36240
2	34890	35140	37430	37240	37150	37630	37370	36980	36410	36380	36870	36160
3	34820	35370	37220	37220	37180	37670	37480	36800	36360	36250	36940	36040
4	34790	35520	37150	37330	37190	37670	37600	36760	36310	36160	37570	35930
5	34760	35650	37250	37340	37400	37640	37510	36700	36340	36130	37410	35850
6	34910	35740	37190	37420	37300	37610	37440	36740	36330	36150	37650	35780
7	35090	35750	37320	37460	37320	37580	37390	36740	36390	36260	37260	35710
8	35190	35790	37290	37410	37550	37540	37370	36650	36440	36290	37350	35830
9	35280	35890	37200	37370	37520	37440	37370	36630	36410	36160	37330	35790
10	35280	35990	37300	37310	37500	37440	37420	36840	36410	36180	37270	35760
11	35340	36020	37180	37360	37500	37310	37420	36880	36400	36260	37260	35760
12	35420	35910	37100	37270	37390	37360	37550	36840	36380	36290	37230	35740
13	35400	35840	37210	37350	37390	37440	37530	36830	36400	36330	37210	35840
14	35390	35800	37330	37390	37510	37460	37310	36860	36400	36670	37150	35760
15	35370	35850	37220	37200	37550	37570	37270	36680	36400	37080	37130	35740
16	35340	35910	37220	37280	37270	37680	37240	36710	36820	37240	37040	35730
17	35350	36040	37330	37310	37680	37630	37260	36760	37180	36720	36940	35700
18	35370	36160	37360	37330	37470	37660	37300	36820	37180	37440	36880	35760
19	35330	38770	37220	37340	37630	37930	37300	36810	37110	37360	36820	36360
20	35180	37210	37330	37360	37830	37710	37240	36850	37070	37270	36760	36630
21	35080	37290	37420	37390	37360	37700	37300	36870	37020	37120	36680	36730
22	35030	37200	37450	37360	37510	37820	37280	36950	37050	37170	36620	36750
23	34950	36760	37490	37440	37430	37490	37160	36880	37030	37170	36570	36740
24	34850	36670	37520	37510	37550	37170	37050	36860	36960	37170	36490	36740
25	34850	36740	37360	37490	37510	37560	37020	36830	36970	37130	36630	36770
26	34900	36880	37240	37420	37480	37580	37040	36790	36950	37120	36590	36760
27	34950	37120	37330	37340	37460	37100	37040	36780	36880	37050	36550	36700
28	34970	37340	37350	37540	37510	37120	37030	36720	36770	36980	36460	36670
29	34970	37540	37240	37460	---	37370	37040	36670	36710	36970	36430	36640
30	35030	37530	37270	37600	---	37420	37070	36590	36600	36890	36330	36560
31	35010	---	37220	37600	---	37530	---	36490	---	36830	36270	---
MAX	35420	38770	37520	37600	37830	37930	37600	37010	37180	37440	37650	36770
MIN	34760	35040	37100	37200	37150	37100	37020	36490	36310	36130	36270	35700

WTR YR 1983 MAX 38770 MIN 34760

GUADALUPE RIVER BASIN

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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 Coleta Creek Dam at Pier No. 4, 1.6 mi upstream from U.S. Highway 59, and 11.6 mi west of Victoria.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1980 to current year.

INSTRUMENTATION.--Beginning May 1980, water temperature is recorded continuously at this station.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURES: Maximum daily, 32.5°C July 16, 1983; minimum daily, 7.5°C Dec. 31, 1983, Jan. 1, 2, 1984.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum daily, 29.0°C several days during August and September; minimum daily, 7.5°C Dec. 31, Jan. 1, 2.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	25.0	24.5	24.5	22.5	22.0	22.0	19.0	19.0	19.0	8.0	7.5	7.5
2	25.0	24.5	24.5	22.0	21.5	22.0	19.0	19.0	19.0	8.0	7.5	8.0
3	25.0	24.5	24.5	22.0	22.0	22.0	19.0	19.0	19.0	8.5	8.0	8.0
4	24.5	24.5	24.5	22.5	22.0	22.0	19.0	18.5	18.5	8.5	8.5	8.5
5	24.5	24.5	24.5	22.0	22.0	22.0	18.5	18.5	18.5	8.5	8.5	8.5
6	24.5	24.5	24.5	22.5	22.5	22.5	18.5	18.0	18.5	8.5	8.0	8.0
7	25.0	24.5	24.5	22.5	22.5	22.5	18.5	18.0	18.5	8.0	8.0	8.0
8	25.0	24.5	24.5	---	---	---	18.0	17.5	18.0	8.0	8.0	8.0
9	25.0	23.0	24.5	---	---	---	18.0	17.5	18.0	8.0	8.0	8.0
10	28.0	23.0	24.5	22.0	21.5	21.5	18.0	17.5	17.5	8.5	8.0	8.0
11	27.5	23.0	24.0	21.5	20.5	21.0	18.0	17.5	17.5	9.0	8.5	9.0
12	25.5	23.5	25.0	20.5	20.5	20.5	17.5	17.5	17.5	9.0	9.0	9.0
13	25.5	23.5	25.0	20.5	20.5	20.5	18.0	17.5	17.5	9.5	9.0	9.5
14	24.5	24.5	24.5	20.5	20.0	20.0	18.0	17.5	18.0	10.0	9.5	10.0
15	24.5	24.0	24.0	20.5	20.0	20.0	18.0	17.5	17.5	10.5	10.0	10.5
16	24.5	23.5	24.0	20.5	20.5	20.5	18.0	17.5	17.5	10.5	10.5	10.5
17	24.0	23.5	24.0	20.5	20.0	20.5	17.5	17.0	17.0	10.5	10.5	10.5
18	24.5	23.5	24.0	20.5	20.0	20.5	17.0	16.5	17.0	10.5	10.5	10.5
19	24.0	23.0	23.0	21.0	20.5	20.5	16.5	15.5	16.0	10.5	10.0	10.5
20	23.5	23.0	23.0	20.5	20.0	20.5	15.5	15.0	15.0	10.5	10.0	10.0
21	24.5	23.5	23.0	20.0	20.0	20.0	15.0	14.5	15.0	10.0	10.0	10.0
22	23.5	23.0	23.0	20.5	20.0	20.0	14.5	13.5	14.0	10.0	9.5	10.0
23	23.5	23.0	23.5	20.5	20.0	20.5	13.5	12.5	13.0	10.0	9.0	9.5
24	23.5	23.0	23.5	20.5	20.0	20.5	12.5	11.0	12.0	9.0	9.0	9.0
25	23.5	23.0	23.5	20.5	20.0	20.5	11.0	10.0	10.5	9.0	9.0	9.0
26	23.5	23.0	23.0	20.5	20.5	20.5	10.0	9.5	10.0	9.0	8.5	9.0
27	23.0	22.5	23.0	20.5	20.0	20.0	9.5	9.5	9.5	9.0	8.5	9.0
28	23.0	22.0	22.5	20.0	19.5	20.0	9.5	9.0	9.5	8.5	8.5	8.5
29	22.5	22.5	22.5	19.5	19.0	19.5	9.0	8.5	8.5	9.0	8.5	8.5
30	22.5	22.0	22.5	19.5	19.0	19.0	8.5	8.0	8.0	9.0	9.0	9.0
31	22.5	22.0	22.0	---	---	---	8.5	7.5	7.5	9.5	9.0	9.0
MONTH	28.0	22.0	24.0	22.5	19.0	21.0	19.0	7.5	15.0	10.5	7.5	9.0

GUADALUPE RIVER BASIN

08177410 COLETO CREEK RESERVOIR (OUTFLOW) NEAR VICTORIA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

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

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

GUADALUPE RIVER BASIN

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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 downstream from Coleta Creek dam, 9.0 mi southwest of Victoria, and 11.2 mi upstream from mouth.

DRAINAGE AREA.--514 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Jan. 17, 1955, at datum 5.0 ft higher.

REMARKS.--Records good. Flow completely regulated since Feb. 21, 1980, by Coleta Creek Reservoir, 1.6 mi upstream. Diversions from Guadalupe River basin to Coleta Creek basin upstream from Coleta Creek Reservoir began Mar. 6, 1980 (see station 08176990). 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 Coleta Creek Reservoir, 92.7 ft³/s (67,160 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 89,000 ft³/s Oct. 16, 1946 (gage height, 36.64 ft, 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 Sept. 22, 1967 (gage height, 42.0 ft, from floodmark), present site and datum, on basis of slope-area measurement of peak flow. Flood of Apr. 20, 1976, reached a stage of 37.85 ft, at site 0.2 mi upstream at present datum. Flood of July 1, 1936, reached a stage of 32.2 ft, present site and datum, from information by railroad company.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,400 ft³/s Mar. 12 at 1100 hours (gage height, 18.82 ft); minimum daily, 3.5 ft³/s Mar. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	7.1	5.3	4.1	7.4	4.9	5.2	5.1	6.2	4.7	4.8	5.1
2	5.6	129.0	5.4	4.1	6.8	4.6	5.3	4.9	5.1	4.4	5.0	4.9
3	5.9	29.0	142.0	4.1	6.7	4.5	5.1	4.7	5.0	4.4	5.0	5.7
4	6.0	7.7	9.0	4.2	6.8	4.3	5.1	4.3	5.4	4.4	6.1	5.3
5	5.8	1200.0	5.3	4.2	6.0	4.0	5.2	4.3	5.4	4.5	5.7	5.1
6	5.8	1590.0	4.7	4.4	5.9	3.9	5.4	4.1	5.3	4.7	5.0	5.0
7	5.9	1240.0	4.7	4.4	5.7	4.0	5.6	8.4	5.2	5.1	4.9	7.3
8	5.9	41.0	4.4	4.6	5.5	3.8	5.1	11.0	5.0	5.5	4.8	5.5
9	7.3	59.0	4.5	600.0	70.0	3.7	4.9	6.5	5.0	6.3	4.8	4.9
10	6.6	37.0	4.6	64.0	49.0	3.5	4.9	6.3	5.2	6.2	4.6	4.8
11	6.2	12.0	4.2	9.0	6.0	3.6	5.0	6.2	5.4	5.5	4.6	4.8
12	8.1	10.0	4.2	7.5	101.0	4670.0	4.8	6.2	5.6	5.2	5.2	4.7
13	7.1	8.4	4.2	111.0	188.0	1540.0	5.0	5.7	5.4	5.1	6.5	4.9
14	6.8	7.5	4.2	8.4	39.0	100.0	4.6	5.9	5.2	5.1	5.2	4.8
15	6.4	6.7	4.2	7.0	5.8	100.0	4.4	6.8	5.2	5.1	5.3	5.2
16	6.6	6.5	4.3	6.2	5.3	90.0	4.3	8.2	5.2	4.9	5.3	5.6
17	2210.0	6.4	4.2	5.6	5.2	15.0	4.2	9.6	5.2	4.4	5.1	4.9
18	90.0	6.5	4.1	5.4	4.9	10.0	4.3	12.0	5.1	4.4	4.8	4.9
19	35.0	6.2	3.9	5.4	4.6	120.0	4.5	10.0	5.4	4.4	4.6	4.8
20	21.0	6.0	4.0	5.1	5.4	7.0	4.4	8.5	5.2	4.9	4.6	5.0
21	3160.0	6.1	4.1	5.1	4.8	6.3	4.3	7.6	5.1	4.8	4.6	6.2
22	453.0	6.1	3.9	5.4	4.5	6.0	4.2	7.6	5.1	4.7	4.7	5.5
23	297.0	112.0	3.9	58.0	4.5	60.0	4.3	7.3	4.9	4.9	4.7	5.0
24	20.0	14.0	3.9	528.0	4.4	20.0	4.2	7.0	4.7	4.8	4.8	4.8
25	14.0	4.8	3.9	25.0	4.6	6.0	4.3	6.9	4.4	5.0	4.9	4.7
26	12.0	4.7	3.9	104.0	4.9	5.5	4.4	6.8	4.6	4.9	5.0	4.6
27	10.0	4.1	3.9	81.0	4.5	5.4	4.2	6.8	4.4	4.9	5.0	4.7
28	9.9	4.3	4.0	17.0	4.8	5.2	4.2	6.8	4.4	7.2	4.9	4.9
29	8.7	5.0	4.0	103.0	5.3	5.3	4.4	8.7	4.5	5.5	4.9	4.8
30	8.4	5.6	4.0	13.0	---	5.3	6.3	7.3	4.5	4.8	4.9	4.8
31	7.6	---	4.0	8.4	---	5.2	---	6.9	---	4.7	4.6	---
TOTAL	6458.3	4582.7	274.9	1816.6	577.3	6827.0	142.1	218.4	152.3	155.4	154.9	153.2
MEAN	208	153	8.87	58.6	19.9	220	4.74	7.05	5.08	5.01	5.00	5.11
MAX	3160	1590	142	600	188	4670	6.3	12	6.2	7.2	6.5	7.3
MIN	5.6	4.1	3.9	4.1	4.4	3.5	4.2	4.1	4.4	4.4	4.6	4.6
AC-FT	12810	9090	545	3600	1150	13540	282	433	302	308	307	304

CAL YR 1983 TOTAL 32271.3 MEAN 88.4 MAX 5090 MIN 1.3 AC-FT 64010
WTR YR 1984 TOTAL 21513.1 MEAN 58.8 MAX 4670 MIN 3.5 AC-FT 42670

GUADALUPE RIVER BASIN

08177700 OLMOS CREEK AT DRESDEN DRIVE, SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°29'56", long 98°30'36", Bexar County, Hydrologic Unit 12100301, on right bank 30 ft downstream from low-water bridge on Dresden Drive at San Antonio, 0.15 mi west of intersection of Blanco Road and Dresden Drive, and 4.0 mi upstream from Olmos Dam.

DRAINAGE AREA.--21.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to September 1981 (operated as a continuous-record station), October 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 726.10 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Recording rain gage located at station, with three additional recording rain gages located in watershed. Rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--13 years (water years 1968-81), 4.34 ft³/s (2.78 in/yr), 3,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,450 ft³/s Sept. 13, 1978 (gage height, 14.82 ft, from floodmark); no flow at times.
Maximum stage since 1935, that of Sept. 13, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in September and November 1947 reached a stage of 8.5 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 12	0200	419	4.68
May 28	1920	*1,000	5.30
June 30	1715	436	4.72

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: October 1972 to September 1973. Water temperatures: November 1968 to current year. Bacteria analyses: April 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (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)	
DEC 27...	1414	.18	655	8.2	10.0	<1	3.0	9.8	90	3.8	3500	700
MAY 18...	1025	262	110	8.9	22.0	75	210	7.3	86	12	K150000	K160000

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 27...	270	56	96	8.3	35	1	2.7	218	75	32	.40	18
MAY 18...	46	7	16	1.4	4.5	.3	3.3	39	14	4.2	.10	4.2

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
DEC 27...	400	8	<1	--	<.010	.90	.130	1.9	2.0	<.010	5.0
MAY 18...	71	2440	308	.22	.080	.30	.140	5.4	5.5	1.80	37

GUADALUPE RIVER BASIN

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08177700 OLMOS CREEK AT DRESDEN DRIVE, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		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)				
DATE	TIME										
DEC 27...	1414	1	56	<1	<10	2	4				
		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)				
DATE	TIME										
DEC 27...		1	4	<.1	1	<1	32				
		NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)		
DATE	TIME										
DEC 27...	1414	<.1	<.10	<.01	<.1	<.01	<.01	<.01	.07	<.01	
		ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
DATE											
DEC 27...		<.01	<.01	<.01	<.01	<.01	<.01	.03	<.01	<.01	<.01
		MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
DATE											
DEC 27...		<.01	<.01	<.1	<1	<.01	.03	<.01	<.01	<.01	

gate house near middle of dam on
enridge Park Zoo, and 4.0 mi down-

29.

ft and a total length of 1,941 ft, rebuilt in 1980. The outlet structure dimensions of 5.75 ft wide by 10 ft high. The outlet is owned by the city of San Antonio. Elevation published at 2400 hours.

Elevation (feet)	Capacity (acre-feet)
736.4	24,150
736.0	23,560
728.0	14,240
680.0	0

BER 1984

JUN	JUL	AUG	SEP
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
682.21	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.93	681.68
684.54	681.68	683.18	681.68
681.99	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	689.61	681.68
681.68	681.68	682.01	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	684.18	681.68
681.68	681.68	683.82	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
681.68	681.68	681.68	681.68
685.57	681.68	681.68	681.68
--	681.68	681.68	--
685.57	681.68	689.61	681.68
681.68	681.68	681.68	681.68

001.00 001.00 001.00 001.00

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 downstream from South Alamo Street Bridge in San Antonio, 2.1 mi upstream from San Pedro Creek, and 230.6 mi upstream from mouth.

DRAINAGE AREA.--41.8 mi². 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 National Geodetic Vertical Datum of 1929. Jan. 26, 1915, to Feb. 27, 1916, nonrecording gage at site 1.3 mi upstream at different datum. Feb. 28, 1916, to Apr. 7, 1920, nonrecording gage at site 1.1 mi 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 higher datum. Apr. 25, 1967, to May 13, 1969, water-stage recorder at site 307 ft downstream at same datum.

REMARKS.--Water-discharge records good except those for periods of no gage-height record, which are fair. Floodflow is regulated by Olmos flood-control reservoir (capacity, 14,240 acre-ft), about 8.5 mi 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.--59 years, 54.5 ft³/s (17.70 in/yr), 39,490 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft³/s Sept. 10, 1921 (gage height, 20.14 ft, from floodmark), at former site and datum, from rating curve extended above 2,000 ft³/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, 2,910 ft³/s Aug. 12 at 1900 hours (gage height, 11.99 ft); minimum daily, 0.17 ft³/s Sept. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	7.1	10	8.3	7.0	8.3	11	10	12	16	11	.32
2	13	7.8	12	41	9.2	7.0	11	10	11	2.3	12	5.3
3	20	7.3	48	15	7.8	7.0	12	9.7	9.0	3.5	13	43
4	13	14	11	10	7.4	7.0	11	10	10	3.9	14	33
5	13	208	12	8.3	7.0	6.6	11	11	12	5.2	10	.27
6	12	18	11	6.2	7.0	6.6	9.7	9.7	15	6.2	11	8.2
7	13	10	10	8.7	7.0	6.2	24	52	15	5.5	7.7	7.0
8	15	12	11	31	7.0	7.0	11	20	12	5.6	7.7	6.1
9	118	21	12	117	7.8	6.6	10	11	11	5.3	7.9	5.6
10	16	15	12	10	8.3	7.0	6.2	11	9.4	5.0	8.0	8.3
11	13	10	10	2.9	7.8	5.8	.23	11	10	4.8	8.1	10
12	26	11	10	3.1	16	132	7.0	11	67	8.9	80	10
13	13	11	9.7	2.6	8.7	15	8.3	8.7	40	6.1	21	9.5
14	12	11	8.7	2.6	6.6	12	7.8	12	10	5.5	14	29
15	9.3	11	8.7	5.5	6.6	13	6.2	11	10	4.7	166	5.7
16	7.8	11	6.6	6.2	6.6	12	8.3	11	10	6.1	16	4.1
17	9.5	11	6.6	6.6	6.6	10	9.7	16	9.3	5.4	5.2	7.1
18	9.0	11	7.0	8.7	6.6	13	10	49	11	4.9	4.8	3.5
19	9.2	9.6	6.6	7.8	6.2	49	12	72	13	5.4	3.3	.17
20	9.3	7.6	6.6	6.6	27	11	12	67	11	5.9	4.6	12
21	10	9.4	6.6	6.6	8.3	12	11	29	11	6.2	4.8	17
22	9.1	36	6.2	10	6.6	11	8.7	23	10	6.0	4.6	17
23	8.2	58	6.6	12	6.6	11	11	17	9.5	10	5.2	14
24	9.0	1.7	5.8	14	6.6	11	11	16	7.8	8.3	6.7	16
25	8.8	9.8	8.3	10	6.2	11	11	15	9.7	12	28	14
26	8.6	11	7.4	7.4	5.8	10	11	14	9.8	12	5.6	16
27	8.6	22	8.3	7.0	5.8	10	10	13	8.5	13	7.3	15
28	8.2	27	9.2	6.6	6.2	9.7	10	12	8.2	11	6.6	14
29	8.2	11	8.3	6.6	7.4	14	8.3	55	8.0	8.4	5.8	42
30	5.6	12	8.3	6.6	---	10	10	19	40	11	7.4	16
31	6.9	---	8.7	6.6	---	13	---	13	---	12	5.1	---
TOTAL	457.3	622.3	313.2	401.5	233.7	464.8	300.43	649.1	430.2	226.1	512.4	389.16
MEAN	14.8	20.7	10.1	13.0	8.06	15.0	10.0	20.9	14.3	7.29	16.5	13.0
MAX	118	208	48	117	27	132	24	72	67	16	166	43
MIN	5.6	1.7	5.8	2.6	5.8	5.8	.23	8.7	7.8	2.3	3.3	.17
CFSM	.35	.50	.24	.31	.19	.36	.24	.50	.34	.17	.40	.31
IN.	.41	.55	.28	.36	.21	.41	.27	.58	.38	.20	.46	.35
AC-FT	907	1230	621	796	464	922	596	1290	853	448	1020	772

CAL YR 1983	TOTAL	8485.79	MEAN	23.2	MAX	566	MIN	.45	CFSM	.56	IN	7.55	AC-FT	16830
WTR YR 1984	TOTAL	5000.19	MEAN	13.7	MAX	208	MIN	.17	CFSM	.33	IN	4.45	AC-FT	9920

GUADALUPE RIVER BASIN

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.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)	
DEC 28...	1146	8.6	568	8.6	9.0	<1	.90	15.2	135	1.7	K140	K37	
APR 20...	0955	17	544	7.9	22.5	10	3.3	10.2	121	1.7	640	130	
MAY 18...	1145	47	362	7.6	22.5	130	80	7.4	88	8.4	K140000	72000	
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 28...	280	46	84	18	17	.5	2.8	238	34	26	.30	11	
APR 20...	260	0	73	18	18	.5	2.3	266	34	24	.30	11	
MAY 18...	160	25	48	9.3	12	.4	3.8	133	32	16	.30	8.5	
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	
DEC 28...	340	<1	<1	1.7	.020	1.7	.010	.69	.70	.030	1.7		
APR 20...	340	9	<2	.88	.020	.90	.070	.63	.70	.030	2.0		
MAY 18...	210	153	39	.74	.060	.80	.120	3.9	4.0	.300	16		
DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)						
DEC 28...	1146	<1	63	<1	10	2	10						
DATE		LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)						
DEC 28...		2	5	<.1	<1	<1	16						

GUADALUPE RIVER BASIN

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08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
DEC 28...	1146	<.1	<.10	<.01	<.1	<.01	<.01	<.01	.01	<.01
DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
DEC 28...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
DEC 28...	<.01	<.01	<.1	<1	<.01	<.01	<.01	<.01	<.01	

GUADALUPE RIVER BASIN

08178620 LORENCE CREEK AT THOUSAND OAKS BOULEVARD, SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°35'24", long 98°27'47", Bexar County, Hydrologic Unit 123100301, on right bank 30 ft upstream from Thousand Oaks Boulevard and 4.2 mi upstream from mouth.

DRAINAGE AREA.--4.05 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1980 to current year.

GAGE.--Digital recorders (stage and rainfall), concrete control, and crest-stage gages. Gage is not referenced to National Geodetic Vertical Datum of 1929. (Gage removed Sept. 5-30, 1984.)

REMARKS.--Water-discharge records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 5.90 ft May 6, 1982 (discharge not determined); no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15 ft³/s May 18 at 1035 hours (gage height, 1.48 ft), no peak above base of 100 ft³/s; no flow most of time.

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
SEP											
03-03	1622	8.0	103	--	--	700	800	--	--	6.3	100000
03-03	1652	5.1	94	--	--	700	870	--	--	4.9	100000
03-03	1722	3.8	96	--	--	600	670	--	--	4.9	--
03-03	1753	3.3	96	8.2	25.0	500	590	6.5	81	4.9	66000
	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
SEP											
03-03	94000	--	--	--	--	--	--	--	--	--	--
03-03	80000	38	7	14	.70	2.3	.2	3.6	31	11	2.3
03-03	--	--	--	--	--	--	--	--	--	--	--
03-03	48000	40	10	15	.70	2.5	.2	3.8	30	12	1.9
	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
SEP											
03-03	--	--	--	1150	150	.38	.55	.120	.020	.50	.57
03-03	.20	5.2	58	3650	200	.40	--	.100	--	.50	.55
03-03	--	--	--	1800	100	--	--	--	--	--	--
03-03	.30	5.9	60	1800	140	.38	--	.120	--	.50	.48
	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	
SEP											
03-03	.060	.040	1.4	.36	1.5	.40	.520	.050	.050	18	
03-03	.040	--	.86	--	.90	.70	.310	.050	--	28	
03-03	--	--	--	--	--	--	--	--	--	--	
03-03	.050	--	--	--	<.20	--	.300	.060	--	20	

GUADALUPE RIVER BASIN

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08178620 LORENCE CREEK AT THOUSAND OAKS BOULEVARD, SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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)
SEP							
03-03	1622	1	15	<1	<10	7	51
03-03	1753	1	15	<1	<10	2	75

DATE	TIME	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
SEP							
03-03		4	7	<.1	<1	<1	<3
03-03		3	7	<.1	<1	<1	<3

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
SEP										
03-03	1622	<.1	<.10	<.01	<.1	<.01	<.01	<.01	.06	<.01
03-03	1753	<.1	<.10	<.01	<.1	<.01	<.01	<.01	.04	<.01

DATE	TIME	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
SEP											
03-03		<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
03-03		<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	TIME	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
SEP										
03-03		<.01	<.01	<.1	<1	<.01	.03	<.01	<.01	<.01
03-03		<.01	<.01	<.1	<1	<.01	.01	<.01	<.01	<.01

GUADALUPE RIVER BASIN

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 west of Northeast School, 1.1 mi upstream from Perrin-Beitel Creek, and 2.7 mi east of San Antonio International Airport.

DRAINAGE AREA.--137 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No known diversion above station. Flow is affected at times by discharge from the flood-detention pools of eleven floodwater-retarding structures with a combined detention capacity of 26,770 acre-ft. These structures control runoff from 74.6 mi² above this station. Recording rain gage located at station with four additional recording rain gages located in watershed.

AVERAGE DISCHARGE.--24 years, 8.97 ft³/s (6,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft³/s May 12, 1972 (gage height, 15.22 ft), from rating curve extended above 8,000 ft³/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 in October 1913. Flood in September 1921 reached a stage of 18 ft, and flood of Sept. 27, 1946, reached a stage of 18.2 ft, and are the second and third highest since 1899.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 279 ft³/s Mar. 12 at 0100 hours (gage height, 4.22 ft), no other peak above base of 250 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.13	.04	.09	.05	.00	.00	.00	.00	.00	.00	.02
2	.00	.20	.03	.57	.46	.00	.00	.00	.00	.00	.00	.00
3	.00	.32	5.6	.28	2.0	.00	.00	.00	.00	.00	.00	18
4	.00	.15	.23	.15	1.5	.00	.00	.00	.00	.00	.00	6.4
5	.00	13	.11	.09	1.1	.00	.00	.00	.00	.00	.00	.10
6	.00	1.9	.06	.07	.10	.00	.00	.00	.04	.00	.00	.01
7	.00	.20	.02	.05	.07	.00	.00	.03	.11	.00	.00	.00
8	.02	.11	.01	.36	.05	.00	.01	.00	.00	.00	.00	.00
9	4.4	.12	.00	8.5	.03	.00	.00	.00	.00	.00	.00	.00
10	.61	.02	.01	.14	.01	.00	.00	.00	.00	.00	.00	.00
11	.36	.01	.00	.07	.00	.00	.00	.00	.00	.00	.00	.00
12	4.0	.00	.00	.06	.00	25	.00	.00	.00	.00	.20	.00
13	.16	.00	.05	.02	.00	.39	.00	.00	.00	.00	.19	.00
14	.07	.01	3.2	.00	.00	.13	.00	.00	.00	.00	.12	.00
15	.02	.00	.47	.00	.00	.08	.00	.00	.00	.00	.23	.00
16	.00	.00	.09	.00	.00	.04	.00	.00	.00	.00	.01	.00
17	.01	.00	.07	.00	.00	.00	.00	5.0	.00	.00	.00	.00
18	.03	.06	.09	.00	.00	.23	.00	18	.00	.00	.00	.00
19	.00	.04	.08	.00	.00	9.1	.00	34	.00	.00	.00	.00
20	.00	.00	.07	.00	.00	.23	.00	8.1	.00	.00	.00	.00
21	.00	.00	.06	.00	.00	.12	.00	.92	.00	.00	.00	.00
22	.00	.03	.04	.08	.00	.07	.00	.16	.00	.00	.00	.00
23	.00	3.9	.03	.78	.00	.03	.00	.06	.00	.00	.00	.00
24	.00	.15	.02	.17	.00	.00	.00	.02	.00	.00	.03	.00
25	.00	.08	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.05	.00	.11	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.92	.02	.04	.00	.00	.00	.00	.02	.00	.00	.00
28	.00	.27	.00	.00	.00	.00	.00	.29	.00	.00	.00	.00
29	.00	.15	.09	.04	.00	.00	.00	1.3	.00	.00	.00	.02
30	.00	.10	.14	.05	---	.00	.00	.09	.00	.00	.00	.00
31	.06	---	.09	.04	---	.00	---	.02	---	.00	.05	---
TOTAL	9.74	21.92	10.72	11.96	5.37	35.42	.01	67.99	.17	.00	.83	24.55
MEAN	.31	.73	.35	.39	.19	1.14	.000	2.19	.006	.000	.027	.82
MAX	4.4	13	5.6	8.5	2.0	25	.01	34	.11	.00	.23	18
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	19	43	21	24	11	70	.02	135	.3	.00	1.6	49

CAL YR 1983 TOTAL 645.80 MEAN 1.77 MAX 130 MIN .00 AC-FT 1280
WTR YR 1984 TOTAL 188.68 MEAN .52 MAX 34 MIN .00 AC-FT 374

GUADALUPE RIVER BASIN

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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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	
MAY 18...	1042	16	297	7.8	22.0	180	25	6.0	70	6.3	50000	39000	
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 18...	110	32	37	4.0	13	.6	4.8	77	45	13	.40	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)	
MAY 18...	170	192	37	.54	.060	.60	.100	1.4	1.5	.300	15		

GUADALUPE RIVER BASIN

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 east of Brooks Air Force Base, and 3.3 mi upstream from Rosillo Creek.

DRAINAGE AREA.--189 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 526.95 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Small diversions above station. Recording rain gages located in watershed. Most of low flow comes from artesian wells and springs in city of San Antonio. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08178700.

AVERAGE DISCHARGE.--24 years, 40.6 ft³/s (2.92 in/yr), 29,410 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s Sept. 27, 1973 (gage height, 28.83 ft); 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, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 390 ft³/s Mar. 12 at 1300 hours (gage height, 10.29 ft); minimum daily, 0.83 ft³/s July 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	14	17	17	17	18	13	11	8.3	7.1	2.6	2.3	2.5		
2	14	18	18	22	19	14	10	8.7	6.7	2.4	1.9	2.9		
3	14	19	51	23	19	14	10	9.2	6.5	2.5	1.8	5.4		
4	14	21	33	18	18	14	7.2	11	6.9	3.1	1.6	55		
5	14	161	20	18	17	13	7.8	8.2	6.7	2.9	1.9	18		
6	14	80	16	16	17	13	7.5	7.3	9.6	2.0	2.6	8.7		
7	14	20	15	16	16	14	8.8	8.9	7.6	1.8	2.4	6.9		
8	16	15	16	16	16	14	15	27	7.1	1.6	1.0	6.7		
9	55	14	18	130	18	13	8.9	13	6.6	1.5	1.8	4.8		
10	45	21	18	39	18	13	8.2	10	5.4	2.0	.98	4.6		
11	18	14	17	20	19	13	7.9	8.5	5.9	1.6	.85	4.2		
12	25	13	16	18	24	180	7.0	7.5	5.0	1.4	2.0	4.0		
13	23	14	17	17	21	37	6.5	7.3	26	1.2	9.0	3.6		
14	14	14	17	16	17	17	6.7	8.9	7.3	1.1	7.8	3.6		
15	13	15	16	16	16	14	6.5	6.9	6.0	.83	7.8	4.6		
16	13	15	16	15	15	13	6.6	7.4	5.5	1.0	26	4.3		
17	13	16	16	15	14	13	6.4	11	5.4	1.1	11	3.1		
18	13	18	16	15	16	12	6.5	61	4.9	1.2	6.8	3.0		
19	13	19	16	15	14	61	6.6	210	4.9	3.2	4.9	3.3		
20	13	18	16	14	26	32	7.0	106	5.1	2.8	4.6	3.1		
21	13	18	16	14	23	14	6.5	21	5.2	2.5	3.8	3.4		
22	13	22	16	17	16	12	6.8	13	4.5	2.2	3.4	3.5		
23	13	57	15	26	14	11	6.1	10	3.6	2.0	2.6	3.2		
24	13	26	16	22	14	11	6.5	9.9	3.1	1.6	3.2	4.7		
25	14	17	15	23	13	11	6.4	8.6	2.9	1.3	2.2	3.5		
26	14	16	17	19	15	10	8.0	7.8	2.5	1.2	1.8	2.8		
27	14	18	18	18	15	10	7.6	8.1	3.1	1.5	3.4	2.9		
28	14	19	17	18	14	9.4	7.6	11	3.6	4.9	4.4	3.0		
29	15	18	15	18	14	9.1	8.4	30	3.4	3.5	3.9	5.3		
30	15	19	14	18	---	9.0	7.9	12	2.4	3.2	3.3	8.6		
31	16	---	14	17	---	12	---	8.2	---	2.5	2.7	---		
TOTAL	526	772	558	686	496	645.5	233.9	685.7	180.5	64.23	133.73	193.2		
MEAN	17.0	25.7	18.0	22.1	17.1	20.8	7.80	22.1	6.02	2.07	4.31	6.44		
MAX	55	161	51	130	26	180	15	210	26	4.9	26	55		
MIN	13	13	14	14	13	9.0	6.1	6.9	2.4	.83	.85	2.5		
CFSM	.09	.14	.10	.12	.09	.11	.04	.12	.03	.01	.02	.03		
IN.	.10	.15	.11	.14	.10	.13	.05	.13	.04	.01	.03	.04		
AC-FT	1040	1530	1110	1360	984	1280	464	1360	358	127	265	383		
CAL YR 1983	TOTAL	9651.90	MEAN	26.4	MAX	731	MIN	6.0	CFSM	.14	IN	1.90	AC-FT	19140
WTR YR 1984	TOTAL	5174.76	MEAN	14.1	MAX	210	MIN	.83	CFSM	.08	IN	1.02	AC-FT	10260

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	
DEC 28... APR 18... 20...	1605 0930 0910	17 6.5 7.5	712 910 896	8.2 8.0 7.8	5.0 19.0 21.5	<1 -- 40	1.6 -- 14	12.0 6.1 6.2	96 68 72	1.1 .9 .7	K8 -- 210	K28 -- 480	
DATE	TIME	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA DIS- SOLVED (MG/L AS SiO2)
DEC 28... APR 18... 20...	300 -- 310	36 -- 94	92 -- 94	17 -- 18	37 -- 55	1 -- 1	2.8 -- 3.3	264 260 215	47 -- 59	48 -- 100	.30 -- .30	11 -- 16	
DATE	TIME	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	
DEC 28... APR 18... 20...	410 -- 470	4 -- 23	<1 -- 2	-- -- .57	<.010 -- .030	.90 -- .60	.010 -- .150	.19 -- .25	.20 -- .40	<.010 -- .050	1.4 -- 2.7		
DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)						
DEC 28...	1605	1	82	1	<10	1	10						
DATE	TIME	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)						
DEC 28...	<1	9	<.1	<1	<1	15							
DATE	TIME	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)				
DEC 28...	1605	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01				
DATE	TIME	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)		
DEC 28...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01			
DATE	TIME	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION TOTAL (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)			
DEC 28...	<.01	<.01	<.1	<1	<.01	<.01	<.01	<.01	<.01	<.01			

GUADALUPE RIVER BASIN

08178880 MEDINA RIVER AT BANDERA, TX

LOCATION.--Lat 29°43'25", long 99°04'11", Bandera County, Hydrologic Unit 12100302, on left bank 40 ft downstream from centerline of State Highway 173, 1.9 mi upstream from Bandera Creek, and 5.6 mi downstream from Indian Creek.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1982 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
JAN 25...	1025	54	570	7.8	10.5	<1	2.1	10.4	96	.4	22	21
APR 18...	1445	24	569	8.2	19.0	5	2.0	8.7	98	.2	33	32
AUG 14...	1510	1.3	568	8.0	30.0	4	2.7	7.3	101	.9	K16	60

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
JAN 25...	290	98	86	19	7.1	.2	1.1	195	88	13	.20	8.3
APR 18...	280	110	81	20	7.3	.2	1.3	179	110	10	.30	9.8
AUG 14...	280	120	74	23	8.7	.2	2.4	158	120	14	.30	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, 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, ORTHOPHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 25...	340	6	<2	<.010	.40	<.010	--	.30	.010	--	.8
APR 18...	350	4	<2	.010	<.10	.070	.13	.20	<.010	--	1.0
AUG 14...	350	6	<1	<.010	<.10	.060	.54	.60	<.010	.040	1.5

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 25...	1025	1	32	<1	<10	2	7
AUG 14...	1510	<1	36	<1	<10	2	6

DATE	TIME	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 25...	1025	1	2	.2	<1	<1	11
AUG 14...	1510	<1	1	<.1	<1	<1	9

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
JAN 25...	1025	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01
AUG 14...	1510	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01

GUADALUPE RIVER BASIN

285

08178880 MEDINA RIVER AT BANDERA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)
JAN 25...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
AUG 14...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 25...	<.01	<.01	<.1	<1	<.01	<.01	<.01	<.01	<.01
AUG 14...	<.01	<.01	<.1	<1	<.01	<.01	<.01	<.01	<.01

GUADALUPE RIVER BASIN

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 from left end of Medina Dam on Medina River, 4.2 mi upstream from Medina diversion dam, 13 mi north of Castroville, 28 mi west of San Antonio, and 70.4 mi upstream from mouth. Water-quality sampling site at the center of low-water bridge 0.6 mi downstream.

DRAINAGE AREA.--634 mi².

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 below National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a gravity-type concrete dam, 1,580 ft long. The dam was completed and storage began May 7, 1913. The uncontrolled emergency spillway is a cut through natural rock 880 ft long, with a 3-foot-wide 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 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 Sept. 16, 1919 (gage height, 1,078.0 ft); minimum observed since lake first filled, 780 acre-ft about Apr. 11, 1948 (gage height, 944.0 ft).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents, 157,900 acre-ft Oct. 1, 2 (gage height, 1,051.9 ft); minimum, 68,630 acre-ft Sept. 30 (gage height, 1,022.6 ft).

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

1,022.0	67,240	1,040.0	114,500
1,025.0	74,220	1,045.0	132,200
1,030.0	85,860	1,050.0	150,000
1,035.0	100,200	1,052.0	158,400

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	157900	153300	155000	148900	148200	145000	137500	126600	113700	105300	90160	78640
2	157900	153300	154200	148900	148200	145000	137200	125900	113100	104800	89870	77710
3	157500	152900	154200	148900	147800	145000	137200	125500	112800	104200	89010	77480
4	157100	152900	154200	149200	148500	144600	136500	125100	112500	103600	88730	77480
5	156700	154600	154200	149200	147800	144600	136500	124400	112800	103100	88150	77250
6	156300	156700	154200	148900	147500	144300	136100	124400	113100	102500	87580	76780
7	156300	157100	153700	148900	147500	143900	135800	124100	113100	101900	87290	76080
8	155800	157100	153700	148500	147500	143900	135400	123700	112800	101600	86720	75850
9	156700	157100	153300	148900	147100	143600	135100	123400	112800	101000	86430	75620
10	157500	156700	153300	148900	147100	143600	134400	123000	112500	100800	85860	75150
11	157100	156700	152900	148900	147100	143200	134400	122300	112200	100200	85390	74920
12	157500	156700	152500	149200	147500	142900	133700	122300	111900	99620	84930	74690
13	156700	156700	152500	149200	147500	142900	133300	122000	111900	99040	84460	74220
14	156300	156700	152500	149200	147100	142900	132900	121600	111700	98760	84230	73750
15	156300	156700	152100	149200	147100	142500	132600	120900	111100	98180	83530	73750
16	155800	156700	152100	149200	147100	142500	132200	120500	111100	97610	83300	73060
17	155800	156300	152100	149200	146800	142200	132200	120200	110800	97320	83070	72820
18	155800	156300	151600	148900	146800	142200	131500	119800	110200	96750	82830	72360
19	155800	155800	151600	149200	148900	141800	131200	119800	109900	96180	82600	72360
20	155800	155800	151200	149200	148900	141800	131200	119800	109400	96460	82370	71890
21	156700	155800	151200	148900	149600	141100	130800	118800	109100	95320	82370	71660
22	155800	155400	150800	148900	147800	140700	130500	118800	108800	95320	81670	71190
23	155400	155800	151200	148900	146400	140400	130100	118100	108500	94460	81440	70730
24	155000	155400	150000	149200	146100	140700	129400	117400	108200	93880	81200	70500
25	155400	155800	150000	149200	146100	140000	129000	117000	107600	93310	81200	70260
26	155000	155400	149600	148900	145700	139700	128700	116300	107400	93020	80740	70030
27	155000	155400	150000	148500	145700	139300	128300	115900	107100	92740	80510	69800
28	155000	155400	149600	148500	145700	139300	128000	115200	106500	92170	80040	69330
29	154600	154600	150000	148200	145000	138600	127300	114900	105900	91590	79570	69100
30	154200	154600	149600	147800	---	138600	127300	114900	105600	91310	79340	68630
31	153700	---	149600	147100	---	137900	---	114200	---	90730	79110	---
MAX	157900	157100	155000	149200	149600	145000	137500	126600	113700	105300	90160	78640
MIN	153700	152900	149600	147100	145000	137900	127300	114200	105600	90730	79110	68630
(+)	1050.9	1051.1	1049.9	1049.2	1048.6	1046.6	1043.6	1039.9	1036.9	1031.7	1027.1	1022.6
(+)	-4700	+900	-5000	-2500	-2100	-7100	-10600	-13100	-8600	-14870	-11620	-10480

CAL YR 1983 MAX 190300 MIN 149600 ‡ -40700
WTR YR 1984 MAX 157900 MIN 68630 ‡ -89770

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

GUADALUPE RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JAN 25...	1645	410	13.0	190	51	50	16	7.8
DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LILITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JAN 25...	.3	1.9	140	54	14	.20	8.9	240

GUADALUPE RIVER BASIN

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 upstream from center pier of double-barrel flume, 350 ft downstream from county highway bridge, 1,900 ft downstream from head of canal and diversion dam, 4.6 mi downstream from Medina Dam, 4.7 mi north of Riomedina, and 25 mi 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, from topographic map.

REMARKS.--Records good except those for period of no gage-height record, which are poor. Station is above all diversions from canal. Canal diverts from right end of Medina Diversion Dam 1,900 ft upstream from gage for irrigation downstream near Lacoste and Natalia. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years (water years 1923-33, 1958-84), 42.9 ft³/s (31,080 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 216 ft³/s May 6, 1971; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	51	46	.00	27	58	119	151	151	157	149	138
2	73	52	39	.00	27	57	117	154	151	156	149	137
3	76	51	32	.00	28	57	119	156	153	157	148	137
4	80	53	2.1	.00	28	56	121	156	150	157	148	112
5	87	54	18	.00	28	59	135	99	137	158	147	109
6	94	56	46	.00	28	68	127	56	126	158	147	103
7	92	44	46	.00	28	71	131	38	75	158	147	84
8	84	32	47	.00	28	77	133	132	60	159	146	81
9	23	32	42	.00	26	78	102	133	89	159	146	89
10	2.3	35	33	.00	18	79	83	139	107	159	142	114
11	2.2	39	33	.00	16	80	66	90	109	160	139	111
12	2.3	40	39	.00	15	81	79	113	117	159	140	99
13	1.4	39	43	.00	17	82	93	120	113	160	141	98
14	.00	39	44	.00	28	82	101	126	95	159	140	105
15	20	46	45	.00	28	82	101	132	73	159	129	103
16	37	48	46	.00	28	79	105	135	92	158	57	90
17	35	53	46	.00	28	84	123	129	92	159	62	57
18	34	64	46	.00	28	90	144	130	89	158	66	76
19	25	63	47	.00	28	89	137	139	102	158	65	82
20	24	60	24	.00	27	78	119	136	108	157	65	82
21	26	59	30	.00	27	84	112	138	113	157	71	82
22	33	58	29	.00	35	98	111	143	124	157	84	82
23	36	59	20	.00	43	100	128	143	127	157	107	82
24	52	58	20	.00	44	98	137	142	122	154	102	99
25	57	54	20	.00	44	97	134	143	141	153	98	98
26	55	52	40	.00	45	97	135	143	148	153	95	95
27	61	51	40	.00	41	107	148	143	154	153	102	91
28	62	50	40	.00	42	106	146	144	158	152	114	89
29	63	49	40	.00	54	104	146	129	158	151	123	67
30	64	49	40	.00	---	122	147	120	157	151	131	55
31	60	---	40	27	---	122	---	142	---	150	137	---
TOTAL	1434.20	1490	1123.1	27.00	884	2622	3599	3994	3591	4853	3637	2847
MEAN	46.3	49.7	36.2	.87	30.5	84.6	120	129	120	157	117	94.9
MAX	94	64	47	27	54	122	148	156	158	160	149	138
MIN	.00	32	2.1	.00	15	56	66	38	60	150	57	55
AC-FT	2840	2960	2230	54	1750	5200	7140	7920	7120	9630	7210	5650

CAL YR 1983 TOTAL 18990.41 MEAN 52.0 MAX 151 MIN .00 AC-FT 37670
WTR YR 1984 TOTAL 30101.30 MEAN 82.2 MAX 160 MIN .00 AC-FT 59710

NOTE.--No gage-height record Dec. 23 to Jan. 30.

GUADALUPE RIVER BASIN

289

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 downstream from Polecat Creek, 0.7 mi north of Macdonna, 2.2 mi downstream from Potranca Creek, and 21.2 mi upstream from mouth.

DRAINAGE AREA.--885 mi², of which 634 mi² 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is regulated by Medina Lake (station 08179500) and by Medina Diversion Lake (capacity, 4,500 acre-ft) 41 mi upstream. For diversion of canal records, see Medina Canal near Kiomedina (station 08108000). A large part of the streamflow is lost into the Edwards and associated limestones in the Balcones Fault crosses the basin between the upstream end of Medina Lake and about 5 mi downstream from Medina Dam, or 0.9 mi 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 June 15, 1981 (gage height, 16.08 ft); minimum, 22 ft³/s Aug. 3, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 75 ft³/s Oct. 10 at 1200 hours (gage height, 3.35 ft); maximum gage height, 3.36 ft Mar. 28; minimum daily discharge, 22 ft³/s Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	40	44	53	37	43	43	30	32	31	26	26
2	45	41	45	53	39	45	43	31	32	33	25	28
3	44	40	48	53	40	47	42	33	35	29	22	28
4	41	41	48	52	41	47	40	31	35	27	23	32
5	40	46	48	50	40	44	36	32	33	28	24	32
6	40	56	47	49	40	43	37	48	36	31	25	32
7	39	48	46	48	41	43	38	45	36	31	25	31
8	40	46	49	48	42	43	47	33	34	32	26	33
9	57	47	51	66	43	43	42	29	34	33	24	35
10	70	48	54	63	44	41	36	29	34	33	25	37
11	53	45	53	55	45	43	34	29	35	30	25	37
12	48	46	52	52	42	44	35	31	35	30	26	36
13	46	48	49	52	43	43	40	29	35	30	31	34
14	45	47	51	51	43	45	39	30	39	30	31	33
15	45	46	51	49	42	44	41	30	36	29	33	31
16	44	45	50	48	41	45	39	31	34	29	34	31
17	45	45	51	47	41	44	39	33	34	26	34	31
18	46	47	52	45	42	45	40	40	35	25	33	25
19	45	47	53	43	40	47	40	40	31	24	34	25
20	43	47	53	42	39	48	41	40	31	26	33	26
21	42	46	53	42	40	46	38	39	32	27	33	29
22	42	47	54	41	39	45	37	35	32	30	31	30
23	40	50	55	42	39	45	36	36	32	29	30	33
24	40	54	54	42	42	43	35	33	34	24	30	33
25	39	47	54	42	41	44	33	32	35	25	28	31
26	39	46	55	39	44	44	34	31	30	26	27	32
27	39	46	55	37	42	45	31	31	29	27	28	32
28	38	45	53	36	41	45	30	33	29	28	28	31
29	39	45	53	35	41	42	30	32	29	26	27	36
30	40	45	53	37	---	43	29	31	30	26	26	37
31	41	---	53	36	---	43	---	31	---	25	26	---
TOTAL	1358	1387	1587	1448	1194	1372	1125	1038	998	880	873	947
MEAN	43.8	46.2	51.2	46.7	41.2	44.3	37.5	33.5	33.3	28.4	28.2	31.6
MAX	70	56	55	66	45	48	47	48	39	33	34	37
MIN	38	40	44	35	37	41	29	29	29	24	22	25
AC-FT	2690	2750	3150	2870	2370	2720	2230	2060	1980	1750	1730	1880

CAL YR 1983	TOTAL	16882	MEAN	46.3	MAX	114	MIN	29	AC-FT	33490
WTR YR 1984	TOTAL	14207	MEAN	38.8	MAX	70	MIN	22	AC-FT	28180

GUADALUPE RIVER BASIN

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 upstream from bridge on State Highway 16, 2.1 mi upstream from Elm Creek, 4.9 mi downstream from Medio Creek, 5.2 mi northeast of Somerset, and 14.1 mi upstream from mouth.

DRAINAGE AREA.--967 mi², of which 634 mi² 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is regulated by Medina Lake (station 08179500) 56 mi upstream and by Medina Diversion Lake (capacity, 4,500 acre-ft). 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 downstream from Medina Dam, or 0.9 mi 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.--14 years, 235 ft³/s (170,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,500 ft³/s July 17, 1973 (gage height, 29.39 ft); minimum daily, 16 ft³/s Sept. 19, 20, 1984.
Maximum stage since about 1890, that of July 17, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 136 ft³/s Aug. 15 at 0200 hours (gage height, 6.18 ft); minimum daily, 16 ft³/s Sept. 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	45	53	57	46	48	43	31	32	23	19	21
2	42	46	53	58	48	49	46	32	32	25	26	21
3	42	47	53	55	48	48	45	33	32	24	23	24
4	39	48	53	53	46	51	46	34	35	20	21	28
5	39	51	53	52	45	51	41	33	33	22	21	28
6	41	62	53	53	46	50	40	32	36	22	22	27
7	41	64	53	51	46	46	45	48	37	24	23	26
8	40	60	53	51	47	47	51	38	35	23	22	25
9	51	59	53	64	47	48	53	33	34	23	23	26
10	55	56	51	74	49	47	47	31	33	25	22	27
11	54	56	51	66	50	46	44	30	31	23	23	26
12	54	57	50	58	53	49	41	30	31	24	21	24
13	53	60	50	56	52	50	42	31	30	23	23	23
14	53	62	49	55	52	48	45	30	32	23	26	21
15	52	61	49	54	50	47	43	29	42	23	41	25
16	52	55	50	54	45	47	44	30	34	23	28	27
17	51	55	52	54	47	46	42	33	32	22	29	20
18	51	55	50	53	49	45	43	39	33	18	28	19
19	51	55	52	51	48	48	43	45	30	17	27	16
20	52	55	52	50	48	47	43	44	28	18	27	16
21	51	54	52	49	48	48	43	44	28	19	27	19
22	49	54	53	49	48	47	40	40	27	20	25	21
23	49	54	55	50	47	45	39	37	27	22	25	22
24	49	58	56	51	49	43	37	37	25	24	25	24
25	49	56	56	53	48	41	36	35	26	22	25	21
26	49	53	57	51	49	43	36	33	26	23	24	19
27	48	53	57	49	50	43	34	33	25	23	24	19
28	48	53	57	47	48	42	32	32	23	25	23	19
29	48	53	53	53	48	41	31	32	25	23	23	22
30	46	53	54	47	---	41	31	31	24	23	21	25
31	47	---	56	45	---	43	---	31	---	22	21	---
TOTAL	1487	1650	1639	1663	1397	1435	1246	1071	918	691	758	681
MEAN	48.0	55.0	52.9	53.6	48.2	46.3	41.5	34.5	30.6	22.3	24.5	22.7
MAX	55	64	57	74	53	51	53	48	42	25	41	28
MIN	39	45	49	45	45	41	31	29	23	17	19	16
AC-FT	2950	3270	3250	3300	2770	2850	2470	2120	1820	1370	1500	1350
CAL YR 1983	TOTAL	20223	MEAN	55.4	MAX	130	MIN	35	AC-FT	40110		
WTR YR 1984	TOTAL	14636	MEAN	40.0	MAX	74	MIN	16	AC-FT	29030		

GUADALUPE RIVER BASIN

291

08181400 HELOTES CREEK AT HELOTES, TX

LOCATION.--Lat 29°34'42", long 98°41'29", Bexar County, Hydrologic Unit 12100302, 42 ft to left and 44 ft downstream from centerline of bridge on State Highway 16, 0.1 mi northwest of Helotes, and 8.6 mi upstream from mouth.

DRAINAGE AREA.--15.0 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. An undetermined amount of flow is diverted for domestic use above the station, and some flow enters the Edwards and associated limestones through the Balcones Fault Zone in the vicinity of the gage. Recording rain gage located at station, with two additional recording rain gages located in the watershed.

AVERAGE DISCHARGE.--16 years, 3.90 ft³/s (3.53 in/yr), 2,830 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,680 ft³/s July 16, 1973 (gage height, 10.8 ft, from floodmarks), from rating curve extended above 5,000 ft³/s; no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1923, 13.7 ft in 1927, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21 ft³/s May 28 at 1715 hours (gage height, 1.87 ft), no peak above base of 140 ft³/s; no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
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	.20	.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	.22	.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	.10	.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	.61	.00	.00	.00	.00
29	.00	.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	.20	.00	.00	.00	.00	.00	.71	.22	.00	.00	.00
MEAN	.000	.007	.000	.000	.000	.000	.000	.023	.007	.000	.000	.000
MAX	.00	.20	.00	.00	.00	.00	.00	.61	.22	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.000	.000	.000	.000	.000	.000	.002	.000	.000	.000	.000
IN.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.4	.00	.00	.00	.00	.00	1.4	.4	.00	.00	.00

CAL YR 1983 TOTAL 4.08 MEAN .011 MAX .75 MIN .00 CFSM .001 IN .01 AC-FT 8.1
WTR YR 1984 TOTAL 1.13 MEAN .003 MAX .61 MIN .00 CFSM .000 IN .00 AC-FT 2.2

GUADALUPE RIVER BASIN

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX

LOCATION.--Lat 29°19'47", long 98°35'02", Bexar County, Hydrologic Unit 12100302, on left bank of Leon Creek between bridges on Interstate Highway 35.

PERIOD OF RECORD.--Chemical and biochemical analyses: July to September 1984.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	
JUL 27...	1505	3.4	657	7.5	28.0	7	6.9	7.8	102	--	--	
AUG 29...	0940	3.7	512	7.5	25.0	25	3.2	4.8	59	1.3	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)
JUL 27...	--	--	--	--	--	--	--	125	--	--	--	--
AUG 29...	170	89	11	36	1	3.5	100	150	62	.60	12	
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JUL 27...	--	7	<1	1.4	.020	1.4	.120	.58	.70	1.00	2.4	
AUG 29...	420	26	8	1.5	.030	1.5	.070	.43	.50	.250	4.2	

GUADALUPE RIVER BASIN

293

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 upstream from mouth.

DRAINAGE AREA.--1,317 mi², of which 634 mi² is above dam forming Medina Lake.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to December 1930, July 1939 to current year. October 1929 to December 1930 records below about 50 ft³/s 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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). October 1929 to December 1930, nonrecording gage at Losoya 1.5 mi downstream at different datum.

REMARKS.--Water-discharge records fair. Flow is slightly regulated by Medina Lake (station 08179500), 60 mi upstream, and diversion dam reservoir, capacity 4,500 acre-ft. For diversion of canal records, see Medina Canal near Kio-medina (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 show that during the current year 24,860 acre-ft of sewage effluent was discharged from the Leon Creek plant into the Medina River above this station. No sewage effluent was discharged from Mitchell Lake plant during year. Gage-height telemeter at this station.

AVERAGE DISCHARGE.--45 years (water years 1940-84), 171 ft³/s (123,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft³/s July 17, 1973 (gage height, 43.59 ft); minimum daily, 3.3 ft³/s Apr. 18, Nov. 1, 1956, and Jan. 24, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 55 ft 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, 326 ft³/s Aug. 17 at 1900 hours (gage height, 7.92 ft); minimum daily, 43 ft³/s July 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	82	104	116	101	101	84	63	60	52	48	54
2	96	86	105	119	100	102	88	65	58	54	48	53
3	96	89	105	117	105	103	87	64	58	54	60	51
4	96	85	103	113	104	102	87	64	58	58	56	53
5	96	95	103	111	101	101	86	63	60	50	64	58
6	96	120	103	110	102	98	84	60	72	50	59	65
7	95	105	103	108	98	93	92	70	90	50	55	60
8	95	97	102	108	99	93	94	78	86	52	64	61
9	95	101	103	144	100	94	93	65	84	54	59	57
10	95	96	101	138	104	94	90	56	79	50	59	60
11	95	97	104	123	101	96	84	54	77	50	60	62
12	95	95	102	113	106	107	85	52	76	50	52	60
13	95	97	100	109	108	110	86	52	90	50	58	62
14	95	104	99	105	105	104	79	56	97	49	59	60
15	94	104	98	106	101	102	80	52	119	49	57	60
16	94	103	99	107	95	102	81	53	104	49	61	58
17	94	98	100	107	95	100	77	60	88	47	123	75
18	94	100	100	108	97	93	77	60	79	45	83	62
19	94	110	103	109	97	105	74	63	78	45	66	60
20	94	110	105	107	100	98	77	64	71	43	64	59
21	94	109	104	106	102	95	79	64	62	45	61	57
22	94	109	111	107	99	93	72	64	60	45	62	58
23	93	105	116	112	99	93	70	60	58	50	58	60
24	93	110	113	111	97	89	69	58	54	49	59	58
25	89	106	113	114	101	89	68	56	53	47	59	61
26	87	105	116	110	101	91	71	56	55	45	58	60
27	86	105	119	108	103	90	68	54	54	45	58	58
28	89	105	116	105	102	88	63	52	51	45	56	55
29	88	104	115	108	101	87	63	52	52	46	56	54
30	86	104	116	106	---	85	64	52	52	46	52	66
31	88	---	115	98	---	86	---	58	---	47	53	---
TOTAL	2887	3036	3296	3463	2924	2984	2372	1840	2135	1511	1887	1777
MEAN	93.1	101	106	112	101	96.3	79.1	59.4	71.2	48.7	60.9	59.2
MAX	96	120	119	144	108	110	94	78	119	58	123	75
MIN	86	82	98	98	95	85	63	52	51	43	48	51
AC-FT	5730	6020	6540	6870	5800	5920	4700	3650	4230	3000	3740	3520
CAL YR 1983	TOTAL	41672	MEAN	114	MAX	267	MIN	55	AC-FT	82660		
WTR YR 1984	TOTAL	30112	MEAN	82.3	MAX	144	MIN	43	AC-FT	59730		

GUADALUPE RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
JAN 27...	1430	110	801	7.8	14.0	--	--	5.8	57	19	--
FEB 10...	1137	101	831	7.2	17.0	<1	4.7	4.9	52	15	300
MAR 16...	1310	91	836	7.4	23.5	20	24	4.2	50	13	290
MAY 09...	1208	45	853	7.8	22.0	40	35	4.2	48	12	290
JUL 27...	1335	48	850	7.5	28.0	27	14	7.1	92	--	--

DATE	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 27...	--	--	--	--	--	--	246	--	--	--	--
FEB 10...	78	86	20	57	1	4.5	220	91	72	.40	11
MAR 16...	68	84	19	54	1	4.6	220	93	68	.40	11
MAY 09...	58	82	20	61	2	5.7	230	82	72	.40	15
JUL 27...	--	--	--	--	--	--	210	--	--	--	--

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 27...	--	--	--	--	--	--	--	--	--	--	--
FEB 10...	470	8	8	3.5	.980	4.5	.760	1.0	1.8	1.50	4.0
MAR 16...	470	54	15	2.5	1.00	3.5	1.30	1.1	2.4	1.30	4.8
MAY 09...	480	79	21	1.5	2.80	4.3	2.40	3.1	5.5	2.30	6.6
JUL 27...	--	23	16	2.4	1.50	3.9	3.20	1.6	4.8	2.80	6.4

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
FEB 10...	1137	<1	48	<1	<10	5	11

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB 10...	<1	5	<.1	<1	<1	7

GUADALUPE RIVER BASIN

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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 southwest of Elmendorf, 3.3 mi downstream from Braunig Plant Lake, and 203.0 mi upstream from mouth.

DRAINAGE AREA.--1,743 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Altitude of gage is 385 ft, from topographic map. Prior to Dec. 19, 1980, at site 2.5 mi 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). 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, the city of San Antonio discharged 110,500 acre-ft of sewage effluent into the San Antonio River from the Killing Road, Leon Creek, Salado Creek, and Mitchell Lake plants upstream from this station. The San Antonio City Public Service Board pumped 6,440 acre-ft into Braunig Lake, released 120 acre-ft from Braunig Lake, and pumped 29,390 acre-ft into Calaveras Lake, upstream from this station. 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.--22 years (water years 1963-84), 504 ft³/s (365,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s Sept. 27, 1973 (gage height, 47.60 ft); minimum, 12 ft³/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 in 1946. Second highest stage was 53 ft in 1913, from information by local residents. All site and datum in use prior to Dec. 19, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,870 ft³/s Nov. 5 at 2100 hours (gage height, 21.79 ft), no peak above base of 7,000 ft³/s; minimum daily, 105 ft³/s Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	285	222	269	319	275	296	270	196	185	297	184	115
2	283	227	222	311	278	299	276	203	172	174	154	105
3	292	233	325	362	284	296	253	214	159	149	163	116
4	298	231	315	289	274	295	212	209	163	140	155	437
5	292	814	255	257	272	299	209	137	183	136	176	242
6	292	889	240	249	276	298	211	134	233	147	159	143
7	288	357	233	232	273	284	252	140	244	144	177	141
8	282	278	231	231	274	234	368	301	192	135	165	132
9	624	239	232	880	275	242	280	168	180	136	165	133
10	624	283	229	546	281	235	226	124	169	148	156	133
11	320	233	229	357	280	251	213	126	168	149	173	124
12	413	221	230	274	307	950	200	184	176	147	152	123
13	281	215	257	225	320	518	207	229	342	151	367	122
14	249	223	268	222	296	337	202	162	227	142	209	123
15	232	226	226	224	285	281	192	136	211	140	723	128
16	226	220	228	232	279	242	196	125	196	143	352	201
17	234	216	216	230	276	231	203	228	179	153	205	136
18	235	213	218	230	274	223	205	608	170	152	178	122
19	234	213	220	239	273	429	206	995	179	153	160	121
20	233	212	233	239	335	403	214	839	181	158	155	114
21	237	234	230	227	341	304	273	377	171	153	152	129
22	223	288	236	229	299	282	267	309	164	148	131	117
23	218	497	249	305	292	286	223	238	154	166	129	119
24	221	365	247	319	288	275	202	224	144	163	130	146
25	223	293	250	344	283	269	201	217	144	156	147	205
26	218	288	256	306	288	277	209	199	155	161	131	197
27	217	289	282	295	292	282	206	189	149	162	132	164
28	214	313	282	276	293	272	196	184	148	162	127	131
29	217	311	275	275	294	271	195	635	147	155	126	238
30	212	298	302	282	---	270	195	254	142	148	124	286
31	218	---	324	273	---	266	---	196	---	188	128	---
TOTAL	8635	9141	7809	9279	8357	9697	6762	8480	5427	4856	5785	4743
MEAN	279	305	252	299	288	313	225	274	181	157	187	158
MAX	624	889	325	880	341	950	368	995	342	297	723	437
MIN	212	212	216	222	272	223	192	124	142	135	124	105
AC-FT	17130	18130	15490	18400	16580	19230	13410	16820	10760	9630	11470	9410

CAL YR 1983	TOTAL	117538	MEAN	322	MAX	3530	MIN	141	AC-FT	233100
WTR YR 1984	TOTAL	88971	MEAN	243	MAX	995	MIN	105	AC-FT	176500

GUADALUPE RIVER BASIN

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.

pH: June 1984 to September 1984.

WATER TEMPERATURES: October 1966 to current year.

DISSOLVED OXYGEN: June 1984 to September 1984.

INSTRUMENTATION.--Beginning June 1984, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance 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, 1,240 micromhos Jan. 29, 1973, Aug. 8, 1975; minimum daily, 253 micromhos Oct. 7, 1981.

WATER TEMPERATURES: Maximum daily, 32.0°C on several days during summer months; minimum daily, 5.5°C Jan. 10, 1973.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,020 micromhos June 29, July 1; minimum, 450 micromhos Mar. 12.

pH: Maximum, 8.0 units Sept. 7, 26, 27; minimum, 7.3 units Aug. 3, 13-17.

WATER TEMPERATURES: Maximum, 32.0°C on several days during June and July; minimum, 9.0°C Dec. 25, 27.

DISSOLVED OXYGEN: Maximum, 8.9 mg/L July 23; minimum, 1.0 mg/L July 30, 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	
JAN 27...	1330	268	864	7.9	15.5	--	--	6.6	67	20	--	
FEB 10...	1004	327	908	7.5	18.0	<1	12	4.9	53	22	280	
MAR 16...	1130	253	896	7.4	23.0	20	16	4.4	52	13	260	
MAY 09...	1055	235	780	7.6	23.0	50	6.2	--	--	9.8	250	
JUL 27...	1205	1.9	895	7.4	32.0	12	1.1	4.0	55	14	--	
DATE		HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
JAN 27...	--	--	--	--	--	--	--	271	--	--	--	--
FEB 10...	31	81	19	76	2	7.5	250	70	87	.60	14	
MAR 16...	13	77	17	74	2	7.4	250	74	83	.60	14	
MAY 09...	57	74	16	59	2	6.2	194	63	72	.50	14	
JUL 27...	--	--	--	--	--	--	228	--	--	--	--	--

GUADALUPE RIVER BASIN

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08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 27...	--	--	--	--	--	--	--	--	--	--	--
FEB 10...	510	19	10	2.9	.960	3.9	3.50	1.0	4.5	3.40	7.9
MAR 16...	500	34	10	2.4	.840	3.2	4.50	1.5	6.0	3.00	8.0
MAY 09...	420	34	16	2.3	.890	3.2	2.30	1.5	3.8	2.60	9.7
JUL 27...	--	13	6	2.3	1.10	3.4	4.30	.70	5.0	4.50	6.8

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
FEB 10...	1004	<1	47	<1	<10	8	34

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB 10...	<1	22	<.1	<1	<1	41

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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.	1983	8635	814	461	10800	73	1700	71	1660	280
NOV.	1983	9141	767	436	10800	66	1640	68	1680	270
DEC.	1983	7809	844	478	10100	77	1620	73	1540	280
JAN.	1984	9279	819	464	11600	73	1830	72	1800	280
FEB.	1984	8357	873	493	11100	81	1830	75	1690	290
MAR.	1984	9697	798	452	11800	71	1860	70	1830	270
APR.	1984	6762	888	501	9150	83	1520	76	1390	290
MAY	1984	8480	712	405	9260	60	1380	64	1460	250
JUNE	1984	5427	865	489	7170	80	1170	75	1090	290
JULY	1984	4856	883	499	6540	83	1080	76	991	290
AUG.	1984	5785	807	457	7140	72	1130	70	1100	270
SEPT	1984	4743	827	468	6000	74	951	72	924	280
TOTAL		88971	**	**	111000	**	17700	**	17100	**
WTD.AVG.		243	819	464	**	74	**	71	**	280

GUADALUPE RIVER BASIN

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1			867			836			840			818
2			872			888			870			830
3			851			881			725			780
4			829			877			738			795
5			867			620			781			842
6			878			480			808			867
7			895			650			857			852
8			878			732			887			872
9			800			785			882			785
10			580			809			872			629
11			619			774			876			700
12			724			830			862			818
13			671			840			843			853
14			787			825			877			858
15			807			817			895			864
16			847			859			871			835
17			837			887			887			807
18			812			886			889			861
19			844			889			882			876
20			867			881			841			877
21			875			863			869			862
22			873			838			890			855
23			877			800			872			840
24			856			765			871			821
25			835			790			844			843
26			872			802			820			812
27			893			831			785			857
28			900			822			818			868
29			904			800			846			888
30			892			836			843			865
31			863						838			842
MONTH			831			806			848			831

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1			860			897			903			851
2			889			876			877			883
3			902			894			861			912
4			875			887			866			904
5			905			876			890			907
6			872			850			898			895
7			855			890			913			891
8			892			910			858			833
9			885			914			784			778
10			889			887			833			905
11			891			811			893			909
12			882			450			906			905
13			871			580			905			901
14			812			745			908			897
15			870			828			911			836
16			876			875			905			884
17			886			872			870			845
18			887			892			892			519
19			878			725			911			475
20			857			705			903			500
21			820			783			898			640
22			826			852			901			740
23			866			877			889			811
24			879			859			836			856
25			893			871			881			854
26			874			875			895			883
27			883			857			900			901
28			853			891			901			920
29			905			898			967			463
30						899			945			700
31						893						806
MONTH			874			836			890			807

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SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	864	1020	763	914	903	852	885	867	843	853
2	---	---	870	828	729	777	932	898	909	878	849	868
3	---	---	885	862	823	838	927	906	915	878	841	858
4	---	---	863	908	861	897	926	900	909	830	634	722
5	---	---	831	925	890	915	930	888	902	771	660	723
6	---	---	821	912	863	880	897	881	888	851	775	817
7	---	---	830	920	869	903	882	857	869	874	848	863
8	---	---	817	944	901	916	918	873	895	855	843	849
9	---	---	897	907	877	890	932	906	916	858	841	850
10	---	---	900	871	833	848	927	903	917	847	814	831
11	---	---	872	895	846	879	948	925	937	809	802	805
12	---	---	931	906	877	892	943	926	931	848	804	835
13	---	---	850	905	870	893	---	---	600	863	836	855
14	---	---	800	891	871	881	---	---	690	862	841	854
15	862	801	833	890	863	877	---	---	550	856	827	840
16	867	838	850	883	836	855	---	---	760	827	695	801
17	923	857	898	---	---	856	857	803	828	732	673	697
18	900	840	870	---	---	870	866	802	834	---	---	770
19	851	836	844	---	---	886	889	860	876	---	---	820
20	887	853	877	911	889	902	885	841	860	939	805	842
21	916	829	874	909	887	894	844	825	835	884	849	865
22	870	835	856	921	881	901	886	844	873	986	844	866
23	883	850	867	901	872	886	908	875	891	883	855	870
24	898	856	872	884	843	859	907	871	893	883	853	862
25	859	809	830	894	848	884	890	867	875	---	---	847
26	824	794	810	937	893	923	879	784	834	---	---	895
27	986	819	900	938	898	915	844	834	837	908	895	903
28	1010	969	993	906	880	895	834	807	818	904	890	896
29	1020	984	1010	928	891	907	885	824	852	912	890	895
30	1010	974	988	902	859	879	890	866	884	915	784	821
31	---	---	---	859	845	851	877	856	867	---	---	---
MONTH	1020	794	870	1020	729	883	948	784	849	986	634	836

PH (STANDARD UNITS), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

[illegible]

GUADALUPE RIVER BASIN

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
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20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
MONTH												

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	7.5	7.4	7.4	7.6	7.5	7.5
2	---	---	---	---	---	---	7.4	7.4	7.4	7.5	7.5	7.5
3	---	---	---	---	---	---	7.4	7.4	7.4	7.5	7.5	7.5
4	---	---	---	---	---	---	7.4	7.4	7.4	7.8	7.4	7.5
5	---	---	---	---	---	---	7.4	7.4	7.4	7.7	7.5	7.6
6	---	---	---	---	---	---	7.4	7.4	7.4	7.8	7.6	7.6
7	---	---	---	---	---	---	7.5	7.4	7.4	8.0	7.6	7.6
8	---	---	---	---	---	---	7.5	7.4	7.4	7.7	7.6	7.6
9	---	---	---	---	---	---	7.4	7.4	7.4	7.6	7.5	7.6
10	---	---	---	---	---	---	7.5	7.4	7.4	7.6	7.5	7.6
11	---	---	---	---	---	---	7.4	7.4	7.4	7.7	7.5	7.6
12	---	---	---	---	---	---	7.4	7.4	7.4	7.6	7.5	7.5
13	---	---	---	---	---	---	7.5	7.3	7.4	7.6	7.5	7.5
14	7.6	7.5	7.6	---	---	---	7.4	7.3	7.3	7.7	7.5	7.6
15	7.6	7.5	7.6	---	---	---	7.4	7.3	7.4	7.7	7.5	7.6
16	7.7	7.5	7.5	---	---	---	7.4	7.3	7.3	7.6	7.4	7.5
17	7.6	7.5	7.6	---	---	---	7.7	7.3	7.4	7.6	7.5	7.5
18	7.6	7.4	7.5	---	---	---	7.6	7.5	7.6	7.7	7.5	7.6
19	7.6	7.4	7.5	7.7	7.5	7.6	7.6	7.5	7.6	7.8	7.5	7.6
20	7.6	7.5	7.5	7.7	7.5	7.6	7.5	7.5	7.5	7.7	7.6	7.7
21	---	---	---	7.6	7.5	7.5	7.6	7.5	7.5	7.7	7.6	7.6
22	---	---	---	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.6
23	---	---	---	7.8	7.4	7.6	7.6	7.5	7.6	7.6	7.5	7.5
24	---	---	---	7.7	7.4	7.6	7.6	7.5	7.6	7.6	7.5	7.5
25	---	---	---	7.6	7.4	7.5	7.6	7.5	7.5	7.6	7.5	7.5
26	---	---	---	7.5	7.4	7.5	7.6	7.5	7.5	8.0	7.5	7.7
27	---	---	---	7.6	7.4	7.5	7.6	7.5	7.6	8.0	7.9	7.9
28	---	---	---	7.5	7.4	7.4	7.6	7.5	7.6	7.9	7.8	7.9
29	---	---	---	7.4	7.4	7.4	---	7.6	7.6	7.9	7.9	7.9
30	---	---	---	7.4	7.4	7.4	7.7	7.6	7.6	7.9	7.8	7.8
31	---	---	---	7.6	7.4	7.5	7.6	7.5	7.6	---	---	---
MONTH	7.7	7.4	7.5	7.8	7.4	7.5	7.7	7.3	7.5	8.0	7.4	7.6

GUADALUPE RIVER BASIN

301

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1			26.0			24.0			18.0			15.0
2			27.0			24.0			17.0			---
3			26.0			25.0			20.0			15.0
4			26.0			25.0			19.0			15.0
5			27.0			24.5			20.0			15.0
6			27.0			24.0			18.0			17.0
7			27.0			23.0			16.0			17.0
8			28.0			23.0			16.0			17.0
9			25.0			24.0			19.0			19.0
10			24.0			21.0			22.0			15.0
11			24.0			18.0			20.0			12.5
12			24.0			20.0			18.0			14.0
13			22.0			22.0			18.0			14.0
14			22.0			20.0			18.0			12.0
15			24.5			20.0			16.0			13.0
16			25.0			19.0			13.0			14.0
17			25.0			19.0			14.0			13.0
18			26.0			21.0			12.0			13.0
19			27.0			23.0			16.0			11.0
20			26.0			20.0			13.0			11.0
21			25.5			19.0			13.5			12.0
22			24.0			23.0			11.0			13.0
23			24.0			22.0			11.0			14.0
24			23.0			---			10.0			14.0
25			23.0			---			9.0			15.0
26			22.0			21.0			---			14.0
27			22.0			19.0			9.0			14.0
28			20.0			17.0			13.0			17.0
29			22.0			17.0			10.5			18.0
30			24.0			19.0			11.0			17.5
31			23.0						12.5			15.5
MONTH			24.5			21.5			15.0			14.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1			15.0			15.5			22.0			23.0
2			16.0			18.0			22.0			24.5
3			15.5			22.0			22.0			25.0
4			16.0			22.0			21.0			25.5
5			15.0			19.0			20.0			28.0
6			14.0			17.0			20.5			28.0
7			13.5			16.0			21.0			28.0
8			15.5			17.0			24.5			26.0
9			17.0			18.0			22.0			23.5
10			18.5			20.0			22.5			23.5
11			20.0			20.0			23.5			24.0
12			19.0			20.5			23.5			27.0
13			17.5			20.0			23.0			28.0
14			17.0			22.0			25.0			27.0
15			19.5			22.5			22.0			26.0
16			19.0			23.5			21.0			26.0
17			19.0			24.0			21.0			28.5
18			20.0			25.0			22.0			24.5
19			18.0			22.0			23.0			25.0
20			16.5			20.0			25.0			25.0
21			14.5			20.0			26.5			26.0
22			15.5			20.5			24.0			26.5
23			16.5			22.0			22.0			28.0
24			18.0			24.0			23.0			27.5
25			18.0			21.0			24.0			27.5
26			19.0			22.0			24.5			30.0
27			17.0			23.0			---			29.0
28			14.5			22.0			25.0			---
29			14.5			19.5			25.0			25.5
30						20.0			25.0			24.0
31						23.0						23.5
MONTH			17.0			20.5			23.0			26.0

GUADALUPE RIVER BASIN

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

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

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
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20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
MONTH												

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
MONTH												

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	4.4	1.9	3.2	6.0	2.1	3.5	4.3	2.5	3.2
2	---	---	---	5.1	2.8	3.9	5.4	1.8	3.2	4.1	2.4	3.1
3	---	---	---	5.4	3.5	4.3	5.8	1.8	3.3	4.3	2.6	3.3
4	---	---	---	5.2	3.1	4.0	5.3	1.9	3.1	3.4	2.1	2.7
5	---	---	---	5.1	2.9	3.8	5.3	2.0	3.2	4.6	3.6	4.1
6	---	---	---	6.0	2.9	4.1	5.7	2.1	3.4	4.7	3.5	3.9
7	---	---	---	5.5	2.7	3.9	6.3	2.3	3.8	4.0	3.2	3.5
8	---	---	---	5.7	2.7	3.9	5.5	2.2	3.5	4.1	2.9	3.4
9	---	---	---	6.1	2.7	4.0	5.2	2.3	3.4	4.1	2.6	3.2
10	---	---	---	6.0	2.9	4.1	5.9	2.4	3.7	4.6	2.6	3.4
11	---	---	---	5.4	2.7	3.8	5.5	2.4	3.6	5.0	2.8	3.8
12	---	---	---	5.5	2.6	3.8	6.4	2.5	3.9	4.6	2.6	3.5
13	---	---	---	5.9	2.8	4.0	3.6	1.3	2.7	4.9	2.6	3.6
14	4.7	4.4	4.5	6.1	2.7	4.0	4.3	3.4	3.7	4.9	2.6	3.8
15	4.4	3.9	4.2	6.4	2.6	4.0	4.3	1.5	3.3	5.0	2.7	3.7
16	4.3	3.7	4.0	7.7	2.7	4.6	4.7	3.8	4.2	4.6	2.5	3.4
17	4.3	3.7	3.9	8.8	2.9	5.2	4.1	3.4	3.8	4.9	3.1	3.9
18	4.3	3.5	3.9	7.9	2.7	4.8	3.7	3.2	3.4	5.8	3.3	4.5
19	4.3	3.5	3.9	6.6	2.4	4.0	3.5	3.0	3.2	5.2	2.9	4.0
20	4.2	3.4	3.8	7.0	2.4	4.1	3.8	2.9	3.3	4.2	2.8	3.5
21	5.5	3.3	4.3	6.4	1.9	3.5	3.7	3.1	3.3	3.7	2.7	3.1
22	5.4	3.9	4.6	6.3	1.7	3.3	3.7	2.9	3.2	4.2	2.5	3.2
23	5.5	3.7	4.5	8.9	1.5	4.5	4.0	3.0	3.3	4.0	2.2	3.0
24	5.4	3.3	4.3	8.5	2.6	5.0	4.1	3.0	3.4	4.4	2.1	3.0
25	6.1	3.3	4.5	7.4	2.4	4.4	4.0	3.0	3.4	4.1	2.6	3.4
26	6.3	3.4	4.6	6.8	2.1	3.8	4.2	2.9	3.5	6.3	2.8	4.2
27	5.9	2.9	4.2	4.9	1.5	2.7	4.5	3.2	3.7	8.2	4.7	6.3
28	5.8	3.0	4.3	4.2	1.5	2.5	5.2	3.4	4.1	---	---	---
29	6.2	3.0	4.3	5.0	1.3	2.6	4.3	2.9	3.7	---	---	---
30	5.8	2.9	4.1	5.4	1.0	2.6	4.3	2.5	3.2	---	---	---
31	---	---	---	5.8	1.0	3.0	4.3	2.4	3.2	---	---	---
MONTH	6.3	2.9	4.2	8.9	1.0	3.9	6.4	1.3	3.5	8.2	2.1	3.6

GUADALUPE RIVER BASIN

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 downstream from bridge on Farm Road 791, 0.9 mi upstream from Scared Dog Creek, 3.6 mi southwest of Fall City, and 150.5 mi upstream from mouth.

DRAINAGE AREA.--2,113 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for periods of no gage-height record, 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. These structures control runoff from 73.8 mi. 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.--59 years (water years 1926-84), 401 ft³/s (290,500 acre-ft).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft³/s Sept. 29, 1946 (gage height, 33.80 ft), from floodmark; minimum daily, 19 ft³/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, from floodmark, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,550 ft³/s Nov. 6 at 2400 hours (gage height, 3.42 ft), no peak above base of 4,000 ft³/s; minimum daily, 174 ft³/s May 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	403	345	445	463	437	426	458	239	291	229	230	206
2	407	350	445	472	431	426	452	236	262	299	230	213
3	404	360	392	457	435	424	442	242	251	350	220	225
4	397	368	392	506	435	425	444	247	230	247	230	199
5	403	380	528	466	443	415	401	276	219	229	240	369
6	409	845	425	409	433	407	368	243	233	223	240	490
7	409	1210	404	391	429	407	369	198	258	219	245	309
8	409	578	394	387	436	405	381	188	332	233	240	250
9	410	464	392	448	433	376	507	256	275	229	240	249
10	531	372	404	852	436	338	475	311	250	223	240	238
11	896	407	412	843	439	345	397	227	240	220	240	225
12	520	389	401	564	441	350	343	182	215	210	240	220
13	499	363	399	469	441	753	321	174	218	215	280	205
14	469	342	401	380	480	925	305	267	322	215	360	211
15	397	344	453	359	474	534	305	294	361	200	350	235
16	374	356	420	350	452	461	294	212	290	205	450	249
17	361	363	394	351	445	389	278	189	290	210	600	270
18	360	362	393	355	428	371	280	184	265	200	400	299
19	372	353	382	348	425	381	294	588	229	200	350	246
20	370	351	379	353	420	458	294	867	223	210	300	222
21	364	349	393	363	420	652	286	1060	228	210	280	230
22	358	345	395	364	515	530	305	536	226	200	249	223
23	358	392	395	363	464	478	344	419	211	210	235	237
24	349	524	394	391	438	477	324	340	218	220	221	229
25	338	611	401	474	431	489	276	289	218	220	220	223
26	344	462	400	481	422	479	258	278	205	210	221	264
27	353	429	399	476	412	476	253	267	213	210	239	317
28	343	426	417	447	416	477	259	251	217	220	215	306
29	344	444	431	444	423	472	257	223	222	240	209	273
30	349	470	419	435	---	460	247	526	226	220	203	251
31	352	---	415	435	---	458	---	467	---	220	205	---
TOTAL	12652	13354	12714	13896	12734	14464	10217	10276	7438	6946	8422	7683
MEAN	408	445	410	448	439	467	341	331	248	224	272	256
MAX	896	1210	528	852	515	925	507	1060	361	350	600	490
MIN	338	342	379	348	412	338	247	174	205	200	203	199
AC-FT	25100	26490	25220	27560	25260	28690	20270	20380	14750	13780	16710	15240

CAL YR 1983 TOTAL 176488 MEAN 484 MAX 4200 MIN 212 AC-FT 350100
WTR YR 1984 TOTAL 130796 MEAN 357 MAX 1210 MIN 174 AC-FT 259400

NOTE.--No gage-height record July 11 to Aug. 28.

GUADALUPE RIVER BASIN

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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 upstream from Southern Pacific Lines bridge, 0.9 mi downstream from Menger Creek, and 2.5 mi southeast of Boerne.

DRAINAGE AREA.--68.4 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversion above station. Flow is affected at times by discharge from the flood-detention pools of four floodwater-retarding structures with a combined detention capacity of 8,850 acre-ft. These structures control runoff from 34.0 mi². Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years, 27.3 ft³/s (5.42 in/yr), 19,780 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,400 ft³/s Sept. 27, 1964 (gage height, 19.15 ft, from floodmark), from rating curve extended above 2,500 ft³/s on basis of slope-area measurement at 12,000 ft³/s and contracted-opening measurement of 36,400 ft³/s; no flow at times in 1962-64, 1966-67, 1971, and 1984.
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 (discharge, 25,600 ft³/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,020 ft³/s Oct. 9 at 0600 hours (gage height, 4.49 ft), no other peak above base of 900 ft³/s; no flow Aug. 30, Sept. 1, 12-15, 19, 25-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1.4	4.7	5.8	3.9	5.2	4.0	4.2	1.4	.97	1.2	.67	.00		
2	1.3	4.5	6.3	4.3	5.2	4.0	4.3	1.9	.74	1.1	.52	.01		
3	1.3	4.5	8.4	4.5	5.7	3.8	4.1	1.7	.58	.91	.45	1.7		
4	1.2	5.7	7.1	4.9	5.9	3.7	3.6	1.4	.56	.63	.32	.75		
5	1.1	29	6.7	4.9	5.9	3.7	3.4	1.3	30	.60	.33	.14		
6	.89	23	5.8	4.8	5.6	3.5	3.4	1.4	35	.71	.20	.10		
7	.93	13	5.1	4.8	5.3	3.5	3.8	1.4	3.8	.46	.14	.08		
8	1.1	10	5.1	5.4	4.9	3.6	4.1	1.4	2.3	.46	.09	.08		
9	168	9.7	5.1	31	5.2	3.8	3.5	1.3	1.9	.50	.07	.05		
10	14	9.1	5.4	9.7	5.6	4.0	3.4	1.3	1.8	.37	.06	.03		
11	6.9	7.9	5.1	7.2	5.8	4.0	3.3	1.4	1.8	.28	.05	.02		
12	6.1	7.3	4.7	6.2	5.8	7.0	3.4	1.3	2.1	.23	.06	.00		
13	4.8	7.3	4.7	5.9	5.2	6.3	3.3	1.5	2.7	.15	.24	.00		
14	4.6	7.3	5.1	5.8	4.9	5.7	2.9	1.4	2.1	.06	.19	.00		
15	4.6	6.9	4.6	5.5	4.9	5.5	2.7	1.3	2.0	.06	.30	.00		
16	4.7	6.6	5.0	5.6	5.4	5.6	2.6	1.2	2.0	.08	.41	.02		
17	4.5	6.3	4.9	5.8	5.3	5.3	2.7	1.4	1.9	.06	.36	.01		
18	4.0	7.2	4.8	5.9	4.8	4.9	2.8	2.6	1.9	.11	.32	.01		
19	3.8	7.4	4.6	6.1	4.6	4.5	3.1	4.5	1.8	.41	.34	.00		
20	28	7.3	4.5	5.5	4.2	4.7	3.1	3.6	1.7	.78	.28	.01		
21	11	6.8	4.6	5.4	4.1	4.7	2.5	2.2	1.6	.35	.19	.03		
22	7.7	7.2	4.5	5.9	4.5	4.6	2.0	1.7	1.5	.55	.21	.04		
23	5.6	12	4.4	6.5	4.5	4.7	2.1	1.8	1.1	.47	.23	.04		
24	5.9	7.6	4.0	6.6	4.1	4.3	2.1	1.8	1.2	.50	.25	.01		
25	5.6	6.8	4.3	6.1	4.2	4.4	2.0	1.8	1.2	.97	.20	.00		
26	5.2	6.1	4.0	5.6	5.3	4.2	2.2	1.5	1.1	1.6	.21	.00		
27	5.0	6.2	4.3	5.8	5.6	5.5	1.8	1.3	1.1	1.2	.22	.00		
28	5.0	5.6	4.0	5.6	5.6	3.7	1.5	4.3	1.1	1.6	.23	.01		
29	5.4	5.2	3.7	5.3	4.2	3.9	1.7	4.5	1.4	1.6	.16	.02		
30	4.9	6.0	3.9	5.0	---	4.2	1.4	1.8	1.4	.85	.03	.04		
31	4.8	---	3.8	5.2	---	4.2	---	1.3	---	.65	.00	---		
TOTAL	329.32	254.2	154.3	200.7	147.5	139.5	87.0	58.7	110.35	19.50	7.33	3.20		
MEAN	10.6	8.47	4.98	6.47	5.09	4.50	2.90	1.89	3.68	.63	.24	.11		
MAX	168	29	8.4	31	5.9	7.0	4.3	4.5	35	1.6	.67	1.7		
MIN	.89	4.5	3.7	3.9	4.1	3.5	1.4	1.2	.56	.06	.00	.00		
CFSM	.16	.12	.07	.10	.07	.07	.04	.03	.05	.009	.004	.002		
IN.	.18	.14	.08	.11	.08	.08	.05	.03	.06	.01	.00	.00		
AC-FT	653	504	306	398	293	277	173	116	219	39	15	6.3		
CAL YR 1983	TOTAL	4399.82	MEAN	12.1	MAX	272	MIN	.89	CFSM	.18	IN	2.39	AC-FT	8730
WTR YR 1984	TOTAL	1511.60	MEAN	4.13	MAX	168	MIN	.00	CFSM	.06	IN	.82	AC-FT	3000

GUADALUPE RIVER BASIN

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 downstream from Missouri-Kansas-Texas Railroad Co. bridge and 0.9 mi upstream from bridge on Interstate Highway 35 at Selma.

DRAINAGE AREA.--274 mi².

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 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 station near Boerne (station 08183900).

AVERAGE DISCHARGE.--38 years, 14.4 ft³/s (10,430 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,000 ft³/s July 16, 1973 (gage height, 26.2 ft, from floodmark), from rating curve extended above 16,000 ft³/s on basis of field estimate of 54,000 ft³/s and contracted-opening measurement of 65,000 ft³/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 occurred in 1889, but stage for flood in 1913 is unknown, from information by local residents.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
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	.00
30	.00	.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 1983 TOTAL 201.66 MEAN .55 MAX 114 MIN .00 AC-FT 400
WTR YR 1984 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00

GUADALUPE RIVER BASIN

307

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 northeast of Falls City, and 10.4 mi upstream from mouth.

DRAINAGE AREA.--827 mi².

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 National Geodetic Vertical Datum of 1929. Nov. 4, 1930, to Aug. 4, 1940, water-stage recorder at site 1,600 ft upstream at datum 0.56 ft 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 at times by discharge from flood-detention pools of ten floodwater-retarding structures with a combined detention capacity of 16,620 acre-ft. These structures control runoff from 62.9 mi².

AVERAGE DISCHARGE.--54 years, 121 ft³/s (87,660 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,600 ft³/s July 6, 1942 (gage height, 34.45 ft); maximum gage height, 35.44 ft 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 occurred (discharge, about 35,000 ft³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,920 ft³/s Nov. 6 at 1300 hours (gage height, 13.99 ft), no peak above base of 3,600 ft³/s; minimum daily, 1.1 ft³/s July 20, Aug. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	14	21	22	19	19	17	9.7	7.4	3.8	3.8	1.9
2	16	14	19	23	19	18	18	10	7.2	3.4	3.5	2.1
3	16	15	20	23	19	18	19	9.8	6.7	3.3	3.2	3.7
4	15	15	20	23	18	17	19	9.0	6.7	3.1	2.7	4.4
5	15	576	19	24	18	18	18	9.0	6.3	2.6	2.7	3.8
6	15	1360	19	23	18	16	17	9.3	6.6	3.1	3.0	3.8
7	15	153	20	23	17	16	16	12	7.1	3.3	2.2	5.5
8	15	47	20	22	17	16	61	15	8.9	2.9	1.5	6.0
9	17	26	20	59	18	16	24	9.5	9.3	2.9	1.1	5.3
10	22	19	19	34	18	15	17	8.1	7.4	3.5	1.1	6.2
11	20	22	19	25	18	15	15	7.6	6.6	3.5	2.1	6.4
12	18	19	18	32	19	115	14	7.7	8.4	3.1	2.1	5.9
13	18	16	18	27	19	361	13	8.2	9.7	3.1	2.4	4.7
14	18	15	18	24	18	91	13	9.4	8.5	2.9	2.7	4.6
15	17	15	18	22	19	53	12	8.5	8.0	2.0	3.4	6.3
16	18	14	19	21	21	41	11	8.3	7.4	2.5	18	14
17	18	15	19	20	21	35	11	8.9	7.6	2.9	23	4.1
18	18	22	19	20	21	29	10	9.1	6.7	2.0	9.5	4.3
19	17	16	18	20	20	31	10	9.3	7.0	1.9	4.6	4.5
20	17	15	18	20	20	27	10	11	7.0	1.1	2.5	4.5
21	24	15	18	19	20	30	11	17	6.3	1.4	2.0	5.0
22	20	15	19	20	20	33	10	33	5.7	1.4	1.9	5.2
23	15	16	20	21	19	30	9.7	31	5.6	1.2	1.5	5.8
24	15	17	20	25	19	29	9.6	26	5.5	2.3	1.6	6.4
25	15	16	20	34	19	24	9.5	20	5.0	2.5	1.6	6.1
26	14	19	20	26	19	22	9.7	16	5.1	3.0	1.5	5.9
27	14	20	20	24	20	21	9.9	13	4.6	2.9	1.8	5.5
28	15	19	21	22	19	19	9.8	11	4.6	3.4	2.3	6.3
29	14	18	23	21	19	18	9.7	9.8	3.9	2.1	2.6	7.0
30	14	20	22	20	---	18	9.8	8.2	4.0	2.9	2.1	7.2
31	14	---	22	20	---	17	---	7.4	---	3.1	1.7	---
TOTAL	515	2583	606	759	551	1228	443.7	381.8	200.8	83.1	115.7	162.4
MEAN	16.6	86.1	19.5	24.5	19.0	39.6	14.8	12.3	6.69	2.68	3.73	5.41
MAX	24	1360	23	59	21	361	61	33	9.7	3.8	23	14
MIN	14	14	18	19	17	15	9.5	7.4	3.9	1.1	1.1	1.9
AC-FT	1020	5120	1200	1510	1090	2440	880	757	398	165	229	322
CAL YR 1983	TOTAL	13538.4	MEAN	37.1	MAX	1360	MIN	7.3	AC-FT	26850		
WTR YR 1984	TOTAL	7629.5	MEAN	20.8	MAX	1360	MIN	1.1	AC-FT	15130		

GUADALUPE RIVER BASIN

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 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, 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, 0.0°C Dec. 25, 26, 1983.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,210 micromhos Sept. 7; minimum daily, 479 micromhos Nov. 6.
WATER TEMPERATURES: Maximum daily, 30.0°C June 26; minimum daily, 0.0°C Dec. 25, 26.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)
DEC 15...	1720	16	1500	8.6	14.0	13.2	131	--	430	160
JAN 27...	1045	26	1300	7.1	11.5	11.0	102	1.7	420	160
MAR 09...	1255	16	1510	9.4	16.0	10.3	105	1.8	410	140
APR 26...	1245	9.0	1700	8.1	23.6	8.4	102	2.5	470	220
JUN 12...	1315	8.1	1440	8.1	25.3	7.7	96	2.3	350	120
AUG 06...	1400	3.1	1850	8.2	31.0	7.6	104	2.0	310	89

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
DEC 15...	130	26	160	3	7.4	270	240	190	.30
JAN 27...	130	22	140	3	7.5	260	210	180	.30
MAR 09...	120	26	160	4	7.4	270	270	190	.40
APR 26...	140	29	190	4	8.8	249	320	230	.40
JUN 12...	100	24	170	4	7.9	228	240	190	.40
AUG 06...	91	21	220	6	6.2	225	270	190	.40

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
DEC 15...	9.0	920	--	<.010	.20	.030	.67	.70	.100
JAN 27...	5.7	850	.77	.030	.80	.070	.13	.20	.400
MAR 09...	5.7	940	1.9	.460	2.4	.070	.43	.50	.210
APR 26...	11	1100	.29	.010	.30	.220	.58	.80	.210
JUN 12...	15	880	.28	.020	.30	.060	.64	.70	.380
AUG 06...	7.2	940	--	<.010	<.10	.030	.57	.60	.240

GUADALUPE RIVER BASIN

309

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	515	1290	794	1100	150	208	220	301	380
NOV. 1983	2583	699	418	2910	68	477	100	709	220
DEC. 1983	606	1430	889	1450	170	285	250	410	420
JAN. 1984	759	1290	792	1620	150	305	220	442	380
FEB. 1984	551	1260	778	1160	150	216	210	314	380
MAR. 1984	1228	1180	725	2400	130	442	190	643	360
APR. 1984	443.7	1380	855	1020	170	199	240	286	400
MAY 1984	381.8	1500	936	965	190	193	270	277	430
JUNE 1984	200.8	1630	1030	558	210	115	300	164	460
JULY 1984	83.1	1680	1060	239	220	50	320	71	470
AUG. 1984	115.7	1720	1090	340	230	72	330	102	480
SEPT 1984	162.4	2000	1290	567	290	128	410	180	530
TOTAL	7629.5	**	**	14300	**	2690	**	3900	**
WTD.AVG.	21	1130	696	**	130	**	190	**	340

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	1350	1330	1340	1310	1300	1300	1560	1540	1540	1370	1350	1360
2	1350	1330	1330	1330	1300	1310	1540	1500	1520	1360	1350	1360
3	1330	1310	1320	1340	1320	1330	1510	1490	1500	1360	1350	1350
4	1320	1290	1300	1330	1310	1320	1510	1490	1500	1360	1340	1350
5	1310	1290	1300	---	---	621	1510	1490	1500	1350	1330	1340
6	1300	1280	1290	---	---	479	1500	1480	1490	1340	1330	1340
7	1290	1270	1280	---	---	888	1490	1470	1480	1340	1320	1330
8	1290	1270	1280	---	---	1170	1480	1460	1470	1330	1320	1330
9	1270	1260	1270	1350	1320	1330	1480	1460	1470	1330	1320	1320
10	1260	1250	1260	1330	1310	1320	1480	1470	1470	1330	1320	1320
11	1260	1240	1250	1320	1300	1310	1480	1450	1460	1330	1310	1320
12	1260	1240	1250	1310	1300	1300	1460	1440	1450	1320	1310	1320
13	1260	1250	1250	1300	1290	1300	1450	1430	1440	1330	1310	1320
14	1260	1250	1250	1330	1280	1300	1440	1430	1440	1330	1300	1310
15	1260	1240	1250	1330	1320	1320	1440	1420	1430	1300	1260	1280
16	1260	1240	1250	1330	1320	1320	1430	1420	1420	1270	1240	1250
17	1240	1210	1230	1330	1310	1320	1420	1410	1410	1260	1250	1250
18	1220	1200	1220	1310	1210	1260	1420	1400	1410	1260	1250	1260
19	1310	1200	1270	---	---	1290	1410	1400	1400	1260	1240	1250
20	1320	1300	1310	---	---	1310	1410	1390	1400	1260	1250	1250
21	1320	1300	1310	---	---	1300	1400	1390	1390	1260	1240	1250
22	1330	1310	1320	---	---	1330	1390	1380	1390	1250	1240	1250
23	1330	1320	1320	---	---	1320	1390	1380	1380	1250	1240	1250
24	1340	1320	1330	---	---	1380	1390	1380	1390	1250	1230	1240
25	1330	1320	1320	---	---	1410	1390	1380	1380	1250	1240	1240
26	1330	1310	1320	---	---	1440	1380	1370	1380	1250	1230	1240
27	1330	1310	1320	---	---	1480	1380	1370	1370	1250	1220	1240
28	1330	1320	1330	---	---	1490	1380	1360	1370	1240	1220	1230
29	1330	1320	1320	---	---	1510	1380	1360	1370	1240	1200	1220
30	1320	1300	1320	---	---	1530	1370	1360	1370	1210	1180	1190
31	1310	1290	1300	---	---	---	1370	1360	1360	1190	1170	1180
MONTH	1350	1200	1290	1350	1210	1280	1560	1360	1430	1370	1170	1280

GUADALUPE RIVER BASIN

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	1180	1160	1170	1400	1380	1390	1350	1330	1340	1600	1520	1560
2	1160	1140	1150	1430	1390	1400	1390	1350	1360	1600	1580	1590
3	1160	1140	1150	1450	1420	1430	1390	1360	1370	1610	1530	1570
4	1170	1150	1160	1470	1430	1450	1390	1360	1370	1590	1520	1550
5	1170	1150	1160	1450	1430	1440	1370	1340	1360	1550	1510	1530
6	1160	1140	1150	1480	1440	1460	1380	1350	1360	1580	1490	1530
7	1180	1160	1170	1510	1450	1470	1390	1370	1380	2030	1490	1610
8	1180	1170	1180	1550	1500	1520	1400	930	1150	2100	1830	1960
9	1200	1170	1180	1650	1520	1570	1040	930	976	1820	1720	1760
10	1200	1180	1190	1680	1640	1660	1150	1050	1110	1720	1670	1690
11	1200	1190	1190	1670	1640	1660	1370	1140	1220	1680	1620	1660
12	1200	1180	1190	1670	720	1330	1610	1390	1540	1620	1560	1580
13	1200	1180	1180	1220	970	1160	1570	1470	1540	1580	1550	1560
14	1200	1180	1190	1160	1030	1070	1470	1460	1470	1590	1570	1580
15	1240	1190	1210	1030	890	984	1460	1430	1450	1680	1570	1590
16	1250	1220	1230	880	830	854	1450	1430	1440	1690	1590	1640
17	1400	1230	1310	890	860	872	1480	1430	1450	1620	1560	1580
18	1440	1410	1430	940	890	910	1500	1460	1480	1560	1550	1550
19	1410	1390	1400	1030	930	982	1520	1490	1500	1580	1540	1560
20	1400	1370	1390	1020	970	993	1620	1510	1530	1580	1550	1570
21	1370	1330	1350	1070	1020	1040	1620	1550	1580	1570	1540	1560
22	1330	1300	1320	1110	1080	1090	1550	1530	1540	---	---	1260
23	1360	1320	1330	1160	1110	1130	1560	1530	1540	---	---	1280
24	1370	1340	1350	1150	1110	1130	1570	1370	1520	---	---	1320
25	1380	1330	1360	1180	1130	1150	1590	1560	1570	---	---	1350
26	1380	1360	1370	1220	1160	1180	1610	1580	1590	---	---	1390
27	1380	1360	1370	1290	1210	1240	1660	1590	1630	---	---	1420
28	1380	1340	1360	1310	1270	1290	1670	1600	1650	---	---	1470
29	1390	1350	1370	1340	1300	1320	1650	1560	1610	---	---	1480
30	---	---	---	1360	1330	1340	1630	1560	1600	---	---	1510
31	---	---	---	1360	1340	1350	---	---	---	---	---	1550
MONTH	1440	1140	1260	1680	720	1250	1670	930	1440	2100	1490	1540

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	1590	1560	1580	1730	1700	1710	---	---	1640	2140	2000	2110
2	1620	1580	1600	1760	1710	1740	---	---	1620	2130	2000	2110
3	1620	1590	1600	1780	1750	1770	---	---	1600	2130	2010	2110
4	1630	1590	1610	---	---	1790	---	---	1590	2110	2040	2080
5	1640	1600	1620	1820	1790	1810	---	---	1600	2110	2040	2070
6	1660	1620	1640	1840	1800	1820	---	---	1580	2190	2110	2160
7	1680	1650	1660	1850	1800	1830	---	---	1570	2210	2080	2190
8	1720	1680	1700	1890	1880	1880	---	---	1590	2200	2180	2180
9	1700	1650	1670	1920	1810	1890	1600	1580	1590	2180	2140	2160
10	1690	1660	1680	1950	1800	1910	1590	1550	1580	2190	2180	2180
11	1680	1660	1670	1920	1890	1910	1570	1540	1560	2190	2150	2170
12	1680	1660	1670	1890	1490	1610	1560	1540	1550	2180	2140	2160
13	1670	1650	1660	1520	1500	1510	1550	1510	1540	2160	2150	2160
14	1660	1640	1650	1520	1500	1510	1680	1400	1610	2160	2000	2130
15	1660	1640	1650	1510	1500	1500	1840	1690	1780	2150	2000	2110
16	1650	1630	1640	1540	1490	1500	1850	1800	1820	2130	1880	2070
17	1640	1620	1630	---	1500	1510	1800	1780	1790	1830	1120	1360
18	1620	1600	1610	1530	1500	1510	1780	1670	1730	1850	1310	1680
19	1610	1590	1600	1510	1410	1450	1670	1570	1620	1910	1880	1900
20	1600	1580	1590	1510	1440	1470	---	---	1600	1910	1850	1870
21	1610	1570	1590	1540	1500	1520	---	---	1590	1900	1840	1860
22	1580	1550	1570	1540	1400	1520	---	---	1570	1950	1900	1930
23	1590	1550	1570	1530	1440	1510	1570	1410	1560	1940	1900	1910
24	1620	1570	1590	1550	1340	1390	1590	1540	1570	1930	1900	1920
25	1640	1600	1620	1610	1490	1590	1610	1580	1590	1930	1900	1920
26	1630	1600	1620	1680	1600	1630	1720	1690	1710	1940	1910	1930
27	1640	1610	1620	1730	1670	1700	1800	1700	1760	1930	1900	1910
28	1660	1610	1640	1760	1730	1750	1870	1790	1830	1920	1890	1900
29	1700	1640	1670	1750	1610	1710	1980	1840	1940	1890	1860	1870
30	1730	1700	1710	---	---	1690	2060	1980	2030	1870	1860	1860
31	---	---	---	---	---	1650	2100	2000	2070	---	---	---
MONTH	1730	1550	1630	1950	1340	1650	2100	1400	1670	2210	1120	2000

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08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	25.5	23.0	24.0	23.0	20.5	21.5	15.0	13.5	14.0	7.0	4.0	5.0
2	25.5	23.5	24.5	23.5	22.0	22.5	14.5	14.0	14.0	9.0	7.0	7.5
3	26.0	24.0	25.0	24.0	22.5	23.5	16.0	14.5	15.0	9.0	7.5	8.5
4	26.5	24.5	25.5	24.5	23.0	24.0	16.0	14.0	15.0	11.0	8.5	9.5
5	27.5	25.0	26.0	24.0	22.0	23.0	17.5	15.5	16.5	11.5	9.5	10.5
6	27.5	26.0	26.5	22.0	20.5	21.5	16.5	13.0	14.0	13.0	10.5	11.5
7	27.5	25.5	26.5	22.5	21.5	22.0	13.5	11.5	12.5	13.5	11.5	12.0
8	27.0	26.0	26.5	22.0	21.0	21.5	14.0	11.5	13.0	13.0	12.0	12.5
9	26.5	24.0	25.0	22.0	20.5	21.5	15.0	13.5	14.0	14.5	13.0	13.5
10	25.5	23.5	24.5	20.0	18.0	18.5	17.5	15.5	16.5	13.5	11.0	12.0
11	25.5	23.0	24.0	18.0	16.0	17.0	17.0	15.0	16.0	11.0	9.0	10.0
12	25.0	22.0	23.0	18.0	15.5	16.5	16.0	13.5	15.0	10.5	8.0	9.0
13	22.0	20.0	21.0	19.0	16.5	17.5	15.0	14.0	14.5	9.0	8.0	9.0
14	22.0	19.5	20.5	20.5	18.0	19.0	14.0	12.5	13.5	8.5	7.0	8.0
15	22.5	19.5	21.0	20.0	17.5	18.5	13.5	11.0	12.5	7.5	7.0	7.0
16	23.5	21.0	22.0	18.0	15.5	17.0	13.0	10.0	11.5	8.0	7.0	7.5
17	24.5	22.5	23.5	18.0	15.5	16.5	10.5	9.5	10.0	8.0	7.5	7.5
18	25.5	24.0	24.5	19.5	17.5	18.5	9.5	7.5	9.0	8.0	6.5	7.5
19	26.0	24.5	25.0	20.0	18.0	19.5	7.5	6.5	7.0	7.0	5.0	6.0
20	25.5	25.0	25.5	18.0	16.0	17.0	7.0	6.0	6.5	6.5	5.0	5.5
21	25.5	23.0	24.0	19.0	15.5	17.0	6.5	5.5	6.0	6.5	4.0	5.5
22	23.5	22.0	23.0	21.5	19.0	20.0	5.5	3.5	4.5	7.0	6.0	6.5
23	23.0	21.0	22.0	21.0	18.0	19.0	4.5	3.0	3.5	9.0	7.0	8.0
24	22.5	20.5	21.5	18.0	16.0	17.0	3.5	1.0	2.0	9.0	8.5	8.5
25	22.0	20.5	21.0	16.5	14.0	15.5	2.0	.0	1.0	11.0	8.5	9.5
26	21.0	19.0	20.0	18.5	15.5	17.0	1.0	.0	.5	11.5	8.5	10.0
27	20.0	17.5	19.0	17.0	15.5	16.0	3.5	1.0	2.0	12.5	9.5	10.5
28	20.0	17.5	18.5	15.5	13.0	14.0	4.5	2.5	3.5	13.0	9.5	11.0
29	20.5	18.5	19.5	14.0	12.5	13.5	3.0	1.5	2.5	14.0	10.5	12.5
30	21.5	20.0	20.5	16.5	14.0	15.0	3.0	1.0	2.0	13.5	12.0	12.5
31	22.0	20.0	21.0	---	---	---	4.0	.5	2.0	12.0	11.0	11.5
MONTH	27.5	17.5	23.0	24.5	12.5	18.5	17.5	.0	9.5	14.5	4.0	9.0

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

GUADALUPE RIVER BASIN

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	24.5	20.5	22.5	29.0	25.0	27.5	---	---	---	27.0	25.0	26.5
2	25.0	21.0	23.0	29.0	26.0	27.5	---	---	---	26.5	25.0	25.5
3	25.0	22.0	23.5	28.5	26.0	27.0	---	---	---	25.5	24.0	25.0
4	25.0	23.0	24.0	---	---	---	---	---	---	25.0	24.0	24.5
5	26.0	23.5	24.5	28.5	26.0	28.0	---	---	---	24.5	22.0	24.0
6	27.0	24.0	25.5	29.0	26.0	28.0	---	---	---	25.0	21.5	23.5
7	27.5	25.0	26.0	28.5	26.0	27.5	---	---	---	25.5	22.5	23.0
8	28.0	25.5	26.5	28.5	28.5	28.5	---	---	---	25.0	20.0	25.0
9	27.5	25.5	26.5	28.5	26.0	27.5	28.0	26.0	27.5	27.5	24.5	26.0
10	27.5	25.5	26.5	28.5	25.0	27.5	28.5	25.0	27.0	26.5	25.0	25.5
11	27.5	25.0	26.0	28.0	25.0	27.0	28.5	25.0	27.5	27.0	25.0	26.5
12	26.5	25.5	26.0	28.5	25.5	27.0	28.5	26.5	27.5	---	---	---
13	27.5	24.5	26.0	28.5	25.0	27.0	28.0	25.5	27.0	27.0	26.0	26.5
14	27.5	25.0	26.0	28.5	25.5	27.0	28.0	25.5	27.0	27.0	24.5	26.0
15	28.0	25.0	26.5	28.0	25.0	28.0	27.5	26.0	27.0	26.5	24.5	25.5
16	28.0	25.0	26.5	29.0	26.0	27.5	27.5	20.5	26.0	24.5	22.5	23.5
17	28.0	25.0	26.5	29.0	25.0	27.5	28.0	25.0	26.5	23.5	21.0	22.5
18	28.0	25.5	26.5	28.5	26.5	28.0	29.5	26.0	27.5	23.5	21.5	22.5
19	28.0	25.5	26.5	28.5	26.5	27.5	29.0	26.0	27.5	23.5	22.0	23.0
20	28.5	25.5	26.5	29.0	25.5	27.5	29.0	26.5	27.5	23.5	22.0	22.5
21	29.0	25.5	27.0	28.0	26.5	27.5	28.5	26.0	27.5	22.5	21.0	22.0
22	29.0	26.0	27.5	27.5	26.0	27.0	28.0	26.0	27.0	25.5	22.0	23.5
23	29.0	26.0	27.5	28.0	25.0	27.0	28.0	26.0	27.5	26.0	23.5	25.0
24	29.5	26.5	28.0	27.5	25.0	26.5	28.0	26.5	27.5	27.0	24.5	25.5
25	29.5	27.0	28.0	27.0	25.0	26.0	27.5	25.0	27.0	26.5	25.0	26.0
26	30.0	27.0	29.5	27.5	21.0	26.5	27.5	26.0	27.0	26.0	22.0	23.5
27	29.5	26.5	28.0	28.0	25.5	27.0	28.0	25.0	27.0	24.0	20.5	22.0
28	28.5	26.5	27.5	27.5	25.0	26.5	28.5	25.0	27.0	24.0	21.5	22.5
29	29.5	26.5	28.0	27.0	25.0	26.0	28.5	26.0	27.5	21.0	18.0	18.5
30	29.5	27.0	28.5	26.5	20.0	25.5	28.0	25.0	27.0	19.5	17.0	18.0
31	---	---	---	26.5	20.0	24.0	27.0	25.5	26.5	---	---	---
MONTH	30.0	20.5	26.5	29.0	20.0	27.0	29.5	20.5	27.0	27.5	17.0	24.0

GUADALUPE RIVER BASIN

313

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 downstream from Farm Road 81, 215 ft left of left end of bridge, 2.6 mi upstream from Salt Branch, 4.5 mi northwest of Runge, and 5.2 mi upstream from mouth.

DRAINAGE AREA.--239 mi².

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

Water-quality records.--Sediment records: February 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 215.03 ft State Department of Highways and Public Transportation datum.

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

AVERAGE DISCHARGE.--22 years, 37.8 ft³/s (2.15 in/yr), 27,390 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 74,000 ft³/s Aug. 31, 1981 (gage height, 34.10 ft, from floodmark), from rating curve extended above 7,300 ft³/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, discharge 71,000 ft³/s. A stage of 32 ft, discharge 39,000 ft³/s, occurred in September 1952, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,080 ft³/s Oct. 21 at 0600 hours (gage height, 9.98 ft), no other peak above base of 700 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.91	.00	.17	.00	.02	.00	.00	.00	.00	.00	.00
2	.00	1.0	.00	.09	.00	.06	.00	.00	.00	.00	.00	.00
3	.00	1.2	.00	.06	.00	.08	.00	.00	.00	.00	.00	.00
4	.00	1.3	.00	.06	.00	.08	.00	.00	.00	.00	.00	.00
5	.00	2.2	.00	.06	.00	.06	.00	.00	.00	.00	.00	.00
6	.00	291	.07	.06	.00	.06	.00	.00	.00	.00	.00	.00
7	.00	242	.00	.07	.00	.06	.00	.00	.00	.00	.00	.00
8	.00	63	.00	.07	.00	.12	.00	.38	.00	.00	.00	.00
9	.00	15	.00	37	.00	341	.91	.18	.00	.00	.00	.00
10	25	3.7	.00	55	.00	265	4.4	.16	.00	.00	.00	.00
11	7.3	2.0	.00	20	.00	55	.83	.12	.00	.00	.00	.00
12	.95	.84	.00	5.0	.00	21	.16	.12	.00	.00	.00	.00
13	.20	.49	.00	1.5	.00	10	.04	.12	.00	.00	.00	.00
14	.13	.16	.00	.60	.00	5.2	.00	.12	.00	.00	.00	.00
15	.17	.07	.00	.30	.00	3.3	.00	.10	.00	.00	.00	.00
16	.09	.04	.00	.18	.00	6.7	.00	.12	.00	.00	.00	.00
17	.03	.02	.00	.13	.00	12	.00	.16	.00	.00	.00	.00
18	.00	.01	.00	.06	.00	5.7	.00	.16	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	4.6	.00	.16	.00	.00	.00	.00
20	14	.00	.00	.00	.00	2.2	.00	.16	.00	.00	.00	.00
21	493	.00	.00	.00	.00	.97	.00	.18	.00	.00	.00	.00
22	59	.00	.00	.00	.00	5.4	.00	.16	.00	.00	.00	.00
23	13	.00	.00	.00	.00	3.0	.00	.14	.00	.00	.00	.00
24	5.1	.00	.01	.02	.00	1.1	.00	.07	.00	.00	.00	.00
25	2.6	.00	.01	1.6	.00	.50	.00	.03	.00	.00	.00	.00
26	1.8	.00	.01	14	.00	.23	.00	.01	.00	.00	.00	.00
27	1.4	.00	.01	6.1	.00	.14	.00	.00	.00	.00	.00	.00
28	1.2	.00	.05	1.3	.00	.04	.00	.00	.00	.00	.00	.00
29	1.1	.00	.06	.34	.00	.00	.00	.00	.00	.00	.00	.00
30	.91	.00	.06	.12	---	.00	.00	.00	.00	.00	.00	.00
31	.83	---	.19	.04	---	.00	---	.00	---	.00	.00	---
TOTAL	627.81	624.94	.47	143.93	.00	743.62	6.34	2.65	.00	.00	.00	.00
MEAN	20.3	20.8	.015	4.64	.000	24.0	.21	.085	.000	.000	.000	.000
MAX	493	291	.19	55	.00	341	4.4	.38	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.09	.09	.000	.02	.000	.10	.001	.000	.000	.000	.000	.000
IN.	.10	.10	.00	.02	.00	.12	.00	.00	.00	.00	.00	.00
AC-FT	1250	1240	.9	285	.00	1470	13	5.3	.00	.00	.00	.00
CAL YR 1983	TOTAL	5045.08	MEAN	13.8	MAX	535	MIN	.00	CFSM	.06	IN	.79
WTR YR 1984	TOTAL	2149.76	MEAN	5.87	MAX	493	MIN	.00	CFSM	.03	IN	.33
									AC-FT	10010	AC-FT	4260

GUADALUPE RIVER BASIN

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 southeast of courthouse in Goliad, 11.7 mi upstream from Manahuilla Creek, and 66.5 mi upstream from mouth.

DRAINAGE AREA.--3,921 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1929, nonrecording gage at Texas and New Orleans Railroad Co. bridge 0.9 mi 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 a combined detention capacity of 66,730 acre-ft. These structures control runoff from 213 mi².

AVERAGE DISCHARGE.--49 years (water years 1925-28, 1940-84), 662 ft³/s (479,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft³/s Sept. 23, 1967 (gage height, 53.7 ft, from floodmark), from rating curve extended above 26,000 ft³/s on basis of slope-area measurement of peak flow; minimum observed, 1.2 ft³/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.

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, 3,120 ft³/s Nov. 8 at 0300 hours (gage height, 14.94 ft), no peak above base of 6,000 ft³/s; minimum daily, 117 ft³/s Sept. 2, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	373	241	338	320	344	319	313	191	405	175	150	120
2	354	241	354	322	341	328	311	188	358	221	144	117
3	352	235	344	369	339	328	310	183	232	179	137	122
4	342	237	338	365	332	328	304	173	201	189	162	122
5	330	246	299	352	333	326	298	177	191	245	181	132
6	321	327	294	390	332	322	299	180	178	186	153	122
7	323	1880	384	358	336	315	268	196	168	158	169	162
8	321	2670	315	310	330	310	247	198	168	152	158	313
9	321	1240	288	332	325	308	258	165	186	144	180	213
10	322	621	282	510	331	306	300	148	241	151	164	155
11	328	454	279	498	331	287	378	147	228	152	156	142
12	534	356	277	792	338	256	361	236	198	142	152	139
13	690	361	276	641	332	263	295	181	191	136	146	132
14	439	338	272	464	335	880	253	141	196	144	144	127
15	420	307	268	388	334	1130	231	127	172	143	154	120
16	383	286	272	315	367	753	221	168	228	144	182	117
17	332	275	311	298	356	501	223	226	277	146	247	138
18	296	278	293	288	341	421	218	201	221	145	353	173
19	280	279	268	283	331	359	206	169	216	132	461	141
20	293	272	266	287	329	341	205	173	202	134	273	169
21	905	265	261	284	332	330	211	419	174	140	206	149
22	755	262	258	290	328	394	212	804	164	137	184	129
23	418	266	261	301	328	520	207	762	167	135	160	127
24	302	259	266	311	402	422	219	451	167	144	145	127
25	279	289	268	320	363	367	254	353	161	148	146	124
26	262	435	274	349	339	352	244	287	157	135	130	129
27	250	470	284	413	331	350	213	242	161	135	130	124
28	248	360	287	415	323	331	193	225	146	159	129	124
29	249	330	287	387	318	318	190	215	142	174	134	169
30	244	325	303	363	---	320	193	198	150	157	138	174
31	242	---	325	353	---	318	---	179	---	153	119	---
TOTAL	11508	14405	9092	11668	9801	12403	7635	7703	6046	4835	5487	4352
MEAN	371	480	293	376	338	400	255	248	202	156	177	145
MAX	905	2670	384	792	402	1130	378	804	405	245	461	313
MIN	242	235	258	283	318	256	190	127	142	132	119	117
AC-FT	22830	28570	18030	23140	19440	24600	15140	15280	11990	9590	10880	8630
CAL YR 1983	TOTAL	160318	MEAN 439	MAX 6700	MIN 162	AC-FT 318000						
WTR YR 1984	TOTAL	104935	MEAN 287	MAX 2670	MIN 117	AC-FT 208100						

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. Sediment records: October 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1945 to September 1946, September 1958 to current year.

WATER TEMPERATURES: September 1958 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,580 micromhos July 22, 1978; minimum daily, 138 micromhos Oct. 27, 1960.

WATER TEMPERATURES: Maximum daily, 36.0°C June 5, 1969; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,330 micromhos May 14; minimum daily, 411 micromhos Nov. 8.

WATER TEMPERATURES: Maximum, 34.0°C June 25, July 22; minimum daily, 6.0°C Dec. 24, 27.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
DATE	TIME										
OCT 11...	1410	329	1040	7.6	25.0	5	30	7.0	85	1.0	210
JAN 16...	1650	310	911	7.7	9.0	60	58	10.5	91	1.6	96
FEB 28...	0900	321	1100	7.9	13.0	20	26	9.2	86	1.2	145
APR 09...	1510	257	1160	7.9	23.0	40	39	8.4	100	--	84
JUL 09...	1450	145	1240	8.2	30.0	39	38	7.8	104	2.1	96
AUG 21...	1000	210	1060	7.9	28.5	70	--	6.0	79	2.5	230
	STREP- TOCOCCL 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)
DATE											
OCT 11...	240	320	95	94	20	96	2	7.5	224	110	130
JAN 16...	200	270	63	80	16	73	2	5.8	204	82	100
FEB 28...	55	330	90	99	21	97	2	6.5	244	120	130
APR 09...	320	340	96	100	22	110	3	7.5	246	120	170
JUL 09...	150	320	80	93	22	120	3	8.2	244	110	170
AUG 21...	260	280	43	79	19	92	3	8.6	233	92	120
	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- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
DATE											
OCT 11...	.50	17	641	620	76	8	5.7	.040	5.7	5.6	.040
JAN 16...	.30	12	510	500	84	20	3.7	.030	3.7	3.7	.060
FEB 28...	.50	13	666	640	65	8	5.6	.040	5.6	5.7	<.010
APR 09...	.60	17	733	700	89	18	5.6	.020	5.6	5.5	.030
JUL 09...	.60	18	720	690	72	9	4.6	.030	4.6	3.7	.020
AUG 21...	.50	17	593	570	120	13	3.6	.870	4.5	4.6	.190

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	NITRO- GEN, AM- MONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 11...	.040	1.4	1.4	2.10	2.00	2.00	4.3	66	59	93
JAN 16...	.040	1.1	1.2	1.10	1.00	1.00	6.6	105	88	87
FEB 28...	.030	--	.90	1.50	1.50	1.00	4.7	63	55	98
APR 09...	.010	1.1	1.1	3.10	3.00	2.30	5.5	83	58	97
JUL 09...	.040	1.1	1.1	2.30	2.30	1.80	5.2	78	31	96
AUG 21...	.120	1.1	1.3	1.60	1.30	1.30	14	186	105	94

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 11...	1410	3	90	<.5	<1	<1	<3	3	4	4
JAN 16...	1650	3	67	<.5	<1	<1	<3	6	10	2
APR 09...	1510	2	95	.5	<1	1	<3	<1	6	<1
JUL 09...	1450	4	95	<1.0	<1	<1	<3	3	5	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 11...	35	4	<.1	<10	8	<1	<1	1000	7	11
JAN 16...	33	3	.1	<10	4	<1	<1	810	<6	28
APR 09...	39	3	.1	<10	3	1	<1	1100	6	37
JUL 09...	43	4	<.1	<10	9	2	<1	1100	10	30

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	11508	941	550	17100	110	3280	99	3060	310
NOV. 1983	14405	774	451	17500	83	3240	80	3110	260
DEC. 1983	9092	1130	667	16400	140	3470	120	3020	360
JAN. 1984	11668	1010	592	18600	120	3720	110	3380	330
FEB. 1984	9801	1120	659	17400	140	3670	120	3210	350
MAR. 1984	12403	997	584	19600	120	3890	110	3540	320
APR. 1984	7635	1180	697	14400	150	3120	130	2670	370
MAY 1984	7703	1030	608	12600	130	2620	110	2320	330
JUNE 1984	6046	1090	643	10500	130	2180	120	1930	350
JULY 1984	4835	1180	700	9130	150	2000	130	1700	370
AUG. 1984	5487	1080	638	9450	130	1970	120	1740	340
SEPT 1984	4352	1140	672	7900	140	1690	120	1460	360
TOTAL	104935	**	**	171000	**	34800	**	31100	**
WTD.AVG.	287	1030	602	**	120	**	110	**	330

GUADALUPE RIVER BASIN

317

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

DAY	SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984											
	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	922	1180	949	1140	1050	1130	1140	1260	1110	1160	1220	1180
2	935	1180	1030	1140	1070	1150	1130	1270	1010	905	1220	1230
3	943	1170	1040	1110	1110	1160	1130	1260	1030	1120	1240	1240
4	962	1210	1060	1060	1130	1150	1140	1250	1050	1240	1210	1250
5	1030	1200	1070	1080	1150	1140	1150	1260	914	1000	1180	1220
6	1060	1100	1080	1060	1130	1150	1180	1290	926	1110	1230	1240
7	1100	526	1070	1030	1110	1140	1160	1260	934	1170	1220	1220
8	1080	411	1080	1080	1120	1150	1180	1250	1080	1200	1180	975
9	1040	457	1090	1040	1140	1160	1220	1280	1160	1210	1170	1020
10	1060	480	1120	850	1160	1150	1200	1320	1030	1240	1070	1050
11	1040	500	1180	770	1130	1170	1120	1280	1050	1160	1150	1080
12	950	630	1080	882	1140	1190	1100	1200	1130	1070	1210	1110
13	765	720	1120	900	1160	1220	1090	1240	1110	1190	1200	997
14	785	830	1130	718	1120	901	1080	1330	1130	1230	1230	1020
15	796	982	1180	720	1150	843	1110	1320	1140	1270	1200	1100
16	745	1040	1200	855	1130	870	1150	1310	1180	1280	1180	1160
17	856	1100	1180	950	1120	777	1220	1140	1100	1260	1130	1210
18	884	1120	1170	1030	1120	646	1210	1170	1110	1270	1090	1190
19	1020	1100	1160	1100	1130	718	1230	1180	1090	1260	796	1010
20	1000	1150	1180	1150	1120	841	1260	1240	1100	1250	880	1190
21	735	1170	1170	1170	1080	980	1280	1150	1090	1210	948	1060
22	802	1180	1180	1180	1120	1060	1290	963	1040	1240	900	1130
23	895	1150	1220	1160	1160	927	1280	751	1130	1260	862	1210
24	958	1160	1210	1130	1120	1000	1270	556	1150	1280	910	1220
25	1080	1200	1210	1120	1110	1030	1240	650	1170	1240	948	1230
26	1100	1070	1200	1170	1100	1010	1220	747	1190	1230	1010	1240
27	1140	1030	1190	1110	1100	1000	1180	789	1210	1240	1100	1220
28	1180	1010	1170	1110	1090	1040	1190	849	1190	1200	1160	1230
29	1170	1050	1180	1060	1100	1100	1230	950	1200	1170	1180	1170
30	1180	1090	1170	1020	---	1130	1250	1020	1240	1150	1220	1140
31	1190	---	1160	1040	---	1120	---	1090	---	1230	1180	---
MEAN	981	973	1140	1030	1120	1030	1190	1120	1100	1200	1110	1150

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	21.0	16.0	13.5	13.5	15.5	27.0	25.0	26.0	33.5	31.0	30.0
2	---	23.0	16.5	14.5	15.0	18.0	23.5	26.5	31.0	29.0	32.0	27.0
3	---	22.5	18.5	11.5	14.5	19.0	24.5	28.0	---	32.0	31.0	28.0
4	---	20.0	17.0	14.5	15.0	20.5	23.0	29.5	29.0	33.0	29.0	29.0
5	29.5	---	21.0	14.5	16.0	16.5	23.0	27.5	28.0	33.0	31.0	30.0
6	---	22.5	17.0	15.0	15.0	18.0	21.0	29.5	30.5	32.0	28.0	28.0
7	28.5	---	15.5	14.5	16.0	17.0	20.5	31.0	30.5	---	30.5	29.0
8	27.5	25.5	17.0	14.5	15.5	18.5	21.5	28.5	30.0	33.0	31.0	29.0
9	---	22.5	16.5	16.0	18.0	20.0	25.0	27.5	29.0	31.0	30.0	30.0
10	28.0	20.5	21.0	14.0	20.0	21.0	26.0	---	30.0	32.0	30.0	31.0
11	---	19.5	19.5	14.5	19.0	19.0	26.0	---	28.0	29.0	30.0	29.0
12	22.5	18.5	18.0	13.5	21.0	24.0	27.0	28.5	28.5	32.0	29.0	30.0
13	24.0	18.0	22.5	13.0	20.0	23.5	27.0	---	30.0	32.0	30.0	29.0
14	22.0	22.5	14.0	11.5	19.5	22.0	28.0	28.5	31.5	32.0	30.0	29.0
15	24.5	23.0	15.5	10.5	21.0	23.5	24.5	26.5	30.5	32.0	29.0	29.0
16	25.0	24.0	13.5	10.5	20.0	24.5	23.0	26.0	31.0	33.0	29.0	27.0
17	23.5	19.5	11.5	9.5	21.5	23.0	24.5	25.5	31.0	33.5	30.0	27.0
18	28.0	21.0	11.0	10.0	20.5	23.5	25.5	26.0	30.0	33.0	31.0	26.0
19	24.5	23.5	8.5	9.0	17.5	22.0	28.0	24.5	30.5	32.0	31.0	26.5
20	26.0	20.0	9.0	8.5	14.0	24.0	25.0	31.0	32.0	33.0	30.0	25.0
21	22.0	22.0	9.5	8.0	16.0	22.5	28.0	28.5	32.0	32.0	31.0	26.0
22	20.0	20.0	7.0	11.5	17.5	23.0	24.0	29.5	31.0	34.0	31.0	27.5
23	21.5	20.0	9.5	12.5	19.0	23.0	25.0	29.5	33.0	33.0	31.0	25.0
24	23.0	18.0	6.0	11.5	18.5	20.0	26.0	30.0	32.5	32.0	30.0	30.5
25	24.0	21.0	6.5	14.5	18.0	22.0	24.0	28.5	34.0	31.0	31.0	29.0
26	20.0	21.0	9.0	14.0	20.0	25.0	26.5	30.0	33.5	32.0	30.0	28.5
27	22.5	17.5	6.0	14.0	17.0	24.0	29.5	31.0	33.5	33.0	30.0	27.0
28	23.5	---	7.5	14.5	17.5	23.5	28.5	29.5	33.5	---	32.0	26.5
29	21.5	18.5	8.0	16.5	17.5	22.0	26.0	---	32.0	31.0	31.0	21.5
30	19.0	15.5	9.0	14.5	---	21.5	24.5	28.0	33.5	31.0	31.0	22.0
31	20.0	---	12.5	13.5	---	20.0	---	28.5	---	32.0	29.0	---
MEAN	24.0	21.0	13.0	13.0	17.5	21.5	25.0	28.0	31.0	32.0	30.5	27.5

GUADALUPE RIVER BASIN

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 upstream from State Highway 185, 1,900 ft downstream from pumping station on Goff Bayou, and 1.1 mi northwest of Long Mott.

PERIOD OF RECORD.--March 1968 to February 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 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 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 to the pumping station on Goff Bayou 1,900 ft upstream from flume No. 1. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years (water years 1969-84), 96.3 ft³/s (69,770 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 311 ft³/s July 7, 1968; no flow at times in 1968-74 and 1977-84.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	.00	36	15	15	.00	43	137	212	259	86	150
2	139	.00	26	15	23	.00	52	152	166	184	78	122
3	144	.00	6.0	23	19	.00	58	150	137	159	65	130
4	144	.00	.00	29	15	.00	52	165	130	188	65	94
5	137	.00	8.0	29	15	15	34	187	151	202	45	67
6	134	.00	15	33	15	23	17	194	166	209	23	67
7	93	16	17	45	33	30	.00	216	175	224	15	73
8	80	38	15	45	36	30	.00	191	186	230	37	86
9	80	38	15	53	29	21	32	142	202	230	58	86
10	103	24	15	60	29	15	40	139	192	230	76	125
11	119	15	10	60	29	15	37	139	178	216	115	158
12	115	15	9.0	60	29	35	49	130	204	209	110	176
13	107	15	6.0	52	38	40	58	138	210	211	78	166
14	92	23	.00	17	44	43	70	164	210	191	47	158
15	86	29	.00	.00	44	43	94	200	216	173	43	173
16	89	29	.00	.00	44	26	141	149	209	173	43	173
17	78	29	.00	.00	32	12	167	82	196	173	51	180
18	72	23	.00	.00	15	.00	173	46	187	173	58	173
19	72	15	13	.00	15	.00	174	15	187	166	58	130
20	66	15	29	.00	40	10	165	15	204	158	70	144
21	51	15	29	.00	26	32	142	20	225	158	113	124
22	43	15	23	.00	.00	32	126	34	222	158	147	110
23	43	15	15	34	38	15	115	63	216	164	153	115
24	41	15	15	60	58	15	123	104	216	158	127	110
25	30	15	15	33	44	15	159	138	216	129	115	112
26	22	15	56	15	29	50	166	185	225	94	110	140
27	15	15	63	15	13	58	161	212	230	81	125	158
28	20	41	72	15	.00	58	124	230	249	72	157	149
29	29	46	56	15	.00	78	101	230	265	84	181	117
30	32	29	23	15	---	67	112	230	259	86	187	101
31	33	---	15	15	---	43	---	239	---	86	132	---
TOTAL	2439	545.00	602.00	753.00	767.00	821.00	2785.00	4436	6041	5228	2768	3867
MEAN	78.7	18.2	19.4	24.3	26.4	26.5	92.8	143	201	169	89.3	129
MAX	144	46	72	60	58	78	174	239	265	259	187	180
MIN	15	.00	.00	.00	.00	.00	.00	15	130	72	15	67
AC-FT	4840	1080	1190	1490	1520	1630	5520	8800	11980	10370	5490	7670
CAL YR 1983	TOTAL	23376.00	MEAN	64.0	MAX	204	MIN	.00	AC-FT	46370		
WTR YR 1984	TOTAL	31052.00	MEAN	84.8	MAX	265	MIN	.00	AC-FT	61590		

GUADALUPE RIVER BASIN

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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 downstream from State Highway 185, 4,200 ft downstream from streamflow station 08188600, and 1.4 mi 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 National Geodetic Vertical Datum of 1929. Prior to Mar. 6, 1981, deflection-vane recorders.

REMARKS.--Records poor. Flow is diverted from Guadalupe River 550 ft 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 to the pumping station on Goff Bayou 1,900 ft upstream from flume No. 1. Diversions to the Union Carbide Co. between flumes 1 (station 08188600) and 2 during the current year were 8530 acre-ft. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years, 76.7 ft³/s (55,570 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 282 ft³/s June 23, 1975; no flow at times in 1972-84.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	.00	32	.00	.00	.00	29	122	197	244	86	135
2	124	.00	11	.00	8.0	.00	37	137	151	149	78	88
3	129	.00	.00	14	9.0	.00	43	135	122	113	65	84
4	129	.00	.00	14	.00	.00	37	150	115	142	65	73
5	122	.00	8.0	8.0	.00	15	19	172	136	156	45	67
6	128	.00	15	.00	.00	23	9.0	179	151	163	23	67
7	93	16	9.0	.00	18	30	.00	201	160	178	15	73
8	80	38	.00	8.0	21	30	.00	176	171	184	13	86
9	72	29	.00	15	14	11	32	127	187	184	12	86
10	88	11	.00	15	14	.00	40	124	177	184	30	125
11	104	.00	.00	15	14	.00	37	129	163	186	69	143
12	100	.00	9.0	7.0	14	7.0	49	130	189	194	64	161
13	92	.00	6.0	.00	23	21	58	138	195	196	32	151
14	77	8.0	.00	.00	29	28	70	164	195	176	18	128
15	71	14	.00	.00	29	28	94	200	201	158	28	127
16	74	14	.00	.00	29	11	136	149	194	158	28	127
17	63	14	.00	.00	17	.00	152	82	181	158	36	132
18	57	8.0	.00	.00	.00	.00	163	46	172	158	43	127
19	57	.00	9.0	.00	.00	.00	167	15	172	151	53	107
20	51	.00	14	.00	25	.00	150	15	189	143	55	129
21	36	.00	14	.00	18	.00	127	20	210	143	98	109
22	28	.00	8.0	.00	.00	.00	111	34	207	143	132	95
23	28	.00	.00	27	18	.00	100	54	201	130	138	100
24	26	.00	.00	45	43	.00	108	89	201	112	112	110
25	15	.00	.00	18	29	.00	144	123	201	108	100	112
26	7.0	.00	41	.00	14	35	151	170	210	94	85	140
27	.00	.00	48	.00	6.0	43	146	197	215	81	92	158
28	5.0	26	57	.00	.00	45	109	215	223	72	111	149
29	14	38	41	.00	.00	63	86	215	238	84	135	117
30	17	29	8.0	.00	---	52	97	215	244	86	141	101
31	18	---	.00	.00	---	28	---	224	---	86	104	---
TOTAL	2020.00	245.00	330.00	186.00	392.00	470.00	2501.00	4147	5568	4514	2106	3407
MEAN	65.2	8.17	10.6	6.00	13.5	15.2	83.4	134	186	146	67.9	114
MAX	129	38	57	45	43	63	167	224	244	244	141	161
MIN	.00	.00	.00	.00	.00	.00	.00	15	115	72	12	67
AC-FT	4010	486	655	369	778	932	4960	8230	11040	8950	4180	6760
CAL YR 1983	TOTAL	19036.00	MEAN	52.2	MAX	195	MIN	.00	AC-FT	37760		
WTR YR 1984	TOTAL	25886.00	MEAN	70.7	MAX	244	MIN	.00	AC-FT	51340		

GUADALUPE RIVER BASIN

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 downstream from Calhoun County Irrigation Canal intake, 0.4 mi downstream from San Antonio River, 3.5 mi north of Tivoli, and at mile 10.2. Water-quality sampling site on left bank 474 ft upstream.

DRAINAGE AREA.--10,128 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-68-1: Drainage area.

GAGE.--Duplex water-stage recorder. Datum of gage is 0.04 ft 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 Sept. 22, 1967; minimum, 1.2 ft July 2, 1984. Maximum gage height (downstream from barrier), 13.6 ft Sept. 22, 1967; minimum, 0.5 ft 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, present site and datum. Levees along the Navigation Canal from San Antonio Bay to Victoria were built in 1961 thus decreasing the flood plain.

EXTREMES FOR CURRENT YEAR.--Maximum gage height (upstream from barrier), 8.3 ft Oct. 18; minimum, 1.2 ft July 2. Maximum gage height (downstream from barrier), 8.2 ft Oct. 19; minimum, 0.7 ft July 19.

MAXIMUM DAILY GAGE HEIGHT, IN FEET, UPSTREAM AND DOWNSTREAM FROM SALTWATER BARRIER,
WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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	4.4	4.3	3.8	3.7	3.0	2.9	2.5	2.4	3.2	3.1	2.3	2.2	4.1	2.7	4.0	2.6	3.9	2.5	2.4	1.8	3.8	2.1	4.1	2.5
2	4.2	4.0	3.8	3.7	3.0	2.9	2.5	2.3	3.0	2.9	2.3	2.2	4.1	2.7	4.0	2.5	3.9	2.5	3.3	1.5	3.8	2.4	4.1	2.5
3	4.2	3.8	3.9	3.7	3.1	3.1	2.5	2.4	3.0	2.9	2.6	2.5	4.1	2.5	4.0	2.7	4.0	2.7	3.8	1.9	3.9	2.3	4.0	2.5
4	4.2	3.3	3.9	3.7	3.2	3.1	2.5	2.4	2.8	2.7	2.6	2.5	4.1	2.3	3.9	2.4	4.0	2.8	3.7	1.9	3.8	2.3	4.0	2.6
5	4.2	2.4	4.3	4.1	3.2	3.1	2.5	2.4	2.8	2.7	2.5	2.4	4.0	2.1	3.9	2.7	4.0	2.8	3.8	1.6	3.9	2.3	4.0	2.6
6	4.2	2.5	6.2	6.0	3.2	3.1	2.5	2.4	2.6	2.5	2.4	2.3	4.0	2.4	4.0	3.0	4.0	2.9	3.8	1.6	4.0	2.5	4.3	2.3
7	4.2	2.5	7.1	6.9	3.0	2.9	2.5	2.4	4.1	2.6	2.5	2.3	4.1	2.9	4.0	3.0	4.0	2.9	3.8	1.6	4.0	2.4	4.2	2.2
8	4.1	2.5	7.8	7.7	2.9	2.8	3.0	2.9	4.1	2.8	2.4	2.3	4.0	2.4	3.9	2.3	4.0	2.9	3.8	1.7	4.0	2.4	4.1	2.2
9	4.1	3.5	8.2	8.1	3.0	2.9	5.7	5.5	4.2	2.8	2.3	2.2	4.0	2.4	3.9	2.2	4.0	3.0	3.8	1.7	4.2	2.3	4.2	2.0
10	4.9	4.8	8.2	8.1	3.0	2.9	6.8	6.7	4.2	3.0	2.4	2.2	4.0	2.6	3.9	2.3	4.0	2.9	3.7	1.7	4.2	2.5	4.2	2.0
11	4.8	4.7	8.0	7.9	3.0	2.9	6.8	6.7	4.2	3.0	2.7	2.5	4.0	2.5	3.9	2.3	4.0	3.1	3.7	1.7	4.2	2.5	3.9	2.2
12	4.3	4.1	7.3	7.2	2.8	2.7	6.9	6.7	4.2	2.9	5.5	5.3	4.0	2.8	3.9	2.1	4.0	3.0	3.6	1.8	4.2	2.5	3.8	2.2
13	4.1	4.0	7.0	6.9	2.6	2.5	6.8	6.7	4.3	4.0	6.0	5.8	4.1	2.6	3.8	2.0	4.0	2.9	3.6	1.7	4.1	2.3	3.8	1.8
14	4.3	3.8	6.4	6.3	2.5	2.4	6.4	6.3	4.3	4.1	6.1	6.6	4.1	2.7	3.8	2.0	3.9	2.5	3.5	2.0	4.0	2.3	3.8	1.8
15	4.3	3.8	5.6	5.5	2.3	2.2	6.4	6.3	4.2	4.0	6.6	6.4	4.0	2.3	3.8	1.8	3.8	2.3	3.4	1.9	4.1	2.4	3.8	2.0
16	4.6	4.3	4.6	4.5	2.3	2.2	5.5	5.4	4.2	3.9	7.1	6.9	4.0	1.7	3.8	1.8	3.8	2.3	3.4	1.6	4.1	2.2	3.8	1.6
17	7.3	7.2	4.2	4.1	2.3	2.2	4.6	4.5	3.4	3.2	7.1	6.9	3.9	1.8	3.9	2.3	3.8	2.3	3.4	1.5	4.0	2.3	3.8	2.0
18	8.3	8.0	4.0	3.9	2.4	2.3	4.0	3.9	3.2	3.0	6.7	6.6	3.9	2.1	4.0	2.8	3.9	2.3	3.4	1.7	4.0	2.3	3.8	2.4
19	8.3	8.2	3.9	3.8	2.3	2.2	3.5	3.4	2.8	2.6	6.0	5.9	3.9	2.3	4.0	3.0	3.8	2.2	3.4	1.4	4.1	2.4	3.9	2.5
20	8.1	8.0	3.7	3.6	2.4	2.3	3.1	3.0	2.9	2.6	5.5	5.4	4.0	2.9	4.0	3.2	3.8	2.2	3.4	1.5	4.1	2.5	4.1	2.8
21	8.0	7.7	3.6	3.5	2.3	3.1	3.0	2.8	4.0	2.9	4.7	4.6	3.9	2.0	4.0	3.2	3.8	2.1	3.6	1.8	4.1	2.6	4.3	3.4
22	8.1	8.0	3.6	3.5	2.3	2.1	3.1	3.0	3.2	3.0	4.1	4.0	3.9	2.0	4.0	3.0	3.7	1.8	3.5	1.8	4.0	2.3	4.4	3.3
23	8.1	8.0	3.5	3.4	2.3	2.1	3.4	3.2	3.2	3.0	3.7	3.6	3.9	2.1	4.0	3.1	3.7	1.8	3.5	1.9	4.0	2.8	4.2	3.1
24	8.0	7.9	3.6	3.5	2.3	2.1	3.7	3.5	2.9	2.7	3.7	3.6	3.9	2.3	4.0	3.1	3.6	1.7	3.6	1.6	4.0	2.8	4.0	3.0
25	7.6	7.5	3.6	3.5	2.3	2.1	4.9	4.8	3.2	3.0	3.7	3.6	3.9	2.3	4.0	3.1	3.6	1.5	3.6	1.8	4.1	2.7	4.0	2.9
26	6.9	6.7	3.5	3.4	2.3	2.1	5.0	4.9	3.3	3.2	3.4	3.3	4.0	2.7	4.0	2.9	3.6	1.4	3.8	1.8	4.0	2.7	4.0	2.7
27	6.2	6.0	3.3	3.2	2.6	2.3	4.9	4.8	2.6	2.5	3.4	3.3	4.0	2.8	4.0	2.7	3.6	1.5	3.8	1.8	4.0	2.6	3.8	2.3
28	5.5	5.4	3.2	3.1	2.6	2.4	4.7	4.6	2.5	2.4	2.9	2.8	4.0	2.5	4.0	2.6	3.5	1.5	3.1	1.8	4.0	2.5	3.8	2.3
29	5.0	4.9	3.0	2.9	3.8	2.1	4.4	4.3	2.3	2.2	2.4	2.3	4.0	3.0	3.9	1.8	3.6	1.5	2.2	1.9	4.0	2.5	3.7	2.0
30	4.7	4.6	3.1	3.0	2.3	2.0	3.9	3.8	---	---	4.0	2.1	3.9	2.5	3.9	1.9	3.7	1.8	3.9	1.9	4.1	2.6	3.8	1.8
31	4.2	4.1	---	---	2.3	2.1	3.6	3.5	---	---	4.0	2.3	---	---	3.9	2.3	---	---	3.8	2.1	4.0	2.5	---	---

GUADALUPE RIVER BASIN

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1965 to current year. Chemical and biochemical analyses: October 1968 to current year. 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.

INSTRUMENTATION.--Beginning July 1965, specific conductance was recorded continuously at this station. Beginning March 1981, water temperature was recorded continuously at this station. Continuous recording of specific conductance and water temperature was discontinued October 1982.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
DEC 15...	1400	840	7.2	17.5	5	19	9.3	98	1.6	300	38
JAN 25...	1645	830	8.1	10.5	40	28	10.5	94	2.6	280	36
MAR 07...	1545	878	8.3	16.5	15	27	9.3	95	1.1	290	33
APR 24...	1700	945	8.2	24.4	40	25	8.2	99	1.3	300	35
JUN 13...	1610	902	8.2	28.5	50	60	6.6	85	2.0	270	27
AUG 07...	1245	1030	8.2	29.5	27	37	6.1	83	3.0	280	51

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
DEC 15...	88	19	69	2	4.5	260	61	96	.40	15	510
JAN 25...	84	16	70	2	4.9	240	55	110	.30	12	500
MAR 07...	86	19	71	2	4.4	260	63	100	.40	9.8	510
APR 24...	89	20	80	2	4.7	270	71	120	.40	15	560
JUN 13...	77	18	78	2	4.7	240	61	120	.40	18	520
AUG 07...	81	19	110	3	5.5	230	78	150	.40	20	600

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
DEC 15...	48	19	2.0	.030	2.0	.090	.91	1.0	.710	2.5
JAN 25...	76	31	1.7	.060	1.8	.300	.40	.70	.650	5.4
MAR 07...	47	3	4.1	.980	5.1	.110	.59	.70	1.00	3.5
APR 24...	54	<2	1.4	.020	1.4	.040	.86	.90	.900	2.8
JUN 13...	112	17	1.3	.010	1.3	.090	1.1	1.2	.830	3.4
AUG 07...	59	21	1.5	.030	1.5	.010	.99	1.0	.700	--

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...	1645	3	120	<1	<10	3	28
JUN 13...	1610	3	120	<1	<10	7	7

GUADALUPE RIVER BASIN

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		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)					
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)	
JUN 13...	1610	<.1	8	<.10	<1.0	<.01	<.1	<.1	5.0	<.01	1.3	
DATE	TIME	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)
JUN 13...		<.01	3.4	<.01	.1	.06	<.01	<.1	<.01	<.01	<.1	<.01
DATE	TIME	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	
JUN 13...		<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.01	<.01	
DATE	TIME	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)
JUN 13...		<.01	<.1	<.01	<.1	<1	<10	<.01	.07	<.01	<.01	<.01

COPANO CREEK BASIN

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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 upstream from Alameda Creek, 8.1 mi east of Refugio, and 11.9 mi upstream from mouth.

DRAINAGE AREA.--87.8 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 17.25 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for period of no gage-height record, which are poor. No known diversion above station. Recording rain gage is located at station.

AVERAGE DISCHARGE.--14 years, 54.2 ft³/s (8.38 in/yr), 39,270 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,300 ft³/s Sept. 12, 1971 (gage height, 21.00 ft), from rating curve extended above 3,800 ft³/s; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1921, 22 ft in September 1967, from information by local residents.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 10	0400	814	11.51
Oct. 20	1200	*1,970	14.72

Minimum, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	160	7.4	.00	41	4.6	.01	.00	.00	.00	.00	.00
2	2.3	111	6.5	.00	37	4.8	.01	.00	.00	.00	.00	.00
3	1.8	84	5.5	.00	35	4.5	.01	.00	.00	.00	.00	.00
4	1.4	67	4.6	.00	31	4.4	.00	.00	.00	.00	.00	.00
5	1.1	78	3.7	.00	26	4.3	.00	.00	.00	.00	.00	.00
6	.88	261	3.1	.00	20	4.7	.00	.00	.00	.00	.00	.00
7	.68	426	2.4	.00	15	17	.00	.00	.00	.00	.00	.00
8	.52	399	1.8	.00	12	13	.00	.00	.00	.00	.00	.00
9	91	329	1.4	122	11	5.5	.00	.00	.00	.00	.00	.00
10	691	289	1.0	328	10	3.3	.00	.00	.00	.00	.00	.00
11	382	232	.90	296	9.2	2.4	.00	.00	.00	.00	.00	.00
12	265	167	.80	230	8.2	1.8	.00	.00	.00	.00	.00	.00
13	183	119	.70	170	7.5	1.5	.00	.00	.00	.00	.00	.00
14	107	88	.62	124	7.0	.90	.00	.00	.00	.00	.00	.00
15	72	64	.00	88	6.6	.80	.00	.00	.00	.00	.00	.00
16	49	55	.00	61	6.3	.61	.00	.00	.00	.00	.00	.00
17	59	43	.00	42	6.0	.43	.00	.00	.00	.00	.00	.00
18	421	40	.00	29	6.4	.36	.00	.00	.00	.00	.00	.00
19	1360	36	.00	24	6.5	.80	.00	.00	.00	.00	.00	.00
20	1920	35	.00	35	6.3	8.2	.00	.00	.00	.00	.00	.00
21	1860	31	.00	48	6.9	3.8	.00	.00	.00	.00	.00	.00
22	1810	27	.00	45	6.6	2.1	.00	.00	.00	.00	.00	.00
23	1710	21	.00	31	6.2	1.2	.00	.00	.00	.00	.00	.00
24	1580	16	.00	68	5.9	.52	.00	.00	.00	.00	.00	.00
25	1270	14	.00	174	5.5	.36	.00	.00	.00	.00	.00	.00
26	998	13	.00	154	5.5	.13	.00	.00	.00	.00	.00	.00
27	743	11	.00	113	5.0	.03	.00	.00	.00	.00	.00	.00
28	554	10	.00	89	4.8	.04	.00	.00	.00	.00	.00	.00
29	409	9.3	.00	74	4.8	.02	.00	.00	.00	2.5	.00	.00
30	292	8.2	.00	60	---	.02	.00	.00	.00	1.6	.00	.00
31	228	---	.00	47	---	.01	---	.00	---	.13	.00	---
TOTAL	17065.58	3243.5	40.42	2452.00	359.2	92.13	.03	.00	.00	4.23	.00	.00
MEAN	551	108	1.30	79.1	12.4	2.97	.001	.000	.000	.14	.000	.000
MAX	1920	426	7.4	328	41	17	.01	.00	.00	2.5	.00	.00
MIN	.52	8.2	.00	.00	4.8	.01	.00	.00	.00	.00	.00	.00
CFSM	6.28	1.23	.02	.90	.14	.03	.000	.000	.000	.002	.000	.000
IN.	7.23	1.37	.02	1.04	.15	.04	.00	.00	.00	.00	.00	.00
AC-FT	33850	6430	80	4860	712	183	.06	.00	.00	8.4	.00	.00

CAL YR 1983	TOTAL	34741.90	MEAN	95.2	MAX	2300	MIN	.00	CFSM	1.08	IN	14.72	AC-FT	68910
WTR YR 1984	TOTAL	23257.09	MEAN	63.5	MAX	1920	MIN	.00	CFSM	.72	IN	9.85	AC-FT	46130

NOTE.--No gage-height record Dec. 15 to Jan. 24.

COPANO CREEK BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
DEC 14...	1600	.62	540	7.7	16.0	76	6.4	65	2.1	110	2
JAN 25...	1338	213	167	7.6	11.0	78	9.2	83	3.5	42	0
MAR 06...	1210	16	211	7.6	14.5	70	9.6	94	3.7	45	4

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)
DEC 14...	36	5.4	70	3	5.6	110	47	79	.10	16
JAN 25...	13	2.4	14	1	5.9	49	11	16	<.10	12
MAR 06...	13	3.1	23	2	8.3	41	15	35	<.10	4.2

DATE	SOLIDS, SUM OF CONSTITUENTS, 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)
DEC 14...	330	27	.01	.090	.10	.020	1.2	1.2	.100	17
JAN 25...	100	46	.25	.050	.30	.030	1.1	1.1	.080	15
MAR 06...	130	53	1.1	.280	1.4	.100	1.8	1.9	.100	19

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...	1338	2	51	<1	<10	4	260

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...	<1	7	<.1	<1	<1	69

08189500 MISSION RIVER AT REFUGIO, TX

LOCATION.--Lat 28°17'30", long 97°16'44", Hydrologic Unit 12100406, on left bank at upstream side of upstream bridge of two bridges on U.S. Highway 77, 560 ft upstream from Missouri Pacific Railroad Co. bridge, and 0.2 mi southwest of Refugio.

DRAINAGE AREA.--690 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Nov. 25, 1958, nonrecording gage at site 59 ft 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.--45 years, 122 ft³/s (2.40 in/yr), 88,390 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,000 ft³/s Sept. 12, 1971 (gage height, 38.25 ft); minimum observed, 0.7 ft³/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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in August 1914 and May 17, 1938, reached a stage of 32.3 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 10	0900	3,460	20.59
Oct. 18	1400	5,200	23.99
Oct. 22	1500	*6,130	25.22

Minimum daily discharge, 1.7 ft³/s Aug. 25-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	73	38	29	44	28	23	24	17	10	5.3	3.0
2	13	69	38	29	46	29	23	24	16	12	4.1	5.1
3	13	66	38	29	47	29	24	23	16	9.7	4.8	4.5
4	13	63	38	29	45	29	24	23	16	9.3	5.1	4.9
5	12	79	38	29	40	29	23	22	16	15	4.8	5.4
6	12	172	37	29	36	29	22	22	17	14	4.4	2.9
7	12	316	35	29	33	29	22	22	17	11	4.2	2.5
8	12	233	34	29	33	28	22	23	17	8.3	3.9	1.9
9	90	150	34	814	33	27	21	21	16	5.7	2.9	1.9
10	2970	103	34	893	33	27	21	20	16	5.0	2.9	1.9
11	1560	77	34	264	33	27	21	20	15	4.8	2.9	1.9
12	598	65	34	123	32	28	20	20	15	3.8	2.9	1.9
13	410	58	33	81	57	29	20	20	14	3.9	4.0	1.9
14	212	55	33	63	62	29	21	20	16	3.5	7.0	4.7
15	105	52	33	53	42	28	22	20	15	3.8	11	3.3
16	65	48	33	47	36	28	22	20	13	3.8	5.5	3.4
17	1560	46	32	44	33	27	21	20	13	3.8	3.5	3.6
18	4930	45	32	44	32	27	21	23	12	3.8	3.8	3.5
19	2450	45	32	41	31	31	22	25	12	3.8	3.8	3.6
20	461	44	32	40	31	28	22	25	11	3.8	3.6	4.2
21	2860	43	32	38	32	28	25	23	10	4.0	2.3	4.6
22	5720	43	31	37	32	26	25	21	9.0	4.0	1.9	5.2
23	3450	43	31	37	32	26	24	19	9.0	4.0	2.0	5.0
24	806	42	30	119	30	26	23	19	9.0	4.3	2.0	4.5
25	345	41	29	199	29	26	23	18	8.4	5.4	1.7	3.9
26	197	42	29	219	29	26	24	18	8.0	6.2	1.7	3.3
27	135	41	29	127	28	26	25	18	7.5	5.8	1.7	3.0
28	109	40	29	79	28	25	25	17	6.5	5.5	1.9	2.9
29	95	38	29	58	28	24	25	17	6.6	5.5	1.9	2.9
30	85	38	29	47	---	23	25	17	7.2	5.5	1.9	2.9
31	79	---	29	44	---	23	---	17	---	5.3	3.2	---
TOTAL	29392	2270	1019	3743	1047	845	681	641	381.2	194.3	112.6	104.2
MEAN	948	75.7	32.9	121	36.1	27.3	22.7	20.7	12.7	6.27	3.63	3.47
MAX	5720	316	38	893	62	31	25	25	17	15	11	5.4
MIN	12	38	29	29	28	23	20	17	6.5	3.5	1.7	1.9
CFSM	1.37	.11	.05	.18	.05	.04	.03	.03	.02	.009	.005	.005
IN.	1.58	.12	.05	.20	.06	.05	.04	.03	.02	.01	.01	.01
AC-FT	58300	4500	2020	7420	2080	1680	1350	1270	756	385	223	207

CAL YR 1983	TOTAL	67303.2	MEAN 184	MAX	9340	MIN 5.0	CFSM .27	IN 3.63	AC-FT	133500
WTR YR 1984	TOTAL	40430.3	MEAN 110	MAX	5720	MIN 1.7	CFSM .16	IN 2.18	AC-FT	80190

MISSION RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
OCT 11...	1815	902	250	6.8	24.5	62	6.0	72	2.9	1400	1600	62
JAN 17...	1030	45	1200	7.8	10.5	13	8.9	80	1.0	570	540	320
APR 09...	1830	21	2030	7.8	23.5	14	9.2	110	1.1	40	800	470
JUL 09...	1735	230	2700	--	30.5	16	7.7	104	1.6	110	250	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 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 11...	11	20	2.8	14	.8	6.3	51	12	25	<.10	12
JAN 17...	81	99	17	180	5	4.9	238	31	320	.20	27
APR 09...	170	140	28	300	6	3.3	302	54	530	.40	43
JUL 09...	240	140	28	410	9	4.9	230	43	750	.30	41

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, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 11...	139	120	<.10	.080	1.8	.070	.030	.040	58	134	95
JAN 17...	853	820	.14	.080	.40	.030	.010	.030	41	5.0	90
APR 09...	1300	1300	<.10	.020	.40	.040	.050	.010	93	5.3	53
JUL 09...	1720	1600	<.10	.100	.70	.040	.010	<.010	66	1.0	54

MISSION RIVER BASIN

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08189500 MISSION RIVER AT REFUGIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 11...	1815	2	81	<.5	<1	<1	<3	6	130	4
JAN 17...	1030	5	440	<.5	<1	<1	<3	4	35	1
APR 09...	1830	6	600	20	<1	1	<1	<1	40	1
JUL 09...	1735	8	600	<10	<1	<1	1	2	20	<1
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 11...	<4	3	<.1	<10	18	<1	<1	90	<6	9
JAN 17...	44	170	.1	<10	1	<1	<1	1200	7	4
APR 09...	50	70	.2	<1	<1	<1	<1	2000	27	10
JUL 09...	70	80	<.1	<1	6	2	<1	2800	28	10

ARANSAS RIVER BASIN

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 downstream from centerline of county road bridge, 3.8 mi downstream from confluence of West Aransas and Poesta Creeks, and 4.4 mi northeast of Skidmore.

DRAINAGE AREA.--247 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for periods of no gage-height record, which are poor. 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.--20 years, 41.3 ft³/s (2.27 in/yr), 29,920 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,800 ft³/s Sept. 22, 1967 (gage height, 42.22 ft, from floodmark), from rating curve extended above 14,000 ft³/s on basis of slope-area measurements of 29,600 and 82,800 ft³/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 (discharge, 19,600 ft³/s), from information by local resident.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 9	2300	*4,360	20.24
Oct. 21	1100	719	10.39

Minimum daily discharge, 0.62 ft³/s Aug. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	6.1	6.6	11	10	6.4	5.7	4.6	1.9	2.3	4.7	.69
2	1.5	5.9	7.0	11	11	6.7	5.7	4.7	1.5	2.6	4.9	.77
3	1.4	5.6	7.5	11	9.9	7.1	5.7	4.7	1.5	2.6	6.2	1.5
4	1.4	5.4	7.3	11	9.3	7.4	5.6	4.4	1.3	5.6	7.3	2.3
5	1.5	6.7	7.4	10	8.7	8.6	5.6	4.2	1.3	5.9	10	2.1
6	1.5	81	7.6	10	8.1	7.9	5.4	4.1	1.3	2.8	14	1.9
7	1.5	88	7.2	10	7.7	7.5	5.4	3.3	1.4	1.7	24	1.5
8	1.5	24	7.1	10	8.2	7.5	5.4	3.2	1.4	1.3	50	1.4
9	908	13	7.5	24	8.3	7.5	5.2	2.9	1.4	1.2	23	1.4
10	1540	8.8	8.2	27	8.1	7.7	5.2	2.4	1.4	.97	12	1.1
11	122	8.5	9.2	11	8.1	8.3	5.2	2.3	1.3	.89	6.8	.99
12	145	7.8	9.4	8.2	8.6	9.0	5.1	2.3	1.3	.89	4.0	1.1
13	64	6.5	8.7	7.4	9.6	7.9	5.1	2.3	6.2	1.1	3.2	1.3
14	32	5.9	8.7	7.1	10	7.9	4.9	2.3	2.8	1.2	2.6	1.2
15	20	5.4	8.5	6.8	8.4	7.7	4.9	2.3	1.8	.99	2.2	1.2
16	15	4.8	8.6	6.9	8.3	7.7	4.7	2.3	1.5	.99	1.9	1.7
17	60	4.4	8.9	7.1	7.8	7.7	4.6	2.7	1.3	.99	1.8	1.7
18	38	4.4	9.3	7.3	7.5	7.7	4.6	4.8	1.4	.99	1.6	1.7
19	26	4.4	9.3	7.5	7.3	8.3	4.6	37	1.5	1.2	1.4	1.7
20	14	4.4	8.7	7.7	7.9	11	4.4	37	1.7	1.4	1.4	1.7
21	331	4.5	8.7	7.9	8.3	9.7	4.4	10	1.9	1.4	1.3	1.8
22	99	4.6	8.8	8.1	9.8	7.5	4.2	5.6	1.8	1.4	1.3	2.2
23	34	4.9	8.9	8.6	8.2	6.8	4.2	4.4	1.6	2.2	1.4	2.6
24	19	5.2	8.9	17	7.9	6.8	4.2	3.8	1.5	2.3	1.8	2.1
25	13	5.4	8.9	31	7.9	6.8	4.2	2.6	1.5	2.2	1.7	1.7
26	10	5.4	8.9	19	7.7	6.6	4.4	2.2	1.3	2.3	1.1	1.4
27	8.5	5.4	10	15	7.5	6.4	4.6	2.0	1.2	6.2	.99	1.2
28	7.6	5.4	10	11	6.8	6.4	4.6	1.9	1.2	5.8	1.6	1.1
29	7.4	5.6	10	10	6.4	6.1	4.6	9.1	1.2	6.0	1.2	1.1
30	7.0	6.1	9.7	9.6	---	6.1	4.6	7.8	1.4	5.1	.76	1.4
31	6.6	---	10	9.5	---	5.9	---	3.1	---	5.2	.62	---
TOTAL	3538.9	353.5	265.5	358.7	243.3	232.6	147.0	186.3	49.8	77.71	196.77	45.55
MEAN	114	11.8	8.56	11.6	8.39	7.50	4.90	6.01	1.66	2.51	6.35	1.52
MAX	1540	88	10	31	11	11	5.7	37	6.2	6.2	50	2.6
MIN	1.4	4.4	6.6	6.8	6.4	5.9	4.2	1.9	1.2	.89	.62	.69
CFSM	.46	.05	.04	.05	.03	.03	.02	.02	.007	.01	.03	.006
IN.	.53	.05	.04	.05	.04	.04	.02	.03	.01	.01	.03	.01
AC-FT	7020	701	527	711	483	461	292	370	99	154	390	90

CAL YR 1983	TOTAL	10926.60	MEAN	29.9	MAX	2080	MIN	1.4	CFSM	.12	IN	1.65	AC-FT	21670
WTR YR 1984	TOTAL	5695.63	MEAN	15.6	MAX	1540	MIN	.62	CFSM	.06	IN	.86	AC-FT	11300

ARANSAS RIVER BASIN

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08189800 CHILTIPI 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 upstream from Missouri Pacific Railroad Co. bridge, and 0.8 mi northeast of Sinton.

DRAINAGE AREA.--128 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of no gage-height record, which are fair. No known diversions above station. An undetermined amount of water from oilfield operations enters stream upstream at various points. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years, 47.5 ft³/s (5.04 in/yr), 34,410 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,300 ft³/s Sept. 12, 1971 (gage height, 29.10 ft), from rating curve extended above 13,400 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stages since 1910, 30.27 ft Sept. 22, 1967, and 28.8 ft in April 1930, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 9	2300	636	6.24
Oct. 21	0900	*4,460	16.47

Minimum, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.01	2.8	27	2.4	.02	.00	.01	.00	.86	.00	.00
2	.00	.00	2.1	12	2.1	.11	.00	.01	.00	.02	.00	15
3	.00	.00	.50	5.0	1.3	.26	.00	.01	.00	.00	.00	22
4	.00	.00	.07	2.6	.83	.03	.00	.01	.00	.00	.00	11
5	.00	.02	.02	.62	.39	.00	.00	.01	.00	.00	.00	39
6	.00	.11	.00	.26	.19	.00	.00	.01	.01	.00	.00	6.5
7	.00	.03	.00	.22	.14	.00	.00	.01	.01	.00	.00	.22
8	.00	.69	.00	.16	.11	.00	.00	.06	.01	.00	.00	.00
9	203	5.5	.00	400	.11	.00	.00	.02	.02	.00	.00	.00
10	321	3.5	.00	150	.14	.00	.00	.01	.02	.00	.00	.00
11	60	.69	.00	40	.11	.00	.00	.00	.02	.00	.00	.00
12	48	.11	.00	4.5	.07	.00	.00	.00	.21	.00	.00	.00
13	21	.02	.02	.35	.03	.00	.00	.00	.09	.00	.00	.00
14	8.7	.00	.00	.23	.06	.00	.00	.00	.04	.00	.29	.00
15	3.3	.00	.00	.16	.07	.00	.00	.00	.04	.00	.00	.00
16	.76	.00	.00	.11	.03	.00	.00	.00	.03	.00	.00	.00
17	2.6	.00	.02	.11	.03	.00	.00	.08	.02	.00	.00	.00
18	141	.00	.02	.09	.04	.00	.00	.69	.02	.00	.00	.00
19	24	.00	.01	.07	.03	.02	.00	.06	.01	.00	.00	.00
20	49	.00	.00	.04	.09	.00	.00	.02	.01	.00	.00	.00
21	3770	.00	.00	.02	.06	.00	.00	.02	.01	.00	.00	.00
22	1620	.00	.00	.02	.03	.00	.00	.01	.00	.00	.00	.00
23	164	.00	.00	.02	.02	.00	.00	.01	.00	.00	.00	.00
24	51	.00	.00	.04	.02	.00	.00	.00	.00	.00	.00	.00
25	23	.00	.02	52	.03	.00	.00	.00	.00	.00	.00	.00
26	8.0	.00	.01	57	.03	.00	.00	.00	.00	.26	.00	.00
27	2.8	.00	.00	20	.00	.00	.02	.00	.00	.00	.00	.00
28	.83	.00	.00	6.8	.00	.00	.01	.00	.01	.00	.00	.00
29	.39	.00	.00	2.9	.00	.00	.02	.00	.00	.00	.00	.00
30	.16	.01	60	1.6	---	.00	.01	.00	.60	.00	.00	.00
31	.04	---	59	1.4	---	.00	---	.00	---	.00	.03	---
TOTAL	6522.58	10.69	124.59	785.32	8.46	.44	.06	1.05	1.18	1.14	.32	93.72
MEAN	210	.36	4.02	25.3	.29	.014	.002	.034	.039	.037	.010	3.12
MAX	3770	5.5	60	400	2.4	.26	.02	.69	.60	.86	.29	39
MIN	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	1.64	.003	.03	.20	.002	.000	.000	.000	.000	.000	.000	.02
IN.	1.90	.00	.04	.23	.00	.00	.00	.00	.00	.00	.00	.03
AC-FT	12940	21	247	1560	17	.9	.1	2.1	2.3	2.3	.6	186
CAL YR 1983	TOTAL	18814.44	MEAN	51.5	MAX	3770	MIN	.00	CFSM	.40	IN	5.47
WTR YR 1984	TOTAL	7549.55	MEAN	20.6	MAX	3770	MIN	.00	CFSM	.16	IN	2.19
									AC-FT	37320		
									AC-FT	14970		

NUECES RIVER BASIN

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 downstream from Sycamore Creek, 1.0 mi northeast of Laguna, and at mile 370.8.

DRAINAGE AREA.--737 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year.

REVISED RECORDS.--WSP 1562: 1930, 1931(M), 1932, 1939. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,119.72 ft National Geodetic Vertical Datum of 1929. Prior to Jan. 26, 1925, nonrecording gage at site 2 mi downstream at different datum.

REMARKS.--Water-discharge records good. Many small diversions above station for irrigation.

AVERAGE DISCHARGE.--61 years, 147 ft³/s (2.71 in/yr), 106,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 307,000 ft³/s Sept. 24, 1955, (gage height, 29.95 ft, in gage well, 32.7 ft, from floodmarks), from rating curve extended above 40,000 ft³/s on basis of float measurement of 110,000 ft³/s and slope-area measurements of 213,000 and 307,000 ft³/s; minimum, 2.6 ft³/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, discharge 210,000 ft³/s; flood of Sept. 21, 1923, reached a stage of about 26.5 ft, discharge 160,000 ft³/s; from information by local residents.
Discharges based on rating curve mentioned above.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2230	701	5.00
Nov. 5	1600	*1,080	5.36

Minimum daily discharge, 13 ft³/s Aug. 20-30, Sept. 10-15, 19-21, 23-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	131	116	85	76	60	50	39	26	23	16	14
2	57	128	116	85	76	59	50	38	26	22	16	14
3	57	133	115	85	75	57	48	35	27	21	16	14
4	57	195	112	84	73	58	48	35	27	21	15	14
5	57	439	109	83	71	57	49	34	27	20	15	14
6	57	363	107	82	71	56	48	34	37	20	15	14
7	57	234	106	81	70	58	53	33	32	19	15	14
8	57	197	105	86	70	57	50	32	31	19	14	14
9	92	177	105	95	70	57	48	32	31	19	15	14
10	92	161	104	96	70	57	48	32	29	19	14	13
11	87	161	101	92	70	55	48	32	28	19	14	13
12	79	158	99	87	69	56	46	32	27	19	14	13
13	75	154	98	85	69	54	48	31	27	19	14	13
14	72	150	98	84	68	55	45	31	27	18	14	13
15	71	148	96	83	67	55	45	31	26	18	14	13
16	69	147	95	83	67	54	44	33	26	18	15	14
17	68	144	94	83	67	54	44	33	25	18	15	14
18	68	142	93	82	66	53	43	33	25	18	14	14
19	67	138	92	81	66	52	43	32	25	17	14	13
20	168	135	92	80	65	52	43	31	24	17	13	13
21	377	134	91	80	65	52	41	30	24	17	13	13
22	223	133	90	80	65	51	42	29	24	17	13	14
23	176	128	89	79	64	51	41	30	23	17	13	13
24	153	127	87	80	64	50	41	29	23	18	13	13
25	139	125	87	78	63	51	40	28	23	21	13	13
26	133	124	87	78	63	51	40	28	22	20	13	13
27	130	123	87	76	60	50	38	28	22	19	13	13
28	131	121	87	76	63	48	40	29	22	19	13	13
29	131	119	87	75	61	49	39	28	23	18	13	14
30	133	117	86	74	---	48	38	27	23	17	13	14
31	133	---	85	77	---	49	---	26	---	16	14	---
TOTAL	3323	4886	3016	2555	1964	1666	1341	975	782	583	436	405
MEAN	107	163	97.3	82.4	67.7	53.7	44.7	31.5	26.1	18.8	14.1	13.5
MAX	377	439	116	96	76	60	53	39	37	23	16	14
MIN	57	117	85	74	60	48	38	26	22	16	13	13
CFSM	.14	.21	.13	.11	.09	.07	.06	.04	.03	.03	.02	.02
IN.	.16	.24	.15	.12	.10	.08	.07	.05	.04	.03	.02	.02
AC-FT	6590	9690	5980	5070	3900	3300	2660	1930	1550	1160	865	803

CAL YR 1983	TOTAL	28543	MEAN	78.2	MAX	439	MIN	28	CFSM	.10	IN	1.39	AC-FT	56620
WTR YR 1984	TOTAL	21932	MEAN	59.9	MAX	439	MIN	13	CFSM	.08	IN	1.07	AC-FT	43500

NUECES RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
JAN 26...	1012	78	396	8.0	13.0	<1	.50	10.0	99	.2	K15	K7
APR 19...	1730	43	389	8.2	23.0	5	.60	9.2	113	.3	<1	K2
JUL 25...	1630	21	403	8.0	28.0	--	--	8.8	117	--	K1	--
AUG 15...	1008	15	407	8.0	26.0	1	.60	6.9	88	.6	K10	K21

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 26...	190	21	54	14	7.4	.2	.80	172	13	14	.10	9.9
APR 19...	180	10	51	13	7.3	.2	.70	171	15	11	.20	10
JUL 25...	--	--	--	--	--	--	--	172	--	--	--	--
AUG 15...	190	18	53	14	8.0	.3	1.4	172	15	13	.10	13

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 26...	220	<2	<2	--	<.010	.90	<.010	--	.80	<.010	.5
APR 19...	210	<2	<2	.59	.010	.60	.070	.23	.30	<.010	.6
JUL 25...	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	220	9	8	--	<.010	.50	.030	.17	.20	<.010	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)
JAN 26...	1012	1	35	<1	<10	2	3
AUG 15...	1008	<1	41	<1	<10	<1	3

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 26...	<1	<1	.3	<1	<1	<3
AUG 15...	<1	<1	<.1	<1	1	<3

NUECES RIVER BASIN

08190000 NUECES RIVER AT LAGUNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
JAN 26...	1012	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01
DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
JAN 26...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JAN 26...	<.01	<.01	<.1	<.1	<.01	<.01	<.01	<.01	<.01	

NUECES RIVER BASIN

333

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 upstream from Miguel Canyon, 16.0 mi northeast of Brackettville, and 40.2 mi upstream from mouth.

DRAINAGE AREA.--694 mi².

PERIOD OF RECORD.--September 1939 to September 1950, April 1956 to current year.

REVISED RECORDS.--WSP 1312: 1949(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,326.79 ft 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, which are poor. In ordinary years, a large part of streamflow from the basin is lost by seepage into the Balcones Fault Zone of the Edwards and associated limestones above station. No known diversion above station. An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--39 years (water years 1940-50, 1957-84), 36.2 ft³/s (26,230 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246,000 ft³/s Sept. 20, 1964, (gage height, 31.3 ft, from floodmark), from rating curve extended above 4,500 ft³/s on basis of slope-area measurements of 10,000, 51,000, 150,000, and 246,000 ft³/s; no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, about 40 ft June 14, 1935 (discharge, 550,000 ft³/s, based on slope-area measurements of 580,000 ft³/s at site 33 mi upstream from gage) and 536,000 ft³/s (at site 24 mi downstream from gage, present site and datum), from gage-height relation of 1935 and 1955 flood peaks at site 0.6 mi upstream. Flood in 1900 reached a stage of about 34 ft, and flood of Sept. 24, 1955, reached a stage of 27.1 ft, from floodmark at present site (discharge, 150,000 ft³/s, by slope-area measurement).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,200 ft³/s Oct. 20 at 1530 hours (gage height, 12.36 ft), no other peak above base of 1,000 ft³/s; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	8.9	3.6	.00	.07	.04	.00	.00	.00	.00	.11	.00
2	.00	7.2	3.4	.00	.09	.04	.00	.00	.00	.00	.07	.00
3	.00	6.3	3.2	.00	.12	.03	.00	.00	.00	.00	.05	.00
4	.00	5.6	3.3	.00	.15	.03	.00	.00	.00	.00	.04	.00
5	.00	162	3.0	.00	.09	.02	.00	.00	.00	.00	.03	.00
6	.00	86	2.8	.00	.08	.01	.01	.00	.00	.00	.03	.00
7	.00	56	2.8	.01	.07	.04	.02	.00	.00	.00	.03	.00
8	.00	44	2.6	.02	.06	.03	.03	.00	.00	.00	.02	.00
9	280	35	2.6	.03	.05	.02	.02	.00	.00	.00	.02	.00
10	80	27	2.4	.03	.06	.02	.01	.00	.00	.00	.00	.00
11	18	22	2.2	.04	.07	.02	.00	.00	.00	.00	.00	.00
12	12	19	2.3	.06	.08	.03	.00	.00	.00	.00	.00	.00
13	10	16	1.5	.07	.10	.04	.00	.00	.00	.00	.00	.00
14	8.8	13	1.5	.09	.07	.02	.00	.00	.00	.00	.00	.00
15	7.0	11	1.6	.10	.05	.02	.00	.00	.00	.00	.00	.00
16	5.6	9.5	1.8	.12	.04	.01	.00	.00	.00	.00	.00	.00
17	4.8	8.3	.97	.14	.04	.00	.00	.00	.00	.00	.00	.00
18	4.2	7.5	1.0	.18	.03	.00	.00	.00	.00	.00	.00	.00
19	3.8	6.2	.41	.21	.03	.00	.00	.00	.00	.00	.00	.00
20	2590	6.3	.28	.24	.02	.00	.00	.00	.00	.00	.00	.00
21	963	6.0	.17	.27	.02	.00	.00	.00	.00	.00	.00	.00
22	220	5.5	.09	.31	.01	.00	.00	.00	.00	.00	.00	.00
23	132	4.8	.04	.35	.02	.00	.00	.00	.00	.00	.00	.00
24	99	4.8	.02	.45	.03	.00	.00	.00	.00	.00	.00	.00
25	76	4.9	.01	.50	.03	.00	.00	.00	.00	.02	.00	.00
26	55	4.5	.01	.19	.04	.00	.00	.00	.00	.30	.00	.00
27	39	4.1	.00	.10	.06	.00	.00	.00	.00	.21	.00	.00
28	30	4.0	.00	.06	.05	.00	.00	.00	.00	.15	.00	.00
29	22	3.9	.00	.04	.05	.00	.00	.00	.00	.11	.00	.02
30	17	3.7	.00	.05	---	.00	.00	.00	.00	.14	.00	.06
31	12	---	.00	.06	---	.00	---	.00	---	.17	.00	---
TOTAL	4689.20	603.0	43.60	3.72	1.68	.42	.09	.00	.00	1.10	.40	.08
MEAN	151	20.1	1.41	.12	.058	.014	.003	.000	.000	.035	.013	.003
MAX	2590	162	3.6	.50	.15	.04	.03	.00	.00	.30	.11	.06
MIN	.00	3.7	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
AC-FT	9300	1200	86	7.4	3.3	.8	.2	.00	.00	2.2	.8	.2
CAL YR 1983	TOTAL	10792.30	MEAN	29.6	MAX	3830	MIN	.00	AC-FT	21410		
WTR YR 1984	TOTAL	5343.29	MEAN	14.6	MAX	2590	MIN	.00	AC-FT	10600		

NUECES RIVER BASIN

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 upstream from bridge on U.S. Highway 83, 8.8 mi southwest of Uvalde, 18.2 mi downstream from West Nueces River, and at mile 338.7.

DRAINAGE AREA.--1,861 mi².

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). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 796.12 ft National Geodetic Vertical Datum of 1929. Oct. 4, 1927, to Apr. 30, 1939, water-stage recorder at site 6.2 mi 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.--45 years, 118 ft³/s (85,490 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 ft³/s Sept. 24, 1955 (gage height, 24.61 ft, from floodmark), from rating curve extended above 34,000 ft³/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 June 14, 1935, from floodmark (discharge at former site, 616,000 ft³/s, by slope-area measurement). Large floods also occurred in 1901 and 1913, stages unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37 ft³/s Oct. 9 at 0500 hours (gage height, 3.54 ft), no peak above base of 250 ft³/s; minimum daily, 2.1 ft³/s Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	32	27	24	20	14	10	6.5	4.8	3.6	2.6
2	16	15	32	27	24	20	13	9.3	6.5	4.8	3.6	2.6
3	16	17	31	27	24	20	13	9.0	6.5	4.7	3.5	3.4
4	16	20	31	27	24	21	13	9.0	6.0	4.7	3.5	4.4
5	16	23	31	27	24	19	13	9.0	6.0	4.8	3.5	2.9
6	15	20	30	26	24	19	13	9.0	7.4	4.7	3.5	2.6
7	15	19	30	26	24	19	13	9.1	6.1	4.5	3.5	2.6
8	15	19	29	28	24	19	12	8.5	6.0	4.5	3.2	2.9
9	28	21	30	29	23	18	12	8.4	6.0	4.4	2.9	2.9
10	18	23	29	25	23	18	11	8.5	5.8	4.4	2.9	2.6
11	17	25	29	26	23	18	12	8.5	5.6	4.3	2.9	2.6
12	16	26	29	25	23	18	12	8.5	5.6	4.4	3.2	2.4
13	15	27	28	25	23	17	12	8.4	5.7	4.1	3.2	2.4
14	15	27	29	25	23	18	11	8.5	6.1	4.1	2.9	2.4
15	15	27	29	24	23	18	11	8.4	5.8	4.1	2.9	2.6
16	15	27	29	24	23	18	11	8.5	5.6	4.1	2.9	2.6
17	16	27	29	24	23	17	11	9.3	5.6	4.0	2.9	2.7
18	17	27	29	24	24	17	11	8.4	5.2	4.0	2.9	2.5
19	16	27	28	24	23	16	11	7.9	5.2	3.8	2.6	2.4
20	16	27	29	24	23	16	11	7.9	5.2	3.8	2.4	2.5
21	15	28	29	24	23	16	10	7.8	5.2	3.7	2.6	2.4
22	15	28	28	24	23	16	10	7.5	5.5	3.7	2.6	2.4
23	15	27	27	24	23	16	10	7.4	5.2	3.6	2.6	2.4
24	15	28	26	24	23	16	10	7.4	5.2	3.5	2.6	2.4
25	15	29	28	24	23	15	11	7.0	5.2	3.6	2.4	2.4
26	16	29	28	24	21	15	11	7.0	5.1	3.7	2.4	2.2
27	15	30	28	23	19	14	10	6.9	5.0	3.7	2.4	2.1
28	15	30	27	23	22	13	10	7.2	5.0	4.1	2.4	2.3
29	15	30	27	25	21	13	9.6	6.8	4.9	3.6	2.4	2.4
30	15	31	27	25	---	14	9.8	6.5	5.0	3.7	2.6	2.4
31	15	---	27	25	---	14	---	6.5	---	3.5	2.6	---
TOTAL	494	749	895	779	667	528	341.4	252.1	169.7	127.4	90.1	78.0
MEAN	15.9	25.0	28.9	25.1	23.0	17.0	11.4	8.13	5.66	4.11	2.91	2.60
MAX	28	31	32	29	24	21	14	10	7.4	4.8	3.6	4.4
MIN	15	15	26	23	19	13	9.6	6.5	4.9	3.5	2.4	2.1
AC-FT	980	1490	1780	1550	1320	1050	677	500	337	253	179	155

CAL YR 1983 TOTAL 8848.0 MEAN 24.2 MAX 798 MIN 15 AC-FT 17550
WTR YR 1984 TOTAL 5170.7 MEAN 14.1 MAX 32 MIN 2.1 AC-FT 10260

NUECES RIVER BASIN

335

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 downstream from bridge on Farm Road 190, 0.1 mi downstream from El Moro Creek, 5.8 mi northeast of Asherton, and at mile 266.0 (revised).

DRAINAGE AREA.--4,082 mi².

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

REVISED RECORDS.--WSP 1118: 1944.

GAGE.--Water-stage recorder. Datum of gage is 470.92 ft 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), 13 mi upstream. Many small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--45 years, 178 ft³/s (129,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,500 ft³/s Oct. 6, 1959 (gage height, 30.88 ft); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 33 ft June 17, 1935; flood of June 30, 1913, reached about same stage, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 246 ft³/s Nov. 10 at 0600 hours (gage height, 4.97 ft), no peak above base of 2,000 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	.17	.20	.02	.06	.00	.00	.00	.00	.00	.00	.00
2	6.0	.15	.26	.03	.12	.00	.00	.00	.00	.00	.00	.00
3	4.7	.42	.26	.04	.08	.00	.00	.00	.00	.00	.00	.00
4	2.8	.73	.20	.06	.04	.00	.00	.00	.00	.00	.00	29
5	1.4	.47	.18	.14	.03	.00	.00	.00	.00	.00	.00	20
6	.71	.43	.11	.15	.07	.00	.00	.00	.00	.00	.00	16
7	.34	.34	.05	.15	.09	.00	.00	.00	.00	.00	.00	8.0
8	.18	.21	.03	3.3	.03	.00	.00	.00	.00	.00	.00	1.3
9	97	108	.03	21	.02	.00	.00	.00	.00	.00	.00	.13
10	40	231	.03	14	.02	.00	.00	.00	.00	.00	.00	.01
11	39	158	.03	4.3	.02	.00	.00	.00	.00	.00	.00	.00
12	34	96	.02	1.8	.02	.00	.00	.00	.00	.00	.00	.00
13	117	61	.02	.79	.02	.00	.00	.00	.00	.00	.00	.00
14	120	44	.02	.40	.02	.00	.00	.00	.00	.00	.00	.00
15	87	30	.01	.21	.02	.00	.00	.00	.00	.00	.00	.00
16	59	21	.01	.15	.02	.00	.00	.00	.00	.00	.00	.00
17	42	15	.00	.18	.02	.00	.00	.00	.00	.00	.00	.00
18	28	10	.00	.25	.02	.00	.00	.00	.00	.00	.00	.00
19	21	6.2	.00	.23	.02	.00	.00	.00	.00	.00	.00	.00
20	17	3.3	.01	.22	.02	.00	.00	.00	.00	.00	.00	.00
21	9.2	1.9	.01	.19	.05	.00	.00	.00	.00	.00	.00	.00
22	3.9	1.5	.02	.14	.09	.00	.00	.00	.00	.00	.00	.00
23	2.2	.87	.02	.07	.09	.00	.00	.00	.00	.00	.00	.00
24	1.6	.53	.02	.12	.07	.00	.00	.00	.00	.00	.00	.00
25	1.2	.42	.02	.08	.05	.00	.00	.00	.00	.00	.00	.00
26	.87	.40	.02	.06	.04	.00	.00	.00	.00	.00	.00	.00
27	.60	.25	.02	.05	.02	.00	.00	.00	.00	.00	.00	.00
28	.36	.24	.02	.03	.01	.00	.00	.00	.00	.00	.00	.00
29	.20	.19	.02	.03	.01	.00	.00	.00	.00	.00	.00	.00
30	.14	.21	.02	.03	---	.00	.00	.00	.00	.00	.00	.00
31	.12	---	.02	.07	---	.00	---	.00	---	.00	.00	---
TOTAL	745.52	792.93	1.68	48.29	1.19	.00	.00	.00	.00	.00	.00	74.44
MEAN	24.0	26.4	.054	1.56	.041	.000	.000	.000	.000	.000	.000	2.48
MAX	120	231	.26	21	.12	.00	.00	.00	.00	.00	.00	.29
MIN	.12	.15	.00	.02	.01	.00	.00	.00	.00	.00	.00	.00
AC-FT	1480	1570	3.3	96	2.4	.00	.00	.00	.00	.00	.00	148
CAL YR 1983	TOTAL	16524.13	MEAN	45.3	MAX	5000	MIN	.00	AC-FT	32780		
WTR YR 1984	TOTAL	1664.05	MEAN	4.55	MAX	231	MIN	.00	AC-FT	3300		

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 upstream from Missouri Pacific Railroad Co. bridge, 0.8 mi southwest of Cotulla, 1.0 mi upstream from Lind Dam, and at mile 216.9.

DRAINAGE AREA.--5,171 mi².

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). WDR TX-83-3: Drainage area. See PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 368.08 ft 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 higher. Aug. 4, 1924, to Nov. 19, 1934, nonrecording gage at site 5,000 ft downstream at datum 8.42 ft higher. Nov. 20, 1934, to July 14, 1938, water-stage recorder, and July 15, 1938, to Apr. 30, 1963, nonrecording gage, at present site and datum.

REMARKS.--Records good. Part of flow of Nueces River and its headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Low flow is slightly regulated by small storage reservoirs above station, with most diverted above station by pumping (see REMARKS for Nueces River near Asherton, station 08193000).

AVERAGE DISCHARGE.--60 years (water years 1925-84), 268 ft³/s (194,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,600 ft³/s June 18, 1935 (gage height, 32.4 ft, from floodmark), from rating curve extended above 43,000 ft³/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, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 246 ft³/s Nov. 12 at 0800 hours (gage height, 8.94 ft), no peak above base of 2,500 ft³/s; no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	.53	.77	.00	.09	.00	.00	.00	.00	.00	.00	.00
2	40	.38	.77	.00	.09	.00	.00	.00	.00	.00	.00	.00
3	31	.28	.73	.00	.09	.00	.00	.00	.00	.00	.00	.00
4	24	.33	.50	.00	.07	.00	.00	.00	.00	.00	.00	.00
5	19	.89	.39	.00	.06	.00	.00	.00	.00	.00	.00	.00
6	16	1.0	.26	.00	.04	.00	.00	.00	.00	.00	.00	.00
7	10	.65	.18	.00	.03	.00	.00	.00	.00	.00	.00	.00
8	5.4	.51	.13	.00	.02	.00	.00	.00	.00	.00	.00	.00
9	40	.47	.13	26	.02	.00	.00	.00	.00	.00	.00	.00
10	31	.30	.09	3.9	.03	.00	.00	.00	.00	.00	.00	.00
11	97	43	.09	1.9	.03	.00	.00	.00	.00	.00	.00	.00
12	106	236	.04	1.7	.03	.00	.00	.00	.00	.00	.00	.00
13	80	180	.03	1.5	.00	.00	.00	.00	.00	.00	.00	.00
14	65	115	.02	1.2	.00	.00	.00	.00	.00	.00	.00	.00
15	128	74	.00	.95	.00	.00	.00	.00	.00	.00	.00	.00
16	151	49	.00	.52	.00	.00	.00	.00	.00	.00	.00	.00
17	111	35	.00	.31	.00	.00	.00	.00	.00	.00	.00	.00
18	70	26	.00	.22	.00	.00	.00	.00	.00	.00	.00	.00
19	45	22	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00
20	31	17	.00	.08	.00	.00	.00	.00	.00	.00	.00	.00
21	23	15	.00	.06	.00	.00	.00	.00	.00	.00	.00	.00
22	19	12	.00	.06	.00	.00	.00	.00	.00	.00	.00	.00
23	17	9.8	.00	.08	.00	.00	.00	.00	.00	.00	.00	.00
24	14	8.5	.00	.09	.00	.00	.00	.00	.00	.00	.00	.00
25	12	7.2	.00	.09	.00	.00	.00	.00	.00	.00	.00	.00
26	10	5.4	.00	.09	.00	.00	.00	.00	.00	.00	.00	.00
27	6.5	3.1	.00	.06	.00	.00	.00	.00	.00	.00	.00	.00
28	4.7	2.0	.00	.06	.00	.00	.00	.00	.00	.00	.00	.00
29	2.9	1.4	.00	.04	.00	.00	.00	.00	.00	.00	.00	.00
30	1.5	1.1	.00	.04	---	.00	.00	.00	.00	.00	.00	.00
31	.84	---	.00	.08	---	.00	---	.00	---	.00	.00	---
TOTAL	1266.84	867.84	4.13	39.13	.60	.00	.00	.00	.00	.00	.00	.00
MEAN	40.9	28.9	.13	1.26	.021	.000	.000	.000	.000	.000	.000	.000
MAX	151	236	.77	26	.09	.00	.00	.00	.00	.00	.00	.00
MIN	.84	.28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	2510	1720	8.2	78	1.2	.00	.00	.00	.00	.00	.00	.00
CAL YR 1983	TOTAL	11383.81	MEAN	31.2	MAX	2840	MIN	.00	AC-FT	22580		
WTR YR 1984	TOTAL	2178.54	MEAN	5.95	MAX	236	MIN	.00	AC-FT	4320		

NUECES RIVER BASIN

337

08194200 SAN CASIMIRO CREEK NEAR FREER, TX

LOCATION.--Lat 27°57'53", long 98°58'00", Webb County, Hydrologic Unit 12110105, at downstream side of bridge on State Highway 44 (revised), 11.4 mi upstream from mouth, and 22 mi northwest of Freer.

DRAINAGE AREA.--469 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 298 ft State Department of Highways and Public Transportation datum.

REMARKS.--Water-discharge records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years, 64.0 ft³/s (46,370 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,000 ft³/s Oct. 17, 1971 (gage height, 26.87 ft), from rating curve extended above 21,000 ft³/s on basis of flow-through-culverts, contracted opening, and flow-over-road determination of 82,000 ft³/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 (discharge 65,200 ft³/s), occurred in 1954, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 351 ft³/s Oct. 14 at 1800 hours (gage-height, 11.84 ft), no peak above base of 500 ft³/s; no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
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	1.0	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.21	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	5.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	46	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	58	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	26	1.7	.00	138	.00	.00	.00	.00	.00	.00	.00	.00
10	8.6	.42	.00	37	.00	.00	.00	.00	.00	.00	.00	.00
11	26	.18	.00	4.8	.00	.00	.00	.00	.00	.00	.00	.00
12	23	.08	.00	.66	.00	.00	.00	.00	.00	.00	.00	.00
13	82	.04	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00
14	293	.02	.00	.09	.00	.00	.00	.00	.00	.00	.00	.00
15	64	.00	.00	.04	.00	.00	.00	.00	.00	.00	.00	.00
16	9.3	.00	.00	.03	.00	.00	.00	.00	.00	.00	.00	.00
17	2.0	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00
18	.56	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00
19	.21	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00
20	.08	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.02	.00	.00	.00	.00	.00	.00	13	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	2.4	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.29	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.04	.00	.20	.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	22	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.6	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.12	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	534.80	130.44	.00	180.88	.00	.00	.00	15.73	.00	31.13	.00	.00
MEAN	17.3	4.35	.000	5.83	.000	.000	.000	.51	.000	1.00	.000	.000
MAX	293	58	.00	138	.00	.00	.00	13	.00	22	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	1060	259	.00	359	.00	.00	.00	31	.00	62	.00	.00
CAL YR 1983	TOTAL	1225.19	MEAN	3.36	MAX	293	MIN	.00	AC-FT	2430		
WTR YR 1984	TOTAL	892.98	MEAN	2.44	MAX	293	MIN	.00	AC-FT	1770		

NUECES RIVER BASIN

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 upstream from Kings Branch, 10.5 mi south of Tilden, and at mile 135.4.

DRAINAGE AREA.--8,093 mi².

PERIOD OF RECORD.--November 1942 to current year.

REVISED RECORDS.--WSP 1512: 1947. WSP 1732: 1951(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 183.5 ft 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.--41 years (water years 1944-84), 426 ft³/s (308,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,500 ft³/s Sept. 24, 1967 (gage height, 26.57 ft); 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 (discharge, 70,000 ft³/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in June 1935 reached a stage of 23.7 ft and in July 1942 about 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 415 ft³/s Oct. 16 at 1500 hours (gage height, 7.81 ft), no peak above base of 1,800 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	2.7	1.7	.11	.40	.63	.00	.00	.06	.00	.00	.00
2	100	2.2	1.4	.15	.39	.62	.01	.00	.03	.00	.00	.00
3	88	1.9	1.2	.18	.34	.57	.02	.00	.00	.00	.00	.00
4	70	1.5	1.0	.18	.20	.56	.00	.00	.00	.00	.00	.00
5	51	1.5	.93	.21	.14	.56	.00	.00	.00	.00	.00	.00
6	37	195	.77	.28	.10	.62	.00	.00	.00	.00	.00	.00
7	26	49	.64	.31	.07	.40	.00	.00	.00	.00	.00	.00
8	19	136	.56	.41	.06	.34	.04	.00	.00	.00	.00	.00
9	70	240	.56	24	.06	.31	.05	.00	.00	.00	.00	.00
10	63	154	.67	49	.06	.36	.05	.00	.00	.00	.00	.00
11	55	155	.70	368	.13	.47	.03	.00	.00	.00	.00	.00
12	99	119	.64	180	.18	.56	.02	.00	.00	.00	.00	.00
13	110	45	.59	48	.18	.50	.01	.00	.00	.00	.00	.00
14	100	17	.46	31	.14	.56	.00	.00	.00	.00	.00	.00
15	225	29	.32	19	.13	.49	.00	.00	.00	.00	.00	.00
16	386	152	.31	9.9	.12	.40	.00	.00	.00	.00	.00	.00
17	259	127	.25	4.7	.09	.35	.00	.00	.00	.00	.00	.00
18	152	90	.24	2.1	.05	.24	.00	.00	.00	.00	.00	.00
19	143	66	.24	1.2	.05	1.2	.00	3.6	.00	.00	.00	.00
20	118	46	.24	1.1	.06	4.7	.00	12	.00	.00	.00	.00
21	90	33	.24	.71	.10	2.7	.00	3.2	.00	.00	.00	.00
22	65	23	.24	.56	.09	1.1	.00	.96	.00	.00	.00	.00
23	45	17	.24	.52	.09	.49	.00	23	.00	.00	.00	.00
24	30	12	.21	.84	.12	.15	.00	84	.00	.00	.00	.00
25	20	8.8	.18	1.4	.17	.05	.00	32	.00	.00	.00	.00
26	15	7.2	.13	.73	.24	.04	.00	12	.00	.00	.00	.00
27	12	5.4	.13	.53	.52	.04	.00	6.0	.00	.00	.00	.00
28	9.1	3.8	.13	.35	.63	.02	.00	2.9	.00	.00	.00	.00
29	6.6	2.6	.13	.26	.63	.00	.00	1.4	.00	.00	.00	.00
30	4.8	2.2	.10	.24	---	.00	.00	.65	.00	.00	.00	.00
31	3.6	---	.09	.38	---	.00	---	.28	---	.00	.00	---
TOTAL	2548.1	1744.8	15.24	746.35	5.54	19.03	.23	181.99	.09	.00	.00	.00
MEAN	82.2	58.2	.49	24.1	.19	.61	.008	5.87	.003	.000	.000	.000
MAX	386	240	1.7	368	.63	4.7	.05	84	.06	.00	.00	.00
MIN	3.6	1.5	.09	.11	.05	.00	.00	.00	.00	.00	.00	.00
AC-FT	5050	3460	30	1480	11	38	.5	361	.2	.00	.00	.00
CAL YR 1983	TOTAL	7631.10	MEAN 20.9	MAX 1200	MIN .00	AC-FT 15140						
WTR YR 1984	TOTAL	5261.37	MEAN 14.4	MAX 386	MIN .00	AC-FT 10440						

NUECES RIVER BASIN

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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 southeast of Concan Post Office, 15 mi upstream from Dry Frio River, and 222.8 mi upstream from mouth.

DRAINAGE AREA.--389 mi².

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). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,203.71 ft National Geodetic Vertical Datum of 1929. Oct. 26, 1923, to July 28, 1924, nonrecording gage at site 86 ft upstream at datum 5.08 ft 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 downstream at present datum.

REMARKS.--Water-discharge records good. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--59 years (water years 1925-29, 1931-84), 112 ft³/s (3.91 in/yr), 81,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 162,000 ft³/s July 1, 1932 (gage height, 34.44 ft, from floodmarks), from rating curve extended above 44,000 ft³/s on basis of flow-over-dam measurement of 56,600 ft³/s and slope-area measurement of 162,000 ft³/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.--Maximum discharge, 1,300 ft³/s Nov. 5 at 1700 hours (gage height, 5.51 ft), no other peak above base of 500 ft³/s; minimum daily, 5.8 ft³/s Aug. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	67	89	70	63	54	43	34	28	19	14	13
2	41	66	91	72	63	54	43	35	26	20	14	11
3	40	74	91	70	61	54	42	33	24	18	14	14
4	41	114	89	70	60	54	40	32	25	17	14	13
5	40	574	88	69	60	56	41	31	25	17	13	11
6	39	395	86	67	60	56	43	30	33	16	19	12
7	39	212	86	67	59	54	43	28	33	15	15	12
8	40	171	86	75	60	54	43	27	29	14	13	12
9	150	152	85	85	60	54	41	27	29	14	12	12
10	90	139	83	73	60	53	39	27	28	13	11	12
11	64	132	81	72	60	53	41	27	27	13	11	12
12	56	128	81	71	61	51	38	26	28	14	5.8	10
13	54	123	79	70	58	48	38	26	29	14	6.6	9.6
14	56	120	79	70	59	48	37	25	27	13	9.7	10
15	56	115	80	69	59	48	37	25	27	12	11	13
16	58	112	78	67	58	48	37	27	26	11	11	12
17	58	111	78	69	58	49	37	29	25	11	11	11
18	60	111	78	67	57	48	36	32	23	10	11	10
19	59	107	76	67	56	46	36	34	23	12	11	11
20	70	105	78	67	56	47	36	34	22	14	10	11
21	130	105	77	67	56	47	34	31	21	13	10	12
22	119	103	75	66	56	48	34	30	21	12	9.4	12
23	96	98	75	67	56	47	35	30	20	13	9.3	12
24	86	98	73	65	56	46	34	30	20	12	9.3	11
25	81	97	73	65	56	46	34	28	20	19	8.3	11
26	77	96	73	65	52	46	34	26	17	20	8.1	11
27	74	95	72	63	51	46	34	25	15	18	9.2	11
28	72	95	72	63	54	44	34	24	14	17	8.6	10
29	72	95	70	62	55	45	35	26	22	16	7.6	14
30	69	94	71	62	---	45	34	27	19	14	7.2	14
31	68	---	70	63	---	44	---	24	---	14	9.3	---
TOTAL	2095	4104	2463	2115	1680	1533	1133	890	726	455	333.4	349.6
MEAN	67.6	137	79.5	68.2	57.9	49.5	37.8	28.7	24.2	14.7	10.8	11.7
MAX	150	574	91	85	63	56	43	35	33	20	19	14
MIN	39	66	70	62	51	44	34	24	14	10	5.8	9.6
CFSM	.17	.34	.20	.17	.14	.12	.09	.07	.06	.04	.03	.03
IN.	.19	.38	.23	.19	.15	.14	.10	.08	.07	.04	.03	.03
AC-FT	4160	8140	4890	4200	3330	3040	2250	1770	1440	902	661	693
CAL YR 1983	TOTAL	26005.0	MEAN	71.2	MAX	574	MIN	30	CFSM	.18	IN	2.39
WTR YR 1984	TOTAL	17877.0	MEAN	48.8	MAX	574	MIN	5.8	CFSM	.12	IN	1.64
									AC-FT	51580	AC-FT	35460

NUECES RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 26...	1342	64	421	8.1	13.5	<1	.50	10.6	106	.4	K9	K8
APR 19...	1345	38	399	8.2	21.0	5	.90	9.3	110	.2	K7	21
AUG 15...	1530	9.3	367	7.9	29.0	2	1.0	8.9	121	.7	K21	K2

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 26...	220	17	62	15	7.3	.2	.80	200	17	13	.10	9.6
APR 19...	190	10	53	14	7.2	.2	.90	180	16	12	.20	9.7
AUG 15...	170	20	46	14	7.8	.3	1.5	153	19	13	.10	14

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 26...	240	2	<2	--	<.010	.70	<.010	--	.20	<.010	.5
APR 19...	220	<2	<2	.29	.010	.30	.070	.13	.20	<.010	.9
AUG 15...	210	1	1	--	<.010	.10	.030	--	--	<.010	1.8

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 26...	1342	<1	34	<1	<10	3	5
AUG 15...	1530	<1	33	<1	<10	<1	6

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 26...	<1	<1	<.1	<1	<1	4
AUG 15...	<1	<1	<.1	<1	1	<3

NUECES RIVER BASIN

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08195000 FRIO RIVER AT CONCAN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
JAN 26...	1342	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01
AUG 15...	1530	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01
DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
JAN 26...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
AUG 15...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JAN 26...	<.01	<.01	<.1	<.1	<.01	<.01	<.01	<.01	<.01	
AUG 15...	<.01	<.01	<.1	<.1	<.01	--	--	--	--	

NUECES RIVER BASIN

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 upstream from bridge on U.S. Highway 83, 3.1 mi upstream from Rocky Creek, 4.3 mi southeast of Reagan Wells, and 25.9 mi upstream from mouth.

DRAINAGE AREA.--126 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1712: 1953. WSP 1923: 1955(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,335.2 ft State Department of Highways and Public Transportation datum.

REMARKS.--Water-discharge records good prior to July 23 and fair thereafter. Several small diversions above station.

AVERAGE DISCHARGE.--32 years, 33.7 ft³/s (3.63 in/yr), 24,420 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 ft³/s Aug. 13, 1966 (gage height, 27.6 ft, from floodmark), from rating curve extended above 900 ft³/s on basis of slope-area measurements of 11,400, 30,700, 64,700, and 123,000 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875 occurred in 1880 (about 33 ft). Flood of June 14, 1935, reached a stage of 26.0 ft (discharge, 64,700 ft³/s, determined at site 2.6 mi upstream), and flood of July 1, 1932, reached a stage of 23 ft (discharge, 30,700 ft³/s, determined at site 2.0 mi upstream), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 9	0500	208	3.18
Nov. 5	1100	*1,390	5.03

Minimum daily discharge, 0.04 ft³/s Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	13	16	12	9.4	7.2	6.0	3.4	2.6	4.7	5.2	.05
2	5.0	12	16	12	9.4	7.2	6.3	3.4	2.5	4.2	5.0	.04
3	4.7	13	16	12	9.4	7.2	6.0	3.2	2.5	3.8	4.5	.09
4	4.7	20	16	12	9.4	7.2	5.7	3.2	2.5	3.6	3.8	.14
5	4.7	420	16	12	9.0	7.2	5.7	3.0	3.5	3.4	3.4	.12
6	4.5	122	16	12	9.0	7.2	5.7	3.0	4.0	3.2	2.8	.12
7	4.5	64	15	12	9.0	7.2	6.6	2.8	3.5	3.0	2.1	.14
8	4.5	51	15	13	9.0	6.9	6.9	2.8	3.0	2.6	1.9	.14
9	4.7	41	15	16	9.0	6.9	6.3	2.6	3.0	2.4	1.7	.12
10	24	36	15	12	9.0	6.9	5.5	2.8	2.8	2.4	1.4	.07
11	22	32	14	11	9.0	6.9	5.2	2.6	2.8	2.3	1.3	.05
12	19	30	14	11	9.8	7.5	5.2	2.4	3.0	2.1	1.1	.05
13	18	27	14	11	9.0	7.5	5.2	2.3	3.6	2.0	1.3	.07
14	17	25	14	10	8.6	7.2	4.7	2.0	4.0	2.0	2.0	.07
15	16	24	14	10	8.2	7.2	4.7	2.0	4.0	1.8	2.1	.80
16	16	22	14	10	8.2	7.2	4.5	2.1	3.8	1.7	2.3	.80
17	15	21	14	9.8	8.2	7.2	4.5	2.8	3.6	1.7	2.0	.45
18	14	21	13	9.8	8.2	7.2	4.5	3.0	3.4	1.7	1.3	.43
19	14	21	13	9.8	8.2	6.9	4.3	4.0	3.2	1.7	.89	.51
20	16	19	13	9.8	8.2	6.6	4.5	5.0	3.0	1.7	.72	.72
21	18	19	13	9.4	7.9	6.6	4.0	4.0	2.8	1.5	.51	1.1
22	17	19	13	9.0	7.9	6.6	3.6	3.4	2.6	1.7	.51	1.4
23	16	18	13	9.0	7.5	6.6	3.4	3.4	2.4	1.7	.80	1.8
24	16	17	13	9.0	7.5	6.6	3.4	3.4	2.3	1.7	.34	2.1
25	15	16	13	9.0	7.5	6.3	3.4	3.2	2.3	1.8	.18	2.3
26	14	16	13	9.0	7.5	6.3	3.6	3.0	2.1	1.8	.14	2.6
27	14	16	13	9.0	7.2	6.3	3.4	2.8	2.0	1.8	.12	3.0
28	13	16	12	9.0	7.2	6.0	3.4	2.8	2.4	2.3	.07	3.8
29	13	16	12	9.0	7.2	5.7	3.4	2.6	7.5	3.4	.05	7.2
30	13	16	12	9.0	---	5.7	3.4	2.6	6.0	4.0	.18	5.5
31	13	---	12	9.0	---	5.7	---	2.6	---	4.7	.12	---
TOTAL	437.6	1203	432	326.6	244.6	210.9	143.0	92.2	96.7	78.4	49.83	35.78
MEAN	14.1	40.1	13.9	10.5	8.43	6.80	4.77	2.97	3.22	2.53	1.61	1.19
MAX	47	420	16	16	9.8	7.5	6.9	5.0	7.5	4.7	5.2	7.2
MIN	4.5	12	12	9.0	7.2	5.7	3.4	2.0	2.0	1.5	.05	.04
CFSM	.12	.34	.12	.09	.07	.06	.04	.03	.03	.02	.01	.01
IN.	.14	.38	.14	.10	.08	.07	.05	.03	.03	.02	.02	.01
AC-FT	868	2390	857	648	485	418	284	183	192	156	99	71

CAL YR 1983	TOTAL	5986.30	MEAN	16.4	MAX	420	MIN	3.4	CFSM	.14	IN	1.90	AC-FT	11870
WTR YR 1984	TOTAL	3350.61	MEAN	9.15	MAX	420	MIN	.04	CFSM	.08	IN	1.07	AC-FT	6650

NUECES RIVER BASIN

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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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
JAN 26...	1542	9.0	383	8.0	13.5	<1	.40	11.4	115	.3	K4	K9
APR 19...	1030	4.5	378	8.2	19.5	5	.50	8.4	97	.2	32	41
AUG 15...	1322	1.8	390	8.1	29.0	4	.60	9.6	130	.6	K6	K6

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 26...	190	22	56	13	6.1	.2	.50	172	15	12	<.10	7.3
APR 19...	180	17	54	12	6.3	.2	.50	168	16	11	.10	8.8
AUG 15...	190	15	56	13	6.9	.2	1.4	179	15	11	<.10	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)
JAN 26...	210	<2	<2	--	<.010	.90	<.010	--	<.20	<.010	.8
APR 19...	210	<2	<2	.29	.010	.30	.080	.12	.20	<.010	1.0
AUG 15...	220	12	12	--	<.010	.10	.030	.17	.20	<.010	1.8

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 26...	1542	<1	33	<1	<10	3	<3
AUG 15...	1322	<1	44	<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)
JAN 26...	<1	<1	.1	<1	<1	<3
AUG 15...	1	1	<.1	<1	<1	23

NUECES RIVER BASIN

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
JAN 26...	1542	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01
AUG 15...	1322	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01
DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
JAN 26...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
AUG 15...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JAN 26...	<.01	<.01	<.1	<1	<.01	<.01	<.01	<.01	.01	
AUG 15...	<.01	<.01	<.1	<1	<.01	<.01	<.01	<.01	<.01	

NUECES RIVER BASIN

345

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 upstream from Farm Road 1023, 5.7 mi downstream from Dry Frio River, 6.3 mi downstream from bridge on U.S. Highway 90, 7.2 mi northeast of Uvalde, and 194.5 mi upstream from mouth.

DRAINAGE AREA.--631 mi².

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.

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 882.47 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Part of flow of Frio River enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Concan (station 08195000) and this station. Most of low flow enters this formation. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--32 years, 28.4 ft³/s (20,580 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 88,500 ft³/s Aug. 13, 1966 (gage height, 23.88 ft, from floodmark), from rating curve extended above 12,000 ft³/s on basis of slope-area measurements of 24,400, 53,000, and 88,500 ft³/s; no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887, about 35 ft in 1894. Flood of July 1, 1932, reached a stage of about 30 ft. A higher flood than that of 1894 occurred prior to 1887. Above information by local residents.

EXTREMES FOR CURRENT YEAR.--No flow for the year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
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	.00
30	.00	.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 1983	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00		
WTR YR 1984	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00		

NUECES RIVER BASIN

08198000 SABINAL RIVER NEAR SABINAL, TX

LOCATION.--Lat 29°29'27", long 99°29'33", Uvalde County, Hydrologic Unit 12110106, on right bank 108 ft upstream from concrete dam, 2.3 mi downstream from mouth of Onion Creek, 12.5 mi north of Sabinal, and 41.6 mi upstream from mouth.

DRAINAGE AREA.--206 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Apr. 9, 1971, at site 0.3 mi downstream at same datum.

REMARKS.--Water-discharge records good. Several small diversions above station for irrigation.

AVERAGE DISCHARGE.--42 years, 55.5 ft³/s (3.66 in/yr), 40,210 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,200 ft³/s June 17, 1958 (gage height, 28.3 ft, from floodmark, at present site), from rating curve extended above 6,900 ft³/s on basis of slope-area measurement of 55,200 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1892, about 33 ft 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, see flood history for station 08198500.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,820 ft³/s Nov. 5 at 1500 hours (gage height, 7.92 ft), no other peak above base of 1,000 ft³/s; minimum daily, 0.18 ft³/s Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	8.8	11	36	28	34	27	18	11	8.1	5.0	3.8	.88		
2	8.8	11	35	29	34	28	18	12	8.1	5.0	3.7	.88		
3	8.8	10	38	29	34	29	18	12	8.1	4.3	3.0	.88		
4	8.8	101	36	29	33	27	18	11	7.6	3.5	2.9	.88		
5	8.8	621	38	29	32	26	18	11	77	2.7	2.7	.88		
6	8.8	238	34	28	32	26	17	11	28	2.4	2.7	.88		
7	8.8	106	33	27	33	26	17	11	20	2.1	2.2	.88		
8	8.8	80	34	30	34	25	18	10	18	2.1	1.8	.88		
9	15	69	34	126	34	26	18	9.3	16	2.1	1.3	.88		
10	12	61	34	71	32	26	17	9.3	14	1.8	1.3	.88		
11	9.6	55	32	57	32	26	16	9.6	13	1.8	1.1	.88		
12	9.6	54	32	51	33	26	16	8.7	13	1.3	1.1	.88		
13	9.3	51	30	45	32	25	16	8.1	15	1.3	.98	.70		
14	9.6	47	30	43	31	24	14	8.1	18	1.3	.89	.70		
15	9.6	45	31	40	32	24	14	8.1	12	1.3	.83	.70		
16	9.6	41	30	40	30	24	14	8.4	9.4	1.3	1.0	.70		
17	9.6	44	29	41	30	24	14	9.7	8.0	1.3	1.1	.70		
18	9.6	45	29	42	30	23	14	10	7.4	1.2	1.1	.70		
19	9.6	41	27	40	29	23	14	12	7.3	1.2	1.1	.54		
20	11	37	27	40	29	22	13	15	6.7	1.1	1.1	.41		
21	12	39	29	40	30	22	12	12	6.7	1.1	1.1	.32		
22	13	42	30	40	29	22	11	10	6.1	1.1	1.1	.28		
23	12	44	30	41	29	20	12	9.6	5.0	1.1	1.1	.24		
24	12	41	27	39	30	20	12	9.6	5.0	1.6	1.1	.21		
25	11	40	27	39	29	20	12	8.9	4.5	3.3	1.1	.20		
26	11	39	29	39	28	21	12	8.1	4.1	4.1	1.1	.19		
27	12	37	29	38	27	21	11	8.0	3.7	3.8	1.1	.19		
28	11	37	28	34	26	19	10	16	4.1	4.6	1.1	.18		
29	11	37	27	36	28	19	11	16	4.8	4.1	1.1	.19		
30	11	38	27	35	---	19	11	9.8	4.8	3.8	.88	.19		
31	11	---	27	34	---	19	---	8.2	---	4.1	.88	---		
TOTAL	321.5	2162	959	1280	896	729	436	321.5	363.5	76.8	47.36	17.90		
MEAN	10.4	72.1	30.9	41.3	30.9	23.5	14.5	10.4	12.1	2.48	1.53	.60		
MAX	15	621	38	126	34	29	18	16	77	5.0	3.8	.88		
MIN	8.8	10	27	27	26	19	10	8.0	3.7	1.1	.83	.18		
CFSM	.05	.35	.15	.20	.15	.11	.07	.05	.06	.01	.007	.003		
IN.	.06	.39	.17	.23	.16	.13	.08	.06	.07	.01	.01	.00		
AC-FT	638	4290	1900	2540	1780	1450	865	638	721	152	94	36		
CAL YR 1983	TOTAL	11863.30	MEAN	32.5	MAX	621	MIN	8.8	CFSM	.16	IN	2.14	AC-FT	23530
WTR YR 1984	TOTAL	7610.56	MEAN	20.8	MAX	621	MIN	.18	CFSM	.10	IN	1.37	AC-FT	15100

NUECES RIVER BASIN

347

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
JAN 27...	0912	38	477	8.0	11.0	<1	.50	10.4	98	.5	130	42
APR 20...	1020	14	442	8.1	20.0	5	.70	8.2	95	.3	57	88
AUG 16...	1550	1.1	460	7.9	27.0	4	.80	7.6	99	.7	33	68

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 27...	240	37	73	14	7.7	.2	1.0	203	29	13	.20	9.6
APR 20...	210	24	62	13	7.9	.2	1.0	185	32	12	.20	10
AUG 16...	230	36	69	13	8.7	.3	1.7	190	29	13	.20	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)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)
JAN 27...	270	<2	<2	<.010	.50	<.010	--	<.20	<.010	.6	--
APR 20...	250	3	<2	<.010	.10	.090	.11	.20	<.010	.7	--
AUG 16...	260	2	1	<.010	<.10	.020	--	--	<.010	1.9	1.8

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 27...	0912	<1	35	<1	<10	2	5
AUG 16...	1550	<1	36	<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)
JAN 27...	<1	<1	.1	<1	<1	7
AUG 16...	1	9	<.1	<1	<1	4

NUECES RIVER BASIN

08198000 SABINAL RIVER NEAR SABINAL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
JAN 27...	0912	<.1	<.10	<.01	<.1	<.01	<.01	--	<.01	<.01
AUG 16...	1550	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01

DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
JAN 27...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
AUG 16...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 27...	<.01	<.01	<.1	<1	<.01	<.01	<.01	<.01	<.01
AUG 16...	<.01	<.01	<.1	<1	<.01	<.01	<.01	<.01	<.01

NUECES RIVER BASIN

349

08198500 SABINAL RIVER AT SABINAL, TX

LOCATION.--Lat 29°18'05", long 99°28'46", Uvalde County, Hydrologic Unit 12110106, on left bank 80 ft downstream from bridge on U.S. Highway 90, 1,100 ft downstream from Southern Pacific Lines railroad bridge, 0.8 mi west of Sabinal, and 5.8 mi upstream from Rancho Creek, and 223 mi upstream from mouth.

DRAINAGE AREA.--241 mi².

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

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 882.17 ft 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 upstream at same datum.

REMARKS.--Records 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.--32 years, 31.0 ft³/s (22,460 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,300 ft³/s June 17, 1958 (gage height, 33.3 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 40 ft Aug. 24, 1919, from information by local residents. Flood of July 2, 1932, reached a stage of 31 ft (discharge, 60,000 ft³/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, 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.--Maximum discharge, 568 ft³/s Nov. 6 at 0300 hours (gage height, 7.11 ft), no other peak above base of 100 ft³/s; minimum daily, 0.35 ft³/s June 1-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.42	.65	1.9	1.6	1.0	.78	.60	.47	.35	.54	.53	.54
2	.42	.68	2.0	1.5	1.0	.78	.60	.47	.35	.54	.53	.54
3	.42	1.4	2.0	1.5	1.0	.78	.60	.47	.35	.54	.53	.54
4	.42	1.3	1.9	1.5	1.0	.75	.55	.47	.93	.54	.53	.54
5	.42	1.7	1.9	1.5	1.0	.75	.55	.45	.44	.54	.53	.52
6	.42	228	1.9	1.5	1.0	.75	.55	.45	6.8	.54	.53	.52
7	.42	33	1.9	1.5	.95	.75	2.5	.45	1.0	.54	.53	.52
8	.42	8.3	1.9	1.5	.95	.75	1.0	.45	.70	.54	.53	.52
9	2.0	4.7	1.9	1.4	.95	.70	.70	.45	.60	.54	.53	.52
10	1.2	4.3	1.8	1.4	.95	.70	.60	.45	.60	.54	.53	.52
11	1.0	4.2	1.8	1.4	.95	.70	.58	.70	.60	.54	.53	.52
12	.90	4.0	1.8	1.4	.95	.70	.55	.50	.56	.54	.53	.52
13	.90	3.9	1.8	1.4	.95	.70	.52	.45	.56	.54	.53	.52
14	.91	3.8	1.8	1.4	.90	.70	.52	.44	.56	.54	.75	.52
15	.93	3.6	1.8	1.4	.90	.70	.52	.43	.56	.54	1.0	1.2
16	.98	3.3	1.7	1.3	.90	.70	.52	.43	.56	.54	1.3	.92
17	1.1	3.1	1.7	1.3	.90	.70	.52	.43	.56	.54	.58	.65
18	1.0	3.0	1.7	1.3	.90	.70	.52	.43	.56	.54	.56	.49
19	.96	2.7	1.7	1.3	.90	.70	.52	.43	.56	.54	.56	.49
20	1.0	2.5	1.7	1.1	.85	.65	.49	.40	.54	.54	.56	.49
21	.93	2.3	1.7	1.1	.85	.65	.49	.40	.54	.54	.56	1.0
22	.84	2.3	1.7	1.1	.85	.65	.49	.40	.54	.54	.56	.60
23	.77	2.3	1.7	1.1	.85	.65	.49	.40	.54	.54	.56	.54
24	.68	2.4	1.6	1.1	.85	.65	.49	.40	.54	.54	.56	.54
25	.71	2.1	1.6	1.1	.85	.65	.49	.40	.54	.54	.54	.52
26	.74	2.1	1.6	1.1	.80	.65	.49	.40	.54	.54	.54	.52
27	.83	2.1	1.6	1.0	.80	.65	.49	.40	.54	.54	.54	.52
28	.72	2.0	1.6	1.0	.80	.60	.49	.40	.54	.54	.54	.50
29	.71	2.0	1.6	1.0	.80	.60	.47	.38	.54	.54	.54	.50
30	.69	2.0	1.6	1.0	---	.60	.47	.38	.54	.53	.54	.50
31	.65	---	1.6	1.0	---	.60	---	.38	---	.53	.54	---
TOTAL	24.51	339.73	54.5	39.8	26.35	21.39	18.37	13.56	23.14	16.72	18.22	17.34
MEAN	.79	11.3	1.76	1.28	.91	.69	.61	.44	.77	.54	.59	.58
MAX	2.0	228	2.0	1.6	1.0	.78	2.5	.70	6.8	.54	1.3	1.2
MIN	.42	.65	1.6	1.0	.80	.60	.47	.38	.35	.53	.53	.49
AC-FT	49	674	108	79	52	42	36	27	46	33	36	34

CAL YR 1983 TOTAL 594.58 MEAN 1.63 MAX 228 MIN .25 AC-FT 1180
WTR YR 1984 TOTAL 613.63 MEAN 1.68 MAX 228 MIN .35 AC-FT 1220

NUECES RIVER BASIN

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 downstream from bridge on Ranch Road 462, 6.3 mi southeast of Tarpley, and 16.6 mi northwest of Hondo.

DRAINAGE AREA.--95.6 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1712: 1957. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,169.1 ft Magnolia Oil Co. datum.

REMARKS.--Water-discharge records good. Several small diversions for irrigation above station.

AVERAGE DISCHARGE.--32 years, 37.6 ft³/s (5.34 in/yr), 27,240 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,800 ft³/s June 17, 1958 (gage height, 28.2 ft, from floodmark), from rating curve extended above 2,600 ft³/s on basis of slope-area measurements of 18,600 and 69,800 ft³/s; no flow at times in 1952-57, 1962-64, 1967, 1971, and 1984.
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 (discharge, 58,500 ft³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 92 ft³/s Nov. 5 at 1500 hours (gage height, 2.02 ft), no peak above base of 500 ft³/s; no flow July 5 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	3.8	10	6.2	8.6	5.0	2.9	1.3	.37	.24	.00	.00
2	3.3	3.8	12	7.6	9.0	4.7	3.3	1.5	.32	.15	.00	.00
3	3.3	3.8	11	6.5	8.2	4.7	2.9	1.1	.28	.10	.00	.00
4	3.3	8.5	10	6.5	8.2	4.7	2.5	1.0	.32	.06	.00	.00
5	3.1	29	10	6.5	7.9	4.4	2.7	.90	8.1	.00	.00	.00
6	3.1	23	9.0	6.2	7.9	4.4	3.1	.70	22	.00	.00	.00
7	2.9	19	9.0	5.9	9.3	4.4	4.7	.90	2.9	.00	.00	.00
8	3.1	18	9.0	8.6	9.3	4.1	4.4	.70	1.9	.00	.00	.00
9	14	17	8.6	21	9.3	4.1	3.5	.46	1.7	.00	.00	.00
10	5.0	16	9.0	16	9.0	4.4	3.3	.41	1.5	.00	.00	.00
11	4.1	15	8.6	14	9.0	5.0	3.1	.41	1.5	.00	.00	.00
12	4.1	14	8.2	13	10	8.2	3.1	.41	1.4	.00	.00	.00
13	3.5	13	7.9	12	8.6	6.8	3.1	.41	1.5	.00	.00	.00
14	3.5	13	7.6	11	7.9	7.2	2.7	.41	1.4	.00	.00	.00
15	3.5	12	7.2	11	7.6	6.8	2.5	.60	1.4	.00	.00	.00
16	3.5	11	7.2	11	7.2	6.5	2.5	.70	1.0	.00	.00	.00
17	3.5	12	6.8	11	7.2	6.2	2.1	1.3	.80	.00	.00	.00
18	3.5	12	6.8	11	6.8	5.9	2.2	2.1	.70	.00	.00	.00
19	3.3	12	6.5	10	6.5	5.3	2.3	1.3	.60	.00	.00	.00
20	8.7	10	6.5	9.6	6.5	5.0	1.7	1.2	.60	.00	.00	.00
21	5.0	11	6.8	9.6	6.2	5.0	1.5	.90	.46	.00	.00	.00
22	3.8	12	7.9	10	6.8	4.7	1.4	1.0	.46	.00	.00	.00
23	3.8	18	7.2	11	5.9	4.7	1.5	.90	.41	.00	.00	.00
24	3.8	12	4.7	10	5.9	3.8	1.5	.80	.37	.00	.00	.00
25	4.4	12	5.6	9.6	5.9	3.5	1.7	.70	.37	.00	.00	.00
26	4.1	12	5.6	9.3	6.2	3.5	1.7	.60	.32	.00	.00	.00
27	4.1	12	6.2	9.3	5.0	3.3	1.4	.46	.28	.00	.00	.00
28	3.8	11	5.9	9.3	5.0	2.5	1.3	.70	.32	.00	.00	.00
29	3.8	11	4.4	9.0	5.0	2.5	1.5	.80	.28	.00	.00	.00
30	3.8	11	5.6	8.6	---	2.7	1.2	.60	.28	.00	.00	.00
31	3.8	---	5.6	9.0	---	2.9	---	.41	---	.00	.00	---
TOTAL	130.0	387.9	236.4	309.3	215.9	146.9	73.3	25.68	53.84	.55	.00	.00
MEAN	4.19	12.9	7.63	9.98	7.44	4.74	2.44	.83	1.79	.018	.000	.000
MAX	14	29	12	21	10	8.2	4.7	2.1	22	.24	.00	.00
MIN	2.9	3.8	4.4	5.9	5.0	2.5	1.2	.41	.28	.00	.00	.00
CFSM	.05	.15	.09	.12	.09	.06	.03	.01	.02	.000	.000	.000
IN.	.06	.17	.10	.13	.09	.06	.03	.01	.02	.00	.00	.00
AC-FT	258	769	469	613	428	291	145	51	107	1.1	.00	.00
CAL YR 1983	TOTAL	6386.00	MEAN	17.5	MAX	304	MIN	2.3	CFSM	.20	IN	2.76
WTR YR 1984	TOTAL	1579.77	MEAN	4.32	MAX	29	MIN	.00	CFSM	.05	IN	.68
									AC-FT	12670	AC-FT	3130

NUECES RIVER BASIN

351

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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- TOCOC1 FECAL, KF AGAR (COLS. PER 100 ML)
JAN 25...	1250	9.5	423	8.2	11.0	<1	.50	11.4	107	.2	K7	K12
APR 18...	1745	2.3	420	8.2	21.0	5	1.0	9.4	111	.0	56	39
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 25...	210		40	66	11	6.4	.2	1.1	170	40	11	.20
APR 18...	190		42	57	12	8.0	.3	1.2	150	49	12	.30
DATE		SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 25...	8.1		250	<2	<2	<.010	.20	<.010	--	.20	<.010	.6
APR 18...	11		240	6	<2	.010	<.10	.080	.12	.20	<.010	1.2
				DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	
				JAN 25...	1250		1	28	<1	<10	2	7
				DATE		LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	
				JAN 25...		1	2	<.1	<1	<1	9	
DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)		
JAN 25...	1250	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01	<.01	

NUECES RIVER BASIN

08200000 HONDO CREEK NEAR TARPLEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL-PARA-THION, TOTAL (UG/L)	METHYL-TRI-THION, TOTAL (UG/L)
JAN 25...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
DATE	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JAN 25...	.01	<.01	<.1	<1	<.01	<.01	<.01	<.01	<.01	

NUECES RIVER BASIN

353

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 downstream from county road low-water crossing, 3.1 mi north of Hondo, 7.8 mi upstream from Verde Creek, and 55.4 mi upstream from mouth.

DRAINAGE AREA.--149 mi².

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

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 897.87 ft 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.--24 years, 13.5 ft³/s (9,780 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 46,900 ft³/s July 15, 1973 (gage height, 16.4 ft, from floodmark), from rating curve extended above 9,800 ft³/s on basis of contracted-opening measurement of peak flow; no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 21 ft in September 1919, from information by local resident. Other floods occurred in July 1932, stage 18 ft and June 17, 1958, stage 17 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 516 ft³/s June 5 at 0830 hours (gage height, 3.11 ft), no other peak above base of 500 ft³/s; no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
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	56	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	49	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.28	.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	.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	105.28	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	3.51	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	56	.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	209	.00	.00	.00

CAL YR 1983 TOTAL 1275.57 MEAN 3.49 MAX 600 MIN .00 AC-FT 2530
WTR YR 1984 TOTAL 105.28 MEAN .29 MAX 56 MIN .00 AC-FT 209

NUECES RIVER BASIN

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 upstream from county road crossing, 4.5 mi downstream from Cascade Creek, 7.9 mi southeast of Utopia, and 58.0 mi upstream from mouth.

DRAINAGE AREA.--45.0 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder, crest-stage gages, and concrete control. Datum of gage is 1,265.8 ft Magnolia Oil Co. datum, adjustment unknown.

REMARKS.--Water-discharge records good except those for period of no gage-height record, which are fair. No known diversion above station.

AVERAGE DISCHARGE.--23 years, 17.6 ft³/s (5.31 in/yr), 12,750 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,500 ft³/s July 15, 1973 (gage height, 14.4 ft, from floodmark), from rating curve extended above 910 ft³/s on basis of field estimate of flow over and around end of dam, 14,100 ft³/s, and slope-area measurement of 52,600 ft³/s; no flow for many days in 1963-64.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1901, 16.4 ft June 17, 1958, from floodmarks (discharge 52,600 ft³/s, by slope-area measurement of peak flow).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 220 ft³/s Jan. 9 at 0030 hours (gage height, 2.61 ft), no peak above base of 600 ft³/s; minimum daily, 0.04 ft³/s July 16-19, 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.2	2.9	2.4	4.9	2.6	2.2	.79	.32	.36	.27	.06
2	1.4	1.2	3.0	2.8	4.9	2.6	2.2	.87	.22	.30	.18	.05
3	1.3	1.4	3.3	2.8	4.5	2.6	2.2	.91	.17	.19	.18	1.8
4	1.3	6.3	2.9	2.4	4.3	2.6	2.2	.74	.18	.13	.16	1.0
5	1.3	21	2.8	2.4	4.3	2.6	2.0	.58	1.9	.11	.09	.34
6	1.3	6.9	2.6	2.3	4.3	2.6	2.0	.58	10	.11	.09	.25
7	1.2	4.8	2.6	2.2	4.3	2.6	1.8	.58	2.4	.09	.09	.18
8	1.2	4.3	2.6	8.1	4.3	2.6	1.8	.50	1.5	.08	.07	.29
9	6.4	4.0	2.6	38	3.9	2.6	1.8	.46	1.2	.07	.07	.26
10	2.5	3.4	2.6	7.5	3.9	2.6	1.7	.36	1.1	.06	.07	.23
11	1.6	3.4	2.5	6.5	3.9	2.6	1.7	.36	.78	.05	.07	.17
12	1.3	3.2	2.4	6.5	4.4	3.6	1.7	.36	.68	.05	.07	.15
13	1.3	3.1	2.3	6.2	3.6	3.4	1.6	.35	.82	.05	.07	.15
14	1.2	3.1	2.2	6.1	3.6	3.4	1.6	.33	1.3	.05	.07	.15
15	1.2	2.7	2.2	6.1	3.4	3.4	1.6	.36	1.3	.05	.56	.15
16	1.2	2.6	2.4	6.1	3.4	3.4	1.4	.39	1.1	.04	.42	.14
17	1.2	2.6	2.4	6.1	3.4	3.1	1.4	.76	.84	.04	.27	.10
18	1.2	2.6	2.4	5.8	3.4	3.1	1.4	1.1	.53	.04	.24	.09
19	1.2	2.6	2.4	5.3	3.2	3.1	1.3	1.3	.38	.04	.22	.09
20	4.4	2.4	2.4	5.3	3.4	3.1	1.3	1.4	.29	.05	.17	.09
21	2.9	2.5	2.4	5.3	3.4	2.8	1.2	1.2	.29	.04	.23	.11
22	1.6	3.0	2.3	5.4	3.4	2.8	1.2	1.1	.29	.04	.21	.08
23	1.4	8.3	2.2	5.7	3.4	2.8	1.2	.74	.27	.04	.17	.06
24	1.4	3.5	3.4	5.4	3.4	2.8	1.1	.52	.23	.13	.14	.05
25	1.4	3.1	1.9	5.3	3.1	2.8	1.1	.42	.22	.64	.11	.05
26	1.3	3.1	2.4	5.3	3.0	2.8	1.1	.36	.18	1.5	.11	.05
27	1.3	3.4	2.2	5.2	2.3	2.6	1.1	.28	.17	2.3	.09	.05
28	1.3	3.1	2.3	4.9	2.3	2.6	1.1	.40	.15	1.5	.09	.06
29	1.3	3.1	2.3	4.9	2.6	2.6	1.0	.68	.17	.95	.09	.10
30	1.3	3.1	2.0	4.7	---	2.4	.91	.65	.30	.56	.09	.08
31	1.2	---	2.1	4.7	---	2.4	---	.50	---	.38	.08	---
TOTAL	51.5	119.0	77.0	187.7	106.2	87.6	45.91	19.93	29.28	10.04	4.84	6.43
MEAN	1.66	3.97	2.48	6.05	3.66	2.83	1.53	.64	.98	.32	.16	.21
MAX	6.4	21	3.4	38	4.9	3.6	2.2	1.4	10	2.3	.56	1.8
MIN	1.2	1.2	1.9	2.2	2.3	2.4	.91	.28	.15	.04	.07	.05
CFSM	.04	.09	.06	.14	.09	.07	.04	.02	.02	.007	.004	.005
IN.	.04	.10	.07	.16	.09	.08	.04	.02	.03	.01	.00	.01
AC-FT	102	236	153	372	211	174	91	40	58	20	9.6	13

CAL YR 1983 TOTAL 1660.60 MEAN 4.55 MAX 39 MIN 1.2 CFSM .11 IN 1.43 AC-FT 3290
WTR YR 1984 TOTAL 745.43 MEAN 2.04 MAX 38 MIN .04 CFSM .05 IN .64 AC-FT 1480

NUECES RIVER BASIN

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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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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, UM-MF (COLS./ 100 ML)	STREP- TOCOC- CI, FECAL, KF AGAR (COLS. PER 100 ML)
JAN 25...	1418	5.5	454	8.4	17.0	<1	.50	10.5	113	.2	34	K17
APR 20...	1540	1.3	394	8.5	31.5	5	.90	9.3	135	.4	230	K4
AUG 17...	0952	.29	384	7.9	25.0	3	1.0	7.4	93	.6	200	46

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L 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 25...	220	61	70	12	6.6	.2	1.1	164	55	12	.20
APR 20...	180	67	53	12	7.5	.3	1.3	115	66	12	.20
AUG 17...	170	45	50	11	7.9	.3	1.7	125	54	13	.20

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE- D (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDE- D (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 25...	8.5	260	2	<2	<.010	.40	<.010	--	.30	<.010	.5
APR 20...	10	230	2	<2	.010	<.10	.100	.20	.30	<.010	2.1
AUG 17...	13	230	<1	<1	<.010	.10	.040	.16	.20	<.010	2.0

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 25...	1418	<1	28	<1	<10	4	4
AUG 17...	0952	<1	27	<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 25...	<1	<1	<.1	<1	<1	3
AUG 17...	<1	3	<.1	<1	<1	7

NUECES RIVER BASIN

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
JAN 25...	1418	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01
AUG 17...	0952	<.1	<.10	<.01	<.1	<.01	<.01	<.01	<.01	<.01
DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
JAN 25...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
AUG 17...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JAN 25...	<.01	<.01	<.1	<.1	<.01	<.01	<.01	<.01	<.01	
AUG 17...	<.01	<.01	<.1	<.1	<.01	<.01	<.01	<.01	<.01	

NUECES RIVER BASIN

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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 north of D'Hanis and 8.0 mi downstream from Rocky Creek.

DRAINAGE AREA.--168 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 900.88 ft 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.--23 years (water years 1962-84), 8.07 ft³/s (5,850 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,500 ft³/s July 15, 1973 (gage height, 26.0 ft, from floodmark), from rating curve extended above 16,000 ft³/s on basis of slope-area measurement of 35,800 ft³/s; no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 35.7 ft May 31, 1935, from information by local resident. Other floods occurred Aug. 31, 1894, 33 ft; September 1919, 28 ft; July 2, 1932, 28.2 ft (discharge, 35,800 ft³/s), by slope-area measurement; and June 17, 1958, 32.4 ft.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
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	.00
30	.00	.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 1983	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00		
WTR YR 1984	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00		

NUECES RIVER BASIN

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 downstream from centerline of railroad tracks, 35 ft right of the Missouri Pacific Railroad Co. bridge abutment, 167 ft downstream from Interstate Highway 35, 917 ft downstream from Leona River, 2.5 mi south of Derby, and 115.1 (revised) mi upstream from mouth.

DRAINAGE AREA.--3,429 mi².

PERIOD OF RECORD.--August 1915 to current year.

REVISED RECORDS.--WSP 568: 1915-16, 1918-22. WSP 1312: 1917-18(M). WSP 1923: 1954. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 449.11 ft 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 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.--69 years, 137 ft³/s (99,040 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft³/s July 4, 1932 (gage height 29.45 ft, from floodmarks), from rating curve extended above 76,000 ft³/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.--Maximum discharge, 31 ft³/s Jan. 12 at 1800 hours (gage height, 1.03 ft), no peak above base of 1,100 ft³/s; no flow Apr. 14 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	13	12	19	21	3.1	3.4	.00	.00	.00	.00	.00
2	13	14	14	19	20	2.5	3.8	.00	.00	.00	.00	.00
3	9.6	12	14	19	20	2.5	3.9	.00	.00	.00	.00	.00
4	6.6	12	16	19	20	2.5	2.8	.00	.00	.00	.00	.00
5	4.3	15	15	20	19	2.8	3.0	.00	.00	.00	.00	.00
6	4.3	13	16	20	18	2.8	3.7	.00	.00	.00	.00	.00
7	4.8	13	16	20	17	2.5	4.3	.00	.00	.00	.00	.00
8	5.1	14	17	22	17	2.5	3.8	.00	.00	.00	.00	.00
9	8.1	14	17	24	16	2.3	2.0	.00	.00	.00	.00	.00
10	7.3	13	15	22	14	1.9	.53	.00	.00	.00	.00	.00
11	8.6	14	14	21	14	1.9	.69	.00	.00	.00	.00	.00
12	8.3	15	12	28	14	2.6	.63	.00	.00	.00	.00	.00
13	12	14	14	30	14	1.5	.38	.00	.00	.00	.00	.00
14	14	15	15	24	14	1.9	.00	.00	.00	.00	.00	.00
15	12	14	17	24	14	2.4	.00	.00	.00	.00	.00	.00
16	12	14	17	23	14	2.1	.00	.00	.00	.00	.00	.00
17	11	15	17	23	13	1.9	.00	.00	.00	.00	.00	.00
18	10	16	17	23	12	1.9	.00	.00	.00	.00	.00	.00
19	9.2	15	18	23	11	4.6	.00	.00	.00	.00	.00	.00
20	9.2	15	18	23	11	4.5	.00	.00	.00	.00	.00	.00
21	10	16	18	23	11	5.6	.00	.00	.00	.00	.00	.00
22	10	17	20	23	10	5.3	.00	.00	.00	.00	.00	.00
23	10	14	20	24	8.1	4.3	.00	.00	.00	.00	.00	.00
24	11	13	19	24	6.9	3.1	.00	.00	.00	.00	.00	.00
25	11	10	19	25	6.3	1.7	.00	.00	.00	.00	.00	.00
26	11	8.8	19	26	4.8	1.8	.00	.00	.00	.00	.00	.00
27	14	7.5	20	25	4.8	2.3	.00	.00	.00	.00	.00	.00
28	15	8.1	20	25	2.8	2.1	.00	.00	.00	.00	.00	.00
29	16	10	23	23	3.5	1.7	.00	.00	.00	.00	.00	.00
30	15	12	23	23	---	2.8	.00	.00	.00	.00	.00	.00
31	13	---	20	24	---	3.2	---	.00	---	.00	.00	---
TOTAL	318.4	396.4	532	711	371.2	84.6	32.93	.00	.00	.00	.00	.00
MEAN	10.3	13.2	17.2	22.9	12.8	2.73	1.10	.000	.000	.000	.000	.000
MAX	16	17	23	30	21	5.6	4.3	.00	.00	.00	.00	.00
MIN	4.3	7.5	12	19	2.8	1.5	.00	.00	.00	.00	.00	.00
AC-FT	632	786	1060	1410	736	168	65	.00	.00	.00	.00	.00

CAL YR 1983 TOTAL 9853.87 MEAN 27.0 MAX 358 MIN .77 AC-FT 19550
WTR YR 1984 TOTAL 2446.53 MEAN 6.68 MAX 30 MIN .00 AC-FT 4850

NUECES RIVER BASIN

359

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 downstream from Leoncita Creek, 1.3 mi upstream from Salt Branch, 1.8 mi downstream from Big Slough, and 44.2 mi upstream from mouth.

DRAINAGE AREA.--4,493 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 216.04 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Part of flow of Frio River and its headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin upstream from U.S. Highway 90 (see REMARKS for station 08205500). Considerable loss of flow into various permeable formations also occurs downstream from the Balcones Fault Zone. Many small diversions above station for irrigation.

AVERAGE DISCHARGE.--6 years, 152 ft³/s (110,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s May 19, 1980 at 0900 hours (gage height, 26.35 ft); no flow for many days from April to August 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1932 reached a stage of 38.44 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 159 ft³/s Oct. 9 at 1900 hours (gage height, 4.77 ft), no peak above base of 1,500 ft³/s; no flow for many days from April to August.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	7.1	11	17	23	6.0	1.8	.00	.00	.00	.06	.24
2	6.8	9.4	10	19	23	5.4	1.8	.04	.00	.00	.04	.16
3	6.7	10	9.8	20	22	4.3	1.6	.02	.00	.00	.06	.21
4	8.6	10	9.2	21	23	3.8	1.2	.01	.00	.02	.07	.25
5	9.7	9.3	11	20	22	3.5	1.0	.00	.00	.01	.02	.27
6	8.6	11	12	18	20	2.8	.86	.00	.00	.01	.00	.21
7	7.4	18	13	18	20	2.5	.87	.00	.00	.00	.00	.11
8	7.3	13	14	18	20	2.3	3.3	.00	.00	.00	.00	.07
9	61	12	13	19	20	2.0	2.3	.00	.00	.02	.00	.04
10	44	11	13	19	20	2.0	.82	.00	.00	.03	.02	.10
11	28	11	13	29	21	1.8	.41	.00	.00	.04	.07	.12
12	42	11	13	29	19	1.8	.21	.00	.00	.07	.06	.08
13	29	11	13	21	19	1.7	.13	.00	.41	.07	.00	.20
14	27	13	13	20	20	1.3	.11	.00	.27	.04	.00	.27
15	23	13	13	18	18	1.2	.07	.00	.21	.04	.00	.35
16	19	13	13	19	17	1.4	.00	.00	.08	.00	.06	3.8
17	15	13	12	23	16	1.8	.01	.00	.00	.00	.18	6.4
18	16	13	11	21	15	1.8	.06	.25	.00	.00	.24	3.0
19	16	13	11	20	14	2.9	.02	.15	.00	.00	.30	2.0
20	15	13	13	20	14	2.7	.00	8.1	.00	.02	.34	1.4
21	13	13	13	20	13	2.6	.01	3.4	.00	.00	.34	1.3
22	11	13	13	20	13	2.2	.00	1.4	.00	.00	.37	1.3
23	10	10	14	20	12	5.8	.00	.59	.00	.00	.45	1.0
24	9.4	17	15	20	12	7.0	.00	.37	.00	.00	.37	.87
25	8.2	14	15	22	9.5	5.4	.00	.18	.00	.00	.41	.70
26	7.3	5.8	15	22	8.9	3.9	.00	.07	.00	.01	.53	.42
27	6.8	18	16	22	7.7	3.1	.00	.03	.00	.02	.59	.37
28	6.8	12	17	23	7.3	2.2	.00	.01	.00	.07	.59	.41
29	6.8	12	17	23	6.7	1.7	.00	.00	.00	.10	.59	1.1
30	6.8	12	17	23	---	1.4	.00	.00	.00	.18	.57	1.5
31	6.8	---	17	23	---	1.8	---	.00	---	.16	.38	---
TOTAL	491.2	361.6	410.0	647	476.1	90.1	16.58	54.22	.97	.91	6.71	28.25
MEAN	15.8	12.1	13.2	20.9	16.4	2.91	.55	1.75	.032	.029	.22	.94
MAX	61	18	17	29	23	7.0	3.3	.25	.41	.18	.59	6.4
MIN	6.7	5.8	9.2	17	6.7	1.2	.00	.00	.00	.00	.00	.04
AC-FT	974	717	813	1280	944	179	33	108	1.9	1.8	13	56
CAI YR 1983	TOTAL	14353.07	MEAN	39.3	MAX	1750	MIN	.52	AC-FT	28470		
WTR YR 1984	TOTAL	2583.64	MEAN	7.06	MAX	61	MIN	.00	AC-FT	5120		

NUECES RIVER BASIN

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 downstream from Leoncita Creek, 1.3 mi upstream from Salt Branch, and 1.8 mi downstream from Big Slough.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	
OCT 05...	1335	9.6	842	8.0	26.5	90	99	5.6	70	2.0	150	
DATE	TIME	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (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- LINEITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
OCT 05...	0	48	7.1	140	5	8.1	250	56	110	.40	15	
DATE	TIME	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE D (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE D (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	
OCT 05...	530	146	20	.35	.050	.40	.130	1.3	1.4	.250		
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 05...	1335	5	74	<1	10	3	120					
DATE	TIME	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)					
OCT 05...		25	7	<.1	<1	<1	13					

NUECES RIVER BASIN

361

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 downstream from State Highway 16, 0.3 mi upstream from mouth of Bruce Branch, 0.9 mi downstream from mouth of Far Live Oak Creek, 3 mi upstream from San Patricio Creek, 7 mi downstream from Clear Creek, 8.7 mi north of Tilden, and 12.9 mi upstream from mouth.

DRAINAGE AREA.--783 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 242.95 ft 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 upstream (amounts unknown).

AVERAGE DISCHARGE.--20 years, 63.9 ft³/s (46,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s May 16, 1980 (gage height, 27.31 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1919, 32.6 ft in 1942; stage of 1919 flood not known, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 371 ft³/s June 14 at 2000 hours (gage height, 7.15 ft), no peak above base of 900 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	1.6	3.6	3.2	1.2	.24	.16	.97	.00	.00	.00	.00
2	2.2	1.6	3.7	2.8	2.0	.36	.11	1.4	.00	6.5	.00	.00
3	2.2	1.6	4.0	2.6	2.0	.52	.11	1.6	.00	5.3	.00	.00
4	2.0	1.6	2.4	2.6	2.0	.52	.11	1.4	.00	4.4	.00	.00
5	2.0	2.4	2.9	2.4	2.0	.52	.11	.74	.00	1.5	.00	.00
6	2.0	2.6	2.8	2.2	1.8	.36	.07	.11	.00	.17	.00	.00
7	2.0	1.2	2.2	1.8	1.6	.24	5.8	.04	.00	.03	.00	.00
8	2.0	1.0	1.8	1.6	1.4	.36	1.8	.02	.00	.00	.00	.00
9	2.0	4.0	1.6	1.5	1.4	.36	.16	.01	.00	.00	.00	.00
10	34	.20	1.4	11	1.2	.36	.14	.00	.00	.00	.00	.00
11	11	.07	1.4	3.0	.97	.36	.24	.00	.00	.00	.00	.00
12	4.9	.07	1.4	2.6	.97	.36	.36	.00	5.6	.00	.00	.00
13	2.4	.05	1.5	2.0	.74	.36	.36	.00	6.1	.00	.00	.00
14	1.5	.13	1.8	1.4	.74	.52	.36	.00	68	.00	.00	.00
15	.90	.36	2.2	2.8	.74	.74	.36	.00	10	.00	.00	.00
16	.53	.60	2.9	5.6	1.2	.36	.36	.00	5.8	.00	.00	.00
17	.92	1.2	3.3	5.1	1.4	.36	.36	1.5	2.3	.00	.00	142
18	2.1	1.7	3.6	4.4	.36	.36	.36	.03	1.1	.00	.00	99
19	2.2	1.9	3.6	3.9	1.2	1.4	.52	.02	3.1	.00	27	13
20	2.1	2.2	3.6	3.4	1.6	3.2	.52	.01	5.0	.00	18	5.2
21	1.9	2.0	4.1	2.6	1.6	1.8	.36	.00	3.5	.00	8.2	2.5
22	1.8	2.0	4.7	2.2	.97	1.2	.24	.00	1.5	.00	4.3	.92
23	1.2	2.3	4.1	1.8	.97	.74	.24	.00	.22	.00	1.4	.11
24	.94	2.4	4.0	4.6	1.2	.52	.16	.00	.04	.00	.09	.03
25	.74	2.5	13	1.6	.97	.24	.04	.00	.02	.00	.01	.02
26	.55	3.0	11	1.2	.74	.16	.04	.00	.00	.00	.00	.00
27	.65	3.1	8.8	.97	.24	.16	.16	.00	.00	.00	.00	.00
28	.74	3.2	6.9	.74	.16	.16	.16	.00	.00	.00	.00	.00
29	.85	3.4	5.1	.74	.16	.16	.52	.00	.00	.00	.00	.00
30	1.1	3.5	4.3	.74	---	.16	.74	.00	.00	.00	.00	.00
31	1.3	---	3.6	.97	---	.16	---	.00	---	.00	.00	---
TOTAL	93.12	53.48	121.3	97.56	33.53	17.32	15.03	7.85	112.28	17.90	59.00	262.78
MEAN	3.00	1.78	3.91	3.15	1.16	.56	.50	.25	3.74	.58	1.90	8.76
MAX	34	4.0	13	15	2.0	3.2	5.8	1.6	68	6.5	27	142
MIN	.53	.05	1.4	.74	.16	.16	.04	.00	.00	.00	.00	.00
AC-FT	185	106	241	194	67	34	30	16	223	36	117	521

CAL YR 1983 TOTAL 7380.22 MEAN 20.2 MAX 3570 MIN .00 AC-FT 14640
WTR YR 1984 TOTAL 891.15 MEAN 2.43 MAX 142 MIN .00 AC-FT 1770

NUECES RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	
OCT 04...	1507	2.0	1260	7.6	27.5	10	6.6	8.8	113	2.1	410	
DATE	TIME	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
OCT 04...	200	130	20	110	2	12	210	200	160	.20	16	
DATE	TIME	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDE (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)	
OCT 04...	770	23	3	<.020	<.10	.020	1.2	1.2	.080	7.9		
DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)					
OCT 04...	1507	3	130	1	<10	2	44					
DATE	TIME	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)					
OCT 04...	33	92	<.1	<1	<1	22						

NUECES RIVER BASIN

363

08208000 ATASCOSA RIVER AT WHITSETT, TX

LOCATION.--Lat 28°37'19", long 98°16'52", Live Oak County, Hydrologic Unit 12110110, on right bank at downstream side of bridge on Farm Road 99, 1.1 mi southwest of Whitsett, 4.2 mi downstream from La Parita Creek, and 12.9 mi upstream from mouth.

DRAINAGE AREA.--1,171 mi².

PERIOD OF RECORD.--September 1924 to May 1926, May 1932 to current year.

GAGE.--Water-stage recorder. Datum of gage is 159.04 ft National Geodetic Vertical Datum of 1929. Prior to May 8, 1926, nonrecording gage at bridge at site 200 ft upstream at 1.38 ft higher datum 1.38 ft higher. May 8, 1926, to Feb. 16, 1983, water-stage recorder at site 1,000 ft upstream at same datum.

REMARKS.--Records fair. Considerable losses of flow into various permeable formations occurs upstream from this station. The Campbellton water wells discharge into the Atascosa River 12 mi upstream from this station to supplement streamflow during dry periods. Records of the Lower Nueces River Water Supply District indicate that during the year, the Campbellton water wells discharged 919 acre-ft into the Atascosa River. There are several small diversions above station.

AVERAGE DISCHARGE.--53 years (water years 1925, 1933-84), 130 ft³/s (94,180 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft³/s Sept. 23, 1967 (gage height, 41.3 ft, from floodmark), from rating curve extended above 24,000 ft³/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, discharge 106,000 ft³/s, occurred in September 1919.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 527 ft³/s Oct. 9 at 2100 hours (gage height, 11.33 ft), no peak above base of 1,500 ft³/s; no flow Aug. 24-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	11	8.2	6.3	10	6.5	5.2	1.7	3.1	3.3	.12	1.0
2	25	11	8.4	6.3	10	6.5	5.1	1.8	3.0	3.3	.12	3.1
3	24	10	8.5	6.3	9.8	6.6	5.1	1.8	2.1	3.2	.12	3.7
4	23	9.5	8.9	6.6	9.3	6.4	4.8	1.7	2.5	2.9	.12	3.6
5	22	8.3	9.3	6.7	9.0	6.4	4.7	1.6	3.0	3.0	.12	3.7
6	21	13	14	6.6	8.3	6.4	4.6	1.4	3.4	3.1	.12	4.4
7	20	10	12	6.6	7.8	6.6	6.9	1.3	3.9	3.2	.10	4.8
8	19	10	9.4	7.5	7.6	6.2	14	1.4	4.1	3.0	.10	3.7
9	258	12	8.4	391	8.0	6.2	12	1.4	4.2	3.0	.11	4.4
10	315	9.3	8.6	297	8.3	6.8	9.6	1.4	4.1	3.2	.11	3.8
11	297	8.4	8.5	95	8.5	7.0	8.0	1.0	3.9	3.3	.11	2.1
12	242	7.8	7.8	35	8.6	7.0	6.6	.82	3.6	3.5	.11	3.9
13	297	7.8	8.1	29	8.5	7.0	6.0	.80	4.3	3.4	.11	4.0
14	194	7.8	8.8	22	7.8	6.6	5.9	.71	7.0	2.9	.11	3.8
15	81	7.7	8.3	17	7.6	6.4	6.6	.62	6.2	3.1	.11	3.7
16	54	6.8	7.6	14	7.2	5.9	4.2	.68	3.6	3.0	.10	4.2
17	39	6.6	7.3	12	7.2	5.9	3.4	4.4	3.8	2.1	.09	5.3
18	31	6.5	7.3	11	7.2	15	3.1	11	22	.42	.09	4.8
19	26	7.2	7.6	9.8	7.0	9.4	3.0	23	16	.19	.09	4.0
20	22	7.0	7.4	9.2	7.2	6.5	2.9	36	9.4	.14	.09	3.8
21	31	6.4	7.4	9.1	7.4	6.2	2.6	21	6.2	.13	.09	3.7
22	32	6.3	7.0	8.7	7.4	6.0	2.3	18	4.8	.13	.09	4.0
23	24	6.7	6.5	8.6	7.2	9.0	2.1	12	4.5	.13	.08	4.5
24	21	6.3	6.4	12	6.8	6.6	2.0	9.0	4.3	.13	.00	3.9
25	17	6.8	6.2	41	6.7	6.0	1.9	6.4	3.8	.13	.00	3.4
26	15	8.0	6.6	38	6.8	5.8	2.1	5.1	3.5	.13	.00	3.5
27	14	8.9	6.4	27	6.6	5.8	2.1	4.5	3.3	.14	.00	3.6
28	13	8.1	6.4	20	6.5	5.6	2.0	4.1	3.1	.37	.00	3.7
29	13	8.2	6.4	15	6.5	5.4	2.0	3.8	3.1	.20	.00	3.8
30	12	8.4	6.5	12	---	5.4	1.8	3.3	3.1	.15	.00	5.3
31	11	---	6.4	11	---	5.3	---	3.1	---	.17	.00	---
TOTAL	2240	251.8	246.6	1197.3	226.8	208.4	142.6	184.83	152.9	55.06	2.41	115.2
MEAN	72.3	8.39	7.95	38.6	7.82	6.72	4.75	5.96	5.10	1.78	.078	3.84
MAX	315	13	14	391	10	15	14	36	22	3.5	.12	5.3
MIN	11	6.3	6.2	6.3	6.5	5.3	1.8	.62	2.1	.13	.00	1.0
AC-FT	4440	499	489	2370	450	413	283	367	303	109	4.8	228

CAL YR 1983 TOTAL 32359.53 MEAN 88.7 MAX 9660 MIN .19 AC-FT 64190
WTR YR 1984 TOTAL 5023.90 MEAN 13.7 MAX 391 MIN .00 AC-FT 9960

NUECES RIVER BASIN

08210000 NUECES RIVER NEAR THREE RIVERS, TX
(National stream-gaging accounting network)

LOCATION.--Lat 28°25'38", long 98°10'40", Live Oak County, Hydrologic Unit 12110111, on right bank at U.S. Highway 281, 1.0 mi downstream from Frio River, 2.2 mi south of Three Rivers, and at mile 100.2.

DRAINAGE AREA.--15,427 mi², of which 5,490 mi² 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. WDR TX-83-3: Drainage area.

GAGE (revised).--Water-stage recorder and concrete control. Datum of gage is 99.26 ft National Geodetic Vertical Datum of 1929. Prior to Apr. 5, 1932, nonrecording gage at railroad bridge 0.8 mi upstream at datum 1.87 ft higher. Apr. 5, 1932, to Aug. 9, 1983, recording gage at a site 0.8 mi upstream at datum 1.87 ft higher.

REMARKS.--Water-discharge records good. Since about mid-July 1982, flow of the Frio River was impounded in Choke Canyon Reservoir (conservation-pool storage of 696,800 acre-ft), about 11 mi upstream on the Frio River. 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 station 08205500). Considerable loss of flow into various permeable formations also occurs downstream from the Balcones Fault Zone. Many small diversions for irrigation and municipal supply above station. There is minor upstream regulation by small reservoirs and by ground-water supplements (see station 08208000 Atascosa River at Whitsett). Data collection platform at station.

AVERAGE DISCHARGE.--69 years, 837 ft³/s (606,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 141,000 ft³/s Sept. 23, 1967 (gage height, 49.21 ft); no flow at times.
Maximum stage since about 1875, that of Sept. 23, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,660 ft³/s Oct. 10 at 0600 hours (gage height, 11.56 ft); minimum daily, 0.55 ft³/s Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	36	17	7.6	16	7.3	5.9	1.6	2.9	746	1.6	.60
2	1130	34	16	8.4	16	7.3	5.8	1.7	2.6	690	1.1	.62
3	777	32	17	8.1	15	7.8	5.0	1.9	2.4	686	.81	.63
4	200	31	13	8.0	15	8.6	4.6	1.6	2.3	705	.73	.63
5	120	31	13	7.8	14	8.3	4.4	1.6	2.1	666	.69	.61
6	93	404	11	8.4	13	7.5	4.5	1.6	2.4	579	.66	.64
7	78	842	14	8.7	12	7.3	5.1	1.6	2.5	457	.65	.62
8	66	260	16	8.6	11	7.4	6.6	1.6	2.6	307	2.1	14
9	294	133	13	128	11	7.2	15	1.6	2.5	197	3.0	2.3
10	1410	241	11	784	12	7.3	8.1	1.6	2.5	59	1.6	1.2
11	694	170	11	356	12	7.7	6.1	1.5	2.8	26	.86	.83
12	662	163	10	349	11	8.1	5.1	1.5	2.8	3.4	.70	.74
13	802	137	9.9	208	11	7.7	5.5	1.5	3.2	2.4	.63	.67
14	662	78	9.8	86	9.8	8.1	5.1	1.3	2.8	2.3	.60	.67
15	309	50	10	55	9.5	8.2	4.3	1.3	14	2.0	.59	.77
16	316	38	11	45	9.4	7.9	4.7	1.3	184	1.9	.60	.72
17	456	127	11	34	9.2	8.2	3.9	2.4	196	1.7	9.8	.75
18	310	134	10	27	9.6	8.9	3.2	7.3	196	1.6	9.1	.87
19	186	100	9.7	23	9.4	10	3.0	126	207	1.5	2.1	.87
20	170	77	9.4	18	11	9.6	2.7	13	227	1.4	1.1	.85
21	147	62	9.8	15	10	32	2.9	28	340	1.2	.77	.83
22	125	52	9.8	14	9.7	30	2.2	17	398	1.2	.66	.90
23	103	43	10	14	9.0	21	2.0	13	496	1.2	.60	.90
24	83	36	8.9	15	9.0	15	2.1	8.7	504	1.2	.58	.91
25	71	33	8.0	20	8.5	15	2.0	6.1	499	1.2	.57	.89
26	60	30	7.4	40	9.6	12	1.7	9.7	510	1.2	.57	.76
27	53	27	7.4	37	8.0	9.0	1.8	27	699	3.2	.57	.79
28	47	24	7.6	29	7.3	7.5	2.0	16	704	183	.56	.80
29	44	21	7.3	24	7.1	6.6	2.0	8.8	683	252	.55	.90
30	41	19	7.9	20	---	6.2	1.8	5.6	678	19	.57	1.1
31	39	---	7.9	17	---	6.0	---	3.7	---	3.5	.57	---
TOTAL	10568	3465	334.8	2423.6	315.1	320.7	129.1	317.1	6571.4	5604.1	45.59	38.37
MEAN	341	116	10.8	78.2	10.9	10.3	4.30	10.2	219	181	1.47	1.28
MAX	1410	842	17	784	16	32	15	126	704	746	9.8	14
MIN	39	19	7.3	7.6	7.1	6.0	1.7	1.3	2.1	1.2	.55	.60
AC-FT	20960	6870	664	4810	625	636	256	629	13030	11120	90	76
CAL YR 1983	TOTAL	76888.60	MEAN	211	MAX	17600	MIN	.62	AC-FT	152500		
WTR YR 1984	TOTAL	30132.86	MEAN	82.3	MAX	1410	MIN	.55	AC-FT	59770		

NUECES RIVER BASIN

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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.

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.

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 1983 TO SEPTEMBER 1984

									OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)				
NOV 10...	1530	238	474	7.9	19.5	30	190	7.8	85	2.9	2100	
JAN 23...	1623	13	1500	7.6	9.0	20	14	10.1	87	3.6	K88	
MAR 14...	1133	7.9	2620	7.8	22.0	60	24	8.7	100	6.7	330	
MAY 04...	0920	1.6	3660	8.0	25.0	60	24	7.9	98	3.1	K29	
JUL 16...	1543	1.9	2410	7.9	32.8	--	--	8.5	119	3.0	46	
SEP 04...	1515	.62	5380	7.7	28.0	50	12	3.7	48	1.6	K12	
DATE	TIME	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 10...	1400	100	0	36	2.4	52		2	6.0	101	50	50
JAN 23...	K56	290	68	97	11	190		5	13	221	150	260
MAR 14...	98	470	230	150	22	360		8	14	238	300	480
MAY 04...	620	740	430	250	27	490		8	24	313	390	830
JUL 16...	67	460	250	150	20	320		7	37	207	250	500
SEP 04...	K48	840	630	290	29	750		12	85	215	510	1300
DATE	TIME	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- PENDE (MG/L)	SOLIDS, VOLLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
NOV 10...	.40	14	279	270	279	19		.15	.250	.40	.38	.210
JAN 23...	.60	19	869	880	22	9		.57	.030	.60	.64	.920
MAR 14...	1.0	23	1590	1500	49	12		.35	.150	.50	.49	1.50
MAY 04...	.80	33	2310	2200	49	14		.47	.230	.70	.78	.320
JUL 16...	4.6	25	1520	1400	--	--		.32	.080	.40	.37	.230
SEP 04...	18	38	3350	3200	11	3		--	.020	<.10	<.10	.240

NUECES RIVER BASIN

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 10...	.150	1.4	1.6	.360	.100	.080	10	365	235	79
JAN 23...	.920	.88	1.8	.490	.380	.320	9.8	15	.53	95
MAR 14...	1.40	1.2	2.7	.660	.520	.480	9.6	62	1.3	73
MAY 04...	.240	1.8	2.1	1.30	1.10	.850	11	44	.19	99
JUL 16...	.260	1.4	1.6	.490	.400	.430	10	6	.03	83
SEP 04...	.210	1.3	1.5	.800	.760	.650	9.6	27	.05	99
DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 10...	1530	6	69	<.5	<1	<1	<3	2	30	<1
JAN 23...	1623	6	110	<.5	<1	<1	<3	4	31	1
MAY 04...	0920	9	300	<10	<1	<1	1	<1	40	<1
JUL 16...	1543	9	200	<10	<1	2	6	1	60	2
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 10...	22	2	<.1	<10	2	<1	1	200	18	9
JAN 23...	68	110	<.1	<10	3	<1	<1	670	7	15
MAY 04...	160	420	<.1	3	4	1	<1	2000	4	20
JUL 16...	80	120	<.1	1	6	1	<1	1100	12	20

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LOCATION.--Lat 28°03'34", long 98°05'48", Live Oak County, Hydrologic Unit 12110111, near right bank 75 ft downstream from bridge on U.S. Highway 281, 0.6 mi upstream from Dix Hollow, and 19.3 mi south of George West.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 146 ft³/s Oct. 20 at 2200 hours (gage height, 7.20 ft), no other peak above base of 50 ft³/s; no flow most of year.

[illegible]

NUECES RIVER BASIN

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 up-stream corner of outlet tower at right end of Wesley E. Seale Dam on Nueces River, 0.6 mi upstream from bridge on State Highway 359, and 4.5 mi southwest of Mathis.

DRAINAGE AREA.--16,656 mi².

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 upstream at datum 0.52 ft higher. Oct. 1, 1957, to Apr. 3, 1961, nonrecording gage near left end of Mathis Dam 0.2 mi 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) was 54,000 acre-ft, but by March 1948 had decreased to 39,400 acre-ft 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 long, including two spillways. The 1,320-foot north spillway has 33 gates that are operated by movable hydraulic lifts. The 1,080-foot 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 wide. Water for municipal supply for the city of Corpus Christi is released down stream through a 4.0-foot-diameter cylinder valve and three 2.5- by 4.0-foot rectangular openings. The releases are diverted from the river at Calallen 35 mi downstream for domestic, municipal, irrigation, mining, and industrial uses in the Corpus Christi area. The city of Alice withdrew 6,470 acre-ft 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.....	94.0	272,000
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 Sept. 22, 1967, and Sept. 12, 1971; maximum elevation, 94.82 ft Sept. 22, 1967; minimum contents, 14,740 acre-ft May 5, 1951 (elevation, 67.62 ft).

EXTREMES (AT 0600) FOR CURRENT YEAR.--Maximum contents, 207,900 acre-ft Oct. 21, 22 (elevation, 90.4 ft); minimum, 102,800 acre-ft Sept. 28, 30 (elevation, 82.9 ft).

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

82.0	93,190	86.0	141,300	89.0	185,500
83.0	103,900	87.0	155,400	90.0	201,400
84.0	115,500	88.0	170,200	91.0	217,900
85.0	128,000				

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 0600

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	196500	203000	198100	183900	183900	173200	161200	142700	131900	129300	125400	112000
2	198100	203000	198100	183900	182400	173200	159800	142700	130600	129300	124200	110800
3	199800	203000	198100	183900	183900	173200	161200	144000	130600	131900	124200	110800
4	199800	201400	196500	183900	182400	171700	159800	144000	129300	131900	122900	110800
5	199800	201400	196500	183900	182400	173200	159800	144000	130600	133200	122900	110800
6	199800	201400	198100	183900	182400	173200	158300	144000	130600	134500	121600	110800
7	199800	203000	194900	182400	182400	171700	158300	142700	129300	134500	121600	109600
8	198100	204600	194900	182400	182400	171700	158300	142700	128000	134500	121600	109600
9	198100	204600	194900	183900	180800	171700	156900	141300	128000	135900	121600	109600
10	198100	204600	194900	187100	179300	170200	155400	138600	128000	134500	120400	108500
11	201400	204600	194900	185500	180800	170200	155400	138600	128000	134500	120400	108500
12	204600	204600	194900	185500	179300	170200	155400	135900	128000	134500	120400	108500
13	203000	204600	193400	185500	180800	170200	155400	135900	128000	133200	119200	107300
14	203000	204600	194900	187100	179300	170200	154000	135900	128000	131900	119200	107300
15	203000	204600	193400	185500	179300	168700	154000	134500	126700	131900	119200	107300
16	203000	204600	191800	185500	179300	168700	152500	134500	126700	130600	119200	107300
17	203000	203000	191800	185500	179300	168700	152500	133200	125400	130600	117900	107300
18	204600	203000	191800	185500	177800	165700	151100	133200	125400	129300	117900	106200
19	204600	201400	193400	185500	179300	170200	149700	134500	125400	129300	116700	106200
20	204600	201400	191800	185500	180800	167200	149700	135900	125400	128000	116700	106200
21	207900	201400	190200	185500	177800	167200	149700	135900	125400	128000	116700	106200
22	207900	201400	191800	183900	177800	165700	149700	135900	125400	128000	115500	105100
23	206300	201400	190200	183900	177800	164200	148200	135900	125400	128000	115500	105100
24	204600	201400	193400	183900	176200	167200	146800	135900	125400	126700	115500	103900
25	206300	201400	191800	185500	176200	165700	146800	134500	125400	126700	114300	103900
26	206300	198100	188600	185500	173200	164200	145400	134500	125400	126700	114300	103900
27	204600	199800	187100	183900	179300	164200	145400	133200	125400	125400	114300	103900
28	204600	198100	187100	183900	176200	167200	145400	133200	126700	125400	113100	102800
29	204600	198100	190200	183900	174700	162700	142700	134500	126700	125400	113100	103900
30	204600	198100	185500	183900	---	162700	144000	133200	128000	125400	112000	102800
31	203000	---	185500	183900	---	161200	---	131900	---	125400	112000	---
MAX	207900	204600	198100	187100	183900	173200	161200	144000	131900	135900	125400	112000
MIN	196500	198100	185500	182400	173200	161200	142700	131900	125400	125400	112000	102800
(†)	90.1	89.8	89.0	88.9	88.3	87.4	86.2	85.3	85.0	84.8	83.7	82.9
(‡)	+6500	-4900	-12600	-1600	-9200	-13500	-17200	-12100	-3900	-2600	-13400	-9200

CAL YR 1983 MAX 207900 MIN 125400 ‡ -20800
WTR YR 1984 MAX 207900 MIN 102800 ‡ -93700

† Elevation, in feet, at end of month.

‡ Change in contents, in acre feet.

NUECES RIVER BASIN

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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 downstream from pier of bridge on State Highway 359, 200 ft downstream from Texas and New Orleans Railroad Co. bridge, 0.6 mi downstream from Wesley E. Seale Dam, 4 mi southwest of Mathis, and at mile 46.7.

DRAINAGE AREA.--16,660 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 26.53 ft (revised) National Geodetic Vertical Datum of 1929. Prior to Aug. 29, 1984, at present site at datum 1.0 ft higher.

REMARKS.--Water-discharge records good. Flow is regulated by Lake Corpus Christi (station 08210500) 0.6 mi 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 downstream.

AVERAGE DISCHARGE.--45 years, 819 ft³/s (593,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft³/s Sept. 24, 1967 (gage height, 48.7 ft, revised, from floodmark), present datum; minimum daily, 6.8 ft³/s Aug. 15, 1940. Maximum stage since at least 1888, that of Sept. 24, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of about 41 ft (revised), present datum, 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, 550 ft³/s Dec. 28 at 2200 hours (gage height, 4.28 ft); minimum daily, about 64 ft³/s Sept. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	141	144	132	139	134	158	179	163	161	123	118
2	140	140	144	133	139	139	153	177	164	129	123	112
3	161	140	144	135	138	132	144	178	168	128	123	64
4	164	140	143	135	137	132	145	178	177	128	123	74
5	199	141	144	135	137	139	158	200	179	135	123	95
6	191	141	143	135	137	144	166	208	172	139	114	84
7	191	140	142	134	136	136	175	217	173	146	101	80
8	193	141	142	135	136	131	175	207	171	156	101	76
9	162	142	142	138	136	131	170	208	175	151	111	78
10	125	143	142	136	136	138	170	210	179	146	117	85
11	125	143	142	133	138	141	170	220	174	159	117	98
12	127	143	142	134	137	141	170	213	171	175	116	118
13	126	144	143	135	137	141	169	211	164	198	132	148
14	132	141	143	135	137	139	164	201	162	169	120	122
15	143	140	143	135	137	132	165	166	163	123	121	113
16	139	141	143	134	137	130	170	150	163	128	110	66
17	121	141	142	134	137	130	183	151	170	140	102	66
18	114	141	142	148	137	128	184	150	176	140	102	87
19	112	142	142	164	137	135	192	150	190	140	94	97
20	113	142	142	153	137	139	218	147	195	140	95	94
21	115	142	142	135	136	145	246	148	194	139	110	78
22	115	142	142	135	135	148	240	148	190	132	132	85
23	115	146	142	136	132	145	228	148	183	126	133	115
24	114	141	143	137	132	145	199	149	186	125	116	115
25	114	140	143	139	132	165	188	152	187	124	104	106
26	114	141	178	139	136	185	176	155	196	124	107	110
27	116	142	221	138	145	189	173	158	193	121	111	115
28	125	142	323	137	135	190	192	165	194	118	117	109
29	124	142	289	137	134	173	192	165	194	120	125	97
30	128	143	231	137	---	159	190	166	191	123	117	88
31	141	---	135	137	---	158	---	166	---	123	117	---
TOTAL	4217	4248	4943	4260	3959	4514	5423	5441	5357	4306	3557	2893
MEAN	136	142	159	137	137	146	181	176	179	139	115	96.4
MAX	199	146	323	164	145	190	246	220	196	198	133	148
MIN	112	140	135	132	132	128	144	147	162	118	94	64
AC-FT	8360	8430	9800	8450	7850	8950	10760	10790	10630	8540	7060	5740
CAL YR 1983	TOTAL	54263	MEAN 149	MAX 323	MIN 87	AC-FT	107600					
WTR YR 1984	TOTAL	53118	MEAN 145	MAX 323	MIN 64	AC-FT	105400					

NUECES RIVER BASIN

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, 1980-84): Maximum daily, 36.0°C Aug. 8, 1964; minimum daily, 3.0°C Jan. 19, 1968.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,040 micromhos Sept. 30; minimum daily, 767 micromhos Feb. 20.

WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 28, 29; minimum daily, 8.0°C Dec. 27-29.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
DATE	TIME								
APR 11...	1032	171	801	8.2	22.5	210	52	68	9.5
		SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
DATE	SODIUM, DIS- SOLVED (MG/L AS NA)								
APR 11...	76	2	7.4	157	53	130	.30	17	460

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	4217	957	538	6130	170	1890	73	835	260
NOV. 1983	4248	871	492	5650	140	1630	68	775	240
DEC. 1983	4943	816	463	6180	130	1700	64	852	230
JAN. 1984	4260	790	449	5170	120	1390	62	714	220
FEB. 1984	3959	773	440	4700	120	1240	61	651	220
MAR. 1984	4514	782	445	5420	120	1450	62	750	220
APR. 1984	5423	808	459	6710	130	1830	63	926	230
MAY 1984	5441	848	480	7050	140	1990	66	970	230
JUNE 1984	5357	888	502	7260	150	2120	69	995	240
JULY 1984	4306	904	510	5930	150	1750	70	812	250
AUG. 1984	3557	943	531	5100	160	1560	72	696	250
SEPT 1984	2893	991	557	4350	180	1380	76	590	260
TOTAL	53118	**	**	69700	**	19900	**	9570	**
WTD.AVG.	145	858	486	**	140	**	67	**	240

NUECES RIVER BASIN

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08211000 NUECES RIVER NEAR MATHIS, TX--Continued

DAY	SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984											
	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	916	831	798	776	778	796	826	870	881	914	949
2	1010	912	833	799	778	775	800	822	886	851	918	950
3	1010	909	828	802	775	779	800	830	884	895	924	954
4	1010	908	829	800	775	776	804	835	890	892	926	951
5	1010	897	831	802	778	777	808	832	896	896	922	962
6	996	896	832	809	773	778	805	833	892	872	933	957
7	998	892	828	806	776	779	805	838	881	873	941	964
8	995	896	827	807	774	783	807	849	882	889	927	972
9	997	911	824	793	775	779	804	852	879	898	930	971
10	972	887	811	798	770	778	806	839	869	894	936	967
11	973	872	816	794	772	778	805	840	879	890	937	969
12	966	885	814	801	773	779	805	842	881	900	939	972
13	928	888	816	796	774	782	809	846	884	907	937	983
14	950	884	821	790	776	783	812	846	881	908	943	982
15	955	873	829	791	772	778	811	845	896	906	946	1010
16	956	837	819	788	770	778	811	848	885	899	939	1010
17	941	836	805	792	771	779	810	849	885	905	942	1010
18	945	853	804	787	772	779	809	849	884	910	943	1010
19	931	852	813	785	769	780	809	851	886	906	941	1010
20	929	853	816	789	767	780	809	851	884	910	949	1010
21	913	883	814	782	770	782	816	857	890	920	952	1010
22	910	853	810	782	773	783	815	853	892	918	953	1010
23	907	870	812	783	771	783	814	858	900	920	956	1010
24	911	842	809	782	770	781	812	861	898	920	963	1010
25	915	845	811	778	770	782	811	861	895	920	968	1010
26	914	834	810	778	775	791	809	864	894	920	962	1020
27	911	833	809	779	777	786	808	867	895	925	960	1020
28	913	835	810	778	773	789	809	860	898	931	960	1010
29	908	836	808	777	773	791	800	863	902	928	966	1020
30	907	834	805	779	---	793	798	867	899	923	959	1040
31	905	---	806	775	---	795	---	874	---	932	962	---
MEAN	951	871	817	790	773	782	807	849	888	904	943	991

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	24.0	18.5	11.0	10.0	15.0	21.0	24.5	27.0	29.0	30.0	29.5
2	26.5	24.0	18.5	10.0	10.0	15.5	21.5	25.0	27.0	29.0	30.5	29.5
3	26.5	24.0	18.5	11.0	10.5	15.5	21.5	26.0	27.0	29.5	30.0	29.0
4	27.0	24.0	18.5	11.0	11.0	15.5	21.5	26.0	27.5	29.5	30.0	29.0
5	27.0	---	19.5	10.0	11.0	15.0	22.0	26.0	27.0	30.0	30.5	29.0
6	28.0	---	18.5	10.0	11.0	15.5	22.0	26.0	27.0	30.0	30.0	29.0
7	28.5	---	18.0	10.5	11.0	15.5	22.0	26.0	28.0	30.0	30.5	29.0
8	28.0	24.0	18.0	10.5	11.5	17.0	23.0	25.0	28.0	30.0	29.5	29.0
9	28.0	24.0	18.0	10.0	11.0	17.0	22.0	26.0	27.5	30.0	29.5	29.0
10	28.0	23.0	18.0	10.0	11.0	17.0	22.0	26.0	27.5	30.0	29.5	29.5
11	28.0	23.0	18.0	10.0	12.0	17.0	22.0	26.0	27.5	30.0	30.0	29.5
12	27.5	23.0	18.0	10.0	12.0	17.0	23.0	26.0	27.5	30.0	30.0	29.5
13	27.0	23.5	17.5	10.0	12.0	17.0	22.0	26.0	28.0	29.5	29.5	29.0
14	27.5	23.5	17.5	10.0	12.0	18.0	22.0	26.0	28.0	30.0	29.5	29.0
15	27.5	23.0	18.5	10.0	14.0	18.0	22.0	26.0	29.0	30.0	29.5	29.0
16	27.5	22.5	17.0	11.0	17.0	18.0	23.0	26.0	29.0	30.0	30.0	29.0
17	28.0	22.0	17.0	10.5	17.0	18.5	23.0	25.0	29.0	30.0	30.0	28.5
18	28.0	22.0	17.0	10.0	17.0	18.5	23.0	25.0	29.0	30.0	30.0	28.5
19	28.0	22.0	16.5	9.0	16.5	19.5	23.5	25.0	29.0	30.0	30.5	28.5
20	28.0	22.0	16.5	9.0	16.5	19.5	23.5	26.0	29.0	30.0	30.0	29.0
21	28.0	22.0	16.0	9.0	16.5	20.0	23.5	25.0	29.0	30.0	30.0	29.0
22	28.0	22.0	11.0	9.0	17.0	20.0	23.5	26.0	29.0	30.0	30.0	29.0
23	28.0	21.0	11.0	9.0	17.0	21.5	24.0	27.0	29.0	30.0	30.0	29.0
24	28.0	20.5	8.5	9.0	17.5	21.0	24.0	27.5	29.0	30.0	30.0	29.0
25	28.0	20.5	8.5	9.0	17.0	21.5	24.0	27.5	29.0	30.0	30.0	29.0
26	28.0	20.0	8.5	9.0	17.0	22.0	24.5	28.0	29.5	30.0	30.0	28.0
27	24.0	20.0	8.0	10.5	15.5	22.0	24.5	28.0	29.5	30.0	30.5	27.0
28	24.0	20.0	8.0	11.0	15.5	21.0	24.5	28.0	29.0	30.0	31.0	27.0
29	24.0	20.0	8.0	11.5	15.5	21.0	24.5	28.0	29.0	30.0	31.0	26.0
30	24.0	20.5	9.0	10.0	---	21.0	24.0	28.0	29.0	30.0	30.0	24.0
31	24.0	---	10.0	10.0	---	21.0	---	27.0	---	30.0	30.0	---
MEAN	27.0	22.0	15.0	10.0	14.0	18.5	23.0	26.0	28.5	30.0	30.0	28.5

OSO CREEK BASIN

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 south of intersection of Farm Roads 763 and 665, 1.6 mi downstream from mouth of West Oso Creek, and 1.9 mi southwest of intersection of Farm Road 665 and State Highway 357.

DRAINAGE AREA.--90.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1.91 ft below National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. 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.--12 years, 33.9 ft³/s (24,560 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft³/s Aug. 10, 1980 (gage height, 29.37 ft); minimum, 0.25 ft³/s Aug. 26, 27, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 24.5 ft occurred in May 1968, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,640 ft³/s Jan. 9 at 1900 hours (gage height, 21.94 ft), no other peak above base of 1,000 ft³/s; minimum daily, 1.0 ft³/s July 19, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	6.1	2.5	3.4	15	4.6	3.8	2.9	1.7	1.9	3.9	1.6
2	9.2	6.1	2.4	3.0	14	4.6	3.7	2.8	1.7	2.6	5.1	1.7
3	8.7	6.2	2.4	2.6	15	4.9	3.8	2.9	1.8	8.4	2.3	18
4	7.0	16	2.1	2.5	11	5.0	3.8	2.7	1.7	11	2.0	8.1
5	7.0	15	2.3	2.6	8.7	5.0	3.4	2.8	2.0	6.8	1.9	3.8
6	6.9	15	2.0	2.4	7.6	4.5	3.4	2.6	2.3	3.9	1.8	3.3
7	6.9	9.6	2.0	2.2	7.1	4.2	3.8	2.0	2.4	3.1	1.7	1.8
8	6.9	7.9	2.0	2.4	6.8	4.2	3.8	1.7	2.3	2.6	1.8	1.5
9	6.9	37	2.1	1400	6.6	4.3	3.8	1.7	2.3	2.6	1.8	1.9
10	6.9	51	2.2	1180	6.3	4.4	3.7	1.7	2.1	2.4	1.6	1.7
11	6.8	32	2.0	373	6.4	4.3	3.4	1.8	1.9	2.2	1.5	1.6
12	12	19	1.9	125	6.4	4.5	3.4	2.1	1.8	2.4	1.6	1.6
13	9.0	9.5	2.0	49	6.0	4.5	3.6	1.8	1.9	1.8	2.9	1.6
14	8.8	6.5	1.9	23	5.5	4.5	3.6	1.4	2.0	2.0	2.8	1.4
15	9.2	5.8	2.0	14	6.2	4.6	3.6	1.3	2.1	2.1	2.6	1.5
16	8.2	5.8	2.3	10	6.2	4.3	3.3	1.2	2.2	2.0	2.6	1.6
17	7.9	3.1	2.3	7.9	5.9	4.3	3.3	1.1	2.5	1.2	2.3	1.6
18	7.6	3.2	2.3	7.2	5.5	5.5	3.3	7.0	2.2	1.6	1.8	1.6
19	7.2	3.2	2.5	6.2	5.1	4.3	3.4	4.6	1.7	1.0	1.8	1.6
20	8.5	2.8	2.6	6.2	4.8	3.8	3.4	3.9	1.9	1.2	2.1	1.6
21	338	2.8	2.6	7.6	4.9	3.8	3.2	3.1	2.0	1.0	2.1	2.3
22	232	3.1	2.4	7.8	5.1	3.8	3.1	2.5	2.4	2.1	2.1	2.6
23	65	3.2	2.3	10	5.1	3.9	3.0	1.8	2.1	2.3	2.0	2.2
24	26	2.9	2.3	20	5.0	3.9	2.9	1.8	1.8	2.4	2.4	2.0
25	15	2.5	2.2	352	5.1	3.8	2.8	1.8	2.3	2.4	2.2	2.0
26	9.5	2.4	2.2	274	4.9	3.8	2.9	1.6	2.2	2.6	2.9	1.8
27	7.6	2.1	2.7	61	4.4	4.0	2.9	1.6	2.2	2.6	3.1	1.5
28	7.0	2.2	4.0	28	4.3	4.2	2.9	2.1	2.2	2.6	2.9	1.6
29	6.6	2.9	3.3	18	4.4	4.6	3.3	2.1	2.4	2.5	2.6	1.7
30	6.4	2.9	2.6	13	---	4.2	2.9	1.8	2.5	2.8	2.2	2.2
31	6.1	---	3.3	11	---	3.9	---	1.7	---	2.0	2.1	---
TOTAL	881.8	287.8	73.7	4025.0	199.3	134.2	101.2	71.9	62.6	88.1	72.5	79.0
MEAN	28.4	9.59	2.38	130	6.87	4.33	3.37	2.32	2.09	2.84	2.34	2.63
MAX	338	51	4.0	1400	15	5.5	3.8	7.0	2.5	11	5.1	18
MIN	6.1	2.1	1.9	2.2	4.3	3.8	2.8	1.1	1.7	1.0	1.5	1.4
AC-FT	1750	571	146	7980	395	266	201	143	124	175	144	157
CAL YR 1983	TOTAL	7190.52	MEAN	19.7	MAX	1470	MIN	.59	AC-FT	14260		
WTR YR 1984	TOTAL	6077.10	MEAN	16.6	MAX	1400	MIN	1.0	AC-FT	12050		

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
DEC 13...	1124	2.1	4570	7.9	18.0	23	7.0	76	2.2	770	590
JAN 24...	1125	22	1790	7.6	12.0	290	8.6	80	6.0	470	340
MAR 06...	1134	4.2	5820	8.1	14.5	8.8	11.7	116	2.5	980	770
APR 24...	1130	3.0	4700	7.9	23.5	31	8.6	103	2.8	780	560
JUN 14...	1654	1.9	3810	8.1	29.5	33	7.2	96	5.9	650	430
AUG 09...	1530	.66	6600	8.2	29.5	16	9.4	126	4.8	1100	870

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- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
DEC 13...	240	42	650	11	14	180	250	1300	.80	20
JAN 24...	150	22	280	6	9.6	130	140	580	.30	14
MAR 06...	300	56	840	12	14	210	290	1600	.60	6.4
APR 24...	240	44	690	11	18	220	240	1300	.80	19
JUN 14...	200	37	540	10	19	220	190	1000	.90	21
AUG 09...	320	63	1000	14	22	195	280	2000	.80	15

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDEED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
DEC 13...	2600	--	6.3	.160	6.5	.120	2.0	2.1	5.20	9.5
JAN 24...	1300	512	1.4	.120	1.5	1.30	1.6	2.9	1.30	17
MAR 06...	3200	12	3.7	.980	4.7	.340	1.9	2.2	3.70	15
APR 24...	2700	70	1.8	.110	1.9	.090	2.3	2.4	6.80	11
JUN 14...	2100	74	.79	.010	.80	.050	1.9	1.9	3.70	10
AUG 09...	3800	56	.65	.050	.70	<.010	--	1.6	2.30	--

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 24...	1125	16	300	<1	70	5	40
JUN 14...	1654	13	100	<1	<10	1	40

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 24...	2	260	<.1	<1	<1	40
JUN 14...	<1	400	<.1	<1	<1	40

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 upstream from confluence of Chiltipin and San Diego Creeks, and 2.6 mi north-east of Alice.

DRAINAGE AREA.--150 mi².

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 11,525 ft long. The dam consists of the main embankment 3,470 ft long and two protective levees. The west protective levee is 4,275 ft long and the east protective levee is 2,343 ft long. Storage began Oct. 26, 1964, and the dam was completed Mar. 16, 1965. The spillway, 1,000 ft wide, is located between the main embankment and the west levee. Collapsible flashboards, 3.5 ft high, were added to the crest of the spillway. The main spillway is 414 ft wide with thirteen 30-foot-wide 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 wide with a 3.5-foot opening, and is in the main embankment 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 a combined detention capacity of 25,160 acre-ft. These structures control runoff from 131 mi². Records furnished by the city of Alice show that 4,880 acre-ft was diverted during the current year for municipal use. Records furnished by the city of Corpus Christi show that 6,460 acre-ft 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 Sept. 12, 1971 (elevation, 198.83 ft, from floodmark); minimum, 14 acre-ft Feb. 3, 1965 (elevation, 185.67 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 849 acre-ft Feb. 26 at 2000 hours (elevation, 192.25 ft); minimum, 275 acre-ft July 20, 21 (elevation, 190.45 ft).

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

189.0	82	191.0	423	193.0	1,160
190.0	195	192.0	754	194.0	1,640

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	635	718	655	581	758	814	740	555	438	328	315	503
2	624	718	655	581	773	814	743	555	414	333	315	551
3	618	718	662	581	773	814	740	551	406	315	317	558
4	621	718	662	581	776	814	729	535	403	293	320	561
5	618	718	666	581	784	818	711	523	406	286	330	551
6	618	718	655	581	780	818	701	516	406	288	330	542
7	624	718	655	581	776	818	711	510	403	291	336	532
8	631	718	655	581	780	814	715	507	394	288	336	523
9	638	718	655	628	784	814	708	500	391	300	344	510
10	648	718	655	618	791	814	708	475	391	295	349	500
11	648	718	652	618	791	810	701	447	389	300	355	484
12	648	718	648	624	788	822	694	438	386	298	358	481
13	683	718	638	624	791	822	690	438	400	300	406	475
14	683	718	624	624	784	818	676	441	400	300	412	466
15	683	718	621	624	795	818	669	444	397	300	417	453
16	683	708	624	631	795	814	659	466	400	300	409	444
17	676	701	624	635	787	810	652	478	400	295	414	429
18	701	694	635	645	803	799	645	497	400	295	423	429
19	701	694	635	645	795	795	645	507	391	279	426	423
20	694	694	635	648	803	795	635	510	389	277	423	412
21	718	687	641	648	806	780	628	500	380	279	423	412
22	718	687	638	662	814	780	621	500	375	284	432	412
23	718	690	638	669	814	780	608	500	372	286	438	414
24	718	687	631	683	818	780	594	500	363	286	441	414
25	718	680	624	715	818	762	588	484	352	288	456	417
26	708	680	614	718	841	773	588	478	344	286	459	417
27	708	673	608	725	818	769	581	475	330	293	459	417
28	708	669	588	733	814	758	568	475	325	298	462	423
29	718	666	578	733	814	754	568	469	312	305	462	429
30	718	669	581	740	---	747	561	453	333	307	459	435
31	718	---	581	751	---	747	---	450	---	307	475	---
MAX	718	718	666	751	841	822	743	555	438	333	475	561
MIN	618	666	578	581	758	747	561	438	312	277	315	412
(+)	191.90	191.76	191.50	191.99	192.16	191.98	191.44	191.09	190.68	190.58	191.17	191.04
(+)	+80	-49	-88	+170	+63	-67	-186	-111	-117	-26	+168	-40

CAL YR 1983 MAX 1190 MIN 503 † +90
WTR YR 1984 MAX 841 MIN 277 † -203

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

SAN FERNANDO CREEK BASIN

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 downstream from downstream bridge of two bridges on State Highways 44 and 359, 0.5 mi downstream from confluence of San Diego and Chiltipin Creeks, 2.3 mi upstream from head of Pintas Creek, and 2.7 mi northeast of Alice.

DRAINAGE AREA.--507 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 161.68 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of no gage-height record, 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 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 2,630 acre-ft of sewage effluent was discharged into San Diego Creek 1.3 mi upstream, which comprises most of the low flow. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years (water years 1966-84), 23.7 ft³/s (17,170 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,800 ft³/s Sept. 12, 1971 (gage height, 16.51 ft); minimum daily, 0.2 ft³/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 Sept. 23, 1967 (discharge, 16,900 ft³/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Other high stages since at least 1949 are 15.5 ft Sept. 9, 1962 (discharge, 14,600 ft³/s from field estimate), and 14.2 ft 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, 772 ft³/s Oct. 21 at 1300 hours (gage height, 5.81 ft); minimum daily, 0.23 ft³/s Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.76	2.1	2.3	2.0	2.4	2.2	1.6	1.7	1.9	6.0	.98	.70
2	1.6	2.0	2.2	1.8	2.4	2.0	1.7	1.5	1.3	2.5	1.4	1.5
3	1.5	2.3	2.2	1.9	2.3	2.2	1.6	1.6	1.6	2.2	1.4	150
4	1.5	2.3	2.1	1.9	2.3	2.4	1.5	1.6	1.9	2.0	1.8	30
5	1.2	2.5	2.2	1.9	2.2	2.2	1.9	1.7	2.4	1.9	2.5	10
6	1.2	2.8	2.3	1.6	2.2	2.2	2.0	1.8	2.4	2.2	1.9	3.0
7	1.8	2.5	2.5	1.8	2.4	2.3	2.1	1.5	1.8	1.4	2.4	1.5
8	3.3	2.4	2.3	1.9	2.4	2.2	1.9	1.9	1.0	2.2	1.5	2.5
9	3.0	2.7	2.3	3.0	2.3	2.3	1.7	1.5	1.6	1.7	1.8	1.7
10	2.8	2.3	2.1	2.0	2.2	2.2	1.7	1.5	1.2	2.0	1.2	1.1
11	2.3	2.4	1.4	2.2	1.8	2.1	1.6	2.0	3.0	2.2	1.7	1.3
12	5.9	2.4	1.7	2.2	2.2	1.9	1.7	1.9	1.5	1.8	2.4	2.5
13	4.6	2.3	2.1	2.1	2.2	1.9	1.8	1.3	4.0	2.0	2.7	2.3
14	2.5	2.6	2.0	2.1	2.1	2.0	2.1	1.8	2.0	2.2	87	2.0
15	2.2	2.6	1.8	2.2	2.2	1.9	2.0	2.2	1.6	2.1	19	2.4
16	1.9	2.8	1.8	2.3	2.5	1.8	1.7	2.5	2.2	1.8	5.4	2.7
17	3.1	2.6	2.1	2.4	2.5	1.6	1.9	2.3	1.7	1.3	3.1	2.1
18	3.9	2.6	2.1	2.4	2.5	2.4	1.9	2.7	2.1	1.0	2.4	1.9
19	2.4	2.5	2.2	2.4	2.4	2.1	2.1	2.3	1.3	.72	1.8	1.7
20	2.2	2.3	2.1	2.4	2.5	1.8	2.2	2.0	1.9	.70	1.8	2.0
21	423	2.4	2.1	2.3	2.5	1.8	2.2	2.1	1.7	1.7	1.2	1.7
22	71	2.2	2.1	2.2	2.3	2.1	2.1	2.0	1.4	2.0	.46	2.1
23	13	2.2	2.1	2.2	2.3	1.7	1.5	1.5	1.3	2.2	.51	2.3
24	5.9	2.4	2.1	2.4	2.1	1.5	1.7	.45	1.4	1.7	.23	1.7
25	4.2	2.3	2.2	3.1	2.2	1.9	1.8	2.3	1.6	1.4	.96	2.0
26	3.1	2.2	2.3	2.5	2.1	1.6	1.8	1.5	1.7	1.4	2.0	1.7
27	2.9	2.1	2.4	2.5	2.2	1.4	1.7	2.3	1.4	1.3	1.6	1.5
28	2.8	3.2	2.3	2.1	1.9	1.4	1.5	2.3	1.5	1.5	.97	1.7
29	2.6	2.4	2.3	2.2	1.8	1.4	1.9	1.9	5.0	2.3	.74	1.8
30	2.5	2.2	2.2	2.2	---	1.5	1.9	2.0	20	2.4	.62	1.7
31	2.4	---	2.2	2.3	---	1.5	---	1.6	---	1.7	.70	---
TOTAL	583.06	72.6	66.1	68.5	65.4	59.5	54.8	57.25	75.4	59.52	154.17	241.10
MEAN	18.8	2.42	2.13	2.21	2.26	1.92	1.83	1.85	2.51	1.92	4.97	8.04
MAX	423	3.2	2.5	3.1	2.5	2.4	2.2	2.7	20	6.0	87	150
MIN	.76	2.0	1.4	1.6	1.8	1.4	1.5	.45	1.0	.70	.23	.70
AC-FT	1160	144	131	136	130	118	109	114	150	118	306	478

CAL YR 1983 TOTAL 2065.80 MEAN 5.66 MAX 423 MIN .45 AC-FT 4100
WTR YR 1984 TOTAL 1557.40 MEAN 4.26 MAX 423 MIN .23 AC-FT 3090

NOTE.--No gage-height record June 9 to July 12, Aug. 30 to Sept. 30.

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 upstream from the Santa Fe Street-Juarez Avenue bridge between El Paso, Tex., and Cd. Juarez, Mex., and 1.7 mi upstream from the American Dam.

DRAINAGE AREA.--29,267 mi².

PERIOD OF RECORD.--Chemical analyses: February 1930 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1984 are given in International Boundary and Water Commission Water Bulletins Nos. 53 and 54.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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- TOCOCCL FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	
OCT 18...	0825	238	1920	8.3	16.5	--	--	--	--	--	440	
NOV 01...	1000	152	1980	8.2	16.0	23	8.6	100	1100	1200	440	
28...	1325	98	2070	8.1	9.0	--	--	--	--	--	430	
DEC 21...	0845	81	2140	8.1	4.5	--	--	--	--	--	450	
JAN 04...	1000	62	2020	8.2	7.5	9.5	10.8	103	420	530	450	
17...	0835	53	2220	8.3	2.0	--	--	--	--	--	460	
FEB 16...	0835	390	1080	7.9	1.0	--	--	--	--	--	260	
MAR 01...	0900	100	1210	7.5	7.5	50	9.8	94	620	1100	320	
21...	0845	762	869	7.8	12.0	--	--	--	--	--	230	
APR 13...	0930	701	1030	7.8	14.5	--	--	--	--	--	250	
MAY 04...	1400	672	950	8.2	20.0	95	8.2	105	210	170	250	
15...	1120	586	951	7.9	20.5	--	--	--	--	--	240	
JUN 20...	1015	1430	880	7.9	21.0	--	--	--	--	--	240	
JUL 05...	0900	715	1000	8.2	24.5	68	6.8	95	670	1200	270	
17...	0825	840	959	8.1	21.0	--	--	--	--	--	240	
AUG 15...	0855	723	1210	8.0	21.0	--	--	--	--	--	290	
SEP 05...	0900	--	--	--	19.5	150	--	--	--	--	250	
19...	0905	622	1210	7.9	17.0	--	--	--	--	--	290	
DATE		HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 18...	180	130	29	260	6	11	260	450	210	--	25	
NOV 01...	180	130	28	270	6	10	--	470	230	.70	24	
28...	170	120	32	300	7	10	260	490	260	--	27	
DEC 21...	170	130	30	310	7	10	280	480	260	--	25	
JAN 04...	160	130	30	320	7	10	--	490	250	.70	25	
17...	180	130	32	320	7	10	280	520	270	--	26	
FEB 16...	83	77	17	130	4	6.9	180	210	120	--	16	
MAR 01...	98	94	20	170	4	7.5	--	270	150	.60	19	
21...	68	68	14	92	3	5.8	160	170	82	--	15	
APR 13...	84	77	15	120	3	6.7	170	210	100	--	17	
MAY 04...	58	73	15	120	3	7.4	--	210	98	.60	15	
15...	72	72	15	110	3	6.8	170	200	82	--	15	
JUN 20...	80	73	14	98	3	6.7	160	180	69	--	17	
JUL 05...	91	81	16	120	3	6.8	--	230	94	.60	19	
17...	73	74	14	110	3	6.6	170	200	80	--	18	
AUG 15...	110	85	18	150	4	8.3	180	260	120	--	22	
SEP 05...	100	75	16	140	4	7.0	--	240	110	.60	20	
19...	100	86	19	150	4	8.1	190	250	130	--	21	

08364000 RIO GRANDE AT EL PASO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

[illegible]

RIO GRANDE BASIN

379

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 downstream from Terrell-Val Verde County line, 16.9 mi from Langtry, and 597.2 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--80,742 mi², 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.

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, 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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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- TOCOC- CI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
OCT												
12...	1430	823	700	7.5	23.0	2900	8.6	102	6.7	3300	6200	180
FEB												
08...	1255	884	1410	7.8	14.0	52	8.6	86	.8	50	60	320
JUN												
06...	1320	1280	1230	7.6	27.0	540	8.8	116	1.2	140	120	270
AUG												
15...	1415	5000	860	7.6	29.5	300	8.8	119	1.0	3500	4000	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											
12...	48	58	7.7	78	3	5.6	130	170	34	1.0	20
FEB											
08...	150	91	22	180	5	6.1	170	350	140	1.7	25
JUN											
06...	150	83	16	160	4	6.0	130	350	100	1.6	22
AUG											
15...	120	74	9.1	83	3	5.4	100	240	34	1.0	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, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
12...	443	450	1.2	.240	2.2	4.50	.070	.070	4480	9960
FEB										
08...	937	920	.93	.030	.70	.060	<.010	.030	140	334
JUN										
06...	824	820	1.0	.030	1.0	1.90	.010	.010	3900	13500
AUG										
15...	543	520	1.2	.010	--	5.80	.010	<.010	15700	212000

RIO GRANDE BASIN

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 12...	1430	8	97	<.5	<1	<1	<3	2	29	8
FEB 08...	1255	11	82	<.5	<1	<1	<3	1	3	<1
JUN 06...	1320	4	99	2	<1	<1	<3	3	27	1
AUG 15...	1415	2	83	<1	<1	<1	<3	5	46	<1
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 12...	53	1	<.1	<10	45	1	<1	860	9	23
FEB 08...	110	2	<.1	<10	1	2	<1	1900	9	8
JUN 06...	100	<1	<.1	20	<1	1	<1	1400	10	33
AUG 15...	46	1	<.1	10	3	--	<1	1300	8	30

RIO GRANDE BASIN

381

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 downstream from Red Bluff Draw, 1.6 mi northwest of the El Paso Natural Gas (Pecos River) compressor station, 5.2 mi north of the New Mexico-Texas state line, 5.5 mi upstream from Delaware River, and at mile 411.2.

DRAINAGE AREA.--19,540 mi², 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by many reservoirs and diversion dams. Diversions and ground-water withdrawals above station for irrigation of about 202,000 acres, 1959 determination.

AVERAGE DISCHARGE.--47 years, (1938-84), 163 ft³/s, 118,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 111,000 ft³/s Aug. 23, 1966 (gage height, 33.32 ft), from rating curve extended above 32,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.19 ft³/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, from information by Panhandle and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,400 ft³/s Aug. 11 (gage height, 17.83 ft³/s); minimum recorded, 14 ft³/s May 8, but may have been lower during periods of missing or fault gage-height record Apr. 19-21, June 12-17, or July 21-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	83	46	52	41	36	23	17	21	47	24	71
2	86	77	49	52	39	34	21	16	21	35	23	73
3	62	57	50	53	38	32	26	15	21	27	22	60
4	51	56	50	53	37	33	30	15	21	31	21	79
5	39	79	50	53	33	39	33	16	25	46	20	101
6	34	66	51	49	29	39	29	15	32	34	16	96
7	29	59	50	44	27	38	24	15	26	26	16	91
8	40	53	49	44	26	38	18	15	23	23	18	69
9	56	53	49	44	27	37	17	15	22	22	225	63
10	71	52	50	44	29	39	17	16	19	20	345	67
11	100	51	49	47	26	37	18	16	17	19	6290	71
12	60	51	50	47	26	35	18	16	14	18	7550	71
13	42	49	50	45	25	36	19	16	14	17	2880	72
14	34	48	50	42	29	34	19	15	14	16	691	70
15	31	48	44	41	31	33	18	15	14	15	1930	61
16	33	49	43	41	31	32	18	19	14	17	1510	61
17	43	49	47	41	31	33	18	98	14	22	691	58
18	56	47	51	43	33	31	16	135	15	21	548	69
19	55	47	52	43	30	28	14	29	18	19	304	58
20	42	46	52	42	26	26	14	26	24	16	180	55
21	56	48	52	42	26	25	14	33	30	15	180	53
22	67	46	52	42	27	24	17	35	37	15	214	52
23	59	46	52	42	29	20	21	30	38	15	200	63
24	47	46	51	43	31	19	22	26	38	15	164	65
25	49	46	50	44	31	19	19	26	34	15	117	66
26	48	48	53	43	35	19	17	27	31	16	89	64
27	45	47	54	43	35	19	18	28	30	18	74	79
28	54	47	54	42	33	19	19	33	48	17	69	114
29	65	48	54	42	34	18	20	35	310	17	73	83
30	89	47	56	42	---	18	19	27	125	18	89	88
31	91	---	52	42	---	20	---	23	---	21	80	---
TOTAL	1697	1589	1562	1387	895	910	596	863	1110	673	24653	2143
MEAN	54.7	53.0	50.4	44.7	30.9	29.4	19.9	27.8	37.0	21.7	795	71.4
MAX	100	83	56	53	41	39	33	135	310	47	7550	114
MIN	29	46	43	41	25	18	14	15	14	15	16	52
AC-FT	3370	3150	3100	2750	1780	1800	1180	1710	2200	1330	48900	4250
CAL YR 1983	TOTAL	13573	MEAN	37.2	MAX	163	MIN	15	AC-FT	26920		
WTR YR 1984	TOTAL	38078	MEAN	104	MAX	7550	MIN	14	AC-FT	75530		

RIO GRANDE BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
OCT 28...	1130	54	8800	8.2	17.0	4.6	11.6	137	20	100	2200
DEC 28...	1500	51	9000	8.0	4.5	5.1	11.5	101	10	30	2000
FEB 27...	1315	36	16400	8.1	9.0	6.9	11.6	118	3	54	2500
APR 26...	1500	17	22600	8.5	20.0	31	11.0	149	6	71	2700
JUN 27...	1700	31	14700	8.1	31.5	34	7.9	124	20	8000	2500
AUG 30...	1400	89	12200	8.5	20.5	2.6	--	--	37	37000	1800

	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (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 28...	2100	510	220	1500	14	51	--	1800	2800	.80	13
DEC 28...	1800	460	200	1400	14	37	--	1700	2400	.80	12
FEB 27...	2400	560	270	2200	20	73	140	1900	4000	.90	6.1
APR 26...	2600	540	330	3800	33	120	--	2500	6600	.90	<1.0
JUN 27...	2400	580	260	2500	22	69	--	2100	4400	.90	7.4
AUG 30...	1700	410	180	2300	25	66	--	1300	3500	.60	12

DATE	TIME	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 28...	4750	7000	.80	.250	1.8	.120	.010	.020	--	--	--
DEC 28...	6530	6300	2.0	.320	1.1	.030	.010	<.010	43	5.9	52
FEB 27...	9140	9100	.71	.480	1.9	.060	.020	.040	35	3.4	83
APR 26...	14800	--	<.10	.650	1.0	.040	.050	.020	64	2.9	95
JUN 27...	10200	10000	<.10	.060	1.9	.120	.010	.020	101	8.5	96
AUG 30...	8130	7900	.16	.180	1.7	.050	.020	.020	23	5.5	96

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 28...	1130	1	<100	<10	<1	<1	1	1	80	<1
APR 26...	1500	1	100	<10	<1	<1	<1	<1	120	3
JUN 27...	1700	<1	300	<10	<1	6	<1	2	70	<1
AUG 30...	1400	2	<100	10	--	<1	--	--	80	--

RIO GRANDE BASIN

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08407500 PECOS RIVER AT RED BLUFF, NM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 28...	90	30	<.1	<1	5	2	<1	7200	67	30
APR 26...	130	100	.1	4	6	2	<1	--	65	30
JUN 27...	120	50	.4	4	<1	1	<1	9600	65	20
AUG 30...	70	60	.2	--	--	2	--	6300	40	20

RIO GRANDE BASIN

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 north of the New Mexico-Texas state line, 3.6 mi southwest of Red Bluff, 3.7 mi upstream from mouth and 14 mi south of Malaga. Mouth at Pecos River mile 405.6.

DRAINAGE AREA.--689 mi².

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 National Geodetic Vertical Datum of 1929. Prior to May 1914, at site 3.0 mi upstream at different datum. May 1914 to June 1915 at site 2.5 mi downstream at different datum.

REMARKS.--Records good. One small upstream diversion. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--47 years (1938-84), 13.0 ft³/s, 9,420 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,400 ft³/1 Oct. 2, 1955 (gage height, 27.0 ft, from floodmarks), from rating curve extended above 6,500 ft³/s on basis of slope-area measurements at gage heights, 12.84 ft, 17.55 ft, and 27.0 ft; no flow many days most years.

Maximum discharge since at least 1911 is that of Oct. 2, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,650 ft³/s at 2200 hours Aug. 11 (gage height, 9.89 ft), no other peak above base of 1,700 ft³/s; no flow Aug. 3-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	541	2.7	2.5	2.8	2.7	2.4	2.3	1.8	.75	3.2	.06	3.7
2	114	2.7	2.6	2.8	2.7	2.4	2.2	1.7	.76	4.7	.04	3.6
3	55	2.7	2.6	2.9	2.7	2.4	2.1	1.6	1.3	2.2	.00	13
4	16	3.0	2.5	2.9	2.6	2.4	2.1	1.5	2.4	1.8	.00	5.5
5	9.0	48	2.4	2.8	2.6	2.5	2.2	1.5	.73	1.5	.00	3.5
6	6.7	23	2.4	2.8	2.6	2.5	2.1	1.4	.56	1.4	.00	3.1
7	5.4	5.7	2.6	2.8	2.6	2.4	2.1	1.3	.51	1.2	.00	2.9
8	17	3.5	2.6	3.0	2.6	2.3	2.1	1.3	.39	1.1	.11	2.8
9	10	2.9	2.7	3.0	2.6	2.3	2.1	1.3	.32	.94	374	2.7
10	9.1	2.7	2.7	2.9	2.6	2.3	2.0	1.3	.25	.83	368	2.6
11	5.9	2.6	2.6	2.7	2.6	2.3	2.0	1.3	.28	.68	846	2.5
12	3.9	2.6	2.6	2.7	2.4	2.3	2.0	1.2	1.6	.62	960	2.4
13	3.6	2.5	2.5	2.7	2.4	2.3	2.1	1.1	.80	.61	56	2.4
14	3.4	2.4	2.6	2.7	2.4	2.4	2.0	1.1	.51	.58	27	2.3
15	3.3	2.4	2.5	2.8	2.4	2.4	2.1	1.6	.41	.48	88	2.3
16	3.2	2.4	2.5	2.8	2.4	2.4	2.1	3.1	96	.34	21	2.5
17	3.1	2.5	2.6	2.8	2.4	2.3	2.1	10	48	.25	14	2.5
18	4.0	2.4	2.6	2.8	2.4	2.3	2.1	5.6	25	.18	11	2.4
19	3.7	2.3	2.6	2.8	2.4	2.3	2.1	2.3	132	.19	9.3	2.3
20	3.6	2.3	2.6	2.7	2.4	2.3	2.0	1.3	24	.18	8.1	2.3
21	3.3	2.3	2.8	2.7	2.4	2.3	1.9	.92	6.8	.17	6.9	2.3
22	3.0	2.4	2.7	2.7	2.4	2.2	2.0	.79	8.3	.14	6.1	2.3
23	2.9	2.4	2.7	2.7	2.5	2.2	2.0	.75	4.4	.10	5.5	2.2
24	2.8	2.4	2.7	2.7	2.4	2.2	2.0	.73	2.8	.05	5.2	2.2
25	2.7	2.5	2.7	2.7	2.4	2.2	1.9	.77	2.4	.07	5.0	2.2
26	2.7	2.5	2.7	2.7	2.4	2.3	1.7	.76	2.1	.09	4.7	2.5
27	2.8	2.5	2.8	2.7	2.4	2.2	1.7	.82	2.1	.18	4.2	2.7
28	2.8	2.5	2.9	2.7	2.3	2.2	1.8	.73	11	.29	4.0	2.7
29	2.7	2.5	2.8	2.7	2.4	2.2	1.7	.75	50	.21	3.8	2.8
30	2.7	2.5	2.8	2.7	---	2.2	1.8	.80	7.8	.14	3.6	2.8
31	2.7	---	2.7	2.7	---	2.2	---	.79	---	.08	3.5	---
TOTAL	852.0	145.8	81.6	85.9	72.1	71.6	60.4	51.91	434.27	24.50	2835.11	92.0
MEAN	27.5	4.86	2.63	2.77	2.49	2.31	2.01	1.67	14.5	.79	91.5	3.07
MAX	541	48	2.9	3.0	2.7	2.5	2.3	10	132	4.7	960	13
MIN	2.7	2.3	2.4	2.7	2.3	2.2	1.7	.73	.25	.05	.00	2.2
AC-FT	1690	289	162	170	143	142	120	103	861	49	5620	182

CAL YR 1983 TOTAL 2163.00 MEAN 5.93 MAX 541 MIN .00 AC-FT 4290
WTR YR 1984 TOTAL 4807.19 MEAN 13.1 MAX 960 MIN .00 AC-FT 9540

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 upstream from Salt Creek, and 5.2 mi north of Orla.

DRAINAGE AREA.--20,720 mi², 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 below National Geodetic Vertical Datum of 1929.

REMARKS.--The reservoir is formed by a rock-faced earthfill dam 9,200 ft 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 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 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 Sept. 27-28, 1941 (gage height, 2,846.2 ft), observed on nonrecording gage at service spillway (affected by variable drawdown due to flow through tainter gates); minimum observed, 11,080 acre-ft May 13, 1948 (gage height, 2,781.4 ft).

EXTREMES (AT 0800) FOR CURRENT YEAR.--Maximum contents observed, 91,500 acre-ft Aug. 16-30, Sept. 4 (gage height, 2,814.5 ft); minimum observed, 35,280 acre-ft Oct. 1 (gage height, 2,798.4 ft).

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

2,798.0	34,400	2,810.0	71,500
2,804.0	50,000	2,815.0	94,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35280	39500	42000	44300	46700	47000	45800	43000	43000	48200	46700	91000
2	36380	39500	42000	44600	47000	47000	45500	43000	43000	48500	46700	91000
3	36600	39750	42000	44600	47000	47000	45500	43000	43000	48500	46700	91000
4	36840	39750	42000	44900	47000	47000	45500	42750	43250	48500	46700	91500
5	36840	40250	42250	44900	47000	47000	45500	42750	43250	48500	46700	91000
6	37080	40500	42250	44900	47000	47000	45500	42500	43250	48500	46700	91000
7	37080	40500	42500	45200	47000	47000	45200	42500	43250	48500	46700	91000
8	37320	40500	42500	45200	47300	47000	45200	42500	43250	48500	46700	91000
9	37320	40750	42500	45200	47300	47000	45200	42250	43250	48200	46700	91000
10	37320	40750	42750	45500	47300	47000	44900	42250	43250	48200	48500	91000
11	37560	41000	42750	45500	47300	47000	44900	42250	43000	48200	50300	91000
12	37560	41000	43000	45500	47300	47000	44900	42000	43000	48200	63500	91000
13	37560	41000	43000	45500	47300	47000	44900	42000	43000	48200	76400	90500
14	37800	41000	43000	45800	47300	47000	44600	42000	43000	47900	80000	90500
15	37800	41000	43000	45800	47300	47000	44600	41750	43000	47900	82250	90500
16	37800	41000	43000	45800	47300	47000	44600	41750	42750	47900	85850	90500
17	38040	41250	43250	45800	47300	47000	44600	42250	43250	47900	88100	90500
18	38040	41250	43250	45800	47300	47000	44300	42750	43250	47900	89000	90000
19	38280	41250	43250	45800	47300	47000	44300	43000	43500	47600	90000	90000
20	38280	41250	43500	46100	47300	47000	44300	43250	47000	47600	91000	90000
21	38520	41500	43500	46100	47300	47000	44000	43250	47000	47600	91000	90000
22	38520	41500	43500	46100	47300	46700	44000	43250	47000	47600	91000	90000
23	38760	41500	43500	46100	47000	46700	44000	43250	47300	47300	91000	90000
24	38760	41500	43500	46400	47000	46700	43750	43250	47300	47300	91000	90000
25	38760	41500	43500	46400	47000	46400	43750	43250	47300	47300	91000	90000
26	39000	41500	43750	46400	47000	46700	43500	43250	47300	47300	91500	90000
27	39000	41750	43750	46400	47000	46400	43500	43250	47300	47000	91500	90000
28	39000	41750	43750	46700	47000	46100	43500	43000	47600	47000	91500	89500
29	39250	41750	44000	46700	47000	46100	43250	43000	47600	47000	91500	89500
30	39250	42000	44000	46700	---	45800	43250	43000	48200	47000	91500	89500
31	39250	---	44300	46700	---	45800	---	43000	---	47000	91000	---
MAX	39250	42000	44300	46700	47300	47000	45800	43250	48200	48500	91500	91500
MIN	35280	39500	42000	44300	46700	45800	43250	41750	42750	47000	46700	89500
(†)	2801.1	2801.2	2802.1	2802.9	2803.0	2802.6	2801.7	2801.6	2803.4	2803.0	2814.4	2814.1
(‡)	+4850	+2750	---	+2400	+300	-1200	-2550	-250	+5200	-1200	+44000	-1500

CAL YR 1983 MAX 57900 MIN 34190 ‡ -8100
WTR YR 1984 MAX 91500 MIN 35280 ‡ +55100

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

RIO GRANDE BASIN

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 downstream from Salt Creek (Screw Bean Arroyo), 5.9 mi northeast of Orla, and 8.5 mi downstream from Red Bluff Reservoir.

DRAINAGE AREA.--21,210 mi², 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 National Geodetic Vertical Datum of 1929. Prior to Nov. 16, 1969, at site 6.9 mi downstream at datum 12.81 ft 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.--47 years (water years 1938-84), 159 ft³/s (115,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,700 ft³/s Sept. 29, 1941 (gage height, 20.74 ft), site and datum then in use; no flow at times in 1946 and 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,590 ft³/s June 19 at 2130 hours (gage height, 14.34 ft); minimum daily, 2.2 ft³/s Feb. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	7.9	10.0	8.5	4.7	32	36	33.0	5.7	13.0	8.9	41
2	13.0	7.5	9.9	9.1	4.6	32	36	34.0	5.2	14.0	8.9	42
3	11.0	7.9	9.0	11.0	4.3	32	35	34.0	4.8	14.0	8.4	72
4	10.0	8.7	7.8	11.0	3.9	31	34	34.0	5.7	10.0	7.9	45
5	10.0	31.0	6.9	11.0	3.5	31	33	35.0	4.4	9.4	8.9	42
6	10.0	12.0	6.9	13.0	3.6	31	33	35.0	4.4	9.4	8.4	43
7	9.5	11.0	6.6	10.0	3.8	31	32	36.0	4.4	7.9	8.4	44
8	9.1	9.6	6.5	9.7	3.3	31	32	36.0	3.6	7.9	10.0	46
9	9.4	8.9	5.9	9.7	2.8	31	30	37.0	3.3	6.9	15.0	50
10	9.4	8.5	6.4	9.7	2.5	31	28	39.0	3.3	6.5	30.0	53
11	8.8	8.7	6.3	10.0	2.5	30	29	40.0	3.0	7.4	20.0	57
12	9.0	9.0	6.3	9.0	2.2	30	24	40.0	2.7	10.0	35.0	55
13	9.1	8.7	6.3	8.4	2.2	30	23	42.0	3.0	6.1	50.0	57
14	8.7	8.6	6.1	7.4	2.3	30	22	44.0	3.3	6.1	32.0	59
15	8.5	8.3	6.2	7.4	5.4	30	21	46.0	4.4	6.5	20.0	58
16	8.7	9.8	5.7	7.5	7.7	30	21	33.0	3.3	6.1	19.0	58
17	8.8	10.0	6.1	7.3	9.3	30	22	59.0	3.6	6.5	17.0	64
18	8.1	11.0	6.1	7.1	8.4	31	23	84.0	5.2	6.5	15.0	68
19	41.0	10.0	6.5	7.3	8.4	29	23	134.0	838.0	6.5	14.0	71
20	18.0	10.0	6.5	7.4	9.7	29	23	36.0	844.0	6.9	13.0	69
21	12.0	10.0	6.9	7.0	52.0	30	23	16.0	129.0	6.9	11.0	69
22	11.0	10.0	6.5	6.8	36.0	32	23	10.0	68.0	6.9	11.0	69
23	10.0	10.0	6.9	7.1	35.0	34	23	6.9	49.0	7.4	11.0	66
24	9.5	11.0	5.8	6.7	34.0	47	24	5.9	41.0	7.4	12.0	64
25	9.6	11.0	5.5	6.2	34.0	50	24	6.2	35.0	7.4	12.0	56
26	7.8	11.0	5.0	6.2	33.0	51	29	5.5	26.0	7.9	12.0	47
27	8.6	11.0	8.1	5.6	33.0	52	31	5.1	22.0	7.9	12.0	48
28	8.1	11.0	7.6	5.1	33.0	45	33	5.6	28.0	7.9	17.0	48
29	8.0	11.0	7.6	4.7	32.0	51	33	3.7	26.0	7.9	42.0	43
30	7.8	10.0	7.3	5.1	---	39	31	4.4	19.0	7.9	41.0	47
31	7.9	---	7.9	4.7	---	36	---	5.2	---	8.4	41.0	---
TOTAL	335.4	313.1	213.1	246.7	417.1	1079	834	985.5	2198.3	251.5	571.8	1651
MEAN	10.8	10.4	6.87	7.96	14.4	34.8	27.8	31.8	73.3	8.11	18.4	55.0
MAX	41	31	10	13	52	52	36	134	844	14	50	72
MIN	7.8	7.5	5.0	4.7	2.2	29	21	3.7	2.7	6.1	7.9	41
AC-FT	665	621	423	489	827	2140	1650	1950	4360	499	1130	3270

CAL YR 1983 TOTAL 10486.6 MEAN 28.7 MAX 178 MIN 4.8 AC-FT 20800
WTR YR 1984 TOTAL 9096.5 MEAN 24.9 MAX 844 MIN 2.2 AC-FT 18040

RIO GRANDE BASIN

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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, 1,600 micromhos June 19, 1984.

WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 13, 1978, and Aug. 13, 1982; minimum daily, 0.0°C on several days during winter months of 1982-84.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 26,200 micromhos Oct. 3; minimum daily, 1,600 micromhos June 19.

WATER TEMPERATURES: Maximum daily, 30.0°C July 20, Aug. 7; minimum daily, 0.0°C on several days during December and January.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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 27...	1405	8.7	18900	18.0	3400	3100	850	300	3100
JAN 05...	1255	12	19600	7.0	3500	3400	890	310	3600
APR 11...	1530	31	16000	19.0	2900	2800	690	290	2700
MAY 31...	1610	5.9	17100	28.0	3100	3000	730	300	3000
AUG 23...	0925	13	16300	27.0	2800	2700	710	260	2800

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 27...	24	59	240	2300	5500	1.2	5.2	12000
JAN 05...	27	54	130	2800	5900	1.4	9.8	14000
APR 11...	22	63	92	2700	4600	1.0	1.9	11000
MAY 31...	24	58	67	2700	4900	1.1	4.0	12000
AUG 23...	24	57	98	2600	4500	1.0	1.9	11000

RIO GRANDE BASIN

08412500 PECOS RIVER NEAR ORLA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	335.4	21000	14600	13200	6400	5810	2900	2640	*
NOV. 1983	313.1	18500	12700	10700	5500	4630	2700	2250	*
DEC. 1983	213.1	15100	10200	5860	4300	2460	2300	1310	*
JAN. 1984	246.7	19200	13200	8770	5700	3810	2700	1820	*
FEB. 1984	417.1	16300	11100	12400	4700	5270	2400	2730	*
MAR. 1984	1079	15800	10700	31100	4500	13100	2400	6880	*
APR. 1984	834	16300	11000	24900	4700	10500	2400	5450	*
MAY 1984	985.5	15900	10800	28600	4500	12100	2400	6320	*
JUNE 1984	2198.3	4690	3110	18400	1300	7450	750	4440	870
JULY 1984	251.5	17400	11800	8040	5100	3440	2500	1730	*
AUG. 1984	571.8	16200	11000	17000	4700	7210	2400	3720	*
SEPT 1984	1651	15600	10500	46900	4400	19700	2300	10400	*
TOTAL	9096.5	**	**	226000	**	95500	**	49700	**
WTD.AVG.	25	13600	9200	**	3900	**	2000	**	**

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17900	19000	14900	20200	18100	15800	15900	16100	17100	18000	16600	15700
2	21100	18900	14600	19600	18500	15900	16300	16100	17200	17500	16800	15800
3	26200	18800	13200	19500	18200	15700	16400	16200	17300	17400	16700	11700
4	25100	18900	14900	19600	18600	15800	16200	16200	15200	17600	16900	13600
5	24100	15000	14300	19900	18700	16000	16200	16100	16700	17800	16700	16200
6	22800	13400	14600	19000	18500	15900	16300	16200	17000	17900	16800	16500
7	22000	19800	13100	19100	18400	15800	16200	16200	17600	17800	16800	16400
8	21600	19700	14300	19600	18600	15700	16300	16300	17800	17700	16500	16200
9	21100	20600	14100	19000	18400	15900	16300	16200	17800	17800	14900	16100
10	20700	21000	16800	19500	18500	15800	16400	16100	17700	17800	16200	16000
11	21100	20800	15700	19600	18600	16000	16400	16000	17700	17700	18200	15800
12	21000	20200	13300	19600	18700	15900	16300	16100	17500	17400	20500	15700
13	21100	19600	14100	18500	18600	16000	16200	16200	17600	17600	17400	15700
14	21100	19500	13400	19000	18500	15900	16300	16100	17400	17400	13100	15600
15	21500	19400	15100	18500	18600	15900	16200	16200	17200	17500	13200	15600
16	21300	19000	14700	18800	18600	15800	16300	15700	17000	17500	14100	15500
17	21000	18400	12300	17400	18300	15900	16100	16300	16900	17400	15000	15600
18	20800	18100	13800	18600	18400	15600	16200	15500	16700	17400	14700	15400
19	19500	18200	14200	18800	18300	15800	16300	14800	1600	17300	15200	15600
20	22200	18400	17000	19200	17700	15900	16400	14600	2000	17300	15700	15600
21	21500	18300	14600	19300	15500	15800	16500	14700	9200	17200	16200	15700
22	21700	18500	14300	19400	15600	15900	16400	16100	12100	17400	16400	15600
23	21800	18300	13600	18900	15700	16000	16300	17000	14800	17100	16300	15800
24	21100	18200	14400	19100	15800	15600	16300	17100	15900	17000	16600	15700
25	19900	18600	14900	19100	15700	15400	16400	17300	16700	17000	16900	15600
26	19000	18900	15300	19200	15800	15500	16300	17200	17000	16600	17000	15700
27	18500	19100	14700	19100	15700	15500	16400	17400	17300	16700	17200	15600
28	19000	19200	17000	19000	15600	15600	16200	17200	15900	16800	16900	15800
29	19200	19300	18200	18900	15700	15500	16100	17400	16600	16900	16000	16000
30	19300	19500	19800	18900	---	15600	16200	17200	18400	17000	15900	16600
31	19300	---	20300	18800	---	15800	---	17100	---	16500	15800	---
MEAN	21100	18800	15000	19100	17600	15800	16300	16300	15600	17400	16200	15600

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DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	17.0	6.0	4.0	5.0	10.0	15.0	18.0	24.0	28.0	---	25.0
2	23.5	18.5	7.0	5.0	8.0	---	18.0	18.0	25.0	27.0	---	26.0
3	23.5	19.0	9.0	5.0	7.0	15.0	17.0	19.0	---	---	25.0	23.0
4	23.0	19.0	9.0	5.5	7.0	13.0	15.0	21.0	22.5	27.0	25.0	22.0
5	22.0	18.0	9.0	5.0	7.0	---	13.0	20.0	24.0	27.0	25.0	22.0
6	23.0	16.0	7.0	7.0	9.0	---	16.0	21.0	24.0	26.5	26.0	24.0
7	22.5	16.0	5.0	7.0	7.0	---	13.0	20.0	25.0	27.0	30.0	22.0
8	21.0	17.0	5.0	7.5	8.5	14.0	16.0	---	25.0	27.0	27.0	25.0
9	21.0	15.0	6.0	7.5	7.0	9.0	17.0	19.0	26.0	27.0	25.0	25.0
10	19.0	15.0	7.0	7.0	8.0	10.0	16.0	21.0	26.0	26.5	23.0	25.0
11	19.0	12.0	7.0	6.0	10.0	9.0	16.0	22.0	26.0	27.0	24.0	25.0
12	19.0	13.0	8.0	6.0	7.5	16.0	16.0	21.0	26.0	26.0	26.0	25.0
13	19.0	12.0	8.0	5.0	8.0	13.0	16.0	21.0	24.5	26.0	26.0	25.0
14	17.0	15.0	7.5	4.0	9.0	14.0	14.0	21.0	25.0	24.0	25.0	23.5
15	18.0	13.0	6.5	3.5	10.0	14.5	17.0	21.0	26.0	26.0	26.0	23.0
16	---	12.0	6.0	2.0	9.0	14.0	16.0	21.0	25.0	25.0	---	21.0
17	19.0	11.5	7.0	3.0	9.0	15.0	16.0	---	---	26.0	25.0	22.0
18	20.0	12.0	1.0	2.0	10.0	14.0	19.0	20.0	25.0	26.0	26.0	22.0
19	19.5	10.0	1.0	.0	9.5	12.0	18.0	22.0	20.0	26.0	26.5	23.0
20	15.0	9.0	1.0	.0	---	14.5	19.0	21.0	21.0	30.0	27.0	21.0
21	14.5	---	1.0	.0	6.0	15.0	17.0	23.0	24.0	27.0	27.0	19.5
22	15.0	10.0	.0	---	7.5	15.0	16.0	26.0	26.0	---	28.0	25.0
23	17.0	9.0	1.0	3.0	9.0	13.0	17.0	26.0	27.0	28.0	26.0	---
24	15.5	7.0	---	8.0	9.0	12.0	18.0	25.0	27.0	26.0	25.5	23.0
25	16.0	7.0	---	5.0	9.5	13.0	19.0	25.0	27.0	26.0	26.0	24.0
26	15.0	8.0	---	6.0	9.5	15.0	18.0	26.0	27.0	---	26.0	17.0
27	15.0	6.0	3.0	5.5	7.0	15.0	---	---	27.0	---	26.0	17.0
28	15.0	5.0	4.0	6.0	7.0	13.0	---	25.0	26.0	26.0	---	19.0
29	---	5.5	.0	7.0	7.0	15.0	---	20.0	26.0	---	27.0	16.0
30	16.0	5.0	.0	7.5	---	14.0	---	21.0	27.0	27.0	26.0	16.0
31	17.0	---	.0	5.0	---	13.0	---	22.0	---	---	20.5	---
MEAN	18.5	12.0	4.5	5.0	8.0	13.5	16.5	21.5	25.0	26.5	26.0	22.5

RIO GRANDE BASIN

391

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 upstream from concrete culvert that crosses canal, 2 mi downstream from headgate, and 10.5 mi 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, from topographic map. Prior to Dec. 14, 1940, at site 1.75 mi upstream at datum 2.98 ft higher. Dec. 14, 1940, to May 26, 1941, at site 1.4 mi upstream at datum 1.72 ft 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.--36 years (water years 1940, 1943-57, 1965-84), 8.56 ft³/s (6,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 189 ft³/s Sept. 28, 1978; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.17	.00	.06	0	0	0	0	0	0	0	0
2	.00	.16	.00	.04	0	0	0	0	0	0	0	0
3	.00	.16	.00	.07	0	0	0	0	0	0	0	0
4	.00	.15	.00	.07	0	0	0	0	0	0	0	0
5	.00	.15	.02	.05	0	0	0	0	0	0	0	0
6	.00	.15	.04	.04	0	0	0	0	0	0	0	0
7	.00	.14	.04	.00	0	0	0	0	0	0	0	0
8	5.60	.12	.04	.00	0	0	0	0	0	0	0	0
9	27.00	.11	.04	.00	0	0	0	0	0	0	0	0
10	16.00	.11	.04	.00	0	0	0	0	0	0	0	0
11	6.20	.08	.04	.00	0	0	0	0	0	0	0	0
12	3.90	.08	.05	.00	0	0	0	0	0	0	0	0
13	3.00	.07	.04	.00	0	0	0	0	0	0	0	0
14	1.90	.06	.07	.00	0	0	0	0	0	0	0	0
15	1.60	.06	.07	.00	0	0	0	0	0	0	0	0
16	1.60	.05	.03	.00	0	0	0	0	0	0	0	0
17	1.30	.04	.04	.00	0	0	0	0	0	0	0	0
18	1.90	.04	.05	.00	0	0	0	0	0	0	0	0
19	5.00	.04	.04	.00	0	0	0	0	0	0	0	0
20	98.00	.04	.04	.00	0	0	0	0	0	0	0	0
21	80.00	.04	.04	.00	0	0	0	0	0	0	0	0
22	49.00	.04	.04	.00	0	0	0	0	0	0	0	0
23	29.00	.03	.04	.00	0	0	0	0	0	0	0	0
24	19.00	.02	.04	.00	0	0	0	0	0	0	0	0
25	14.00	.02	.06	.00	0	0	0	0	0	0	0	0
26	8.40	.02	.09	.00	0	0	0	0	0	0	0	0
27	6.90	.02	.08	.00	0	0	0	0	0	0	0	0
28	5.60	.02	.05	.00	0	0	0	0	0	0	0	0
29	3.70	.00	.03	.00	0	0	0	0	0	0	0	0
30	.24	.00	.05	.00	---	0	0	0	0	0	0	0
31	.18	---	.05	.00	---	0	---	0	---	0	0	---
TOTAL	389.02	2.19	1.26	.33	0	0	0	0	0	0	0	0
MEAN	12.5	.073	.041	.011	.000	.000	.000	.000	.000	.000	.000	.000
MAX	98	.17	.09	.07	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	772	4.3	2.5	.7	.00	.00	.00	.00	.00	.00	.00	.00
CAL YR 1983	TOTAL	2033.47	MEAN 5.57	MAX 98	MIN .00	AC-FT 4030						
WTR YR 1984	TOTAL	392.80	MEAN 1.07	MAX 98	MIN .00	AC-FT 779						

RIO GRANDE BASIN

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 downstream from headgate and 7.9 mi 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 from topographic map. Prior to Aug. 15, 1939, at site about 3,000 ft 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.--40 years (water years 1923-25, 1940, 1942-57, 1965-84), 26.0 ft³/s (18,840 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 385 ft³/s Aug. 30, 1923; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	.10	.10	.00	.00	.84	.00	.00	.02	.20	.30	.00
2	31	.10	.10	.00	.00	.81	.00	.00	.00	.10	.30	.00
3	11	.10	.10	.10	.00	.32	.00	.00	.00	.10	.30	.04
4	.20	.10	.10	.20	.00	.22	.00	.00	.00	.10	.20	.11
5	.16	.10	.10	.20	.00	.11	.00	.00	.00	.00	.20	.40
6	.10	.13	.10	.15	.00	.11	.00	.01	.00	.00	.20	.60
7	.08	.28	.10	.10	.00	.10	.00	.03	.00	.00	.20	.75
8	.00	.41	.10	.10	.00	.11	.00	.00	.00	.00	.20	.76
9	.10	.24	.10	.20	.00	.10	.00	.03	.00	.00	.10	.54
10	.00	.16	.04	.10	.10	.10	.00	.06	.00	.00	.10	.36
11	.00	.15	.04	.10	.10	.10	.00	.08	.00	.00	.20	.05
12	.00	.13	.04	.10	.10	.09	.00	.06	.00	.00	.20	.00
13	.00	.10	.00	.10	.10	.09	.00	.02	.00	.00	.20	.00
14	.00	.10	.00	.10	.10	.09	.00	.00	.00	.00	.10	.00
15	.00	.10	.00	.10	.10	.00	.00	.00	.00	.00	.10	.00
16	.10	.10	.00	.10	.00	.00	.00	.08	.00	.04	.10	.20
17	.10	.10	.00	.10	.00	.00	.00	.08	.00	.10	.10	.20
18	.18	.10	.00	.10	.00	.00	.00	.22	.00	.10	.10	.17
19	.12	.10	.00	.10	.00	.00	.00	.22	.00	.00	.00	.12
20	.12	.10	.00	.00	.06	.00	.00	.22	.00	.00	.00	.15
21	.12	.10	.00	.00	.07	.00	.00	.22	.00	.10	.00	.11
22	.15	.11	.00	.00	.00	.00	.00	.52	.00	.10	.00	.12
23	.20	.10	.00	.00	.09	.00	.00	.21	.00	.10	.00	.12
24	.20	.10	.00	.00	.70	.00	.00	.18	3.0	.00	.00	.13
25	.19	.10	.00	.00	.87	.00	.00	.11	7.0	.00	.00	.14
26	.16	.10	.00	.00	.69	.00	.00	.11	5.8	.04	.00	.15
27	.14	.10	.00	.00	.57	.00	.00	.10	3.4	.10	.00	.00
28	.11	.10	.00	.00	.54	.00	.00	.10	2.2	.10	.02	.07
29	.10	.10	.00	.00	.69	.00	.00	.09	.20	.00	.00	.00
30	.10	.10	.00	.00	---	.00	.00	.09	.30	.24	.00	.00
31	.10	---	.00	.00	---	.00	---	.04	---	.30	.00	---
TOTAL	74.83	3.81	1.02	2.05	4.88	3.19	.00	2.88	21.92	1.82	3.22	5.29
MEAN	2.41	.13	.033	.066	.17	.10	.000	.093	.73	.059	.10	.18
MAX	31	.41	.10	.20	.87	.84	.00	.52	7.0	.30	.30	.76
MIN	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	148	7.6	2.0	4.1	9.7	6.3	.00	5.7	43	3.6	6.4	10

CAL YR 1983 TOTAL 1283.49 MEAN 3.52 MAX 53 MIN .00 AC-FT 2550
WTR YR 1984 TOTAL 124.91 MEAN .34 MAX 31 MIN .00 AC-FT 248

RIO GRANDE BASIN

393

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 upstream from Jones Creek, and 6.8 mi west of Fort Davis.

DRAINAGE AREA.--52.4 mi².

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 5,175.00 ft National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1979, at site 600 ft upstream at datum 3.71 ft higher.

REMARKS.--Water-discharge records good. No diversion above station. Recording rain gage at station.

AVERAGE DISCHARGE.--19 years, 3.11 ft³/s (0.81 in/yr), 2,250 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,610 ft³/s June 19, 1984 (gage height, 9.00 ft, from floodmark), present datum, from rating curve extended above 720 ft³/s on basis of slope-area measurement of 8,610 ft³/s; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1925, about 9.00 ft in 1939, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,610 ft³/s June 19 at 0200 hours (gage height, 9.00 ft, from floodmark), no other peak above base of 1,000 ft³/s; no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91.00	1.40	0	0	0	0	0	0	.0	8.60	.13	.45
2	.00	1.40	0	0	0	0	0	0	.0	4.70	.10	.40
3	.00	1.90	0	0	0	0	0	0	.0	3.50	.09	.50
4	.00	2.20	0	0	0	0	0	0	.0	85.00	.08	.45
5	.00	1.40	0	0	0	0	0	0	.0	27.00	.07	.40
6	3.90	1.20	0	0	0	0	0	0	.0	14.00	.09	.28
7	2.70	1.00	0	0	0	0	0	0	.0	8.00	.13	.18
8	1.60	1.00	0	0	0	0	0	0	.0	5.10	47.00	.04
9	1.60	.68	0	0	0	0	0	0	.0	3.90	6.70	.01
10	1.60	.68	0	0	0	0	0	0	.0	3.90	42.00	.00
11	1.20	.68	0	0	0	0	0	0	83.0	3.70	31.00	.00
12	1.00	.56	0	0	0	0	0	0	.0	2.80	12.00	.00
13	1.00	.44	0	0	0	0	0	0	16.0	5.90	6.40	.00
14	.82	.44	0	0	0	0	0	0	1.5	9.90	4.20	.00
15	.82	.44	0	0	0	0	0	0	.0	9.90	3.20	.00
16	.68	.44	0	0	0	0	0	0	26.0	9.20	3.50	.00
17	.68	.34	0	0	0	0	0	0	568.0	8.00	2.60	.00
18	.68	.34	0	0	0	0	0	0	503.0	6.90	2.10	.00
19	1.30	.34	0	0	0	0	0	0	1700.0	5.90	1.60	.00
20	41.00	.34	0	0	0	0	0	0	338.0	5.90	1.60	.00
21	19.00	.24	0	0	0	0	0	0	208.0	6.90	1.30	.00
22	10.00	.34	0	0	0	0	0	0	282.0	6.90	1.00	.00
23	9.20	.56	0	0	0	0	0	0	148.0	1.20	.95	.00
24	7.60	.34	0	0	0	0	0	0	80.0	.45	.87	.00
25	6.20	.24	0	0	0	0	0	0	43.0	.45	.57	.00
26	5.50	.24	0	0	0	0	0	0	25.0	.40	.51	.00
27	4.40	.24	0	0	0	0	0	0	73.0	.40	.51	.00
28	3.40	.16	0	0	0	0	0	0	75.0	.28	.51	.00
29	2.70	.01	0	0	0	0	0	0	34.0	.28	.51	.00
30	2.20	.00	0	0	---	0	0	0	17.0	.23	.40	.00
31	1.60	---	0	0	---	0	---	0	---	.17	.40	---
TOTAL	223.38	19.59	0	0	0	0	0	0	4220.5	249.46	172.12	2.71
MEAN	7.21	.65	.000	.000	.000	.000	.000	.000	141	8.05	5.55	.090
MAX	91	2.2	.00	.00	.00	.00	.00	.00	1700	85	47	.50
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.17	.07	.00
CFSM	.14	.01	.000	.000	.000	.000	.000	.000	2.69	.15	.11	.002
IN.	.16	.01	.00	.00	.00	.00	.00	.00	3.00	.18	.12	.00
AC-FT	443	39	.00	.00	.00	.00	.00	.00	8370	495	341	5.4
(††)	4.03	.68	.16	.36	0	0	0	3.43	7.57	1.80	.23	0

CAL YR 1983 TOTAL 343.27 MEAN .94 MAX 93 MIN .00 CFSM .02 IN .24 AC-FT 681 †† 11.46
WTR YR 1984 TOTAL 4887.76 MEAN 13.4 MAX 1700 MIN .00 CFSM .26 IN 3.47 AC-FT 9690 †† 18.26

†† Rainfall, in inches.

RIO GRANDE BASIN

08431700 LIMPIA CREEK ABOVE FORT DAVIS, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)	
OCT 19...	0905	1.1	190	7.2	18.0	1.0	--	--	--	--	
JUN 19...	1845	731	125	7.2	19.0	140	11.2	146	--	--	
20...	1250	259	150	7.3	20.5	90	10.2	136	--	--	
20...	1445	195	145	7.2	25.5	120	10.2	132	--	--	
25...	1400	43	149	7.4	25.5	8.7	6.6	97	56	43	
DATE	TIME	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (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...	62		2	20	2.9	7.0	.4	3.1	60	15	4.7
JUN 19...	40		3	13	1.8	5.1	.4	3.0	37	15	3.3
20...	49		4	16	2.3	6.1	.4	2.7	46	15	3.2
20...	47		9	15	2.2	6.3	.4	3.1	38	17	3.7
25...	55		7	18	2.5	6.9	.4	3.0	48	16	3.5
DATE	TIME	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 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, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
OCT 19...		.40	32	117	120	--	--	--	--	--	--
JUN 19...		.40	28	118	95	.24	.050	1.1	.230	.170	.130
20...		.40	33	120	110	.32	.010	1.1	.220	.170	.150
20...		.40	32	117	100	.33	.020	1.1	.250	.180	.140
25...		.50	31	128	110	.24	.010	.30	.170	.150	.140
DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	
JUN 19...	1845	<1	38	<.0	<1	<1	<3	3	240	5	
20...	1445	<1	5	<1.0	<1	<1	<3	2	270	<1	
DATE	TIME	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
JUN 19...	5		18	<.1	<10	<1	<1	<1	67	<6	28
20...	6		21	<.1	<10	1	<1	<1	84	<6	30
DATE	TIME	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED (PCI/L AS METHOD (PCI/L)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)	
JUN 19...	1845	<2.2	41	3.5	27	3.0	24	.10	.08		

RIO GRANDE BASIN

395

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 upstream from bridge on State Highway 18, 4.6 mi southwest of Grandfalls, and 12.5 mi 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, from topographic map. Prior to Aug. 21, 1939, water-stage recorder at site 8.5 mi 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 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.--39 years (water years 1924, 1940-57, 1965-84), 28.9 ft³/s (20,940 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 368 ft³/s Sept. 18, 1923; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
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	2.0	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.92	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	46	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	152	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	102	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	21	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	13	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	8.6	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.10	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	2.92	342.70	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.094	11.4	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	2.0	152	.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	5.8	680	.00	.00	.00

CAL YR 1983 TOTAL 1679.99 MEAN 4.60 MAX 176 MIN .00 AC-FT 3330
WTR YR 1984 TOTAL 345.62 MEAN .94 MAX 152 MIN .00 AC-FT 686

RIO GRANDE BASIN

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 west of Imperial and 7.7 mi 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 this 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, from topographic map. Prior to July 11, 1940, at site 1.5 mi upstream at different datum. July 12, 1940, to Mar. 23, 1942, at site 2.5 mi upstream at datum 3.36 ft higher. Mar. 24, 1942, to May 31, 1943, at site 0.5 mi upstream at datum 0.70 ft 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 water diverted from canal 75 ft upstream, or water diverted into Pecos County Improvement District No. 3 canal (see station 08437600) 0.6 mi upstream.

AVERAGE DISCHARGE.--35 years (water years 1943-57, 1965-84), 11.2 ft³/s (8,110 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 144 ft³/s July 27, 28, 31, Aug. 1, 1945; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	.00	.0	0	0
2	0	0	0	0	0	0	0	0	.00	.0	0	0
3	0	0	0	0	0	0	0	0	.00	.0	0	0
4	0	0	0	0	0	0	0	0	.00	.0	0	0
5	0	0	0	0	0	0	0	0	.00	.0	0	0
6	0	0	0	0	0	0	0	0	.00	.0	0	0
7	0	0	0	0	0	0	0	0	.00	14.0	0	0
8	0	0	0	0	0	0	0	0	.00	16.0	0	0
9	0	0	0	0	0	0	0	0	.00	16.0	0	0
10	0	0	0	0	0	0	0	0	.00	13.0	0	0
11	0	0	0	0	0	0	0	0	.00	5.9	0	0
12	0	0	0	0	0	0	0	0	.00	.0	0	0
13	0	0	0	0	0	0	0	0	.00	.0	0	0
14	0	0	0	0	0	0	0	0	.00	.0	0	0
15	0	0	0	0	0	0	0	0	.00	.0	0	0
16	0	0	0	0	0	0	0	0	.00	.0	0	0
17	0	0	0	0	0	0	0	0	.00	.0	0	0
18	0	0	0	0	0	0	0	0	.00	.0	0	0
19	0	0	0	0	0	0	0	0	.00	.0	0	0
20	0	0	0	0	0	0	0	0	.00	.0	0	0
21	0	0	0	0	0	0	0	0	.00	.0	0	0
22	0	0	0	0	0	0	0	0	.00	.0	0	0
23	0	0	0	0	0	0	0	0	.00	.0	0	0
24	0	0	0	0	0	0	0	0	.00	.0	0	0
25	0	0	0	0	0	0	0	0	.00	.0	0	0
26	0	0	0	0	0	0	0	0	2.20	.0	0	0
27	0	0	0	0	0	0	0	0	.12	.0	0	0
28	0	0	0	0	0	0	0	0	.00	.0	0	0
29	0	0	0	0	0	0	0	0	.00	.0	0	0
30	0	0	0	0	---	0	0	0	.00	.0	0	0
31	0	---	0	0	---	0	---	0	---	.0	0	---
TOTAL	0	0	0	0	0	0	0	0	2.32	64.9	0	0
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.077	2.09	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	2.2	16	.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	4.6	129	.00	.00
CAL YR 1983	TOTAL 77.56		MEAN .21	MAX 35	MIN .00	AC-FT 154						
WTR YR 1984	TOTAL 67.22		MEAN .18	MAX 16	MIN .00	AC-FT 133						

RIO GRANDE BASIN

397

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 upstream from bridge on Farm Road 11, 0.3 mi downstream from headgate (Pecos No. 2 canal), and 2.9 mi 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, from topographic map. Prior to Jan. 10, 1941, at site 350 ft downstream at datum 6.79 ft lower. Jan. 10, 1941, to Mar. 29, 1942, at site 200 ft downstream at datum 3.65 ft 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 upstream, for irrigation in the vicinity of Imperial, and at times includes water diverted from the Pecos River by Out Around Canal.

AVERAGE DISCHARGE.--36 years (water years 1941, 1943-57, 1965-84), 8.37 ft³/s (6,060 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 175 ft³/s Aug. 11, 1940; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	.0	0	0
2	0	0	0	0	0	0	0	0	0	.0	0	0
3	0	0	0	0	0	0	0	0	0	.0	0	0
4	0	0	0	0	0	0	0	0	0	.0	0	0
5	0	0	0	0	0	0	0	0	0	.0	0	0
6	0	0	0	0	0	0	0	0	0	4.7	0	0
7	0	0	0	0	0	0	0	0	0	21.0	0	0
8	0	0	0	0	0	0	0	0	0	13.0	0	0
9	0	0	0	0	0	0	0	0	0	.0	0	0
10	0	0	0	0	0	0	0	0	0	.0	0	0
11	0	0	0	0	0	0	0	0	0	.0	0	0
12	0	0	0	0	0	0	0	0	0	.0	0	0
13	0	0	0	0	0	0	0	0	0	.0	0	0
14	0	0	0	0	0	0	0	0	0	.0	0	0
15	0	0	0	0	0	0	0	0	0	.0	0	0
16	0	0	0	0	0	0	0	0	0	.0	0	0
17	0	0	0	0	0	0	0	0	0	.0	0	0
18	0	0	0	0	0	0	0	0	0	.0	0	0
19	0	0	0	0	0	0	0	0	0	.0	0	0
20	0	0	0	0	0	0	0	0	0	.0	0	0
21	0	0	0	0	0	0	0	0	0	.0	0	0
22	0	0	0	0	0	0	0	0	0	.0	0	0
23	0	0	0	0	0	0	0	0	0	.0	0	0
24	0	0	0	0	0	0	0	0	0	.0	0	0
25	0	0	0	0	0	0	0	0	0	.0	0	0
26	0	0	0	0	0	0	0	0	0	.0	0	0
27	0	0	0	0	0	0	0	0	0	.0	0	0
28	0	0	0	0	0	0	0	0	0	.0	0	0
29	0	0	0	0	0	0	0	0	0	.0	0	0
30	0	0	0	0	---	0	0	0	0	.0	0	0
31	0	---	0	0	---	0	---	0	---	.0	0	---
TOTAL	0	0	0	0	0	0	0	0	0	38.7	0	0
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.25	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	21	.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	77	.00	.00

CAL YR 1983 TOTAL 49.40 MEAN .14 MAX 21 MIN .00 AC-FT 98
WTR YR 1984 TOTAL 38.70 MEAN .11 MAX 21 MIN .00 AC-FT 77

RIO GRANDE BASIN

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 upstream from Farm Road 1776, 2.3 mi downstream from headgate, and 9.5 mi 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, from topographic map. Prior to Jan. 10, 1941, at site 1.75 mi downstream at different datum. Jan. 11, 1941, to Feb. 16, 1947, at site 50 ft 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. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--36 years (water years 1940, 1943-57, 1965-84), 17.9 ft³/s (12,970 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 198 ft³/s Apr. 9, 1947; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.17	9.0	16.0	9.1	7.4	0	0	0	0	0	0
2	.11	.15	8.5	13.0	10.0	8.5	0	0	0	0	0	0
3	11.00	.11	9.3	16.0	9.5	8.0	0	0	0	0	0	0
4	11.00	.09	8.5	19.0	9.4	11.0	0	0	0	0	0	0
5	8.50	.13	8.5	16.0	9.6	17.0	0	0	0	0	0	0
6	7.10	.10	7.0	8.7	9.0	10.0	0	0	0	0	0	0
7	6.00	.13	6.1	4.3	8.7	9.1	0	0	0	0	0	0
8	5.40	.13	6.3	5.5	8.6	8.5	0	0	0	0	0	0
9	4.60	.07	6.2	32.0	9.5	8.5	0	0	0	0	0	0
10	3.80	.12	7.2	20.0	9.8	9.1	0	0	0	0	0	0
11	3.10	.19	9.0	16.0	9.6	9.1	0	0	0	0	0	0
12	2.80	.18	8.7	14.0	9.6	9.1	0	0	0	0	0	0
13	2.20	.02	8.8	14.0	8.1	9.1	0	0	0	0	0	0
14	1.70	3.00	8.3	15.0	8.5	8.5	0	0	0	0	0	0
15	1.20	16.00	8.3	14.0	9.7	8.5	0	0	0	0	0	0
16	1.10	9.40	8.0	14.0	8.5	3.6	0	0	0	0	0	0
17	.81	9.10	8.3	13.0	9.7	.0	0	0	0	0	0	0
18	.39	8.30	8.6	13.0	9.1	.0	0	0	0	0	0	0
19	1.50	6.60	8.9	14.0	8.5	.0	0	0	0	0	0	0
20	.76	5.80	9.2	14.0	8.5	.0	0	0	0	0	0	0
21	.40	5.60	8.9	14.0	9.1	.0	0	0	0	0	0	0
22	.37	6.50	10.0	13.0	9.1	.0	0	0	0	0	0	0
23	.44	6.00	11.0	13.0	8.5	.0	0	0	0	0	0	0
24	.51	6.40	9.7	14.0	7.4	.0	0	0	0	0	0	0
25	1.20	7.40	8.1	13.0	7.4	.0	0	0	0	0	0	0
26	.45	8.00	6.5	13.0	8.0	.0	0	0	0	0	0	0
27	.32	7.00	13.0	12.0	8.5	.0	0	0	0	0	0	0
28	.29	7.60	16.0	12.0	17.0	.0	0	0	0	0	0	0
29	.21	8.50	17.0	11.0	6.3	.0	0	0	0	0	0	0
30	.20	10.00	19.0	11.0	---	.0	0	0	0	0	0	0
31	.18	---	16.0	10.0	---	.0	---	0	---	0	0	---
TOTAL	77.64	132.79	297.9	427.5	264.3	145.0	0	0	0	0	0	0
MEAN	2.50	4.43	9.61	13.8	9.11	4.68	.000	.000	.000	.000	.000	.000
MAX	11	16	19	32	17	17	.00	.00	.00	.00	.00	.00
MIN	.00	.02	6.1	4.3	6.3	.00	.00	.00	.00	.00	.00	.00
AC-FT	154	263	591	848	524	288	.00	.00	.00	.00	.00	.00

CAL YR 1983 TOTAL 1008.95 MEAN 2.76 MAX 85 MIN .00 AC-FT 2000
WTR YR 1984 TOTAL 1345.13 MEAN 3.68 MAX 32 MIN .00 AC-FT 2670

RIO GRANDE BASIN

399

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 upstream from Comanche Creek, 3.8 mi northwest of Girvin, and 7.2 mi upstream from bridge on U.S. Highway 67. Water-quality sampling site on left bank 7.2 mi downstream.

DRAINAGE AREA.--29,560 mi² approximately, for contributing area of supplementary gage 7.2 mi downstream.

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

Water-quality records.--Chemical analyses: October 1939 to June 1941, October 1946 to September 1947, October 1953 to September 1982. Pesticide analyses: October 1968 to September 1974.

GAGE.--Water-stage recorder with concrete control and measuring flume. Datum of gage not determined. Supplementary water-stage recorder, used as regular gage prior to July 17, 1951, is now used only for peaks exceeding about 400 ft³/s, 7.2 mi downstream at datum 2,269.65 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Flow is largely regulated by Red Bluff Reservoir (station 08410000). Numerous diversions above station for irrigation.

AVERAGE DISCHARGE.--45 years, 82.6 ft³/s (59,840 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s Oct. 5, 1941 (gage height, 20.49 ft, at supplementary gage); minimum daily, 1.9 ft³/s June 19, July 14, 1982.
Maximum stage since at least 1932, that of Oct. 5, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 220 ft³/s Oct. 21 at 0100 hours (gage height, 2.81 ft); minimum daily, 4.5 ft³/s Aug. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	25	13	18	17	18	22	20	14	35.0	5.6	5.3
2	11	24	12	19	17	18	22	20	13	30.0	5.4	5.8
3	11	19	13	19	17	18	22	20	12	21.0	5.2	6.3
4	11	17	13	18	17	18	22	20	14	15.0	5.0	6.3
5	21	15	14	19	17	18	22	20	13	12.0	4.8	6.3
6	41	19	14	17	17	18	22	19	11	10.0	4.8	6.8
7	19	33	14	17	17	18	22	19	11	9.1	4.8	6.8
8	17	24	14	17	17	18	22	19	12	8.1	6.2	6.8
9	16	17	14	17	17	18	22	19	13	7.3	6.4	6.8
10	17	14	15	17	17	18	25	19	14	7.5	5.2	6.8
11	15	14	16	17	17	18	24	19	14	10.0	4.8	6.8
12	13	14	15	17	17	18	24	19	13	13.0	4.8	6.3
13	12	14	15	18	17	18	24	19	14	12.0	4.7	12.0
14	11	16	16	18	17	18	24	19	13	11.0	4.7	11.0
15	11	18	15	19	18	18	24	19	13	9.0	4.7	8.7
16	11	28	16	20	18	18	23	19	14	8.8	4.6	8.0
17	12	39	16	20	18	18	23	19	14	8.6	4.6	7.4
18	12	38	16	19	18	18	23	19	15	8.4	4.6	7.4
19	34	32	17	19	18	18	23	19	17	8.2	4.6	7.4
20	146	27	16	19	18	18	23	19	18	8.0	4.6	7.4
21	110	24	16	19	18	18	22	19	19	7.8	4.5	7.4
22	30	22	16	19	18	18	22	19	19	7.6	5.8	7.4
23	16	20	17	19	18	18	22	38	17	7.4	6.3	7.4
24	12	17	17	19	18	19	22	27	17	7.2	5.3	8.0
25	12	16	15	19	18	20	22	19	15	7.0	5.8	9.4
26	12	14	16	19	18	21	21	19	14	6.8	5.8	9.4
27	12	13	17	19	18	22	21	19	14	6.6	5.3	10.0
28	12	13	22	19	18	22	21	19	13	6.4	5.8	12.0
29	12	12	21	18	18	22	21	19	12	6.2	5.8	14.0
30	12	12	18	17	---	22	21	19	21	6.0	5.8	13.0
31	14	---	17	17	---	22	---	16	---	5.8	5.8	---
TOTAL	706	610	486	568	508	584	673	618	433	326.8	162.1	244.4
MEAN	22.8	20.3	15.7	18.3	17.5	18.8	22.4	19.9	14.4	10.5	5.23	8.15
MAX	146	39	22	20	18	22	25	38	21	35	6.4	14
MIN	11	12	12	17	17	18	21	16	11	5.8	4.5	5.3
AC-FT	1400	1210	964	1130	1010	1160	1330	1230	859	648	322	485

CAL YR 1983 TOTAL 6160.0 MEAN 16.9 MAX 146 MIN 2.0 AC-FT 12220
WTR YR 1984 TOTAL 5919.3 MEAN 16.2 MAX 146 MIN 4.5 AC-FT 11740

RIO GRANDE BASIN

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 downstream from Joe Chandler Ranch Headquarters, 1.0 mi upstream from mouth, 6 mi downstream from bridge on Farm Road 1217, and 17 mi southeast of Sheffield.

DRAINAGE AREA.--763 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,883 ft 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 and 530 acre-ft annually, respectively. Rain gage and gage-height satellite telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--10 years, 28.5 ft³/s (20,650 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,100 ft³/s Sept. 20, 1974 (gage height, 16.74 ft), from rating curve extended above 130 ft³/s on basis of slope-area measurement of peak flow; minimum, 13 ft³/s July 26, 1974, and Nov. 16, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,100 ft³/s Oct. 25 at 1130 hours (gage height, 3.92 ft), no other peak above base of 700 ft³/s; minimum daily, 14 ft³/s Aug. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	31	28	24	26	23	23	19	16	19	17	16
2	17	30	28	24	24	23	24	18	16	18	17	15
3	21	49	28	28	24	23	23	17	17	18	16	17
4	21	43	28	23	23	23	22	18	18	18	18	17
5	19	43	27	26	23	25	22	18	17	18	16	17
6	18	41	27	26	23	26	22	18	18	18	16	16
7	18	41	27	26	23	26	22	18	17	18	16	16
8	20	42	27	26	23	27	22	18	17	18	16	16
9	33	41	27	26	23	26	22	19	16	19	16	16
10	23	40	27	25	23	26	20	19	17	21	16	16
11	21	39	27	24	23	26	20	19	17	19	16	17
12	20	38	27	24	23	26	20	19	16	19	16	17
13	18	32	27	24	23	24	19	19	17	19	17	17
14	19	31	26	24	23	23	19	18	24	19	17	18
15	19	31	26	24	23	23	19	18	21	17	16	18
16	19	31	26	24	23	23	19	19	19	17	16	18
17	19	31	26	24	23	23	20	22	19	18	16	19
18	19	31	26	24	23	23	20	27	19	18	16	18
19	20	31	26	24	22	23	19	22	19	18	16	17
20	245	29	26	24	22	23	19	20	17	17	16	16
21	51	29	26	24	22	23	18	19	18	16	14	17
22	27	30	26	24	22	23	19	19	16	16	16	17
23	24	31	26	24	22	23	19	22	16	17	16	19
24	21	27	25	24	22	23	19	23	16	17	16	18
25	357	27	24	24	23	23	18	20	16	18	15	18
26	87	27	24	23	23	23	18	19	16	17	16	18
27	43	28	24	23	23	22	17	18	16	17	15	19
28	36	28	24	23	23	22	18	19	46	17	16	21
29	33	28	24	23	23	23	19	19	27	16	16	22
30	33	28	24	23	---	23	19	19	19	16	15	20
31	31	---	24	24	---	23	---	18	---	16	16	---
TOTAL	1369	1008	808	753	666	736	600	600	563	549	497	526
MEAN	44.2	33.6	26.1	24.3	23.0	23.7	20.0	19.4	18.8	17.7	16.0	17.5
MAX	357	49	28	28	26	27	24	27	46	21	18	22
MIN	17	27	24	23	22	22	17	17	16	16	14	15
AC-FT	2720	2000	1600	1490	1320	1460	1190	1190	1120	1090	986	1040
CAL YR 1983	TOTAL	8535	MEAN 23.4	MAX 357	MIN 13	AC-FT	16930					
WTR YR 1984	TOTAL	8675	MEAN 23.7	MAX 357	MIN 14	AC-FT	17210					

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 east of Langtry, 15.0 mi upstream from confluence with the Rio Grande, and 638.2 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--35,179 mi².

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.

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 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. Records of discharge for water year 1984 are given in International Boundary and Water Commission Water Bulletins Nos. 53 and 54. 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, 6,000 micromhos Mar. 21, 22, 1981; minimum daily, 230 micromhos Oct. 11, 1981.

WATER TEMPERATURES: Minimum daily, 32.5°C June 8, 1981; minimum daily, 1.5°C Dec. 26, 27, 1983.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,190 micromhos Apr. 26; minimum daily, 450 micromhos Oct. 20.

WATER TEMPERATURE: Minimum daily, 1.5°C Dec. 26, 27.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)
OCT												
12...	1030	109	1960	7.8	23.0	.80	9.8	117	.3	K11	450	390
DEC												
06...	1515	195	2630	7.8	14.0	.20	11.6	115	1.6	K13	25	570
FEB												
08...	1020	163	2990	7.9	12.0	.60	9.9	96	.7	21	24	630
APR												
04...	1015	139	3040	7.9	20.0	1.2	9.8	113	.6	K15	20	620
JUN												
06...	0935	117	2900	7.8	25.5	.90	9.7	126	1.0	48	50	530
AUG												
15...	0950	87	2200	7.6	28.5	.90	9.6	129	1.2	22	38	430

DATE	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (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											
12...	280	86	43	270	6	5.7	110	250	460	.80	11
DEC											
06...	410	130	60	370	7	6.4	160	350	640	.80	14
FEB											
08...	460	140	67	420	8	6.8	170	390	720	.90	13
APR											
04...	480	140	66	400	7	7.4	140	400	700	.90	13
JUN											
06...	430	110	61	380	7	7.0	98	370	630	.80	11
AUG											
15...	320	90	49	300	6	5.9	110	280	490	.80	13

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, 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, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- SUS- PENDE (MG/L)	SEDI- MENT, DIS- SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
12...	1210	1200	.34	.060	1.1	.060	<.010	.040	20	5.9	35
DEC											
06...	1690	1700	1.0	<.010	.40	.010	.010	<.010	15	7.9	89
FEB											
08...	1940	1900	1.1	.030	.40	<.010	<.010	.020	3	1.3	33
APR											
04...	1880	1800	.75	.060	.20	<.010	<.010	.030	4	1.5	79
JUN											
06...	1710	1600	.20	.050	.90	.010	.010	.010	2	.63	33
AUG											
15...	1350	1300	<.10	.070	--	<.010	<.010	<.010	6	1.4	95

RIO GRANDE BASIN

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 12...	1030	1	240	<.5	1	<1	<3	<1	9	1
FEB 08...	1020	3	<100	<10	<1	<1	<1	<1	20	<1
JUN 06...	0935	<1	<100	<10	1	<1	<1	1	30	2
AUG 15...	0950	<1	<100	<10	5	3	5	5	3900	<5

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 12...	11	2	.1	<10	<1	<1	<1	410	8	5
FEB 08...	70	<10	<.1	5	<1	<1	<1	2400	15	<10
JUN 06...	60	<10	<.1	5	<1	<1	<1	2600	16	50
AUG 15...	60	590	<.1	3	5	--	<5	2000	16	<10

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	12343	1150	657	21900	240	8110	130	4470	240
NOV. 1983	6997	2130	1230	23200	460	8700	260	4820	430
DEC. 1983	5605	2700	1580	23900	600	9070	330	5040	550
JAN. 1984	5725	2890	1700	26300	650	10000	360	5570	580
FEB. 1984	4767	3010	1770	22800	680	8700	380	4850	600
MAR. 1984	4640	2970	1750	21900	660	8330	370	4640	590
APR. 1984	3994	3070	1810	19500	690	7450	380	4150	610
MAY 1984	3512	3000	1770	16800	670	6400	380	3560	600
JUNE 1984	2936	2700	1580	12500	600	4740	330	2640	540
JULY 1984	3381	2330	1350	12400	510	4650	280	2580	470
AUG. 1984	2621	2020	1170	8270	440	3090	240	1710	420
SEPT 1984	3037	1940	1120	9200	420	3430	230	1900	400
TOTAL	59558	**	**	219000	**	82700	**	45900	**
WTD.AVG.	163	2330	1360	**	510	**	290	**	470

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	2490	2290	2130	2190	---	---	2480	2890	2850	2870
2	---	---	2440	2410	2290	2360	---	---	2500	2850	2810	2840
3	---	---	2400	2420	2410	2420	---	---	2520	2810	2770	2780
4	---	---	2300	2460	2410	2440	---	---	2550	2770	2700	2730
5	---	---	2260	---	---	1750	---	---	2580	2690	2660	2670
6	---	---	2220	---	---	1810	---	---	2630	2730	2670	2700
7	---	---	2210	---	---	1830	---	---	2640	2750	2730	2740
8	---	---	2190	---	---	1850	---	---	2620	2760	2740	2760
9	---	---	2180	---	---	1890	---	---	2610	2770	2730	2750
10	---	---	2170	---	---	1910	---	---	2600	2780	2750	2760
11	---	---	2130	---	---	1940	---	---	2610	2790	2740	2760
12	2080	2060	2070	---	---	1980	---	---	2680	2840	2790	2810
13	2110	2050	2080	---	---	2000	---	---	2740	2870	2840	2850
14	2110	2100	2100	---	---	2040	2730	2710	2720	2890	2850	2870
15	---	---	2090	---	---	2060	2760	2700	2730	2910	2870	2890
16	---	---	2080	---	---	2070	2740	2720	2730	2910	2890	2900
17	---	---	2060	---	---	2100	2750	2710	2730	2910	2900	2900
18	---	---	2070	---	---	2110	2760	2720	2740	2950	2910	2930
19	---	---	1850	---	---	2150	2770	2730	2750	2980	2930	2960
20	---	---	450	---	---	2180	2780	2760	2770	3010	2980	2990
21	---	---	570	---	---	2210	2790	2750	2770	3030	3000	3020
22	---	---	750	---	---	2240	2780	2720	2760	3040	3020	3030
23	---	---	950	---	---	2260	2800	2740	2770	3050	3010	3030
24	---	---	1200	---	---	2300	2780	2750	2770	3040	3010	3030
25	---	---	1150	---	---	2320	2840	2780	2800	3040	3010	3030
26	---	---	1400	---	---	2330	2860	2790	2820	3060	3010	3040
27	1610	1510	1560	---	---	2360	2870	2840	2850	3040	3030	3040
28	2270	1640	1980	---	---	2390	2880	2830	2860	3070	3020	3040
29	2320	2100	2240	---	---	2420	2880	2820	2840	3060	3020	3040
30	2100	2050	2060	---	---	2440	2880	2820	2850	3050	3040	3040
31	2130	2060	2090	---	---	---	2880	2820	2860	3050	3020	3040
MONTH	2320	1510	1860	2460	2130	2150	2880	2700	2710	3070	2660	2900

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3040	3010	3030	3050	3000	3020	3050	3010	3030			3120
2	3020	2970	2990	3020	2970	3000	3040	3020	3030			3100
3	3000	2960	2980	3000	2970	2990	3050	3000	3030			3110
4	3030	2990	3010	2990	2910	2960	3080	3020	3040			3070
5	3060	3020	3040	2990	2930	2980	3060	3020	3040			3080
6	3070	3040	3050	3000	2930	2970	3070	3030	3040			3060
7	3080	3030	3060	3000	2890	2950	3050	3010	3040			3070
8	3060	3020	3040	2950	2870	2920	3040	3010	3030			3100
9	3050	3020	3040	2930	2910	2920	3060	3000	3030			3110
10	3050	3010	3030	2950	2860	2930	3050	3030	3040			3140
11	3040	3000	3010	2950	2930	2940	3090	3030	3060			3150
12	3020	2990	3010	2950	2890	2930	3050	3030	3040			3130
13	3030	2980	3010	2950	2910	2930	3100	3050	3070			3140
14	3020	2990	3000	2940	2920	2930	3080	3050	3070			3150
15	3040	3000	3010	2940	2920	2930	3080	3050	3070			3140
16	3040	2990	3010	2960	2750	2930	3080	3050	3060			3100
17	3020	2990	3010	2960	2920	2950	3080	3040	3060			2990
18	3010	2980	3000	2950	2920	2940	3080	3040	3060			2910
19	3020	2990	3010	2960	2930	2950	3080	3040	3060			2840
20	3020	3000	3010	2960	2920	2940	3110	3040	3070			2850
21	3040	2990	3010	2960	2940	2950	3070	3040	3060			2870
22	3050	2980	3010	2990	2960	2980	3080	3050	3060			2900
23	3010	2960	2990	2990	2970	2990	3120	3080	3090			2910
24	3000	2960	2980	3010	2980	3000	3150	3090	3110			2920
25	2980	2900	2960	3020	2980	3000	3180	3110	3130			2930
26	2990	2930	2970	3010	2960	2980	3190	3110	3140			2910
27	3010	2990	3000	3000	2960	2990	3160	3120	3130			2920
28	3030	3000	3010	3000	2980	3000	3160	3120	3130			2900
29	3050	3000	3030	3020	2990	3000	3130	3120	3130			2880
30	---	---	---	3030	3010	3020	---	---	3140			2890
31	---	---	---	3070	3000	3040	---	---	---			2910
MONTH	3080	2900	3010	3070	2750	2970	3190	3000	3070			3010

RIO GRANDE BASIN

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	2920			2370			2020	---	---	2050
2	---	---	2930			2310			2030	---	---	2090
3	---	---	2910			2340			2040	---	---	1900
4	---	---	2890			2400			2060	---	---	1840
5	---	---	2840			2420			2070	---	---	1820
6	2810	2790	2800			2440			2050	1610	1440	1480
7	2810	2790	2800			2470			2040	1670	1500	1600
8	2800	2760	2780			2500			2020	1970	1670	1810
9	2810	2760	2780			2520			2000	2110	1980	2060
10	2810	2770	2780			2550			1990	2170	2100	2140
11	2770	2720	2740			2560			2010	2190	2110	2170
12	2750	2710	2730			2540			2000	2210	2130	2190
13	2740	2650	2710			2550			2020	2220	2140	2200
14	2660	2610	2640			2570			2000	2230	2010	2180
15	2660	2560	2630			2590			2010	2230	2080	2180
16	2640	2540	2600			2560			2030	2230	2130	2180
17	2580	2460	2510			2550			2000	2230	2130	2190
18	2550	2490	2520			2560			1960	2220	2130	2190
19	2630	2550	2590			2530			1940	2200	2110	2170
20	2640	2580	2620			2550			1970	2190	1970	2140
21	2650	2610	2630			2560			1990	2210	2120	2170
22	2680	2600	2650			2580			2010	2190	2120	2180
23	2680	2630	2660			2540			2040	2190	2130	2180
24	2690	2650	2670			2480			2000	2200	2170	2190
25	2680	2650	2670			2010			2010	2180	2120	2160
26	2690	2650	2670			2040			2030	2180	2130	2160
27	2680	2650	2670			2060			2050	2170	1290	1950
28	---	---	2630			2070			2060	1770	1120	1530
29	---	---	2540			2090			2090	1550	1110	1280
30	---	---	2500			2110			2120	1780	1560	1660
31	---	---	---			2070			2080	---	---	---
MONTH	2810	2460	2700			2400			2020	2230	1110	2000

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	22.0	20.0	21.0	---	---	---	4.0	2.5	3.5
2	---	---	---	22.0	20.5	21.5	---	---	---	6.0	4.5	5.5
3	---	---	---	22.0	21.0	21.5	---	---	---	8.0	6.0	7.0
4	---	---	---	22.0	21.0	21.5	---	---	---	9.0	8.0	8.5
5	---	---	---	22.0	22.0	22.0	---	---	---	10.0	9.0	9.5
6	---	---	---	---	---	---	---	---	---	11.5	10.5	11.0
7	---	---	---	---	---	---	---	---	---	12.5	12.0	12.0
8	---	---	---	---	---	---	---	---	---	12.5	12.5	12.5
9	---	---	---	---	---	---	---	---	---	13.0	12.5	12.5
10	---	---	---	---	---	---	---	---	---	12.5	11.0	11.5
11	---	---	---	---	---	---	---	---	---	11.0	10.0	10.5
12	23.5	22.5	23.0	---	---	---	---	---	---	10.5	9.0	9.5
13	22.0	20.5	21.5	---	---	---	---	---	---	9.5	8.5	9.0
14	20.5	20.0	20.5	---	---	---	12.5	12.0	12.5	9.5	8.5	9.0
15	---	---	---	---	---	---	12.5	11.5	12.0	9.5	8.0	9.0
16	---	---	---	---	---	---	12.0	10.5	11.0	8.5	8.0	8.0
17	---	---	---	---	---	---	10.5	9.5	10.0	8.0	7.5	8.0
18	---	---	---	---	---	---	10.0	8.0	9.0	7.5	6.5	7.0
19	---	---	---	---	---	---	8.0	6.5	7.0	6.5	5.5	6.0
20	---	---	---	---	---	---	7.0	5.5	6.5	5.5	5.0	5.5
21	---	---	---	---	---	---	6.0	5.5	6.0	5.0	4.0	4.5
22	---	---	---	---	---	---	5.5	4.5	5.0	4.0	4.0	4.0
23	---	---	---	---	---	---	5.0	4.5	5.0	5.5	4.5	5.0
24	---	---	---	---	---	---	4.5	2.5	3.5	7.5	5.5	7.0
25	---	---	---	---	---	---	2.5	2.0	2.0	9.5	8.0	9.0
26	---	---	---	---	---	---	2.5	1.5	2.0	11.0	9.5	10.5
27	21.5	20.5	21.0	---	---	---	2.5	1.5	2.0	12.0	11.0	11.5
28	20.5	19.5	20.0	---	---	---	3.5	2.5	3.5	12.0	11.5	12.0
29	20.5	19.0	19.5	---	---	---	3.5	3.0	3.0	13.0	12.0	12.5
30	21.0	19.5	20.0	---	---	---	3.5	2.5	3.0	13.5	12.0	12.5
31	21.5	20.0	20.5	---	---	---	3.0	2.5	3.0	12.0	11.5	12.0
MONTH	23.5	19.0	21.0	22.0	20.0	21.5	12.5	1.5	6.0	13.5	2.5	9.0

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---							---	---	---
2	---	---	---							---	---	---
3	---	---	---							---	---	---
4	---	---	---							---	---	---
5	---	---	---							28.0	27.0	27.5
6	27.0	25.5	26.0							27.5	25.0	26.5
7	28.5	25.5	27.0							28.0	25.0	26.5
8	28.5	26.0	27.0							28.5	25.5	27.0
9	28.5	26.0	27.5							28.5	26.0	27.0
10	28.0	26.5	27.0							28.0	26.0	27.0
11	27.5	25.5	26.0							28.0	25.5	26.5
12	27.5	25.0	26.0							27.5	25.5	26.5
13	27.0	25.0	26.0							28.0	25.5	26.5
14	26.5	24.5	25.5							28.0	26.0	27.0
15	27.0	25.0	26.0							27.0	25.5	26.0
16	28.0	25.5	26.5							26.5	24.5	25.5
17	28.5	26.0	27.0							27.5	24.5	26.0
18	28.5	26.0	27.0							27.0	25.0	26.0
19	29.0	26.0	27.0							26.5	24.5	25.5
20	28.5	26.0	27.0							27.0	24.5	25.5
21	29.0	26.0	27.5							27.0	24.5	26.0
22	29.5	26.5	28.0							27.0	25.0	26.0
23	30.0	26.5	28.5							27.0	25.0	26.0
24	30.5	27.5	29.0							28.0	25.5	26.5
25	31.0	27.5	29.5							26.5	24.0	25.0
26	31.0	28.0	29.5							24.0	21.5	23.0
27	31.0	28.0	29.5							23.0	19.0	22.0
28	---	---	---							19.5	18.5	19.5
29	---	---	---							19.0	18.0	18.5
30	---	---	---							20.5	18.5	19.5
31	---	---	---							---	---	---
MONTH	31.0	24.5	27.5							28.5	18.0	25.0

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 east of Comstock, and 25.5 mi upstream from mouth.

DRAINAGE AREA.--3,961 mi².

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 water 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, 513 micromhos Dec. 30, 1984; minimum daily, 105 micromhos Oct. 20, 1983.

WATER TEMPERATURES (1978-82): 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, 513 micromhos Dec. 30; minimum daily, 105 micromhos Oct. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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 KF AGAR (COLS. PER AS CAC03)	HARD- NESS (MG/L AS CAC03)
OCT												
11...	1530	189	360	7.7	25.0	1.3	10.2	127	.8	K3	26	180
DEC												
06...	1215	208	396	7.5	14.0	.40	11.4	112	1.7	K13	22	190
FEB												
07...	1135	193	415	7.9	11.0	1.0	10.4	97	.8	K3	K6	200
APR												
03...	1115	177	390	7.9	18.0	3.6	10.2	112	1.2	K4	K10	190
JUN												
05...	1105	155	360	7.5	24.0	1.4	10.1	126	1.4	32	32	170
AUG												
14...	1210	141	365	7.5	28.5	1.6	10.0	134	1.1	24	35	170

DATE	HARD- NESS, NONCAR- BONATE (MG/L CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
OCT											
11...	31	49	14	8.6	.3	1.4	150	9.0	14	.30	15
DEC											
06...	23	54	14	8.4	.3	1.3	170	9.2	13	.30	13
FEB											
07...	16	55	14	8.1	.3	1.3	180	9.1	15	.30	12
APR											
03...	17	50	15	8.8	.3	1.5	170	9.3	15	.30	13
JUN											
05...	15	45	15	8.8	.3	1.3	160	8.5	14	.30	15
AUG											
14...	15	45	15	8.8	.3	1.4	160	8.4	11	.30	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, DIS- CHARGE, SUS- PENDED (MG/L)	SED- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SIEVE DIAM. % FINER THAN .062 MM
OCT 11...	328	200	1.3	.060	.90	.060	<.010	.010	10	5.1	91
DEC 06...	202	220	1.6	<.010	.30	.010	.010	<.010	12	6.7	56
FEB 07...	196	220	1.6	.050	.40	<.010	<.010	.010	18	9.4	53
APR 03...	201	210	1.3	.040	.20	.010	<.010	.030	15	7.2	74
JUN 05...	213	200	1.1	.120	.80	.020	.010	.010	13	5.4	92
AUG 14...	193	200	.99	.050	--	<.010	<.010	<.010	24	9.1	93

RIO GRANDE BASIN

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08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 11...	1530	1	130	<.5	<1	<1	<3	1	7	3
FEB 07...	1135	1	110	<.5	1	<1	<3	<1	<3	<1
JUN 05...	1105	<1	270	2.0	<1	<1	<3	<1	<3	<1
AUG 14...	1210	<1	120	1.0	<1	2	<3	1	5	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 11...	12	<1	<.1	<10	<1	<1	<1	490	9	19
FEB 07...	15	2	<.1	<10	5	<1	<1	490	8	6
JUN 05...	13	<1	<.1	<10	<1	<1	<1	470	9	43
AUG 14...	5	1	<.1	<10	<1	<1	<1	460	8	9

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	20498	210	138	7660	9.5	525	5.8	318	120
NOV. 1983	6112	359	209	3450	15	241	9.2	151	180
DEC. 1983	6323	414	225	3850	16	272	10	174	190
JAN. 1984	6376	375	212	3640	15	256	9.4	162	180
FEB. 1984	5473	385	218	3210	15	226	9.6	143	190
MAR. 1984	5330	373	214	3080	15	216	9.4	136	180
APR. 1984	4789	383	217	2800	15	197	9.6	124	180
MAY 1984	4805	368	212	2750	15	193	9.3	121	180
JUNE 1984	4365	379	216	2540	15	178	9.5	112	180
JULY 1984	4002	396	221	2390	16	168	9.9	106	190
AUG. 1984	3827	392	220	2270	15	160	9.8	101	190
SEPT 1984	4038	405	224	2440	16	172	10	109	190
TOTAL	75938	**	**	40100	**	2800	**	1760	**
WTD.AVG.	207	337	195	**	14	**	8.6	**	170

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	355	367	353	359	---	---	370	486	480	482
2	---	---	350	368	349	360	---	---	370	485	467	478
3	---	---	353	371	344	359	---	---	370	485	472	477
4	---	---	349	368	347	357	---	---	371	491	476	484
5	---	---	345	365	295	334	---	---	371	492	480	486
6	---	---	350	326	289	308	---	---	371	492	476	484
7	---	---	355	361	322	350	375	366	371	497	484	491
8	---	---	347	374	361	366	381	372	376	500	240	430
9	---	---	340	371	343	358	381	363	374	293	275	285
10	---	---	345	372	346	357	387	361	377	302	289	295
11	353	350	352	375	362	368	392	371	383	309	296	303
12	358	336	351	373	361	367	395	380	389	307	297	303
13	362	350	355	376	339	359	396	384	390	316	304	311
14	382	350	357	377	333	356	404	385	395	318	293	312
15	360	352	354	375	342	359	407	393	402	323	311	318
16	360	353	356	376	351	367	413	398	404	331	319	327
17	367	350	354	373	361	367	416	401	410	337	329	332
18	360	346	353	377	356	368	423	407	418	343	333	338
19	357	331	350	380	355	367	429	423	427	342	337	340
20	318	105	164	378	365	370	435	428	431	347	342	344
21	203	133	168	376	366	371	438	432	435	353	346	350
22	258	207	237	378	358	369	445	436	440	356	351	354
23	---	---	285	375	358	367	448	444	446	359	340	354
24	---	---	350	373	353	365	454	448	452	361	352	358
25	---	---	413	378	359	370	478	452	463	363	341	353
26	460	406	431	---	---	368	465	458	463	365	353	361
27	474	347	401	---	---	365	470	456	465	367	347	358
28	363	350	355	---	---	367	471	460	468	368	347	359
29	363	351	357	---	---	369	481	469	474	372	359	368
30	366	354	360	---	---	370	513	473	485	376	364	370
31	369	350	359	---	---	---	486	479	483	383	354	374
MONTH	474	105	340	380	289	361	513	361	414	500	240	374

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	382	365	377	389	377	385	374	362	368	387	379	382
2	383	360	376	388	383	385	370	348	361	389	344	372
3	389	377	384	391	380	385	395	359	375	387	343	367
4	390	371	382	388	354	378	398	371	387	388	373	381
5	393	368	380	390	374	383	401	387	393	386	351	377
6	400	378	393	391	366	379	398	386	392	386	341	370
7	404	393	397	388	373	381	395	371	386	388	352	373
8	402	389	396	388	379	382	397	359	381	383	341	364
9	399	386	394	387	374	382	398	375	386	384	359	375
10	399	384	392	385	362	377	394	368	383	387	370	378
11	394	358	384	390	376	384	397	381	387	384	371	377
12	391	367	380	387	351	372	396	357	378	384	365	374
13	390	374	384	386	373	377	394	365	385	380	361	372
14	394	382	388	384	367	375	392	364	380	378	359	372
15	389	363	379	374	357	368	391	361	378	383	359	374
16	394	381	387	378	363	370	392	358	379	377	365	370
17	392	382	386	377	363	369	396	386	391	369	352	359
18	392	361	378	377	353	368	395	383	390	372	354	365
19	388	367	379	374	355	366	396	351	385	376	350	368
20	392	371	384	372	353	365	395	377	389	375	344	367
21	392	363	379	378	360	370	396	361	381	379	362	374
22	392	367	386	375	363	369	393	360	383	378	364	373
23	393	363	381	371	350	363	395	386	390	377	365	371
24	394	379	388	372	352	366	396	379	388	375	355	367
25	394	381	388	377	363	370	394	375	385	367	352	359
26	388	377	382	373	346	365	389	376	382	365	351	358
27	390	379	384	371	354	365	386	360	379	364	345	355
28	389	371	381	372	357	366	389	378	384	358	322	343
29	391	378	385	374	365	370	385	354	373	369	330	357
30	---	---	---	376	365	370	385	375	380	368	359	364
31	---	---	---	370	344	361	---	---	---	371	353	365
MONTH	404	358	385	391	344	373	401	348	383	389	322	368

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	360	349	354			385	---	---	378	427	398	406
2	359	352	355			388	---	---	375	421	396	402
3	360	348	354			395	---	---	377	431	370	399
4	365	348	356			397	---	---	378	417	385	400
5	365	351	359			400	---	---	376	438	396	407
6	---	---	357			395	---	---	373	454	400	412
7	---	---	365			399	---	---	375	463	396	409
8	---	---	368			403	---	---	379	454	389	409
9	---	---	373			406	---	---	381	456	387	405
10	---	---	375			408	---	---	375	423	389	400
11	---	---	378			410	---	---	376	448	388	402
12	---	---	382			411	---	---	378	454	387	403
13	---	---	384			410	---	---	371	447	388	402
14	---	---	379			413	---	---	365	432	392	400
15	---	---	376			416	441	364	398	455	389	408
16	---	---	380			412	414	395	406	456	396	415
17	---	---	383			404	444	399	411	454	397	415
18	---	---	385			405	445	400	411	472	357	411
19	---	---	390			410	440	401	409	478	350	421
20	---	---	394			413	445	400	407	468	395	412
21	---	---	391			415	441	393	408	479	403	428
22	---	---	393			418	444	398	406	477	398	417
23	---	---	395			413	442	400	407	437	398	413
24	---	---	396			405	452	400	408	470	390	412
25	---	---	398			355	442	396	408	478	389	414
26	---	---	400			365	404	393	399	458	381	411
27	---	---	402			369	440	395	409	443	397	419
28	---	---	392			372	450	396	409	439	309	389
29	---	---	387			374	455	394	406	437	311	372
30	---	---	381			375	458	297	392	480	326	404
31	---	---	---			378	422	373	393	---	---	---
MONTH	365	348	379			397	458	297	392	480	309	407

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	23.0	21.0	22.0	---	---	---	11.5	5.5	8.5
2	---	---	---	24.0	21.5	22.5	---	---	---	11.5	10.0	11.0
3	---	---	---	22.5	22.0	22.0	---	---	---	11.5	9.5	10.5
4	---	---	---	25.0	22.0	23.0	---	---	---	15.0	11.0	12.5
5	---	---	---	27.5	21.5	25.0	---	---	---	17.5	11.0	13.5
6	---	---	---	28.5	23.0	25.0	---	---	---	17.5	12.5	15.0
7	---	---	---	27.5	22.0	24.0	15.5	12.5	14.0	16.5	13.5	15.0
8	---	---	---	23.5	22.0	22.5	17.0	10.5	14.0	---	---	---
9	---	---	---	23.0	17.5	21.5	18.5	14.0	16.0	---	---	---
10	---	---	---	23.5	15.5	19.0	22.0	14.0	17.0	---	---	---
11	---	---	---	20.0	16.0	18.0	18.5	13.5	16.0	---	---	---
12	24.0	18.0	20.0	21.0	15.0	18.0	16.5	12.0	14.0	---	---	---
13	21.5	14.5	18.0	24.0	16.5	20.0	16.0	11.0	13.5	---	---	---
14	21.5	15.5	18.5	24.0	17.0	20.5	18.0	11.5	13.5	---	---	---
15	22.5	18.0	20.0	22.5	15.5	19.0	15.5	10.0	13.0	---	---	---
16	23.0	19.5	21.0	19.5	14.5	17.0	14.0	8.5	11.5	---	---	---
17	25.5	21.5	23.0	20.0	15.0	17.0	13.5	8.0	11.0	---	---	---
18	24.5	23.0	23.5	22.0	16.0	19.0	10.0	5.5	8.5	---	---	---
19	23.5	22.0	23.0	20.0	13.5	17.5	9.0	3.5	6.5	---	---	---
20	26.0	22.5	24.5	19.0	12.0	15.5	7.5	6.5	7.0	---	---	---
21	25.0	18.0	23.0	20.0	14.5	17.0	9.0	5.5	7.5	---	---	---
22	26.0	15.5	20.0	23.5	16.0	20.0	8.5	1.5	5.5	---	---	---
23	28.0	15.5	20.5	17.0	13.5	15.0	8.5	5.0	6.5	---	---	---
24	28.5	18.0	22.0	18.0	11.0	14.5	5.5	1.0	3.0	---	---	---
25	25.0	18.0	20.5	16.5	11.5	14.5	6.5	1.0	4.0	---	---	---
26	26.0	15.5	19.0	---	---	---	5.0	2.5	4.0	---	---	---
27	24.5	15.0	20.0	---	---	---	9.5	3.0	6.5	---	---	---
28	23.0	17.5	20.5	---	---	---	7.0	2.5	6.0	---	---	---
29	23.0	19.5	21.0	---	---	---	6.5	1.0	3.0	---	---	---
30	23.5	20.5	21.5	---	---	---	6.5	4.0	5.0	---	---	---
31	24.0	20.5	22.0	---	---	---	7.5	3.0	5.0	---	---	---
MONTH	28.5	14.5	21.0	28.5	11.0	19.5	22.0	1.0	9.5	17.5	5.5	12.5

RIO GRANDE BASIN

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	20.5	12.0	16.0	23.5	18.5	21.5	25.0	19.5	22.0
2	---	---	---	26.0	17.5	21.0	27.5	19.0	22.0	31.0	22.0	25.5
3	---	---	---	26.0	20.0	23.0	25.0	15.0	19.5	33.0	20.5	26.0
4	---	---	---	31.0	22.0	25.5	27.5	15.5	20.5	31.0	23.0	26.0
5	---	---	---	20.5	13.5	17.0	24.0	16.0	20.0	37.5	24.5	29.5
6	---	---	---	27.0	11.0	18.0	23.5	17.5	20.5	38.0	27.0	31.0
7	---	---	---	24.5	12.5	18.5	28.5	18.0	22.5	34.0	21.5	29.5
8	16.5	12.0	14.0	25.5	17.0	21.0	29.5	17.0	22.5	31.5	17.0	24.0
9	23.0	15.5	18.5	25.0	19.5	22.0	27.5	18.5	23.0	25.0	19.5	22.0
10	23.5	16.0	19.5	26.0	20.5	22.5	25.5	18.5	22.0	25.5	17.5	21.5
11	30.5	20.0	23.5	22.5	20.0	21.5	27.0	18.0	22.0	27.5	19.5	23.5
12	24.0	15.0	19.0	31.0	21.5	25.0	30.5	19.5	24.0	28.5	21.5	24.5
13	25.0	12.0	17.5	28.0	18.5	23.5	32.5	21.0	25.0	29.5	23.0	25.5
14	21.5	13.5	17.5	27.0	24.0	25.0	27.5	17.5	22.0	29.5	23.5	25.5
15	23.0	16.5	19.5	31.0	24.5	27.0	27.0	16.5	21.0	28.5	23.5	25.0
16	20.5	13.5	17.5	30.0	25.5	27.0	27.0	17.5	21.0	26.0	22.5	24.0
17	22.0	17.5	19.5	26.5	24.5	25.5	25.5	17.0	21.5	26.5	22.0	24.0
18	24.5	15.0	19.5	29.5	22.5	26.0	25.0	19.0	22.5	27.5	23.0	25.0
19	21.0	14.5	17.0	25.0	15.0	20.0	32.0	19.0	24.5	33.0	23.5	27.5
20	15.5	11.5	13.5	30.0	15.0	21.0	30.5	20.5	25.5	36.5	23.5	28.5
21	23.0	9.5	15.5	24.5	17.5	21.5	28.5	19.0	22.0	37.5	24.0	29.0
22	24.0	11.5	17.0	25.5	18.0	21.5	32.0	17.0	23.0	35.0	26.0	30.0
23	29.0	12.0	19.5	29.0	20.0	23.5	29.5	18.0	23.5	32.5	27.5	29.5
24	24.0	14.0	19.5	31.5	15.0	21.5	26.5	20.0	23.5	32.5	27.0	29.0
25	25.0	17.5	21.0	23.0	17.5	21.0	28.5	21.0	24.5	31.5	24.5	28.0
26	21.5	14.0	18.0	25.5	20.5	22.5	30.5	23.5	26.5	31.5	25.0	28.0
27	18.5	10.5	14.0	27.0	18.0	21.5	31.0	18.0	23.0	30.5	25.0	27.5
28	23.0	10.5	15.5	22.5	13.5	17.5	28.5	21.0	24.5	35.0	25.0	28.0
29	19.0	11.0	15.0	22.5	13.0	18.0	25.5	19.5	23.0	35.5	22.5	27.5
30	---	---	---	22.0	15.5	18.5	25.5	17.0	21.5	25.5	21.5	23.5
31	---	---	---	30.0	17.0	22.0	---	---	---	27.0	20.0	23.0
MONTH	30.5	9.5	18.0	31.5	11.0	22.0	32.5	15.0	22.5	38.0	17.0	26.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	27.5	20.0	23.5	---	---	---	---	---	---	---	---	---
2	29.0	21.0	25.0	---	---	---	---	---	---	---	---	---
3	25.5	22.5	24.0	---	---	---	---	---	---	---	---	---
4	28.5	23.0	25.5	---	---	---	---	---	---	---	---	---
5	31.0	24.0	26.5	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	31.0	20.0	25.0	---	---	---
15	---	---	---	---	---	---	33.5	20.5	29.0	---	---	---
16	---	---	---	---	---	---	31.5	20.0	27.0	---	---	---
17	---	---	---	---	---	---	32.5	21.0	27.0	---	---	---
18	---	---	---	---	---	---	33.5	20.5	27.5	---	---	---
19	---	---	---	---	---	---	32.5	20.0	27.5	---	---	---
20	---	---	---	---	---	---	34.0	20.0	28.5	---	---	---
21	---	---	---	---	---	---	33.5	21.0	28.5	---	---	---
22	---	---	---	---	---	---	33.0	20.0	27.0	---	---	---
23	---	---	---	---	---	---	34.0	21.5	29.0	---	---	---
24	---	---	---	---	---	---	34.0	20.0	27.0	---	---	---
25	---	---	---	---	---	---	33.5	23.0	29.0	---	---	---
26	---	---	---	---	---	---	33.0	21.0	28.0	---	---	---
27	---	---	---	---	---	---	33.5	21.5	28.5	---	---	---
28	---	---	---	---	---	---	33.0	21.0	28.0	---	---	---
29	---	---	---	---	---	---	33.0	21.5	28.0	---	---	---
30	---	---	---	---	---	---	35.0	27.5	29.5	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	31.0	20.0	25.0	---	---	---	35.0	20.0	28.0	---	---	---

RIO GRANDE BASIN

411

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 downstream from Amistad Dam and 10 mi northwest of Del Rio.

DRAINAGE AREA.--123,143 mi².

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 1984 are given in International Boundary and Water Commission Water Bulletins Nos. 53 and 54.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT									
20...	0725	1880	898	7.9	21.0	230	120	65	16
NOV									
16...	0800	727	1060	7.9	14.0	270	160	73	21
DEC									
21...	0800	396	1090	8.0	11.5	270	150	74	20
JAN									
18...	0820	448	1080	8.2	9.5	270	140	75	20
FEB									
17...	1555	374	1080	8.1	13.5	280	150	78	20
MAR									
21...	0805	2480	1080	8.0	15.0	270	140	75	20
APR									
23...	1325	516	1070	7.9	21.0	270	150	74	21
MAY									
16...	0737	8860	1070	8.0	19.0	270	140	74	21
JUN									
20...	0730	1850	1100	8.1	19.0	280	150	76	21
JUL									
18...	0733	3670	1100	8.1	19.5	290	150	80	22
AUG									
15...	0740	1830	1120	8.0	21.0	280	140	76	21
SEP									
19...	0735	1340	1110	7.8	24.5	280	150	77	21

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT								
20...	99	3	4.6	110	190	99	15	550
NOV								
16...	120	3	5.0	110	230	130	18	660
DEC								
21...	120	3	5.0	120	240	130	18	680
JAN								
18...	120	3	4.6	130	230	130	17	670
FEB								
17...	130	4	4.9	130	240	130	18	700
MAR								
21...	120	3	4.7	130	230	130	17	670
APR								
23...	120	3	4.6	120	230	130	17	670
MAY								
16...	120	3	4.9	130	230	130	17	670
JUN								
20...	130	4	4.6	130	240	130	18	700
JUL								
18...	130	3	5.0	140	230	130	18	700
AUG								
15...	130	4	5.0	140	240	130	18	700
SEP								
19...	130	4	4.9	130	240	130	19	700

RIO GRANDE BASIN

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 downstream from the highway bridge between Laredo and Nuevo Laredo, Tamaulipas, Mex., and 891.0 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--132,578 mi², United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 45.

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 RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to current year.

WATER TEMPERATURES: October 1974 to current year.

REMARKS.--Records of discharge for water year 1984 are given in International Boundary and Water Commission Water Bulletin Nos. 53 and 54.

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, 1,200 micromhos Apr. 29, May 1, 2; minimum daily, 451 micromhos Oct. 23, 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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)	
NOV 08...	1452	3710	785	8.1	23.0	180	7.6	89	2.9	K67000	
JAN 25...	1553	840	1020	8.4	10.0	8.4	12.0	106	4.2	K19000	
MAR 15...	0918	2080	1080	8.0	21.5	16	7.8	90	1.1	3300	
MAY 02...	1605	770	1100	8.1	26.5	11	8.0	102	3.0	100000	
JUL 18...	1746	3560	1080	8.2	29.0	24	7.9	105	1.6	K5800	
SEP 05...	1500	3960	960	8.0	28.0	250	6.4	83	2.4	K18000	
DATE	100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
NOV 08...	K17000	230	110	68	14	71	2	4.2	120	150	
JAN 25...	K18000	300	150	86	20	97	3	3.5	150	210	
MAR 15...	610	290	150	80	22	120	3	4.6	140	230	
MAY 02...	21000	310	190	82	24	130	3	5.1	120	280	
JUL 18...	K2880	270	150	75	20	120	3	4.8	120	230	
SEP 05...	4800	240	130	67	17	100	3	5.5	110	200	
DATE	AS CL)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
NOV 08...	73	.60	14	489	470	--	--	--	.76	--	
JAN 25...	110	.70	10	620	630	--	--	--	.55	--	
MAR 15...	120	.90	13	687	670	.39	.010	.40	.37	.050	
MAY 02...	150	1.0	14	762	760	--	--	--	<.10	--	
JUL 18...	130	1.0	16	682	670	--	--	--	.24	--	
SEP 05...	110	.90	15	595	580	--	--	--	.46	--	

RIO GRANDE BASIN

413

08459000 RIO GRANDE AT LAREDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHENOLS TOTAL (UG/L)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 08...	.130	--	1.7	.270	.030	.050	--	330	3310	99
JAN 25...	.100	--	.30	.050	.020	.010	--	14	32	95
MAR 15...	.100	.45	.50	.040	.010	.010	--	55	309	87
MAY 02...	.080	--	.70	.120	.070	.050	--	27	56	89
JUL 18...	.030	--	.40	.050	<.010	<.010	2	76	731	94
SEP 05...	.120	--	.90	.330	.020	.030	--	492	5260	99
DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 08...	1452	3	87	<.5	<1	<1	<3	2	9	<1
JAN 25...	1553	4	81	<.5	<1	<1	<3	1	7	<1
MAY 02...	1605	2	110	<.5	<1	<1	<3	1	<3	<1
JUL 18...	1746	3	100	<1.0	<1	<1	<3	2	6	<1
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 08...	41	<1	<.1	<10	2	<1	<1	1000	7	5
JAN 25...	46	4	<.1	<10	<1	<1	<1	1400	<6	8
MAY 02...	66	5	<.1	<10	2	<1	<1	1400	6	10
JUL 18...	60	2	<.1	<10	1	<1	<1	1400	<6	10

RIO GRANDE BASIN
08459000 RIO GRANDE AT LAREDO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	104780	878	543	154000	93	26400	180	50500	250
NOV. 1983	68270	901	557	103000	96	17700	180	33800	260
DEC. 1983	45146	943	583	71000	100	12300	190	23500	260
JAN. 1984	44306	1000	619	74100	110	13200	210	24900	270
FEB. 1984	49179	1020	631	83800	110	15200	210	28400	280
MAR. 1984	67100	1080	664	120000	120	22300	230	41400	280
APR. 1984	106510	1110	681	196000	130	36800	240	67800	280
MAY 1984	179424	1060	653	317000	120	58300	220	108400	280
JUNE 1984	44043	977	603	71700	110	12700	200	24000	270
JULY 1984	101780	1060	651	179000	120	32900	220	61200	280
AUG. 1984	96870	1110	681	178000	130	33500	240	61800	280
SEPT 1984	77240	1110	681	142000	130	26700	240	49200	280
TOTAL	984648	**	**	1689000	**	308000	**	575000	**
WTD.AVG.	2690	1030	635	**	120	**	220	**	270

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	1050	942	986	991	1040	1120	1200	921	1050	1060	1140
2	1110	1060	947	1060	970	1060	1120	1200	897	1020	1090	1120
3	1120	1070	935	1050	961	1070	1110	1190	983	1010	1100	1120
4	1110	1070	920	990	977	1090	1100	1180	906	990	1100	1120
5	1070	1070	771	1000	971	1090	1110	1170	919	1040	1090	1020
6	1080	1060	910	1010	978	1070	1110	1110	938	1050	1110	1050
7	1100	962	856	972	951	1060	1110	1090	905	1050	1110	1100
8	1100	586	885	994	994	1090	1110	1090	938	1060	1110	1110
9	1080	483	886	986	1010	1080	1100	1090	913	1080	1110	1080
10	1030	732	881	982	1030	1080	1100	1090	689	1070	1110	1090
11	865	847	905	1010	1030	1070	1090	1100	950	1060	1130	1100
12	686	854	916	1000	1040	1060	1100	1090	951	1070	1120	1110
13	738	886	914	1010	1050	1070	1100	1100	1010	1040	1130	1110
14	704	922	905	1010	1050	1070	1090	1110	997	1060	1120	1120
15	599	933	891	1020	1040	1080	1100	1080	988	1030	961	1110
16	715	965	959	1020	1050	1090	1100	1080	1010	1050	1110	1120
17	893	960	1020	1030	1050	1090	1110	1090	1010	1060	1120	1110
18	1000	918	933	1030	1060	1090	1100	1050	1020	1060	1120	1120
19	1040	883	938	1040	1070	1090	1080	1030	1010	1070	1120	1120
20	1070	899	932	1060	1070	831	1130	1020	1010	1090	1120	1120
21	1080	892	940	1020	1090	1080	1130	908	1010	1080	1110	1110
22	923	894	953	978	1100	1100	1150	935	1020	1080	1120	1110
23	451	928	971	992	1090	1100	1150	959	1020	1080	1110	1120
24	451	837	995	994	1110	1090	1160	1000	1040	1080	1120	1120
25	480	953	1010	995	1120	1100	1170	947	1030	1090	1130	1130
26	588	939	1010	990	1080	1110	1170	1020	1020	1080	1120	1110
27	690	945	1030	984	1030	1110	1180	1020	903	1090	1110	1130
28	836	944	1010	961	1000	1110	1190	1010	1020	1070	1120	1120
29	952	946	990	959	1000	1110	1200	1010	1040	1060	1120	1120
30	1030	926	980	978	---	1110	1190	1010	1040	1020	1120	1120
31	1050	---	949	979	---	1120	---	1000	---	972	1120	---
MEAN	896	914	938	1000	1030	1080	1130	1060	970	1060	1110	1110

RIO GRANDE BASIN

415

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, 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 1984 are given in International Boundary and Water Commission Water Bulletins Nos. 53 and 54.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT									
25...	1545	425	1180	8.0	25.0	290	190	76	25
NOV									
22...	0930	512	1150	7.8	23.0	290	190	76	24
DEC									
20...	0945	18	1190	7.8	16.5	280	180	73	24
JAN									
19...	1000	5500	1160	8.0	14.0	280	170	76	23
FEB									
15...	1100	18	1120	7.9	11.0	290	180	75	24
MAR									
19...	0945	1080	1140	7.8	18.0	290	180	77	23
APR									
16...	1115	12300	1150	7.8	22.0	290	180	78	24
MAY									
21...	1315	1320	1150	7.8	24.5	290	180	75	24
JUN									
19...	1030	3050	1120	7.9	27.0	280	180	74	23
JUL									
17...	1030	1340	1130	8.0	26.5	290	180	77	23
AUG									
20...	1100	2600	1140	7.8	26.5	270	170	68	24
SEP									
25...	1045	687	1140	7.6	25.5	260	170	66	24

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								
25...	140	4	5.5	100	280	140	13	740
NOV								
22...	130	3	5.4	98	280	140	13	730
DEC								
20...	130	3	5.9	100	280	150	12	730
JAN								
19...	130	3	5.0	110	270	140	12	720
FEB								
15...	130	3	5.2	110	270	130	12	710
MAR								
19...	130	3	4.7	110	270	140	11	720
APR								
16...	130	3	4.8	110	280	140	11	730
MAY								
21...	130	3	5.0	110	270	140	11	720
JUN								
19...	130	4	4.7	100	270	140	12	710
JUL								
17...	130	3	5.3	110	260	140	12	710
AUG								
20...	140	4	5.3	97	270	130	13	710
SEP								
25...	140	4	5.3	95	270	150	14	730

RIO GRANDE BASIN

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 downstream from Rio Grande City, 3.9 mi downstream from mouth of Rio San Juan, and 1,014.3 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--174,362 mi², 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 1984 are given in International Boundary and Water Commission Water Bulletins Nos. 53 and 54.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT									
17...	1400	1270	1250	7.8	25.0	300	190	80	25
NOV									
14...	1400	1030	907	7.6	26.5	250	140	70	18
DEC									
19...	1145	2310	1230	7.6	11.0	290	190	75	25
JAN									
16...	1315	6170	1170	8.0	18.5	290	180	76	24
FEB									
13...	1315	944	956	7.9	20.0	250	130	72	18
MAR									
20...	1308	2050	1180	7.8	20.5	300	190	80	24
APR									
18...	1200	12000	1160	7.6	23.5	290	180	78	24
MAY									
15...	1330	5230	1190	7.8	24.5	290	170	75	24
JUN									
12...	1115	3610	1160	7.7	29.0	280	170	74	23
JUL									
17...	1200	2630	1210	7.8	30.5	280	180	74	24
AUG									
14...	1130	3720	1130	7.8	29.0	260	160	66	23
SEP									
17...	1230	636	1390	7.7	20.0	290	190	75	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 CONSTITUENTS, DIS- SOLVED (MG/L)
OCT								
17...	150	4	5.5	110	310	160	13	810
NOV								
14...	96	3	4.2	110	200	110	9.1	570
DEC								
19...	140	4	5.8	100	290	160	11	770
JAN								
16...	130	3	5.1	110	280	140	12	730
FEB								
13...	100	3	4.5	120	200	120	7.4	590
MAR								
20...	130	3	4.8	110	290	140	10	740
APR								
18...	130	3	5.1	110	280	140	11	730
MAY								
15...	140	4	5.4	120	270	150	11	750
JUN								
12...	140	4	5.0	110	280	140	12	740
JUL								
17...	140	4	5.4	100	270	160	13	750
AUG								
14...	140	4	5.4	95	270	130	11	700
SEP								
17...	180	5	5.3	100	320	200	14	880

RIO GRANDE BASIN

417

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.

PERIOD OF RECORD.--Chemical analyses: June 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT									
18...	1245	800	1410	7.8	25.0	350	230	92	28
NOV									
14...	1530	1060	1180	7.6	25.0	310	190	85	23
DEC									
19...	1245	1750	1240	7.8	12.0	310	200	82	25
JAN									
16...	1415	6330	1190	7.9	19.0	290	180	77	24
FEB									
13...	1400	818	1180	8.0	20.5	310	170	88	23
MAR									
20...	1350	1460	1300	7.8	23.0	320	200	85	25
APR									
18...	1245	12100	1170	7.6	23.5	300	180	82	24
MAY									
15...	1400	8700	1210	7.8	25.0	300	180	79	24
JUN									
12...	1415	5820	1180	7.7	29.0	290	180	76	24
JUL									
17...	1300	2260	1240	7.9	30.0	320	200	85	26
AUG									
14...	1230	4080	1170	7.9	30.0	260	160	65	24
SEP									
17...	1320	345	1750	7.8	19.0	380	250	97	33

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 CONSTITUENTS, DIS- SOLVED (MG/L)
OCT								
18...	170	4	5.6	120	320	190	14	890
NOV								
14...	130	3	4.7	120	240	170	11	740
DEC								
19...	140	4	5.5	110	280	170	11	780
JAN								
16...	130	3	5.0	110	280	140	12	730
FEB								
13...	140	4	4.3	140	230	170	8.4	750
MAR								
20...	150	4	4.7	120	300	170	10	820
APR								
18...	130	3	5.3	120	280	140	11	740
MAY								
15...	140	4	5.2	120	280	150	12	760
JUN								
12...	140	4	4.9	110	280	150	13	750
JUL								
17...	150	4	5.5	120	280	160	13	790
AUG								
14...	140	4	5.4	97	280	140	11	720
SEP								
17...	230	5	6.1	130	380	270	16	1100

RIO GRANDE BASIN

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 downstream from Anzalduas Dam, 12.2 mi from Hidalgo, and 1,077.1 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--176,112 mi², 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 1983 are given in International Boundary and Water Commission Water Bulletins Nos. 52 and 53. 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, 3,310 micromhos Feb. 12, 1984; minimum daily, 392 micromhos Feb. 27, 1983.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,310 micromhos Feb. 12; minimum daily, 618 micromhos Oct. 28.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD 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...	0930	500	1220	7.7	24.5	300	180	84	22
NOV									
22...	0820	530	1260	7.7	24.0	340	210	93	25
DEC									
23...	1130	550	1330	7.9	11.0	320	210	84	26
JAN									
17...	1145	1650	1180	8.0	12.0	290	180	77	24
FEB									
14...	0900	100	2100	8.0	19.0	440	280	120	35
MAR									
20...	0905	800	1540	7.8	22.0	380	250	100	31
APR									
18...	1530	3650	1200	7.6	24.5	300	180	81	24
MAY									
15...	0930	6500	1260	7.9	25.0	300	180	80	24
JUN									
14...	0840	3000	1260	7.6	27.0	290	180	76	25
JUL									
20...	0815	1050	1410	7.8	27.0	310	200	79	27
AUG									
15...	1310	1500	1260	7.9	28.5	270	180	68	25
SEP									
19...	0815	150	1490	7.7	25.5	330	210	87	28

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LILITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT								
21...	140	4	5.7	120	230	170	12	740
NOV								
22...	140	3	4.9	130	260	180	11	790
DEC								
23...	150	4	5.9	110	310	170	11	820
JAN								
17...	140	4	5.1	110	290	150	12	760
FEB								
14...	280	6	5.3	160	400	370	11	1300
MAR								
20...	190	4	5.1	130	340	230	10	980
APR								
18...	140	4	4.9	120	290	150	11	770
MAY								
15...	150	4	5.0	120	290	160	12	790
JUN								
14...	150	4	5.3	110	290	170	13	800
JUL								
20...	170	4	5.7	110	320	200	14	880
AUG								
15...	160	4	5.4	97	290	170	11	790
SEP								
19...	180	4	5.9	120	300	230	15	920

RIO GRANDE BASIN

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08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1983 TO SEPTEMBER 1984

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. 1983	30413	1270	784	64300	170	14100	270	21900	310
NOV. 1983	27561	1310	804	59900	170	13000	270	20400	310
DEC. 1983	31107	1370	845	71000	190	15600	290	24100	330
JAN. 1984	35483	1270	783	75000	170	16100	270	25800	310
FEB. 1984	11097	1850	1160	34700	300	8870	360	10900	440
MAR. 1984	27897	1500	927	69900	210	15900	310	23300	360
APR. 1984	91940	1230	753	187000	160	39400	260	64600	300
MAY 1984	88024	1300	799	190000	170	41200	270	64800	310
JUNE 1984	72530	1330	820	161000	180	34900	280	54700	320
JULY 1984	52970	1270	782	112000	170	23900	270	38400	310
AUG. 1984	39920	1230	756	81500	160	17200	260	28100	300
SEPT 1984	16315	1460	904	39800	210	9080	300	13300	350
TOTAL	525257	**	**	1145000	**	249000	**	390000	**
WTD.AVG.	1435	1310	807	**	180	**	280	**	320

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	909	1370	1370	1230	1770	1700	1390	1210	1600	1350	1300	1360
2	858	1320	1370	1240	1760	1680	1380	1220	1460	1320	1350	1390
3	873	1300	1400	1340	1810	1540	1390	1210	1430	1300	1360	1370
4	1230	1290	1480	1360	1800	1380	1320	1210	1420	1230	1390	1300
5	1850	1280	1350	1350	1800	1400	1250	1220	1440	1200	1230	1300
6	1630	1250	1260	1360	1970	1450	1310	1220	1390	1210	1200	1300
7	1880	1820	1340	1310	2370	1670	1250	1220	1320	1200	1190	1280
8	1550	1110	1330	1310	2640	1680	1210	1210	1200	1220	1190	1270
9	1480	1290	1280	1280	3140	1600	1210	1220	1250	1290	1200	1270
10	1440	1220	1270	1220	3170	1460	1200	1250	1290	1300	1190	1270
11	1370	1290	1280	1200	3170	1380	1210	1230	1290	1280	1180	1280
12	1220	1010	1250	1210	3310	1340	1200	1240	1280	1250	1190	1290
13	1250	1210	1230	1230	2850	1350	1200	1240	1270	1190	1180	1280
14	912	1130	1310	1270	2070	1240	1190	1230	1260	1190	1170	1260
15	1010	1120	1390	1190	1830	1450	1210	1250	1360	1220	1170	1280
16	1220	1160	1360	1200	1720	1590	1200	1280	1350	1200	1270	1330
17	1180	1160	1350	1170	1600	1740	1200	1390	1330	1220	1270	1360
18	959	1160	1350	1170	1500	1800	1200	1310	1310	1240	1260	1480
19	1540	1160	1360	1180	1480	1740	1200	1370	1270	1270	1210	1500
20	1450	1200	1330	1200	1420	1580	1200	1420	1270	1430	1180	1510
21	1200	1270	1300	1240	1440	1490	1230	1200	1270	1330	1200	1550
22	1500	1270	1280	1240	1450	1430	1220	1250	1330	1300	1180	1730
23	1290	1230	1300	1250	1500	1390	1220	1280	1340	1290	1200	1950
24	1050	1240	1270	1240	1540	1390	1220	1400	1570	1280	1190	2230
25	761	1210	1270	1250	1540	1390	1220	1750	1560	1320	1200	2260
26	717	1380	1300	1440	1570	1420	1220	1880	1280	1370	1270	2110
27	623	1450	1320	1350	1610	1440	1210	2180	1260	1540	1220	2010
28	618	1370	1680	1500	1550	1470	1230	2240	1320	1390	1260	1870
29	844	1440	1790	1550	1680	1500	1210	2170	1300	1370	1220	1940
30	1720	1410	1460	1670	---	1510	1220	2220	1310	1300	1240	1930
31	1430	---	1240	1800	---	1500	---	1850	---	1290	1350	---
MEAN	1210	1270	1350	1310	1970	1510	1240	1440	1340	1290	1230	1540

RIO GRANDE BASIN

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 downstream from El Jardin pumping plant, 6.8 mi below International Bridge between Brownsville and Matamoros, Tamps., Mex., and 48.8 mi above the Gulf of Mexico.

DRAINAGE AREA.--176,333 mi².

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. Sediment analyses: October 1970 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1967 to September 1983.

WATER TEMPERATURES: October 1966 to September 1983.

SUSPENDED-SEDIMENT DISCHARGE: February 1966 to September 1983.

REMARKS.--Records of discharge furnished by International Boundary and Water Commission.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,130 micromhos May 29, 1972; minimum daily, 337 micromhos Sept. 3, 1967.

WATER TEMPERATURES (1966-69, 1970-75, 1977-83): Maximum daily, 35.0°C on several days during summer months of 1982 and 1983; minimum daily, 8.0°C Jan. 10, 1967.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 6,000 mg/L Feb. 28, 1983; minimum daily mean, 4 mg/L Apr. 26, 1970, Aug. 16, 18, 24, 27, 1977.

SEDIMENT LOADS: Maximum daily, 181,000 tons Feb. 28, 1983; minimum daily, 0.12 tons Aug. 26, 1983.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED 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 09...	1425	991	1590	8.4	24.5	43	9.0	107	3.1	K8400	K2600	360
JAN 24...	1555	187	1310	8.0	9.5	7.1	12.0	104	1.4	K300	200	320
MAY 03...	1435	30	1260	8.3	30.0	26	10.6	142	1.9	K48	K13	310
JUL 16...	1540	569	1300	8.5	29.5	26	7.8	103	2.4	K170	K77	310

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
NOV 09...	220	96	28	170	4	5.8	133	300	210	.80	9.7
JAN 24...	200	84	26	140	4	5.2	121	290	160	.80	11
MAY 03...	190	82	25	140	4	5.4	116	300	160	.90	11
JUL 16...	210	80	26	160	4	5.6	103	290	180	1.0	12
DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINE R THAN .062 MM
NOV 09...	953	900	.13	.060	1.1	.080	<.010	.030	64	171	84
JAN 24...	796	790	.17	.080	.50	.040	.010	.010	13	6.6	99
MAY 03...	810	800	.18	<.010	.90	.070	.020	.010	48	3.9	96
JUL 16...	824	820	<.10	.040	.60	.060	<.010	<.010	27	42	95

RIO GRANDE BASIN

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08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 09...	1425	3	120	<.5	<1	<1	<3	1	6	<1
JAN 24...	1555	3	93	<.5	<1	<1	<3	1	5	2
MAY 03...	1435	3	110	<.5	<1	<1	<3	1	4	<1
JUL 16...	1540	3	110	<1.0	1	<1	<3	1	6	4
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 09...	70	<1	<.1	10	3	<1	4	1700	<6	7
JAN 24...	58	18	<.1	<10	2	<1	<1	1500	<6	10
MAY 03...	63	2	<.1	<10	4	<1	<1	1400	<6	7
JUL 16...	63	<1	<.1	<10	<1	<1	<1	1600	<6	29

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Because the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than continuous stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage of those events. The data collected for special reasons are called measurements at miscellaneous sites.

Streamflow data collected at partial-record stations where water-quality data other than observations of water temperature are not obtained are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations; the second is a table of annual maximum stage and (or) discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low and high flows are given in a third table. Discharge measurements and water-quality data collected at partial-record stations are presented in downstream order in the section of this report entitled "Gaging-station records."

Low-flow partial-record stations

Measurements of streamflow at low-flow partial-record stations that are not published in the gaging-station section are given in the following table. Most of the measurements of low flow were made during periods when streamflow was sustained primarily by ground-water discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will indicate the low-flow potential of the stream. The years listed in the column headed "Period of record" identifies the water years in which measurements were made at the same or at practically the same site.

Discharge measurements made at low-flow partial-record station during water year 1984

Discharge measurements made at low-flow partial-record station during water year 1984						
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†, 1959-84	10-18-83 11-30-83 1-25-84 2-29-84 3-27-84 5- 1-84 6-14-84 7-24-84 9-13-84	9.58 9.76 10.2 10.3 9.33 8.78 8.58 7.61 8.15
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 (discontinued).	(a)	1963-84	10-17-83	1.43
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, 1958-84	1-24-84 7-27-84	14.1 8.72
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, 1959-84	1-18-84 7- 2-84 7-26-84	8.20 7.21 7.01
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, 1959-84	1-24-84 7-27-84	16.5 13.2
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, 1959-84	1-24-84 7-27-84	14.1 13.2
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.	--	1979-84	11-14-83 4-30-84 6-11-84 7-23-84 9- 4-84	11.3 5.77 5.99 1.53 2.48
08155370	Skunk Hollow Creek below pond 1 at Austin, Tex.	Lat 30°15'33", long 97°48'17", Travis County, on outlet control structure to pond 1 at Barton Creek Square Mall, 0.2 mi north of intersection of Tamarron Boulevard, and State Highway 1, and 4.0 mi west southwest of State Capitol in Austin.	0.13	1982-84	7-25-84 7-26-84 8-15-84	.23 .07 .36
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	1919-84	2-22-84 6-29-84 8-22-84 9-19-84	0 0 0 0

† Operated as a continuous-record station.

a Not applicable.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Discharge measurements made at low-flow partial-record stations during water year 1984--Continued

Discharge measurements made at low-flow partial-record stations during water year 1984--Continued					Measurements	
Station no.	Station name	Location	Drainage area (sq mi)	Period of record	Date	Discharge (ft ³ /s)
Guadalupe River basin						
08168000	Hueco Springs 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)	1944-84	10-17-83 12- 1-83 1-24-84 2-29-84 4-17-84 5-31-84 7-13-84 8-23-84	8.0 4.6 2.0 1.1 .83 .19 0 0
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.	-	1962-84	1-31-84 6-11-84	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.	-	1962-84	1-31-84 6-11-84	0 0
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 south-east of Uvalde.	(a)	1935-65†, 1966-84	10-19-83 11-29-83 1-18-84 2-29-84 4-24-84 6-12-84 8- 8-84 9-17-84	15.0 18.0 19.0 11.0 2.6 0 0 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†, 1967-84	10-27-83 12- 1-83 2-15-84 4-11-84 5-31-84 7-11-84 8-22-84	.83 .84 .54 .67 .77 21.2 16.0
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†, 1941-84	2-15-84 7-11-84	3.10 4.59
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†, 1966-84	10-27-83 12- 1-83 2-15-84 2-15-84 4-11-84 5-31-84 7-11-84 8-22-84	23.3 24.5 31.1 29.0 27.8 27.3 39.1 33.4
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 (discontinued).	(a)	1899-1935, 1936-64†, 1965-84	2-13-84 7- 9-84	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, 1904-06, 1910, 1912, 1925, 1928, 1951-84	10-11-83 11- 8-83 12-15-83 1-11-84 2-14-84 3-12-84 4-10-84 5- 8-84 6-12-84 7-10-84 8-14-84 9-11-84	37.0 34.0 36.0 24.0 17.0 14.0 14.0 8.3 9.8 5.1 9.3 5.1

† Operated as a continuous-record station.

a Not applicable.

c Records were furnished by the International Boundary and Water Commission.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Crest-stage partial-record stations

The following table contains annual maximum stage and (or) discharge at partial-record stations operated primarily for the purpose of defining the flooding characteristics of the streams. At stations where discharge is given, or is footnoted "to be determined", a stage-discharge relation has been, or will be, defined by discharge measurements obtained by current meter or by indirect procedures. Water-stage recorders are located at these flood-hydrograph stations to facilitate complete hydrograph definition. At stations where only the maximum stage is given (discharge column is dashed), data are generally collected for use in stage-frequency studies of flood-profile definition. Gages at these stations usually consist of a device that will register the peak stage occurring between inspections of the gage. The years used in the column "Period of record" identify the years in which the annual maximum has been determined.

Annual maximum stage and (or) discharge during water year 1984							
Station no.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft /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†, 1971-84	6- 6-84	5.97	1,600
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	1975-84	10-11-83	2.50	152
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	1975-84	7-24-84	5.39	281
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	1975-84	- -	a<4.80 b<2.30	(c) (c)
08158380	Little Walnut Creek at Georgian Drive, Austin, Tex.	Lat 30°21'15", long 97°41'52", Travis County, on left upstream side of bridge on Georgian Drive in Austin.	-	1983-84	7-24-84	6.91	721
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	1976-84	11- 5-83	6.05	797
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	1975-84	11- 5-83	6.70	1,320
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	1980-84	-	<4.05	(c)
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	1980-84	-	<3.50	(c)
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†, 1974-84	2- 9-84	10.00	-
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.	-	1977-84	6- 6-84	17.61	-
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	1980-84	10- 9-83	5.80	-
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.	-	1973-84	8-15-84	d633.59	-

† Operated as a continuous-record station.

a Period October 1 to March 13.

b Period March 13 to September 30.

c Not determined.

d Elevation, in feet, above National Geodetic Vertical Datum of 1929.

< Less than.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

425

Annual maximum stage and (or) discharge during water year 1984--Continued							
Station no.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft /s)
Guadalupe River basin--Continued							
08177920	San Antonio River at Dolorosa Street, San Antonio, Tex.	Lat 29°25'24", long 98°29'32", Bexar County, just downstream from Dolorosa Street in San Antonio.	-	1980-84	12- 3-83	20.95	-
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.	-	1973-84	8-15-84	d640.50	-
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.	-	1973-84	8-15-84	d680.57	-
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.	-	1973-84	1984	d<634.70	-
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.	-	1973-84	5-19-84	d627.66	-
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.	-	1973-84	8-15-84	d603.86	-
08178550	San Antonio River at Ashley Street (Berg's Mill), San Antonio, Tex.	Lat 29°20'04", long 98°27'20", Bexar County, at bridge on Ashley Street in San Antonio.	-	1973-84	5-19-84	d511.79	-
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	1976-84	9- 3-84	3.06	13
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	1975-84	1984	<3.10	-
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	1979-84	6-18-84	419.32	-
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.	-	1973-84	1984	<341.17	-
08211500	Nueces River at Calallen, Tex.	Lat 27°52'34", long 97°37'32", Nueces County, at the Cunningham pumping station in Corpus Christi, and 0.4 mi upstream from Calallen dam.	16,920	e1915-50, 1983-84	1-29-84	4.87	65
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, 1984	1984	<1.74	-

d Elevation, in feet, above National Geodetic Vertical Datum of 1929.

e Gage heights only during 1918-50.

< Less than.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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 1984						
Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
Guadalupe River basin						
San Antonio Springs	San Antonio River	Lat 29°27'56", long 98°28'04", Bexar County, just below Hildebrandt Street in San Antonio, Tex.	-	1951-52, 1959-62, 1972, 1974-77, 1979-84	12- 1-83 7- 6-84	0 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, 1979-84	12- 1-83 7- 6-84	1.3 0
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, 1965-84	10-18-83 11-17-83 12-15-83 1-11-84 2-14-84 3-13-84 4-10-84 5- 8-84 6-12-84 7-10-84 8-14-84 9-11-84	19.0 22.0 20.0 23.0 22.0 20.0 21.0 18.0 17.0 12.0 14.0 12.0
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, 1965-84	10-18-83 11-17-83 12-15-83 4-10-84 5- 8-84 6-12-84 7-10-84 8-14-84 9-11-84	0 1.8 1.7 1.3 0 0 0 0 0

1/ Measurements by International Boundary and Water Commission.

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
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)
<i>Area</i>		
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)
<i>Volume</i>		
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)
<i>Flow</i>		
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)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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